

EVIDENTIARY HEARING
BEFORE THE
CALIFORNIA ENERGY RESOURCES CONSERVATION
AND DEVELOPMENT COMMISSION

In the Matter of:)
)
Application for Certification) Docket No.
for the Morro Bay Power Plant) 00-AFC-12
Project)
_____)

DUKE ENERGY MORRO BAY POWER PLANT
1290 EMBARCADERO STREET
MORRO BAY, CALIFORNIA

TUESDAY, NOVEMBER 5, 2002

9:02 a.m.

Reported by:
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Contract No. 170-01-001

PETERS SHORTHAND REPORTING CORPORATION
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COMMITTEE MEMBERS PRESENT

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James D. Boyd, Associate Member

HEARING OFFICER AND ADVISORS PRESENT

Gary Fay, Hearing Officer

STAFF AND CONSULTANTS PRESENT

Caryn Holmes, Staff Counsel

Marc Pryor, Project Manager

Richard Anderson

Richard F. Ambrose, Professor and Director
University of California Los Angeles

Michael S. Foster, Professor
Moss Landing Marine Laboratories
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PUBLIC ADVISER

Marc Pryor, Acting Public Adviser

APPLICANT

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Ellison, Schneider and Harris

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Stephen L. Friant, Senior Management Consultant
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APPLICANT

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Margaret Rosegay, Attorney
Pillsbury Winthrop, LLP

INTERVENORS

Robert Schultz, City Attorney
City of Morro Bay

Henriette Groot, President
Babak Naficy, Staff Attorney
Environmental Defense Center
Coastal Alliance on Plant Expansion

Peter Henderson, Director
Pisces Conservation, Ltd.

Stephen Pryor

ALSO PRESENT

Michael Thomas
Central Coast Regional Water Quality Control Board

Bryant Chesney
NOAA Fisheries, National Marine Fisheries Service

Don Boatman
Coastal Alliance on Plant Expansion

Robert Freiler

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9:02 a.m.

HEARING OFFICER FAY: Good morning. We are on the record. We continue today with the evidentiary hearing on Duke Energy's application for certification. The topic is the Duke proposal for a habitat enhancement program.

I'd like to repeat the announcements I made yesterday morning. There's a sign-up sheet outside the door, and we ask people to please put their name and their security badge number on that. I understand it's for our own protection.

And in the event of an emergency evacuation I assume we are to go to the same location, which is the parking lot out towards the Embarcadero Road to the west of us.

And if, for any reason, somebody encounters an emergency while they're on the facility, if you dial 5533 that will report that to, I guess, the central security desk.

So, our host asked us to make that announcement.

Before we get started I'll just ask if there are any preliminary matters. I see no indication.

1 The NPDES permit application that was
2 filed by Duke does seek approval of a facility
3 that utilizes once-through cooling. The Regional
4 Board does not have authority under the Porter-
5 Cologne Water Quality Control Act to require that
6 Duke use an alternative form of cooling. All it
7 can do is deny the application as submitted.

8 Similarly, under the Water Code, the
9 Regional Board is prohibited from specifying a
10 particular method by which Duke would comply with
11 effluent limitations and other conditions set
12 forth in the NPDES permit.

13 I know this sounds like a lot of
14 negatives, but once I get all the negatives out of
15 the way I'll explain to you how it all fits
16 together.

17 There's also nothing in 316(b) itself
18 which authorizes the permitting agency to impose a
19 particular method of cooling. And last, there's
20 nothing in the Water Code that authorizes the
21 Regional Board to actually affirmatively impose a
22 habitat enhancement program or other form of
23 mitigation upon Duke.

24 So you're left with the question, with
25 all of these "they can't do this" "they can't do

1 that", you know, how is it that we come to the
2 position that this habitat enhancement program
3 will, in fact, be legally enforceable.

4 The mechanism that is used to accomplish
5 that result is simply the incorporation of the
6 habitat enhancement program as agreed upon by Duke
7 and the Regional Board, so that once all of the
8 terms and conditions of the HEP have been agreed
9 to, the HEP is then incorporated by reference into
10 the NPDES permit and made a condition of the
11 permit.

12 And once it's embedded in the permit, it
13 does become fully enforceable and failure to
14 comply with all the terms and conditions of the
15 permit would be a violation of law.

16 So, it becomes enforceable by virtue of
17 its incorporation into the permit, although it is,
18 in its origins, a voluntary program.

19 HEARING OFFICER FAY: All right, thank
20 you. Appreciate that. And this perhaps is a
21 question for Mr. Johnson, but could you explain
22 Duke's approach or rationale on the funding
23 schedule.

24 The Water Board wants the money upfront,
25 I assume to start projects as soon as possible.

1 Duke wants to spread out the cost.

2 Now, you know, most of us, for instance,
3 buy a car over time, because it's less painful.
4 And I can understand Duke wants a less painful
5 approach. But is there any deeper goal there, or
6 other goal?

7 MR. JOHNSON: It really wasn't designed
8 as financing tool or a funding program. It was
9 really designed to tie the funding to the start of
10 impacts. And substantially 75 percent, I think,
11 of the base funding, as we showed yesterday, would
12 be paid by the time commercial operations started,
13 by the time impacts were incurred.

14 And there is some discretion with the
15 NGO as to how they sequences the projects.

16 I think in the case of the Regional
17 Board's proposal, one of the concerns or issues we
18 would have on that funding proposal is I think the
19 proposal is something to the effect that within 30
20 days of permit issuance the funding is to be paid.

21 And, of course, we would want to insure
22 we had a permit that had run through the appeal
23 periods, and we knew we had a valid permit before
24 we funded.

25 So there's some timing issues there that

1 we would be willing to work with the Regional
2 Board on.

3 PRESIDING MEMBER KEESE: Let me clarify
4 that. So the time limit that the payment times
5 would be also incorporated into your permit?

6 MR. JOHNSON: I believe that, yeah, that
7 that would be a condition of the Regional Board
8 permit.

9 PRESIDING MEMBER KEESE: Thank you.

10 HEARING OFFICER FAY: And some biology
11 questions. First of all, it's my understanding --
12 we had a lot of questions yesterday from CAPE
13 about the details of some of the specific
14 representative projects.

15 But as I reviewed your testimony my
16 impression was that while you were proposing these
17 to show a justification for the proposed funding
18 and workability of the mechanism of a HEP, that
19 really Duke didn't have particular concern as to
20 whether particular projects went forward. And was
21 willing to pay the money and delegate that kind of
22 decision to the NGO, is that correct?

23 MR. JOHNSON: Yes, that's correct.

24 HEARING OFFICER FAY: Okay. So, your
25 defense of a particular representative program was

1 just to show that it was a decent example?

2 MR. JOHNSON: Yeah, and I think our
3 approach was to characterize these as
4 representative projects. You'll recall that the
5 six projects, three of them were in-Bay and three
6 of them were watershed.

7 The watershed projects are similar to
8 the projects proposed by the Regional Board. But
9 when you look at the impacts to the Bay, treatment
10 methods could be undertaken in the Bay as well as
11 in the watershed and have the same general result.

12 HEARING OFFICER FAY: And I also am
13 concerned about unintended effects of the habitat
14 enhancement program. For instance, dredging to
15 adjust the elevation. Can't that free up
16 contaminants that can then have a problem? We
17 know from other cases a lot of very bad materials
18 settle in over time and are sort of encapsulated.
19 And once they're disturbed, whether through
20 flooding or in this case perhaps dredging, that
21 that could cause environmental problems. Can you
22 address that?

23 MR. JOHNSON: Yeah, I'd like Linda to
24 comment on that, if she would.

25 MS. KUHN: Right. And that is an issue

1 of concern, and that the Army Corps of Engineers
2 is evaluating that as part of the program.

3 I think that's one of the reasons why
4 when we scoped out that project we said that it
5 was very important that that project be
6 coordinated with the Army Corps of Engineers.

7 And when we calculated the benefits
8 associated with that project, we deferred the
9 benefits, the starting of the benefits for five
10 years because we felt like that was a key
11 component to showing that we weren't trying to
12 claim more credit for that project. We were
13 willing to defer those credits so that it could be
14 coordinated with the Army Corps of Engineers.

15 And having had discussions with them as
16 recent as last week regarding the work that
17 they're doing out there, there are going to be
18 certain areas of the Bay that are more prone to
19 having concerns with regard to contamination than
20 other areas. And I suspect they'll incorporate
21 all that into their strategy.

22 HEARING OFFICER FAY: And is there
23 also -- so this is a potential risk?

24 MS. KUHN: There is --

25 HEARING OFFICER FAY: A biologist would

1 perceive this as a potential --

2 MS. KUHN: Well, it depends on what you
3 mean by risk. Where it comes into play with
4 regard to this project as being a risk is it's an
5 additional cost factor. It's not necessarily a
6 risk with regard to impacts to the environment.

7 The Army Corps of Engineers, whether we
8 really like them or not, is in the business of
9 dredging. They understand how it goes. There's a
10 number of protective measures that they employ,
11 types of drapes and curtains that they deploy,
12 silk curtains that can anchor at the bottom of the
13 Bay.

14 They're very proficient in using
15 different types of dredging techniques in
16 different environments. We wouldn't endorse a
17 program where they used a bucket dredge or
18 something like that, where they're just scooping
19 it out and water and sediments falling out.

20 They would have to deploy some type of
21 silk curtain, and they'd work within a contained
22 area. And they've worked across the country
23 they've dredged, and we know that dredging can
24 occur in highly contaminated areas.

25 So, it is a possibility to do that

1 without reintroducing that contaminant into the
2 open environment. The only risk that it creates
3 is it's an additional cost.

4 And if you'll recall when we talked a
5 little bit about our cost for this project, when
6 we talked about hoary cress, it was a \$5 to \$10
7 per cubic yard cost estimate for dredging and
8 removing that material.

9 Well, when we talk about this project we
10 looked at anywhere from a \$10 to \$25 per cubic
11 yard cost to remove that, which is high because
12 that deals with the fact you've got extra
13 construction costs that are associated with that.

14 MR. CAMPBELL: If I could also add just
15 one little thing. There are some areas of the Bay
16 that have concerns, you have some concerns about
17 contaminants. In areas that have been commercial
18 or associated with various activities that have
19 occurred in the Bay historically. They have
20 contaminant issues associated with them.

21 Those are not the areas that would be
22 the most productive in order to be able to do this
23 selective work.

24 There are areas in the Bay that are
25 relatively clean. They have gotten their -- the

1 siltation has come in as a result of agricultural
2 activities. There are some PAHs associated with
3 runoff of roads, but not significant
4 contamination.

5 PRESIDING MEMBER KEESE: Let me ask that
6 question. We talked about cofunding of projects,
7 for instance Elkhorn Slough, where funding comes
8 in. And I guess when we're talking about the
9 Corps of Engineers, we're talking about the Corps
10 of Engineers funding something.

11 I would assume if the Corps of Engineers
12 were to be as generous as to match Duke's
13 contribution here, that Duke's funding would go
14 towards the upland projects and the Corps would be
15 involved with the dredging or whatever took place
16 in the water. Is that a --

17 MS. KUHN: That's true. And what we're
18 looking at for this particular project, and we
19 discussed this with the Army Corps of Engineers in
20 the Los Angeles District last week, is there is a
21 federal match grant program that goes along with
22 this, where it's for the phase that we're talking
23 about, when you're doing implementation of the
24 project, it's 35 cents on the dollar match by the
25 local entity. And 65 percent is provided by the

1 federal government.

2 So while we cost out the project we cost
3 out as though the local entity would have to fund
4 100 percent of that project. However, in reality
5 if this project were timed and coordinated and
6 implemented with the Army Corps of Engineers under
7 their restoration program, in fact to do this
8 acreage they'd only have to provide 35 cents on
9 the dollar.

10 Therefore, the additional funds would be
11 actually contingency. So if the project is a
12 little more expensive, they've got additional
13 funds.

14 If, in fact, a dredging project is done
15 in coordination with the Army Corps of Engineers,
16 with the money that Duke has set aside for this
17 project, with the 35 cent match per dollar, they
18 could actually dredge 47 acres of sediment.

19 So, the potential additional benefit is
20 tremendous with that. Because we went ahead, --
21 because the Army Corps of Engineers hasn't gone to
22 Congress and there isn't a commitment yet of the
23 funding, we felt like in order to be fair and make
24 sure that we had an honest funding of this
25 program, we needed to allocate for 100 percent.

1 Like one of the Commissioners said
2 yesterday, we don't want our program to depend on
3 leveraging. If leveraging happens, great. So we
4 scoped out the project as though we would be
5 funding it 100 percent with the understanding that
6 we believe it needs to be conducted in conjunction
7 with the Army Corps of Engineers project.

8 And I'm might also add with regard to
9 the dredging issue, it's our understanding that
10 probably much of the dredging work that would be
11 done would be in the areas that aren't completely
12 wet. They're moist soils, but they're not
13 necessarily submerged soils. Okay.

14 So it's not like we're going to go in
15 open water and then deploy the dredge and be
16 dredging down there. Those areas are already
17 fine. So the areas we're looking at are the soils
18 that are moist, and not necessarily submerged. So
19 that minimizes the risk of the redispersion of the
20 contaminants, if, in fact, there are even any.

21 HEARING OFFICER FAY: Thank you.

22 PRESIDING MEMBER KEESE: I have one
23 other subject that I'd like to understand a little
24 better, and that is you used conservative figures
25 in your presentation. I'll start with the 4 to

1 10, and then the 10 to 20. And you chose 4. Now,
2 are you suggesting that that's the most realistic
3 number?

4 MR. CAMPBELL: Our belief is that that
5 is a very conservative number. We believe that --

6 PRESIDING MEMBER KEESE: But if one was
7 analyzing the impact, one might be more inclined
8 to pick 7 percent, in the middle of the range.

9 MR. CAMPBELL: That's correct. Yes, 7
10 or 8 percent.

11 PRESIDING MEMBER KEESE: And then when
12 you're talking about the conversion, the fish
13 conversion, 10 to 20, one would pick 15 if one
14 was -- is that?

15 MR. CAMPBELL: That's correct.
16 Actually, in that particular instance NOAA chooses
17 20. But you might choose 15.

18 PRESIDING MEMBER KEESE: Let me go to
19 the front end then, for the Regional Board's
20 calculation, I believe they're assuming that 100
21 percent of what is entrained, say is eliminated
22 from the ecosystem.

23 MR. CAMPBELL: Correct.

24 PRESIDING MEMBER KEESE: That's a
25 conservative, that's reasonably conservative

1 because there is going to be a lot of natural
2 death in that.

3 MR. CAMPBELL: What they're saying is
4 that the water is carrying 100 percent of the fish
5 larvae out of the system, which is true. But the
6 reality is that some of that fish larvae, even if
7 the power plant wasn't there, would be carried out
8 of the system into the open ocean anyway.

9 And that would not be an insubstantial
10 number, because it's already at the mouth of the
11 Bay.

12 PRESIDING MEMBER KEESE: Okay, so that's
13 another conservatism. Are there any others in
14 there, in this chain of building towards your
15 dollar number?

16 MS. KUHN: With regard to the funding we
17 have significant conservatism built into that.

18 PRESIDING MEMBER KEESE: I see that at
19 that end.

20 MS. KUHN: Okay.

21 PRESIDING MEMBER KEESE: That's going to
22 be another question here. I'm trying to establish
23 the conservative steps that were used in
24 getting --

25 MR. JOHNSON: Commissioner Keese.

1 PRESIDING MEMBER KEESE: Go ahead.

2 MR. JOHNSON: We had a slide yesterday,
3 I know you don't have it in front of you, but
4 trying to outline some of the ecological
5 conservatisms.

6 The first one was this energy transfer
7 rate number that you and Tom were just talking
8 about. The second one was credit for shellfish
9 production only. The third one was the linear
10 maturity curve. And there are others on the panel
11 that can speak to that more clearly than I can.

12 The fourth one was this 100 percent loss
13 that Tom was just talking about. And the fifth
14 one was the maximum length when they sampled --

15 PRESIDING MEMBER KEESE: Right, maximum
16 length --

17 MR. JOHNSON: Maximum length --

18 PRESIDING MEMBER KEESE: And would you
19 give me a factor for that? I knew there was one
20 more that I was looking for --

21 MR. JOHNSON: I'm not sure. Tom, can
22 you answer the maximum length?

23 MR. CAMPBELL: Sure. In terms of
24 maximum length, in terms of the larvae that were
25 found, we assumed that they were as large as they

1 could be at that particular larval life stage, as
2 opposed to choosing an average --

3 PRESIDING MEMBER KEESE: An average,
4 which would be --

5 MR. CAMPBELL: Which could be half.

6 PRESIDING MEMBER KEESE: Half or two
7 thirds or --

8 MR. CAMPBELL: Or two thirds.

9 PRESIDING MEMBER KEESE: -- someplace in
10 there.

11 MS. KUHN: Right, and is a more likely
12 number.

13 PRESIDING MEMBER KEESE: Correct. And
14 that's what I'm going to point out. Using that,
15 and then using conservative financials, you get to
16 your 12.5 million?

17 MS. KUHN: That's correct. And if you'd
18 like I can take a second and show you the
19 conservative --

20 PRESIDING MEMBER KEESE: No, I'm okay, I
21 think. Now, --

22 MR. CAMPBELL: Actually that gets us to
23 9.7.

24 PRESIDING MEMBER KEESE: 9.7, now --

25 MR. CAMPBELL: And then as another

1 concern is we add --

2 PRESIDING MEMBER KEESE: -- added 2.8,
3 which is -- that's not a contingency that if
4 certain things don't happen that comes in. That
5 is there -- so your number is 12.5 million?

6 MR. CAMPBELL: That is correct.

7 MR. JOHNSON: -- commitment but it is,
8 the 2.8 is available for the NGO to use at their
9 discretion.

10 PRESIDING MEMBER KEESE: At their
11 discretion completely. Okay.

12 Now let's set aside that and move to the
13 Regional Board. Give me the number that the
14 Regional Board came to.

15 MS. KUHN: Their number was 12-million
16 to 25-million, if I recall.

17 PRESIDING MEMBER KEESE: And --

18 DR. MAYER: Let's -- can I be clear
19 about that, though --

20 PRESIDING MEMBER KEESE: Okay, and I
21 heard 12 at 42 percent; 12 would get you 42
22 percent. And 25 would get you 52 percent. Is
23 that --

24 DR. MAYER: Well, I think what I heard
25 was --

1 PRESIDING MEMBER KEESE: Relate the two
2 to me.

3 DR. MAYER: Right. I think what I heard
4 was Michael Thomas testify that they're still
5 working on the number. They don't have their
6 number yet.

7 PRESIDING MEMBER KEESE: Okay.

8 DR. MAYER: The 12 million gets you, as
9 you say, 42 percent reduction in sediment loads.
10 And the 25 gets you 52 percent reduction. But
11 those aren't related to --

12 PRESIDING MEMBER KEESE: Right, and
13 they're not really related to the 50 percent goal
14 that they have under their own plan, --

15 DR. MAYER: Well, they're not really
16 related to a number to offset the entrainment.

17 PRESIDING MEMBER KEESE: Right. So they
18 used a different methodology in getting here. And
19 they got -- what we would say is they got
20 somewhere in the area of where you got, but
21 they've got this -- they're still looking at a 12
22 to 25 milliondollar range?

23 DR. MAYER: Yes, I think Mr. Thomas
24 testified that it would be in that range, but they
25 don't know what the number is yet.

1 PRESIDING MEMBER KEESE: Okay.

2 DR. MAYER: It could be 12, that would
3 be in the range.

4 MR. CAMPBELL: I just wanted to address
5 briefly the question about the conservatism on the
6 biological side. If you were to change that
7 energy transfer rate from 4 and go up to 8
8 percent, that would roughly cut in half the amount
9 of restoration that would be required.

10 PRESIDING MEMBER KEESE: Okay. I'm very
11 content with the fact that Duke's \$12.5 million is
12 the number we should look at. What I'm concerned
13 is, is whether we make findings.

14 And I guess by asking the question which
15 I'll ask of staff also is should we make a finding
16 that it's 4 percent versus accepting 4 percent as
17 the offer, what's been put on the table.

18 Okay, I'm happy, thank you.

19 (Pause.)

20 DR. MAYER: Commissioner Keese, I've
21 asked, just being clear about what we're thinking
22 in terms of the Regional Board's estimate, that if
23 you use their methodology, which we compared in
24 that slide yesterday, without trying to subvert
25 their actual calculation or the number they may

1 come to, if you use the methodology that they've
2 published so far, the number is about \$5 million.

3 PRESIDING MEMBER KEESE: Thank you.

4 HEARING OFFICER FAY: I just have one
5 more question, and you probably covered this
6 yesterday. But if you could just refresh my
7 memory.

8 In your protocol for the HEP is there a
9 step where a given project would go through some
10 sort of examination to try to establish that in
11 carrying out the project there wouldn't be more
12 harm than good, or that there wouldn't be an
13 unacceptable level of harm as a result of just
14 doing the project.

15 MR. ELLISON: Actually, let me take a
16 quick shot at that, because I think it's basically
17 a question of law.

18 The HEP projects would require separate
19 permitting. And they would be permitted -- well,
20 first of all the NGO would make a judgment about
21 what the benefits and disbenefits of the projects
22 are in the first instance.

23 In the permitting process for these
24 projects they would go through typically a CEQA
25 review that would look at that, as well.

1 The last thing that I would say, though,
2 is that remember that all these projects have been
3 independently identified by resource managers for
4 the purpose of improving the environment.

5 So the likelihood that these projects
6 would have an overall greater adverse effect on
7 the environment than positive is extremely low.
8 But those issues would be considered, both in the
9 permitting process and by the resource managers
10 before they'd go forward.

11 HEARING OFFICER FAY: Thank you. Okay.
12 Then I think we'd like to proceed then with the
13 staff's presentation.

14 MR. NAFICY: I had a question. In terms
15 of what Regional Board's calculations show about
16 how much money, you know, they will require
17 ultimately for mitigation, I do believe it's
18 inappropriate for the applicant to testify as to
19 what the Regional Board will or will not fund, or
20 even what the staff has found, especially since
21 Mr. Thomas is sitting in the audience and is very
22 capable of addressing the question of what his
23 understanding of their calculation is.

24 So, I just thought that if that is a
25 remaining question for your Committee, that it

1 should be addressed to Mr. Thomas more properly.

2 PRESIDING MEMBER KEESE: That would be
3 fine, but I did expect to hear from both staff and
4 you on this issue, also. I'm going to ask what
5 you think of Duke's -- the numbers Duke is putting
6 out. I think this is still an open question.

7 I mean I'm not assuming Duke's numbers.
8 Now we're going to hear from you. And I want to
9 relate this whole thing. We've heard the Regional
10 Board say something; we've heard Duke say
11 something. We haven't heard from staff, and we
12 haven't heard from the intervenor yet.

13 HEARING OFFICER FAY: All right. Ms.
14 Holmes, I know you're unfortunately missing one of
15 your witnesses, but --

16 MS. HOLMES: Yeah, I think we'd better
17 get going as quickly as we can because we lose
18 more of them as time goes on. We're down to two
19 primary witnesses.

20 Staff's witnesses for this section of
21 the hearing are Dr. Richard Ambrose, Dick Anderson
22 and Dr. Mike Foster. And I believe the two
23 gentlemen on the ends need to be sworn.

24 HEARING OFFICER FAY: All right. Will
25 the court reporter please swear the witnesses.

1 Whereupon,

2 RICHARD AMBROSE and MICHAEL FOSTER
3 were called as witnesses herein, and after first
4 having been duly sworn, were examined and
5 testified as follows:

6 Whereupon,

7 RICHARD ANDERSON
8 was recalled as a witness herein, and having been
9 previously duly sworn, was examined and testified
10 further as follows:

11 DIRECT EXAMINATION

12 BY MS. HOLMES:

13 Q Mr. Anderson and Dr. Foster, was the
14 testimony that is contained -- the main body of
15 the testimony that's contained in exhibit 304
16 prepared by you or under your direction?

17 DR. AMBROSE: Yes.

18 MR. ANDERSON: Yes.

19 MS. HOLMES: And does that testimony
20 contain statements of your qualifications?

21 DR. AMBROSE: Yes.

22 MR. ANDERSON: Yes.

23 MS. HOLMES: And Dr. Ambrose, are you
24 responsible for the testimony that's contained in
25 appendix A to exhibit 304?

1 DR. AMBROSE: Yes, I am.

2 MS. HOLMES: And does that contain a
3 statement of your qualifications?

4 DR. AMBROSE: Yes, it does.

5 MS. HOLMES: And is the testimony that
6 you gentlemen are presenting today true and
7 correct to the best of your knowledge?

8 DR. AMBROSE: Yes.

9 MR. ANDERSON: Yes.

10 MS. HOLMES: And are facts contained
11 therein true and correct?

12 DR. AMBROSE: Yes.

13 MR. ANDERSON: Yes.

14 MS. HOLMES: And do the opinions
15 contained in that testimony represent your best
16 professional judgment?

17 DR. AMBROSE: Yes.

18 MR. ANDERSON: Yes.

19 MS. HOLMES: Do you have any corrections
20 to your testimony?

21 DR. AMBROSE: No.

22 MS. HOLMES: I think what I'd like to do
23 now is proceed with overview presentation by the
24 staff, and then make the witnesses available for
25 cross-examination. I believe that Mr. Anderson is

1 going to be seated at the overhead, and at least
2 one or more of the other witnesses will be
3 standing, so we need to make sure we all get
4 everybody on a microphone.

5 HEARING OFFICER FAY: As you may
6 anticipate from my previous requests, I would like
7 the PowerPoint collection docketed and served in
8 the order in which you present it.

9 MS. HOLMES: Right. Mr. Pryor is aware
10 of that, but he hasn't been able to complete that
11 task yet. I'm sure he will be tomorrow.

12 MR. ANDERSON: Dr. Foster will move my
13 slides for me, and then I'll help him and Dr.
14 Ambrose move theirs.

15 As Caryn pointed out, there were five of
16 us yesterday; now we're down to three. And Marc
17 Pryor, who was here yesterday, also has
18 disappeared today. So, hopefully this won't go
19 till tomorrow.

20 (Laughter.)

21 MR. ANDERSON: Oh, he's here. Sorry,
22 Marc.

23 Today we're going to try and bring you
24 back to reality as far as I see it. We've been
25 talking about fiddling with nature as if you can

1 walk into Costco and buy it off the shelf and walk
2 out and it's going to be perfectly successful and
3 there will be no problems.

4 And what we would like to point out is
5 that there is a lot of risk involved in these
6 types of enhancement programs. And success is not
7 guaranteed.

8 So, next. So a couple of the issues
9 we're going to cover today is that -- or some of
10 the things that we feel are important to talk
11 about today is the first assumption, and that is
12 avoidance of significant impacts is preferable.

13 The Committee asked us to evaluate the
14 HEP program. And they gave us a number of
15 criteria which will be, you'll see here shortly.
16 Staff conducted an objective evaluation using the
17 guidance provided by the Committee.

18 Today we're going to -- in a number of
19 ways, between three different presentations, we're
20 going to summarize the analytical approach that
21 was proposed in the HEP. We're going to identify
22 major concerns. We're going to have presentations
23 that explain or regarding these major concerns.

24 Dr. Foster will talk about mitigation,
25 nexus and monitoring. Dr. Ambrose will talk about

1 the HEA model and factors affecting success of
2 restoration projects. And I'll talk a little bit
3 about the practical considerations, funding and
4 compliance issues. And then do kind of a quick
5 wrap-up on conclusions and recommendations.

6 Just for your information, the things we
7 looked at, we were directed to look at by the
8 Committee. It's a very complete list.

9 We looked at the HEP description,
10 whether or not it was adequate for CEQA and other
11 legal requirements. Whether the HEP proposal
12 clearly stated goals and objectives. Whether
13 performance standards for goals and objectives
14 were included.

15 Whether there was monitoring and
16 reporting programs identified in the program.
17 Enforcement and corrective actions that were
18 discussed. If there was contingency planning
19 involved. If there was cost estimates that were
20 verifiable and realistic.

21 And whether or not the HEP addressed
22 regulatory issues. Whether the HEP identified an
23 appropriate nexus between entrainment impacts
24 caused by the project and the ecological responses
25 derived from the enhancement program.

1 Are the HEP objectives consistent with
2 the identified nexus; very important. Are the
3 desired ecological responses of the HEP clear and
4 measurable. What is the HEP model used to develop
5 the projects. And are the model assumptions input
6 and output clear and correct.

7 Are the designs of the proposed projects
8 based on the best available science, and are they
9 technically or technologically feasible. Does the
10 HEP propose sufficient funding -- excuse me,
11 monitoring. Does the HEP propose provide
12 sufficient criteria for determining global and
13 project specific success. And is there sufficient
14 explanation and consideration of additive
15 management.

16 Is the HEP implementation plan
17 sufficient. Does the HEP provide adequate
18 contingency plans. Are the HEP funding amount and
19 implementation schedules sufficient. And is the
20 HEP governance structure acceptable.

21 So, a lot of things were considered and
22 looked at. We'll try to boil it down to three
23 major issues and we'll move forward with that.

24 The nexus and monitoring, as I
25 mentioned, will be discussed by Mike Foster, Dr.

1 Mike Foster. And briefly he will talk about the
2 benefits of HEP are not commensurate with the
3 impacts. Monitoring of population responses is
4 inadequate. Biomass metric, it's not an
5 indicator.

6 And then the implementation of HEP, we
7 have some problems with the contingency plan.
8 It's inadequate. Insufficient description of
9 adaptive management strategies. Funding level
10 inadequate. HEA model, questionable application
11 of the model, unrealistic assumptions, debit and
12 credit issues, timeframe for project success
13 unrealistic. And should use a sensitivity
14 analysis, get a feel for if the model's accurate.

15 So, now I think, Mike, we'll turn it
16 over to you. Would you like me to come over there
17 and --

18 (Pause.)

19 HEARING OFFICER FAY: You'll need a
20 microphone.

21 DR. FOSTER: I hope this works out. I
22 wanted to stand up here because this might get a
23 little bit technical.

24 Based on my understanding of how the HEA
25 was done, I don't think it was done -- it properly

1 reflects the movement of material from plants to
2 fish, and I don't think that it, in fact, in
3 theory can even answer the question of does the
4 acreages arrived at actually compensate for
5 entrainment losses.

6 And to run you through why I came to
7 that conclusion, if you accept as given that the
8 316(b) study that was done in 2000 has a
9 proportional larval loss of about 25 percent,
10 that's average 17 to 33, I just took the average.

11 And we accept Duke's calculations of the
12 biomass equivalent of those individual organisms.
13 I originally worked this out on the data that was
14 in the proposal, but yesterday we got some errata,
15 so this number of kilograms per year of fish
16 entrained has actually become this number.

17 If that's about 25 percent then roughly
18 the total fish biomass produced in Morro Bay per
19 year, or during this year anyway, was about
20 19,000, or again, correcting for this number,
21 about 13,000, which is simply four times that.
22 Okay.

23 MR. ELLISON: I apologize for
24 interrupting, but I don't recognize this from the
25 staff's testimony. Is this new?

1 MS. HOLMES: This is not new. It's
2 based on the data in the 316(b) study, and the
3 numbers that Duke provided in its testimony as
4 corrected yesterday.

5 It's a simple calculation. It's not --
6 in other words, --

7 MR. ELLISON: Can you show me where in
8 the staff's testimony this is?

9 MS. HOLMES: I can show you where all
10 the numbers are. They're in the 316(b) study.
11 And they're in the testimony that Duke provided
12 yesterday. This is simply running simple
13 mathematical calculations on those numbers.

14 And it supports the testimony that he's
15 provided as to why it's inappropriate to use
16 biomass as the metric.

17 MR. ELLISON: But this calculation does
18 not appear in the testimony --

19 MS. HOLMES: The calculation, itself,
20 does not. The multiplication by four is not in
21 the testimony.

22 MR. ELLISON: Well, I'm going to object.
23 I haven't talked to my technical witnesses, but I
24 don't think they've seen this before, and I don't
25 know whether this is something that they can

1 respond to on the spot or not. But, --

2 MS. HOLMES: Well, we hadn't seen your
3 corrections yesterday, either. And we didn't
4 object. I didn't think there would be much of an
5 issue given that this is simply, as I said, a
6 calculation based on data on numbers that are
7 already in the record. Anybody can do them.

8 They're not new information, in other
9 words.

10 HEARING OFFICER FAY: We're going to
11 overrule the objection. You'll have a chance on
12 cross-examination to attack this. And we'll just
13 have to weigh the persuasiveness of this.

14 MR. ELLISON: Well, let me say this.
15 With respect to being able to respond to this on
16 cross-examination, sitting here right now I don't
17 know, I don't even know how to begin to do that
18 without my people having a chance to study it and
19 talk to them.

20 So, I understand you're overruling the
21 objection, but --

22 HEARING OFFICER FAY: I understand.
23 Your objection is noted. What I will ask, though,
24 Dr. Foster, if you would please be very particular
25 in referencing where you derive the figures, for

1 the benefit of all of us, especially the record.

2 DR. FOSTER: There's nothing in here
3 beyond multiplication and division, so it's not
4 going to be that hard.

5 This figure is the average of the
6 proportional larval loss estimates --

7 HEARING OFFICER FAY: Excuse me, the
8 transcript won't --

9 DR. FOSTER: Oh, okay, --

10 HEARING OFFICER FAY: -- know what
11 you're discussing. So, --

12 DR. FOSTER: Based on the 316(b) there
13 is an estimated proportional average larval loss
14 of between 17 and 33 percent due to the power
15 plant entrainment. This is simply the average of
16 that, 25 percent. And I just use it as an
17 illustration.

18 The Duke HEP document converted the
19 number of fish and given their sizes and some
20 length size relationships to kilograms of fish per
21 year entrained, okay. There was 500-and-some-
22 million fish, but you can convert those to weight.
23 And that's where you get, in the original HEP,
24 4700 kilograms per year.

25 Yesterday we got an errata from Duke

1 that changed that to 3346 kilograms per year. So
2 we'll just accept that.

3 So, if the only logic in the next line
4 is that if the proportional larval loss is 25
5 percent, then that means that roughly the total
6 larvae in the Bay is around 13,384. That's simply
7 multiplied by four. Okay?

8 So, moving on, the eelgrass -- reduction
9 estimated is 20,200 kilograms wet weight per acre
10 per year. And that's -- Dr. Ambrose will speak to
11 this, but it's somehow a combination of the
12 eelgrass production and the salicornia marsh
13 primary production from the plants. They combined
14 that in some way and took sort of an average. And
15 this is the figure from the HEP.

16 The biomass of all the fish killed by
17 entrainment, and I still have this 4700, but that
18 should be 3346. This is a step then in the HEA
19 analysis, to say well, how many pounds of fish
20 does the marsh primary production convert to. And
21 there's a conversion efficiency of 0.4 percent.

22 Andso if you essentially multiply the
23 total production that they estimate per year times
24 the conversion efficiency, roughly one acre of
25 plant habitat, eelgrass, marsh combined --

1 kilograms of fish larvae. That's the essential
2 logic that I understand it with the calculation.

3 So therefore we can say, well, and then
4 how many acres do you need of plant material to
5 compensate for the kilograms of fish entrained.
6 And so we just do the division, -- of 4700 is 58.
7 Now, if you use that figure they gave us
8 yesterday, it turns out to be 41.

9 So, as I understand the logic based on
10 this approach, you could say that 41 acres of
11 plant habitat would, if you could create that in
12 Morro Bay now, that would completely compensate
13 for the 81 kilograms of fish larvae -- or excuse
14 me, for the 4700 kilograms of fish larvae killed
15 per year, or the 3000, whichever.

16 Okay, and so then they argue that the
17 representative project will produce or save from
18 sedimentation somewhere between 117 and 118 acres.
19 And we could argue that's a 2X safety margin.
20 It's a little bit higher if you divide it by 41,
21 rather than 58. So, I think this is where the
22 argument about safety margins comes in.

23 If you could slide that up a little bit.
24 If this were true it seems to me the following
25 would be true. Given the 1998 map in Duke's HEP

1 there were 530 acres of plant habitat. That's
2 marsh plus eelgrass. Okay?

3 If you multiply -- if each one of those
4 acres was producing 81 kilograms of fish larvae,
5 then that would give you -- 2900 kilograms of fish
6 larvae in the Bay. Well, that turns out to be 2.3
7 times what the 316(b) actually found. And given
8 Duke's new figures, that's about 2.9 times what
9 was actually found.

10 Okay, so that, to me that brings into
11 question -- biomass, because if the fact that it
12 was -- what was actually happening out in the Bay,
13 you'd expect to see a lot more fish larvae in the
14 water than are actually there.

15 Second, if you use the recent data on
16 plant abundance in the Bay from the Army Corps of
17 Engineers surveys, the estimate a total of about
18 -113 acres of plant habitat. All right? This
19 should have produced, again by Duke's logic, 9153
20 kilograms of fish larvae; using the old figure
21 that's 4.7 times more fish larvae than are
22 actually found there.

23 Using Duke's new figure it's 6.7 times.
24 There'd be so many larvae in the Bay that you
25 could just scoop it out and boil it and have fish

1 stew or something. It appears that the method
2 doesn't work, in fact, given the data that we
3 have.

4 Finally, we could work this in reverse,
5 which I think is an important. You could say,
6 well, in fact, if there was this conversion, or if
7 what's actually happening in the Bay is real, how
8 many acres do they actually need to mitigate for,
9 compensate for the fish larvae that -- well, it's
10 one-quarter of this number, which is 275 acres,
11 not 41.

12 So in that sense you could argue that
13 Duke's estimate is not conservative at all. In
14 fact, it's highly under-estimates the amount of
15 plant habitat that you need to actually produce
16 the number of larvae that are entrained.

17 Just to put these acres in some sort of
18 a perspective, the original calculations by the
19 Water Board, using the -- surface of Morro Bay as
20 an indicator of the habitat that produces those
21 fish that are entrained, it would take 575 acres
22 on average to reproduce those fish, not 41.

23 Next slide.

24 MR. ELLISON: Mr. Fay, I really have to
25 renew my objection to this. And let me just be

1 very clear. This is new. It could have been
2 presented in the staff's testimony. There's
3 nothing in here, other than perhaps the adjustment
4 for the errata yesterday, that I can see that
5 means that this couldn't have been presented in
6 the staff's testimony. And it should have been
7 presented in the staff's testimony.

8 That's an entirely different situation
9 than an errata which we just discovered very
10 recently, and which is absolutely mathematical.

11 I will tell you we have no problem with
12 the staff checking that errata. And if they want
13 to come back and make a subsequent filing, you
14 know, confirming or denying the errata, I don't
15 have any problem with that.

16 This is a very different situation.
17 It's not just addition and subtraction, what's
18 going on here. The concepts that are embedded in
19 whether this formula, whether the addition and
20 subtraction that's going on make any sense, are
21 going to be the issue here.

22 And it's not just that we're being
23 deprived of an opportunity to prepare cross-
24 examination, we're also being deprived of our
25 opportunity to file rebuttal testimony to this.

1 Had this appeared in the staff's testimony we
2 would have had an opportunity to have our experts
3 review it and file responsive testimony.

4 I'm going to renew my motion to strike.
5 And in the alternative, if the Committee denies
6 that motion, I'm going to ask for some kind of an
7 opportunity for our people, with a reasonable
8 amount of time, to file some response to this.

9 HEARING OFFICER FAY: Ms. Holmes, do you
10 want to respond?

11 MS. HOLMES: Again, I'll state what I
12 stated before, which is that this is nothing but a
13 mathematical calculation that's performed on
14 evidence that's already been provided into the
15 record.

16 This kind of calculation is something I
17 could have provided in a brief, and could choose
18 to provide in a brief. I think it's better to
19 provide it here in case the Committee has any
20 questions about the calculations that were
21 performed.

22 I don't think this is new information.
23 This is not new independent professional judgment.
24 This is simply, as I said, it's a series of
25 mathematical processes that were performed on data

1 that's already in the record.

2 HEARING OFFICER FAY: Is it performed on
3 data that was in -- absent the corrections made
4 yesterday, is the data used here from Duke's HEP
5 proposal?

6 MS. HOLMES: It's from Duke's HEP
7 proposal and from the 316(b) report which was
8 accepted into evidence last June.

9 DR. FOSTER: Mr. Fay, if I could just
10 comment, it's also, well, for instance, the Army
11 Corps of Engineers -- for plants is in the staff
12 testimony.

13 HEARING OFFICER FAY: All right, so all
14 this material was available to staff before it
15 filed its testimony, is that correct?

16 MS. HOLMES: Yes, it is.

17 HEARING OFFICER FAY: And can you
18 explain why these calculations and adjustments
19 weren't included at that time?

20 MS. HOLMES: Again, to my understanding
21 what he is presenting is not what I would call
22 independent professional judgment which is
23 properly the subject -- would have been properly
24 the subject of information that we included in our
25 direct testimony.

1 It's simply pointing out, based on the
2 information that the applicant, itself, has
3 provided, what the potential flaws are in the
4 approach, which is a subject that we did testify
5 to generally.

6 HEARING OFFICER FAY: Okay. Mr.
7 Ellison.

8 MR. ELLISON: Two quick points. Let me
9 fundamentally disagree that this is the kind of
10 thing that could appear for the first time in the
11 brief. One of the concerns that we have had
12 throughout proceeding, and frankly in some other
13 Energy Commission proceedings, is things appearing
14 in briefs with no citation to the record for them.

15 There's no citation, assuming this were
16 struck or didn't appear. There's no way you could
17 do this in the brief without a citation to an
18 expert witness that had supported this, and had
19 been subject to rebuttal and cross-examination.
20 That's why we're here; that's what this is all
21 about.

22 Secondly, the idea that just because the
23 data is already in the record, that somehow you
24 can do anything, manipulate that data and present
25 conclusions based on that data that's new for the

1 first time is absolutely untrue.

2 Again, it's not, even if we were to
3 concede, and this is just for the sake of
4 argument, I don't know whether the data is all
5 correct or not, but assuming for the moment that
6 it is, the concepts embedded in these
7 calculations, and whether those are legitimate
8 concepts, are the issue it seems to me.

9 DR. FOSTER: And if I may add to that,
10 the concept embedded in this I'm going to get to
11 next. And the concept was actually presented by
12 Duke yesterday.

13 MR. ELLISON: I'll stop here, but I
14 don't think there's any question, based on this
15 colloquy, that this is new substantive testimony
16 coming in for the first time on the day of
17 hearing. And I renew my objection to it.

18 (Pause.)

19 HEARING OFFICER FAY: The Committee has
20 discussed this and we are very concerned with the
21 objections raised by Duke in the nature of the
22 surprise aspect of this. And recognize that
23 they're put in a very awkward position.

24 On the other hand, we are loathe to take
25 a step that might undermine staff's ability to

1 present its analysis and challenge to Duke's HEP.

2 And so we will again overrule the
3 objection, but invite Duke, of course, during
4 cross-examination, to bring out any challenges
5 they wish to this approach.

6 But, in addition, take you up, Mr.
7 Ellison, on your suggestion to file essentially a
8 limited rebuttal in writing and serve it on all
9 parties. And as to when it will be due, I think
10 we'll just have to hear the whole presentation.
11 Give us a finite amount of time that you can get
12 something filed.

13 And then this will be subject to attack
14 by all the parties in their briefs as if it was
15 filed testimony.

16 But we are, by doing this, recognizing
17 that Duke has been disadvantaged by the surprise
18 presentation. Not of the numbers, per se, but of
19 the assumptions implicit in the manipulation of
20 the numbers and the calculations.

21 MR. NAFICY: Mr. Fay.

22 HEARING OFFICER FAY: Go ahead.

23 MR. NAFICY: I did want to take a
24 position on this on behalf of CAPE. I do believe
25 that what the staff has done here is classic

1 example of testing the theory to see if it results
2 in some absurdity. And it certainly is something
3 that I disagree with Mr. Ellison. I think it's
4 certainly something that if I was smart enough to
5 think of it, I could have done in my brief, where
6 I just see, you know, test a theory.

7 It doesn't take expert -- with all due
8 respect, I don't believe this is clearly expert
9 material. And at this point, I mean I would fully
10 include this in my brief regardless of the outcome
11 of this colloquy here.

12 So I do want to emphasize that I do
13 believe this is the kind of analysis that is
14 properly done within a legal brief writing
15 contest.

16 So, I wanted to state that on the
17 record.

18 HEARING OFFICER FAY: Thank you. And if
19 that turns out to be the case, I'm sure it will be
20 made clear to us by your arguments, not only in
21 support of this presentation, but in rebuttal to
22 whatever Duke may choose to file in response to
23 this presentation.

24 So, what the Committee would like to do
25 is get the various presentations before it. And

1 then sort out the value or the merits of those
2 presentations in due time.

3 MR. ELLISON: Mr. Fay, -- I'm sorry.

4 HEARING OFFICER FAY: Mr. Ellison.

5 MR. ELLISON: Let me, if I may, slightly
6 modify the suggestion here. And the reason that
7 I'm going to slightly modify it is that I mean
8 there really is no good way out of this problem.
9 I'm sorry that we find ourselves in this position.

10 On the one hand I think it's crucial
11 that the Duke witnesses be given an opportunity to
12 respond to this. At the same time, if we file
13 something subsequently in writing, and I'm loathe
14 to hold another hearing, as I know everybody must
15 be by now, on this.

16 Bottomline, let me suggest this. On the
17 one hand I think it's unfair to put the Duke
18 technical witnesses in the position of having to
19 respond to something in real time. But we are
20 willing to attempt to do that; to make an off-the-
21 cuff response to it today in this hearing.

22 And then what I'd like is the
23 opportunity to also go back and reflect upon it.
24 And if we choose to file a subsequent writing,
25 correcting, if necessary, or amplifying or

1 whatever, our response, if we determine that our
2 off-the-cuff response is sufficient, then that
3 will insure that it will all have been done here
4 in the hearing. If people want to, we can deal
5 with it that way. That's my preference.

6 Having said that, though, let me say one
7 other thing. Just from the conversations I've
8 already had with my people, I can assure you that
9 when you hear the Duke response you will see that
10 there are fundamental expert witness issues
11 embedded in this. That this is not simply adding
12 two and two and getting four and something that
13 could show up in a brief without any expert
14 testimony to support it.

15 HEARING OFFICER FAY: Okay. It sounds
16 to me like you're repeating what I said. I'm
17 inviting --

18 (Laughter.)

19 MR. ELLISON: What I thought the
20 difference was, was that I'd like the opportunity
21 before we adjourn today, to have our people orally
22 respond.

23 HEARING OFFICER FAY: Yes. And I'd like
24 to -- and maybe I should make more clear. I think
25 we can offer an opportunity later today for a

1 specific rebuttal subject to, you know, cross-
2 examination, et cetera, which is going to take a
3 segment of that. And do the best we can under the
4 circumstances.

5 However, in addition, at the end of the
6 day we'll get an idea of if you choose to file
7 something in writing, how soon we could get that.
8 We'd like to put it within the window of the
9 briefs so it arrives before the briefs.

10 And then you may either file that or
11 file something with the Committee indicating that
12 you will not be filing anything further. And I
13 think that's about as reasonable as we can be,
14 because we're loathe to tell the staff at this
15 point they can't do this, and we're not even sure
16 what else is coming.

17 So, I think that's the best solution we
18 can offer at this time.

19 MR. ELLISON: Just two other things.
20 Let me make an observation and a request. The
21 request is can we get a copy of this right now so
22 that my people can be looking at it?

23 HEARING OFFICER FAY: And, also, while
24 we're on the topic of the material in front of us,
25 I'd like to direct staff that when they do file

1 their PowerPoint presentation, which will include
2 this, of course, that they include all the
3 handwritten corrections and that all the pages be
4 numbered.

5 And, by the way, all the other parties
6 filing PowerPoint presentations, their pages
7 should be numbered, the Water Board and Duke, so
8 that while it has a single exhibit number, each
9 page has a separate page number identifying it.

10 MR. ELLISON: Okay. The other
11 observation I would make is that as you
12 understand, Mr. Fay, we came within an eyelash of
13 sending some of these people home yesterday.
14 Fortunately, we didn't.

15 HEARING OFFICER FAY: Let's go off the
16 record.

17 (Off the record.)

18 HEARING OFFICER FAY: All right, Dr.
19 Foster, please continue.

20 DR. FOSTER: Well, first of all, I
21 apologize for causing such a stir. I had no idea
22 that this was going to happen.

23 As I tried to explain, this conversion
24 factor here, which is the core of the argument,
25 one acre of plant habitat equals 81 kilograms of

1 fish larvae, I think, is a core of the Duke HEP,
2 this conversion factor. And really all the rest
3 of this is related to how reasonable is that to
4 do.

5 And so I simply said, well, if that's
6 really true, you should be able to predict because
7 we know how many larvae were in the Bay in 2000,
8 we should be able to predict how well that
9 approach had predicted it.

10 My only point is it didn't predict it
11 very well. So that causes me to question whether
12 or not this is a reasonable method to use to
13 estimate what you need to do to compensate for
14 entrained fish larvae.

15 And the last point was simply to point
16 out some other discussions -- work group awhile
17 back, and this is also in testimony, of another
18 way to look at how many acres are needed. And
19 it's 575 and 275, not in the 30s or 40s.

20 So why did I think that the actual model
21 does such a poor job in predicting what actually
22 seems to be happening in Morro Bay. And I think
23 that part of the flaw is in the model that what
24 was used directly was the transfer efficiency.

25 The transfer efficiencies are commonly

1 calculated for organisms in all different types of
2 habitats. And they actually don't represent sort
3 of food webs in the system. What they do is they
4 represent how material is transferred, and at what
5 efficiency, through various particular links in
6 the food web.

7 It's pretty much like -- Commissioner
8 Keese, if you fed a deer a bale of hay, how much
9 weight would that deer add. That's what transfer
10 efficiencies do. So they do not necessarily tell
11 you about the relationship of the total biomass in
12 the system to the effects on deer.

13 And so this is essentially what Duke
14 did, -- we end up with a total transfer efficiency
15 of 0.4 percent. And that's how you get one acre
16 equals 81 kilogram.

17 The problem is that -- go to the next
18 overhead -- with that logic is that logic
19 examines, this is just a -- ecology textbook.
20 It's just an example of sort of a conceptualized
21 food web for an estuary. I think most of it is
22 based on east coast, but it served to make my
23 point.

24 That logic using transfer efficiency
25 says this material -- eelgrass and salt marsh goes

1 into detritus, goes into detritus feeders, and it
2 comes over here to fish.

3 And the transfer efficiency is only for
4 the material that goes through here. The problem
5 is this material is not all gone from here. It
6 goes to other sort of grazers and predators. And
7 they die, and it goes this way, never gets to
8 fish. There's a lot of it that gets exported out
9 of Morro Bay into the ocean. There's a lot of it
10 that gets deposited in the very high tidal zone --
11 shore of Morro Bay. There's lots of piles of
12 eelgrass and -- salicornia up in the -- of the
13 marine system. And it's actually utilized by
14 terrestrial organisms.

15 So, in fact, some percent of that
16 material, not all of it, goes through this, all
17 over the system. And that's the basic problem
18 with using transfer efficiency directly to
19 estimate how much of this material you would need
20 to plant or fix to produce fish over here.

21 Given the logic of this approach, which
22 is the actual food web, and combined with the data
23 I showed you, just a rough back-of-the-envelope
24 calculation for how many fish larvae you would
25 expect in Morro Bay, I simply don't think that

1 biomass is a way to come up with restoration or
2 whatever you want to call them, enhancement
3 programs.

4 In my opinion, -- HEP that is shown to
5 be likely to increase fish and invertebrates that
6 are actually entrained, and this may require a
7 little bit more homework in terms of what's going
8 on in the Bay.

9 Secondly, I think you need a much
10 more thoughtful approach to representative
11 projects. For example, the marsh may be a very
12 poor habitat for fish and clams whose larvae are
13 entrained by the power plant.

14 And digging up mudflats and planting
15 eelgrass may reduce the abundance of certain
16 things of other species relative to the replaced
17 eelgrass habitat. There seems to be very little
18 thought has gone into the tradeoffs in some of
19 these proposals.

20 And, finally, even the Corps of
21 Engineers data from 2000, eelgrass is increasing
22 quite well on its own. And so one even questions
23 the wisdom of doing things in Morro Bay that will
24 actually increase the amount of eelgrass.

25 And lastly, no matter what you do it

1 seems to me that if the purpose of this is to
2 compensate for entrainment, then you need a
3 monitoring program that results out the other end
4 that actually shows, and there's lots of ways to
5 do this, and I don't think they're particularly
6 expensive, that actually shows that the animals
7 that are entrained, the particular species
8 entrained by the power plant, have, in fact, been
9 compensated for by the restoration program that's
10 put in place.

11 DR. AMBROSE: My name is Rich Ambrose.
12 Did you want a brief statement of my background?

13 HEARING OFFICER FAY: Please, that would
14 be helpful.

15 DR. AMBROSE: I'm a Professor at UCLA
16 and Director of the Environmental Science and
17 Engineering Program there. And I'm a coastal
18 ecologist. My research focuses on impacts of
19 human activities. And pretty much all throughout
20 the coastal zone I've worked on watersheds and
21 riparian restoration, coastal wetland ecology and
22 restoration.

23 And I've served on a number of
24 scientific advisory panels. You've heard
25 something about some of these projects. I worked

1 for many years on the San Onofre Nuclear
2 Generating Station mitigation project for the
3 Coastal Commission. I currently serve as the
4 chair of the Scientific Advisory Panel overseeing
5 that project.

6 You heard from Dr. Cailliet yesterday
7 something about the monitoring programs that's
8 going on there.

9 I'm also on the scientific advisory
10 panel for the Southern California Wetlands
11 Recovery Project that was mentioned yesterday.

12 I want to address my comments today to
13 the habitat equivalency analysis. And mostly I'll
14 talk about the assumptions in the analysis that
15 Duke has done.

16 But I first wanted to talk a little bit
17 about overview, and comment that the approach
18 taken in this analysis is not the traditional
19 approach.

20 Typically the habitat equivalency
21 analysis is done when there's an impact to a
22 particular habitat. And, in fact, all the
23 examples in Duke's appendix relate to impacts to
24 habitats. And it's not that you can't do it for
25 another type of impact. In fact, it's basically

1 it's a spreadsheet. And you can put numbers in
2 and you'll guarantee that you'll get numbers out.
3 So it just works through these, whatever numbers
4 you put in.

5 But, of course, like any spreadsheet
6 model the value of the output depends on the
7 numbers that go in. And so that's why I think
8 it's worth focusing on the assumptions. And, in
9 fact, the very basis of this approach, as Dr.
10 Foster just mentioned, because the impact is a
11 direct impact to biomass, not an impact mediated
12 through habitat, it's required Duke to use a
13 different currency than you would normally. And
14 to calculate their biomass numbers based on this
15 assumption about primary productivity being
16 transferred with different trophic efficiencies up
17 to biomass.

18 And so that's, I think it's the focus on
19 the currency of primary productivity that is one
20 of the difficulties, I think, that is represented
21 in their analysis.

22 And I'll come back to this later when I
23 talk about mudflats. But just quickly, for
24 example, they give value to habitat restoration
25 projects or the sediment reduction projects based

1 on the primary productivity estimates that they
2 make for those habitats.

3 But yesterday we heard from Dr. Cailliet
4 that the gobies that provide a large number,
5 proportion of the larvae that are entrained by the
6 power plant like mudflats. And, in fact, Duke
7 doesn't give any value to mudflats because it
8 doesn't have vegetation on the mudflats. And yet
9 the mudflats are critical for the gobies.

10 And if you go and look in the wetland or
11 any estuary along here you find the goby densities
12 are high in mudflats and unvegetated tidal creeks.

13 And so there's this disconnect between
14 the currency that Duke has had to focus on to do
15 their calculations, and the real situation out
16 there.

17 Okay, next. I want to focus on four
18 assumptions that the habitat equivalency analysis
19 makes. I'll go into each of these in more detail,
20 but basically the timeline for resource losses;
21 the delay before the project begins; what the
22 project lifespans are; and also the resources that
23 are produced by the restoration or enhancement
24 projects.

25 In terms of the timeline, what I have

1 here is really an example. There are other
2 examples about how timeline works, but it's an
3 example of how the assumptions you make about the
4 timeline can affect the outcome that you get from
5 the model.

6 And so I have two graphs up here. On
7 the left, each one has the services provided
8 plotted against time. And on the left you see the
9 linear loss due to sedimentation. This is an
10 example from the sedimentation removal or
11 reduction projects.

12 Duke, for example, has assumed that
13 there was a linear loss in the sedimentation. And
14 so what that shows is the services are declining
15 in a straight line over time.

16 Now, their proposed enhancement project
17 would prevent that reduction in services from
18 occurring. And so that's the horizontal line at
19 the top.

20 And so the area in there between what
21 the services are going to be like with their
22 project versus what the services would be like
23 without their project, is the credit that you get
24 for reducing sedimentation.

25 So this is the amount of credit on the

1 left that you get when you assume that there's a
2 linear reduction. But so many things that are in
3 nature are not linear. They're actually non
4 linear relationships.

5 Now, I just wanted to illustrate what
6 would happen if the service reduction was non
7 linear over time. And, in fact, I don't know what
8 the shape of this curve is, so it's just an
9 illustration. But yesterday you heard from Jeff
10 Haltiner that they're actually, they've modeled
11 that sedimentation will increase exponentially
12 over time.

13 And so if that's the case, this is the
14 sort of shape of the curve that you'd get. And
15 you can see that the difference between horizontal
16 line at the top, and then the reduction in
17 services means that you get much less credit if
18 you use a non linear assumption than a linear
19 assumption. So that's just an illustration of the
20 possible effects of that assumption.

21 MR. ELLISON: Let me just --
22 interrupting Dr. Ambrose, but let me just note for
23 the record, dated November 3rd, and not in the
24 staff's testimony previously. I won't object,
25 but --

1 DR. AMBROSE: Yeah, and, you know, I
2 have objections in my testimony about the
3 assumptions, and so I just am trying to illustrate
4 it, what I'm talking about in the testimony.

5 HEARING OFFICER FAY: So, could you --
6 your objection is noted and overruled for the same
7 reason. But, Dr. Ambrose, could you explain how
8 this relates to your previously filed testimony?

9 DR. AMBROSE: The --

10 HEARING OFFICER FAY: -- this argument
11 appear --

12 DR. AMBROSE: Yeah, the staff report
13 talks about non linear -- that natural processes
14 are not linear, and that the HEA assumes that
15 there's linear changes.

16 So, this is just an illustration of what
17 that means, if the functional relationship is non
18 linear, rather than linear.

19 HEARING OFFICER FAY: So this is a
20 graphic depiction of that --

21 DR. AMBROSE: Exactly. It's an --

22 HEARING OFFICER FAY: -- of that --

23 DR. AMBROSE: -- illustration of the
24 statement that there's a linear assumption in the
25 model, but that the actual processes will not be

1 linear.

2 HEARING OFFICER FAY: Okay. And there's
3 no numbers on this presentation that's titled time
4 life for resources losses?

5 DR. AMBROSE: No, it's just to
6 illustrate what that actually means, because I
7 think, you know, it's important -- what I'm trying
8 to show in talking about these assumptions is that
9 there's a lot of uncertainty about what the actual
10 outcomes will be. And that the numbers depend
11 critically on the assumptions.

12 And that typically -- well, the
13 assumptions are listed in Duke's appendix, I think
14 it's appendix E. But that there's not
15 justification for those assumptions. And yet it's
16 very important what exactly the nature of those
17 assumptions are.

18 PRESIDING MEMBER KEESE: You're saying
19 it's not linear. Are you saying that the line
20 goes up, or are you saying the curve goes down?

21 DR. AMBROSE: I don't know exactly what
22 the shape of this is.

23 PRESIDING MEMBER KEESE: Of the curve
24 is?

25 DR. AMBROSE: But according to Phil

1 Williams and -- because I have not looked at
2 sedimentation for the sake of this. But according
3 to Phil Williams, they say, based on their
4 modeling, that the line would go down.

5 Now, they don't put it this way, but
6 they say that sedimentation is going to increase
7 exponentially over time. And if that's true, then
8 that would be a curve that goes like this.

9 Okay, another assumption that's implicit
10 in the HEA output is how long before the projects
11 begin. And Duke assumes that the projects will
12 start -- resources two years, and according to the
13 HEP, two years after the permit is approved.

14 Actually I've heard testimony that it's
15 five years for the eelgrass, but at least I can't
16 find -- in appendix E I see that it's two years.
17 My feeling about that is that that's pretty
18 optimistic. Based on my experience with projects
19 like this, it can take a long time for projects to
20 actually get in the ground, because permit review,
21 environmental review, different issues that you
22 don't expect come up.

23 Just as an illustration I mentioned that
24 I have worked for many years on the San Onofre
25 Nuclear Generating Station mitigation project. I

1 mean that permit requiring Southern California
2 Edison to undertake the mitigation was given by
3 the Coastal Commission in 1990. And the wetland
4 mitigation project isn't even in the ground now.

5 So, there's litigation in that case.
6 There were changes that they didn't anticipate in
7 terms of hydrology when they did modeling.
8 There's just a lot of things in these projects
9 that can be very complicated projects and there
10 can be delays.

11 By way of illustration of what that
12 delay means, and this is the sort of sensitivity
13 analysis that I was suggesting, would be
14 interesting, in my written testimony, if you
15 delayed the project for five years instead of two
16 years, in the illustration --

17 HEARING OFFICER FAY: I'm sorry, the
18 project. Is that --

19 DR. AMBROSE: Sorry.

20 HEARING OFFICER FAY: -- Duke's power
21 plant or the habitat enhancement project?

22 DR. AMBROSE: These numbers -- what I
23 did is I ran their habitat equivalency analysis
24 model using the illustration that they have in
25 their appendix for eelgrass or the hoary cress

1 restoration project.

2 And so I'm looking at their output. And
3 their output for that, with a two-year delay, was
4 a credit of 2232 kilograms per acre. And if you
5 run that model with a five-year delay instead of a
6 two-year delay, then you get 2043 kilograms per
7 acre.

8 So that extra couple of years of delay
9 means that you get 10 percent less credit for
10 exactly the same project.

11 I mention this just to point out that
12 it's not trivial. I mean I think 10 percent is
13 not trivial, anyway. In terms of how many years
14 of delay there actually is before the projects.

15 MR. ELLISON: Dr. Ambrose, I apologize,
16 but once again I have to say this calculation's
17 not in the testimony. He says he ran the model.
18 If it had been in the testimony we could have
19 reviewed to make sure that he'd run the model the
20 same way that we've run it, and all those sorts of
21 things.

22 HEARING OFFICER FAY: Objection noted.

23 DR. AMBROSE: And, again, it's for
24 illustration. I don't think the actual numbers
25 make so much of a difference. I'm just trying to

1 show you that it makes a difference.

2 MS. HOLMES: If I could just make a
3 statement here. I think that's -- I'm really
4 sorry that this has caused so much consternation.
5 The only point that we had in trying to present,
6 do these calculations today, is to demonstrate to
7 the Committee about the sensitivity of the model
8 to each number of inputs.

9 And that when you're trying to determine
10 what the appropriate number is, and you're looking
11 simply at the outcome of the model, you need to
12 know how accurate that model is.

13 We're not trying to say that we've
14 identified what type of, for example how long you
15 should put into the model for benefits to begin
16 accruing. We're simply trying to point out that
17 the model output is sensitive to that assumption.

18 And that an analysis such as staff has
19 recommended in its testimony would take into
20 account those kinds of sensitivities in
21 establishing the end point, which is what it is
22 you're looking for.

23 That's all we're trying to do here.
24 We're not trying to say that 81 kilograms of
25 larval production per acre is the one figure and

1 the right figure is something else.

2 We're simply trying to point out that
3 the end result that you're getting, that you're
4 looking at, that you're being asked to approve is
5 based on this model. And we're simply trying to
6 point out to you that there's a whole lot of
7 unanswered questions about whether that model is
8 producing accurate results.

9 And that's why we've recommended in our
10 testimony that if the Committee decides to go down
11 the road of approving a HEP using this type of a
12 model, that we believe a lot more work needs to be
13 done with scientists. Not in a hearing type
14 proceeding, but in a collaborative type proceeding
15 such as we had with the technical working group,
16 to establish the appropriate inputs for the model.

17 That's the only intent of our testimony,
18 and I hope that --

19 HEARING OFFICER FAY: Thank you,
20 counsel. I understand your explanation, and I
21 appreciate that. But I am baffled why this
22 couldn't appear in your prefiled testimony since
23 all of the material you're using was available to
24 you at that time.

25 But, we are interested in developing as

1 full a record as we can. And the Committee will
2 weigh the testimony later in its deliberations.

3 So, we're not going to exclude this. Go
4 ahead. We're just concerned with the surprise
5 factor.

6 MR. ELLISON: Yeah, well, and -- Mr.
7 Fay, let me just say something. The statement of
8 counsel is very helpful. If the staff's point, if
9 all of this is really just to say that the HEA
10 model has assumptions in it, and that the outcome
11 of the result is sensitive to the assumptions that
12 you make, we will stipulate to that. There's
13 nothing controversial about that.

14 However, Dr. Foster's presentation, and
15 to some degree Dr. Ambrose's presentation, it
16 seems to me appear to go beyond that to say Duke
17 has make the wrong assumptions. And that the
18 outputs that we have put forward are incorrect.

19 If staff is not trying to make that
20 second point, as suggested, I believe, by Ms.
21 Holmes, then there's not controversial here. We
22 will stipulate that there are assumptions and that
23 the model is sensitive to the outputs.

24 But if staff is intending, for the first
25 time here, and not in their testimony, to make the

1 latter point, then we're going to have to get into
2 what the assumptions are and all of that. And
3 that requires a lot of expert testimony, and it's
4 not proper to do it in this way.

5 HEARING OFFICER FAY: Okay, --

6 MS. HOLMES: We're making the --

7 HEARING OFFICER FAY: Just a moment, Ms.
8 Holmes. I do want to keep moving ahead. What I
9 hear from the staff witnesses is some things that
10 are that it may be this, and it may be that.
11 Other things it's not as clear, and that they are
12 perhaps actually disagreeing with Duke.

13 And I think, Mr. Ellison, you're just
14 going to have to listen. And at the end of their
15 presentation take a minute to assess where you
16 are, and what we've got.

17 I understand staff's position, as Ms.
18 Holmes expressed it, and that may or may not be
19 exactly what the witnesses are testifying to, as
20 opposed, you know, a sensitivity analysis being
21 needed versus Duke's position is wrong.

22 So, with that I really would like to
23 keep moving. I think, you know, we want to keep
24 the record open and our minds open and give staff
25 a chance to make their presentation as they

1 conceived it.

2 And, after the fact, judge what kind of
3 handling is going to be fair. So, I'm sorry, Dr.
4 Ambrose.

5 DR. AMBROSE: I'll try to make clear the
6 distinction, myself, also. Because, for example,
7 in this case I actually think that two years is
8 optimistic. So there's a place where I disagree
9 with Duke.

10 But the illustration of the actual
11 number is just that I don't know that five years
12 is the right number. That's just to say that you
13 need a sensitivity analysis, you need to
14 understand what the consequences of having
15 different years are. And perhaps we could decide
16 later what the right years are.

17 So, I think there are elements of both
18 in my testimony.

19 Okay, next. The next assumption I
20 wanted to address was the project lifespan. Duke
21 assumes a project lifespan of 100 years for the
22 hoary cress and the eelgrass restoration projects,
23 and actually they also assume a project lifespan
24 of 50 years for the sediment control projects.

25 And this seems to me to be longer than

1 we can be certain that the projects will be
2 productive. A hundred years is a very long time.
3 And it seems to me that there are many possible
4 changes in the circumstances and environment,
5 climate changes, exotic species coming in,
6 differences, changes in sedimentation.

7 And then as an illustration, and
8 actually we heard testimony from Duke's expert
9 witnesses yesterday about this exact same
10 calculation. Again, I ran the HEA using a
11 different assumption of project lifespan, 50 years
12 instead of 100 years, just as a way of
13 illustrating how sensitive the output is. And, in
14 fact, you get 20 percent less credit for 50 years
15 compared to 100 years.

16 And then finally the last assumption has
17 to do with the resources that will be provided by
18 the restoration projects.

19 Duke relies on literature values and
20 assumptions about energy transfer across trophic
21 levels. And actually I have here inappropriate
22 literature values are used. I think that's the
23 case, but it was not clear to me what values went
24 into their estimate of 750 grams per meter squared
25 per year for primary productivity.

1 We heard yesterday that they have values
2 in the tables but they didn't actually use all
3 their values. And they haven't specified what
4 values were used and what values weren't used.

5 When I look at the values in the table
6 that I think are most appropriate, the 750 grams
7 per meter squared per year seems too high. I
8 guess the best I can say is that it's unclear what
9 the basis of their assumption is.

10 But those assumptions definitely add
11 uncertainty and the basic approach of converting
12 primary production to fish through this simple
13 trophic transfer, as Dr. Foster just mentioned, is
14 too simplistic. That isn't the way natural
15 ecosystems work. And so I just think it's not
16 realistic.

17 Probably I think more importantly is the
18 fact that Duke fails to subtract the existing or
19 the future habitat values when they calculate the
20 benefits of their different projects.

21 So, for example, in eelgrass
22 restoration, as I mentioned before, the mudflats
23 currently are supporting gobies. And yet, when
24 Duke calculates what the value is going to come
25 from their eelgrass restoration, they take it as

1 if it's an eelgrass creation project. And that
2 there were no values there before. And that the
3 750 grams per meter squared per year is going to
4 be completely attributable to their project, and
5 all the gobies that would result from that come
6 from their project. When, in fact, there's
7 existing gobies there now.

8 So that project is already productive.
9 And yet that value is not subtracted from their
10 benefits that they calculate, their credits.

11 As another example, in sedimentation
12 control, the concern is that the habitats, through
13 sedimentation, will change the high marsh. But
14 high marsh is a productive habitat. In fact, in
15 the tables that Duke has in their appendices for
16 the values that they show, many of those values
17 are for high marsh. And it's comparable in
18 productivity to low marsh.

19 And so it's not appropriate, I think, to
20 calculate credits for those projects without
21 recognizing that if those projects did not occur
22 there would still be productive habitat. There
23 would be value in those habitats.

24 And another issue having to do with the
25 resources that will be produced by these

1 enhancement projects is whether we can expect with
2 certainty that these projects will be successful.

3 So, I don't want to belabor this point,
4 but the success of wetland restoration projects
5 can't be assured. There have now been many
6 studies across the country that have done reviews
7 of wetland restoration projects, and without a
8 doubt, some wetland restoration projects are
9 successful and are productive. But many are not.

10 And it's not a certainty. You cannot,
11 even though in the -- value of habitat enhancement
12 program they're talking about these projects as if
13 they will produce these benefits. You can't count
14 on that.

15 I have several projects that I'm
16 familiar with in southern California where even
17 though reputable consultants designed the
18 projects, and it appeared like they were
19 constructed properly, they still don't have plants
20 growing in them, or the plants are stunted, or the
21 plants take very long to develop.

22 And so the productivity is not the sort
23 of productivity that is included as input into the
24 HEA.

25 And I think that probably the best way

1 that you can improve the chance of success is to
2 have careful project-specific monitoring, and
3 contingency plans and funding for contingencies,
4 so that you have an opportunity to go -- you have
5 enough money to go back in and try to fix the
6 project if it turns out that it's not successful.

7 Okay, so to try to highlight the main
8 points here, the model, I think, over-estimates
9 the benefits. There are a number of assumptions
10 that I think are overly optimistic. There's this
11 delay before the start of the project, that's too
12 short. And the project lifespans that are
13 probably too long.

14 Probably more importantly is the fact
15 that the model fails to account for the fact that
16 habitats have value, even without these projects.
17 And so you should only be calculating the net
18 benefits from the project, not the total benefits,
19 or the total productivity of a project.

20 And lastly, the whole approach doesn't
21 recognize the uncertainty about the success of
22 habitat restoration projects.

23 Thank you.

24 HEARING OFFICER FAY: Okay. Ms. Holmes,
25 do you have any other direct testimony?

1 MS. HOLMES: Yes, we do.

2 HEARING OFFICER FAY: Okay. Well, we
3 need to take a break right now, so I'd like to
4 take a break right now, and I think this is a
5 logical spot to do that. And we will take a ten-
6 minute break and then resume with the staff
7 presentation.

8 (Brief recess.)

9 HEARING OFFICER FAY: Back on the record
10 now. And we will continue with the staff's direct
11 presentation and testimony. Ms. Holmes.

12 MR. ANDERSON: This is a table that came
13 out of staff's testimony. There's been a lot of
14 discussion about funding, and a lot of comparisons
15 between the -- at least yesterday Duke presented
16 comparisons of their funds and the Regional
17 Board's funds, and ours. And so I just thought I
18 might go through this a little bit and explain
19 some of it.

20 First of all, it's an estimate. Staff
21 didn't recommend approval of the project using
22 once-through cooling; we were directed to consider
23 the HEP and do an objective review of it. And we
24 felt that funding amounts were low.

25 Some of the reasons for that were

1 discussed today in terms of the assumptions. And
2 if you remember, the Board, for projects, their
3 estimate, the Regional Board's estimates Michael
4 Thomas testified to yesterday was from \$12 million
5 to \$25 million.

6 Our estimate falls in the center of
7 that. Duke's estimate was 9.7, but yesterday they
8 said that 4.84, half of that, was for projects;
9 the other half, I think, was for monitoring and
10 administration.

11 So Duke's estimate would be 4.8 million
12 in that first line; the Board's would be 12 to 25;
13 and the Energy Commission's would be 19.4. So
14 there's quite a disparity there.

15 And it's because there's a lot of
16 inherent risk, as has been discussed earlier, in
17 trying to enhance habitat; trying to make up for
18 the losses. That we do need to keep in mind that
19 there's a chance of failure, as well as a chance
20 of success.

21 And we're trying to look at these
22 projects as they occur; and we're hoping to make
23 them, if this was the decision and we were
24 directed by the Committee to use habitat
25 enhancement or mitigation for once-through

1 cooling, we would like to make this as likely to
2 be successful as possible.

3 And it's not just the money makes more
4 success, but the cost of some of these projects
5 are difficult to predict. We don't even have
6 exact specific projects identified yet. Those
7 would be identified at some point by a group of
8 technical experts working together if this was
9 chosen, the mitigation was chosen.

10 So, anyhow, it's not uncommon for the
11 Energy Commission, as many of our cases for the
12 last two decades when there's a loss of habitat, o
13 a loss, there's also often a ratio to replace
14 those losses. And that can be two-to-one, three-
15 to-one, five-to-one, it depends upon what's going
16 on.

17 This is a little different case because
18 it's larvae in water. But if we just looked at
19 that same approach, two-to-one for what Duke had
20 proposed, simplistically I made it 19, just
21 doubled it. We also heard that some of their
22 assumptions may be quite low, and that it could be
23 two to several times what they estimated, also.

24 So, anyhow, that's a brief explanation
25 of how that 19.4 was. It's hypothetical. It's

1 not based on any specific projects. Essentially
2 it was a combination of what the Board had thought
3 was reasonable, and what Duke had proposed,
4 realizing that we felt they were understating the
5 cost.

6 I'm going to go down to monitoring. The
7 monitoring is important. We've heard that
8 throughout the testimony yesterday. What I've
9 proposed is that the money would be paid up front
10 in the form of an endowment instead of receiving
11 annual payments.

12 The estimate of need is \$250,000 per
13 year, which is the same as the Regional Board has
14 proposed. We think this is reasonable. Sounds
15 like a lot of money. Doesn't go very far in
16 today's world.

17 So the 8 million would be an endowment;
18 the 250 would be the amount of interest revenue
19 that could be spent per year. That's based on 3
20 percent. That 3 percent helps that 8 million grow
21 a little bit, so that it keeps pace with
22 inflation.

23 Any of that money that was left over,
24 upon determination of success, would be returned
25 to the applicant. The determination of success

1 would be something that would be determined yet in
2 the future by some group who set goals,
3 performance standards, and had decision points.

4 And administration. I've estimated
5 \$150,000 per year. Yesterday Michael Thomas
6 estimated \$100,000 per year. In administration I
7 include all the planning and permitting; it
8 includes technical advisory or technical
9 scientific or experts which the Regional Board
10 broke out separately. So that \$100,000 is
11 approximately 1.5 or two positions, depending upon
12 how highly they're paid.

13 There is significant need for
14 administration. There's a lot of things that
15 would -- if you start thinking about permitting a
16 dredging project, you know you're in for several
17 years of permitting and several years probably
18 after that before anything actually is done. So
19 there's a lot involved there. It can go on for
20 quite awhile.

21 Monitoring could continue for decades
22 because the chance of success on some of these
23 projects, in my mind, will not occur overnight.
24 Depending upon the projects, which are not
25 specified yet, it could take a decade or more.

1 And it could be several decades before we actually
2 concur that some performance standard is reached.

3 So, anyhow the administration money
4 probably would go on for the life of the project,
5 all 50 years, if there was some reason that it was
6 no longer needed. Again, the excess money could
7 be returned to the applicant.

8 Contingency funds is a category of money
9 that Duke called their safety net, and they used
10 2.8 percent; 2.8 percent was approximately 30
11 percent of 9.7 million in terms of what Duke used.
12 Six million is approximately 30 percent of 19.4.

13 Without specific projects, without much
14 more thought put into this, it's hard to identify
15 the exact number. But if projects don't work,
16 you'll be finding that out at year ten or year
17 seven, or whatever. We find that things need to
18 be maintained, need to be changed, modified. Then
19 it would be nice to have a pot of money to make
20 that happen. Because if the mitigation isn't
21 successful, it's not mitigation, it's not been
22 completed.

23 That 6 million again would be in an
24 account. That could come later; wouldn't
25 necessarily have to come up front. Could come at

1 a couple years down the road after power plant
2 operation.

3 And if it was not used, again, the
4 excess could be returned to the applicant.

5 We prefer money up front. We've had
6 some troubles in the past with bankruptcy, for
7 example, where the mitigation wasn't completed.
8 And Diablo Canyon is an example of a bankruptcy
9 where mitigation, although it was determined years
10 ago, hasn't occurred.

11 All that adds up to 37.4, which seems
12 like a high number. Some of this money would come
13 back to the applicant.

14 If you look at and really consider what
15 the Board has proposed, it's not that different.
16 They've got their \$12- to \$25-million, but they
17 also have additional funds, they're built on a
18 five-year plan because there's a renewal every
19 year and they make a new decision about whether
20 it's to continue, whether more is needed or less.
21 But it's not that far off from the Regional
22 Board's.

23 Next. So currently staff
24 recommendations are -- is there one before that?
25 Conclusions, maybe?

1 Yeah. I just wanted to wrap this up.
2 We have some concerns about the HEP proposal. And
3 we have concerns about habitat enhancement in
4 general.

5 We said in our FSA that it's possible
6 for it to be successful. But we're skeptical
7 because a lot of times it's not successful. And
8 we don't believe there's a clear nexus, especially
9 on out-of-Bay projects to the losses occurring
10 from once-through cooling.

11 So, insufficiently defined nexus.
12 Substantial concerns with the HEA models were
13 discussed. Unrealistic success goals, assumptions
14 and timeframes for the HEP projects. Inadequate
15 monitoring proposed. Lack of sufficient
16 contingency planning. And inadequate funding for
17 administration, project implementation, monitoring
18 and contingencies.

19 Next one. So staff recommends -- before
20 I say what staff recommends, I want to say that
21 the estuary is a treasure. It's been discussed
22 several times. It's a national and a state
23 estuary. It's a small estuary. It's very
24 valuable. It's only going to become increasingly
25 valuable in the future, just due to the fact that

1 there aren't that many estuaries.

2 And the power plant is causing impacts
3 that are going to be very hard to mitigate.

4 So, the recommendation is that, to the
5 extent feasible, staff recommends avoidance of
6 adverse impacts of once-through cooling to aquatic
7 biological resources in Morro Bay.

8 And according to the criteria set forth
9 in staff's analysis, the HEP contains major and
10 minor flaws that render it inadequate. And we do
11 not recommend the HEP.

12 And we also feel that the power plant's
13 too big for the estuary.

14 Thank you.

15 HEARING OFFICER FAY: Ms. Holmes.

16 MS. HOLMES: The witnesses are available
17 for cross-examination.

18 HEARING OFFICER FAY: Okay. All right,
19 Mr. Ellison.

20 MR. ELLISON: Thank you, Mr. Fay. When
21 I came in this morning I thought I had very little
22 cross-examination, but now I have more. And
23 you'll forgive me for being a little more
24 disorganized than I would like to be because of
25 that.

1 CROSS-EXAMINATION

2 BY MR. ELLISON:

3 Q Let me begin by -- and I'll just address
4 my questions to the panel. First of all, Duke
5 relied upon independent assessments of the cost
6 and feasibility of the representative HEP projects
7 that were conducted by Philip Williams and
8 Associates and the National Estuary Program,
9 correct?

10 MR. ANDERSON: I don't know if that's
11 true.

12 MR. ELLISON: What is your understanding
13 of where the representative HEP projects cost and
14 feasibility? You've heard the testimony in this
15 proceeding and you've read Duke's testimony,
16 correct?

17 MR. ANDERSON: Yes.

18 MR. ELLISON: Okay. Do you have any
19 reason to disagree with what I just stated about
20 the origin of those cost estimates, those
21 construction cost estimates?

22 MS. HOLMES: I'm sorry, I was going to
23 ask a question of clarification, this is simply
24 referring to the construction cost estimates? Is
25 that all you're referring --

1 MR. ELLISON: Yes.

2 MS. HOLMES: -- to at this point --

3 MR. ELLISON: Construction costs.

4 MR. ANDERSON: I believe the
5 construction cost estimates are reasonable. Was
6 that your question?

7 MR. ELLISON: No, but thank you for
8 that.

9 (Laughter.)

10 MR. ELLISON: The question, though, was
11 that the construction cost estimates that you were
12 just referring to were independent estimates
13 specific for the six projects that came from Phil
14 Williams and Associates -- excuse me, Philip
15 Williams and Associates, and the National Estuary
16 Program, correct?

17 MR. ANDERSON: I don't know if they came
18 from Philip Williams; I saw them in your proposal.

19 MR. ELLISON: Okay, well, Duke has
20 testified that that's where they came from. Do
21 you have any reason to disagree with that?

22 MR. ANDERSON: No.

23 MR. ELLISON: Have you reviewed the
24 Philip Williams and Associates report, for
25 example?

1 MR. ANDERSON: I haven't read it all;
2 I've reviewed it.

3 MR. ELLISON: Have you reviewed the
4 National Estuary Program's comprehensive
5 management plan?

6 MR. ANDERSON: I've reviewed that.

7 MR. ELLISON: Did the staff perform any
8 specific engineering or feasibility or cost
9 analysis of the representative HEP projects
10 similar to that that Philip Williams and
11 Associates did, or the National Estuary Program
12 did?

13 MR. ANDERSON: The answer is yes or no,
14 but -- yes and no, but it's a little complex. If
15 you'll let me explain?

16 MR. ELLISON: Well, let me just rephrase
17 the question. Did you do an independent analysis
18 of the construction costs of those representative
19 projects similar to what, for example, Philip
20 Williams did?

21 MR. ANDERSON: No.

22 MR. ELLISON: Okay. Do you have any
23 reason to believe that Philip Williams and
24 Associates are not objective?

25 MS. HOLMES: I don't want to make an

1 objection, but he's already testified to the fact
2 that the costs were reasonable. So, if we
3 could --

4 MR. ELLISON: I understand. I
5 understand -- well, the Philip Williams and
6 Associates report goes into some other things
7 besides cost. Do you have any reason to believe
8 that Philip Williams and Associates are not
9 objective and competent to do the kind of work
10 that's represented in their report?

11 MR. ANDERSON: I think they're very
12 knowledgeable about sedimentation issues.

13 MR. ELLISON: That's not my question.
14 Do you have any reason to believe that they're not
15 objective and competent with respect to the kind
16 of work that's represented in their report?

17 MR. ANDERSON: No.

18 MR. ELLISON: And the same question with
19 respect to the National Estuary Program?

20 MR. ANDERSON: No.

21 MR. ELLISON: There's been quite a bit
22 of discussion of the creation of habitat, the
23 restoration of habitat, and the preservation of
24 habitat.

25 Let me begin by stating what I

1 understand to be the difference between those
2 three terms.

3 I understand that when I use the words
4 creation of habitat, that I'm referring to the
5 creation of habitat where it has not existed in
6 that form historically.

7 The restoration of habitat I understand
8 to mean the returning of debilitated habitat to
9 its prior fully functional state.

10 And that the preservation of habitat
11 would mean the preservation of existing natural
12 habitat.

13 Without being too wedded to the
14 particular words, is that, generally speaking,
15 your understanding of those terms?

16 MR. ANDERSON: I think it sounded right.

17 MR. ELLISON: Is it fair to say that
18 each of those are distinctly different concepts
19 with a unique set of both problems and
20 opportunities?

21 MR. ANDERSON: I don't think so.

22 MR. ELLISON: Do you believe that the
23 issues associated with the creation of new habitat
24 are applicable to, for example, the preservation
25 of existing habitat? Are they the same thing as

1 far as you're concerned?

2 MR. ANDERSON: Did you ask if creation
3 and preservation were the same thing?

4 MR. ELLISON: Yes, with respect to the
5 problems that you have -- I'm sorry, that's not a
6 good question. Let me rephrase it.

7 Do you believe that when you refer to
8 the restoration, to problems with the restoration
9 projects, are you referring only to restoration as
10 I defined it, or are you referring to restoration
11 including creation, restoration and preservation?

12 MS. HOLMES: Are you specifically
13 referring to the testimony Dr. Ambrose gave?

14 MR. ELLISON: I'm referring to staff's
15 testimony generally.

16 DR. AMBROSE: So I guess I should go
17 back to your distinction of between restoration,
18 preservation and creation. So, I agree with those
19 distinctions. Actually, I would add another one,
20 enhancement, too, which would be to take an
21 existing habitat that's degraded and to improve
22 it. But still have the same basic functions.

23 And when I talk about the success of
24 restoration I'm using it in a much broader sense
25 than the narrowly defined restoration that you had

1 defined. And so it would include creation,
2 enhancement and restoration. And actually,
3 usually would not include preservation.

4 MR. ELLISON: And so when you were using
5 restoration in your testimony you meant you did
6 not mean to include preservation, but you did mean
7 to include the other three that you just
8 mentioned?

9 DR. AMBROSE: That's correct.

10 MR. ELLISON: Okay, thank you. Let me
11 address this to Dr. Ambrose. You presented some
12 testimony this morning on the issue of the
13 sensitivity of the HEA model to assumptions.

14 I understand that one of the key
15 assumptions in the HEA model is the energy
16 transfer rate, the 4 percent and 10 percent
17 assumptions that Duke made.

18 Do you agree that that's a fundamental
19 assumption of the HEA model?

20 DR. AMBROSE: Yes, and especially when
21 you're talking about energy transfer you're
22 talking about the whole process going from primary
23 productivity transfer to secondary to being
24 transferred to fish.

25 So when you're asking if that's a

1 fundamental assumption, you're talking about that
2 whole process?

3 MR. ELLISON: Well, let me ask it both
4 ways. First, with respect to the whole process?

5 DR. AMBROSE: Yeah. I mean I think that
6 is the fundamental assumption of Duke's
7 application of the habitat equivalency analysis.

8 MR. ELLISON: Okay, now let me just ask
9 you the same question with respect to only the 4
10 percent energy transfer rate to invertebrates and
11 then the 10 percent transfer rate to fish. Would
12 you also agree that those, in particular, are
13 fundamental assumptions of the model?

14 DR. AMBROSE: I don't know, I guess I'm
15 not sure what you mean by fundamental. They are
16 assumptions in the model. They certainly affect
17 the output of the model.

18 MR. ELLISON: Okay. You heard, I
19 assume, Mr. Campbell testify a few moments ago
20 that if you were to, for example, double the 4
21 percent energy transfer rate and make it 8
22 percent, that that would have the effect of
23 approximately halving the amount of habitat
24 mitigation required. Do you recall that?

25 DR. AMBROSE: I do recall that.

1 MR. ELLISON: Do you have any reason to
2 disagree with that?

3 DR. AMBROSE: I don't.

4 MR. ELLISON: So it's fair to say that
5 that assumption has a fairly linear relationship
6 to the conclusion, correct?

7 DR. AMBROSE: It certainly has an effect
8 on the outcome. And it probably is linear, yes.

9 MR. ELLISON: Okay. Duke has testified
10 that the literature, and let me focus now just on
11 the 4 percent energy transfer assumption, that the
12 literature for reasonable estimates of that
13 transfer ranges from 4 percent to 10 percent. Is
14 that also your understanding?

15 DR. AMBROSE: I've heard that testimony.
16 I have not searched the literature to see what the
17 range of efficiency values are for that, so I
18 can't testify to that.

19 MR. ELLISON: Do you have any reason to
20 disagree with it?

21 DR. AMBROSE: I've no reason to
22 disagree, no.

23 MR. ELLISON: Okay. Are you aware of
24 any energy transfer rates for that particular
25 energy transfer that are any credible literature

1 that shows a transfer rate of less than 4 percent?

2 DR. AMBROSE: I'm not aware of any.

3 MR. ELLISON: Okay. Do any other
4 members of the panel have any different answers to
5 those last two or three questions?

6 Have you, Dick -- Mr. Anderson, I
7 apologize, and Dr. Foster, have you reviewed the
8 literature?

9 DR. FOSTER: If you're talking about
10 transfer efficiency, no, I have no reason to
11 disagree with what you're saying.

12 MR. ELLISON: Okay. And, Mr. Anderson,
13 do you have any reason to disagree?

14 MR. ANDERSON: No.

15 MR. ELLISON: Okay. And now I'd like to
16 focus on the 10 percent energy transfer rate from
17 the invertebrates to the fish.

18 I understand that the literature for
19 that suggests that the appropriate number is 10 to
20 20 percent; and that, in fact, NOAA uses 20
21 percent. Is that also your understanding?

22 DR. AMBROSE: It's my understanding from
23 reading the Duke documents.

24 MR. ELLISON: Okay, let me ask the
25 panel, as a whole, do any of you have any reason

1 to believe that Duke's testimony that that's the
2 range is incorrect?

3 DR. FOSTER: No.

4 MR. ANDERSON: No.

5 MR. ELLISON: Okay. And similarly --
6 well, -- Dr. Foster, I'd like to ask you some
7 questions about the export ocean and land, for
8 lack of a better -- let me call it the spaghetti
9 diagram --

10 (Parties speaking simultaneously.)

11 MR. ELLISON: -- the one that shows the
12 energy transfer flows.

13 And in fact, can we put that up on the
14 screen? Would that be --

15 (Pause.)

16 MS. HOLMES: Again, just for the record,
17 perhaps Dr. Foster could explain where that came
18 from, since it is not included in staff's direct
19 testimony.

20 HEARING OFFICER FAY: That would be
21 helpful.

22 MS. HOLMES: I'll hold up the book.

23 HEARING OFFICER FAY: It's titled,
24 "Export: Ocean and Land"? Land, "Ocean and Land."

25 MS. HOLMES: It's an example of a --

1 it's a depiction of a food web that comes from a
2 book entitled, "Marine Biology and Ecological
3 Approach" written by James W. Nybakken.

4 DR. FOSTER: So, anyway, it's not new.
5 You could find this in any text book that dealt
6 with estuaries. And all I did was add to it a
7 little bit because the --

8 MR. ELLISON: I'm sorry --

9 DR. FOSTER: All I did was add to it.

10 MR. ELLISON: I'll ask the questions;
11 you provide the answers. That's the way this
12 works.

13 DR. FOSTER: That's the way it works. I
14 can hardly --

15 (Laughter.)

16 MR. ELLISON: Okay, first of all, this
17 may be what you were about to say, all you did was
18 add to it, is highlighting in blue the one
19 particular path of energy transfer, is that fair?

20 DR. FOSTER: No, can I amplify on
21 your --

22 MR. ELLISON: Please, go ahead, describe
23 how you modified this.

24 DR. FOSTER: Well, the first
25 modification is that this was presumably for an

1 estuary that didn't have any eelgrass in it, so I
2 put eelgrass, because that's pertinent to our
3 discussions here.

4 Then the second modification was to
5 outline the path in blue, which is what the
6 trophic -- the transfer efficiency deals with.

7 And then the other modifications were to
8 indicate that this particular generalized model
9 didn't include export, which is the movement of
10 either eelgrass, salt marsh plants directly to
11 some other place, or via detritus to some other
12 place. And that occurs in the ocean and to land,
13 okay?

14 And then finally, the other thing I
15 added down in the lower right-hand corner is the
16 fish, gobies, flounders -- the system, and that
17 includes entrainment in this case, just to
18 illustrate, to make it pertinent to what we're
19 talking about here.

20 That's all I did.

21 MR. ELLISON: Now do I understand
22 correctly that you are using this just for the
23 concepts here, and that I believe I heard you say
24 that this was from an Atlantic Ocean example?

25 DR. FOSTER: Actually, I didn't look up

1 Nybakken's use of it. He calls it a generalized
2 estuarine food web, not a spaghetti diagram,
3 and --

4 (Laughter.)

5 DR. FOSTER: -- he gives a citation for
6 it, which I didn't look up, but my guess is, given
7 the species in this, okay, that it is primarily
8 based on east coast system. But it's particularly
9 for illustrative purposes. I could sit down here
10 and draw one for Morro Bay if you wanted.

11 MR. ELLISON: No, I don't. I just
12 wanted to establish that it's conceptual and that
13 your point is that the energy transfer is complex,
14 but that the particular species that are
15 identified, and here's my real question. I just
16 want to make clear that particular species that
17 are identified here are not necessarily
18 representative of what we have here in Morro Bay.

19 DR. FOSTER: Correct.

20 MR. ELLISON: So, for example, if under
21 fish, flounder is not particularly --

22 DR. FOSTER: Right. I think -- sand
23 dabs and things.

24 MR. ELLISON: All right. So this is not
25 a Morro Bay-specific example, but it is a

1 conceptual example of the food web, is that fair?

2 DR. FOSTER: Fair.

3 MR. ELLISON: Okay. And the blue, the
4 path that you've highlighted in blue is the path
5 that is recognized in Duke's HEA calculation, do I
6 understand that correctly?

7 DR. FOSTER: It's the path shown in the
8 transfer efficiency diagram in Duke's HEP.

9 MR. ELLISON: And the species that are,
10 and again this is conceptual, that are subject to
11 entrainment would be conceptually the detritus
12 feeders and the fish, is that fair?

13 DR. FOSTER: I hadn't thought about
14 that, but certainly the fish larvae. And if you
15 look at the -- well, anything in here that had
16 larvae and the plankton would be susceptible to
17 entrainment. The 316(b) had to focus, of
18 necessity, on fish larvae and crab larvae. And we
19 did a little work with clams, but not in the
20 quantitative sense.

21 MR. ELLISON: Let me ask a more specific
22 question. We were just discussing a moment ago
23 the 4 percent energy transfer rate.

24 DR. FOSTER: Yeah.

25 MR. ELLISON: I understand that that's

1 the energy transfer rate represented by the second
2 of your blue arrows; one for the detritus to
3 detritus feeders, is that correct?

4 DR. FOSTER: Can I get up there and
5 point to it?

6 MR. ELLISON: Yes. Although remember we
7 have a transcript, so.

8 DR. FOSTER: So the first part of the
9 transfer efficiency calculation -- starts here.

10 MR. ELLISON: Well, I'm not asking you
11 to fully explain it. Let's just stick to the
12 question.

13 DR. FOSTER: Go ahead.

14 MR. ELLISON: The question I asked was
15 do I correctly understand that the 4 percent
16 energy transfer rate that we're talking about,
17 that the transfer is represented by the second of
18 the blue arrows, the one from detritus to detritus
19 feeders?

20 DR. FOSTER: No, this is the 10 percent.
21 This one here?

22 MR. ELLISON: Well, I see three blue
23 arrows. The first going from eelgrass and salt
24 marsh to detritus.

25 DR. FOSTER: Oh, all right, okay.

1 MR. ELLISON: The second from detritus
2 to detritus feeders.

3 DR. FOSTER: Right.

4 MR. ELLISON: Third from detritus
5 feeders to fish.

6 DR. FOSTER: Right.

7 MR. ELLISON: Okay. Let me ask the
8 question.

9 DR. FOSTER: Okay.

10 MR. ELLISON: The second of those blue
11 arrows, detritus to detritus feeders, is that the
12 transfer that is represented by our discussion of
13 the 4 percent transfer rate?

14 DR. FOSTER: And let me just answer by
15 elaborating a little bit. In the way you guys
16 presented it, you had little microbial loop, which
17 had processing -- took it down to 4 percent rather
18 than 10 percent probably.

19 So, really it's this portion in here.
20 It's both of these arrows.

21 HEARING OFFICER FAY: Could you indicate
22 what --

23 DR. FOSTER: -- (inaudible) it's the
24 arrow that goes from eelgrass salt marsh to
25 detritus, as well as the detritus down to the

1 detritus feeders.

2 MR. ELLISON: Okay.

3 DR. FOSTER: It represents this whole
4 section in here.

5 MR. ELLISON: Okay, and that's the
6 transfer rate you said could have been 10 percent,
7 but that Duke took down to 4 percent by way of the
8 microbial loop, is that correct?

9 DR. FOSTER: Just a second ago, but I
10 just used Duke's figures, I didn't --

11 MR. ELLISON: I understand. And then,
12 again, for clarification, the third, the longest
13 of the arrows, the one from detritus feeders to
14 fish, that's the one for which Duke assumed a 10
15 percent energy transfer, correct?

16 DR. FOSTER: Right, as I understand it.

17 MR. ELLISON: All right. Now, let me
18 ask you, while you're still up there, let's take
19 the fish. In addition to the arrow that you've
20 highlighted there are three other incoming arrows,
21 one from invertebrate predators, one from filter
22 feeders, one from zooplankton, do you see those
23 three? Do you see those three?

24 DR. FOSTER: Yeah, I see them, this one,
25 this one, and that one.

1 MR. ELLISON: That's correct. Those all
2 represent additional energy transfers, if you
3 will, positive energy transfers to the fish,
4 correct?

5 DR. FOSTER: Correct.

6 MR. ELLISON: And some of those arrows,
7 if you follow them back through the food chain,
8 some of them lead, at least in part, back to the
9 eelgrass and salt marsh, correct?

10 DR. FOSTER: Some of them, yeah.

11 MR. ELLISON: Okay. And Duke did not
12 take credit in its HEA calculation for those
13 energy transfers, correct?

14 DR. FOSTER: Well, if you eliminate this
15 one, then you just are looking at inputs, okay?

16 HEARING OFFICER FAY: Please state what
17 it is rather than "this".

18 DR. FOSTER: The point of this diagram
19 is that -- goes from light to phytoplankton;
20 there's another one goes from light to algae. And
21 there's another one that I didn't add to this that
22 goes from light to basic phytoplankton which is
23 what Dr. Ambrose was talking about, that grows on
24 mudflats, okay?

25 MR. ELLISON: Okay.

1 DR. FOSTER: So, disregarding those,
2 what I understand what Duke did was to send
3 everything in this direction, everything.

4 HEARING OFFICER FAY: In which
5 direction?

6 DR. FOSTER: From salt marsh to detritus
7 to detritus feeders to fish. They sent all the
8 productivity through that. And they based their
9 comparison of acres of marsh production to
10 kilograms of fish on that assumption.

11 And so you can answer all you want about
12 this other stuff, but to me that's a key issue.

13 MR. ELLISON: Is it your understanding
14 that Duke -- here's my question, that was not
15 really responsive.

16 Did Duke take any credit for the energy
17 transfers represented by the three arrows -- other
18 than the three incoming arrows, other than from
19 detritus feeders?

20 DR. FOSTER: I don't know what you mean
21 by credit.

22 MR. ELLISON: Did they assume any
23 benefit of the representative projects by way of
24 an energy transfer other than the one you've
25 highlighted in blue, detritus feeders to fish? If

1 you know. If you don't know, say so.

2 DR. FOSTER: I don't think I really
3 know.

4 MR. ELLISON: Okay.

5 DR. FOSTER: Again, they took full
6 credit -- full credit, I understand, for
7 everything that was here, and they assumed that
8 all (inaudible). They took complete full credit
9 based on their calculations of productivity, but
10 all of that went this way.

11 MR. ELLISON: So it's your understanding
12 that Duke was saying that 100 percent of the
13 energy value of the eelgrass is transferred to the
14 detritus feeders and to the fish by way of those
15 blue arrows, is that what you're saying?

16 DR. FOSTER: That's my understanding.

17 MR. ELLISON: So it would be 4 percent
18 energy -- it's your understanding that, for
19 example, a 4 percent energy transfer rate from
20 detritus to detritus feeders? By way of that 4
21 percent energy transfer rate, all of the energy
22 value in the detritus transfers to the detritus
23 feeders, is that your understanding, Dr. Foster?

24 DR. FOSTER: The percentage -- can I
25 clarify this by going back to the transfer

1 efficiency model?

2 MR. ELLISON: Just answer the question.
3 Is it your understanding -- what I understood you
4 to just testify to was that 100 percent of the
5 energy value of the eelgrass and salt marsh
6 transfers along the blue arrows in Duke's concept,
7 you believe that they've assumed 100 percent of
8 that energy value transfers along that path that
9 you've highlighted, is that what you testified to?

10 DR. FOSTER: (inaudible) to agree with
11 100 percent; what I testified to is that
12 everything, because of percentages of efficiency
13 calculation, is that, as I understand it, all the
14 production of the salt marsh and eelgrass was
15 transferred to the fish.

16 MR. ELLISON: Okay. Let me ask a
17 question generally of the panel. There's been
18 some discussion that the staff has concerns that
19 Duke's assumptions in the HEA model are not fully
20 explained or the staff is uncertain of how perhaps
21 they were derived.

22 Duke set forth its assumptions for the
23 HEA model in its HEP filing. Presumably the staff
24 reviewed those, correct?

25 DR. AMBROSE: Correct.

1 MR. ELLISON: And there was a public
2 workshop at which staff had the opportunity to ask
3 Duke about any or all of the assumptions that you
4 were concerned about, correct?

5 MR. ANDERSON: There was a public
6 workshop.

7 MR. ELLISON: And you had an opportunity
8 at that public workshop to ask Duke about any
9 assumptions that you were uncertain about,
10 correct?

11 MR. ANDERSON: Yeah, you could say that.

12 MR. ELLISON: And there was a discovery
13 period in this proceeding in which you could have
14 asked those questions, as well, correct?

15 MR. ANDERSON: You mean since the
16 workshop?

17 MR. ELLISON: No.

18 MR. ANDERSON: Before that? I don't
19 know that we -- well, --

20 MR. ELLISON: After the filing of Duke's
21 HEP.

22 MS. HOLMES: We'll stipulate that there
23 was a schedule that allowed for data requests and
24 that staff filed them. I don't --

25 MR. ELLISON: And for that matter, in

1 the time that has elapsed between Duke's filing of
2 the HEP and today, Duke could -- I mean the staff
3 could have sent a letter to Duke, made a phone
4 call to Duke, inquiring about the uncertainties
5 and any questions that you might have had about
6 these things, as well, correct?

7 MR. ANDERSON: Can we contact Duke
8 directly?

9 MS. HOLMES: This is not -- we're
10 turning into something that isn't testimony. We
11 can talk about procedurally what happens when
12 staff has questions, if we want to. But I don't
13 feel this is appropriate as testimony. I'm happy
14 to talk to the Committee about it, if they would
15 like.

16 HEARING OFFICER FAY: Okay. I'm going
17 to direct Mr. Anderson to answer the question yes
18 or no, and he can explain if he needs to.

19 MS. HOLMES: That's fine.

20 MR. ANDERSON: I guess we could have.

21 MR. ELLISON: Dr. Ambrose, let me ask
22 you a couple questions about your appendix to the
23 staff's testimony that I understand you prepared.

24 Let me refer you to page A-7.

25 DR. AMBROSE: Okay.

1 MR. ELLISON: Based on what you've heard
2 from Duke in these hearings, as well as what's
3 been filed, -- I'm sorry, let me direct your
4 attention, first of all, to the last half of the
5 first paragraph under funding, where you discuss
6 the doubling of the construction costs. Do you
7 see that discussion?

8 DR. AMBROSE: I do.

9 MR. ELLISON: And you've heard Duke's
10 testimony that they took the high end of the
11 independent estimates of the construction costs
12 and roughly doubled them; in some cases it was
13 slightly less than doubled; in a couple cases it
14 was slightly more. But overall it was roughly a
15 doubling, is that your understanding?

16 DR. AMBROSE: It wasn't on the high end
17 for every construction, I don't believe. I think
18 there was one where the high end was 2 million and
19 you used a 1 million.

20 MR. ELLISON: Let's take that one. I
21 understand Duke's testimony to be that in that
22 case the \$2 million was for a -- the
23 representative project was a subset of the project
24 identified by Philip Williams and Associates that
25 would have cost up to 2 million. Is that also

1 your understanding?

2 DR. AMBROSE: I heard that same
3 testimony.

4 MR. ELLISON: Okay. And that therefore
5 they took the high end, a million dollars, of what
6 they thought was the estimate for the portion of
7 the project that became the representative project
8 in the HEP, is that also your understanding?

9 DR. AMBROSE: Yes.

10 MR. ELLISON: Okay. With that
11 understanding, do you agree that Duke essentially
12 doubled the construction costs?

13 DR. AMBROSE: Yes, they doubled the
14 construction costs.

15 MR. ELLISON: Okay. And you also heard
16 Duke's testimony that they did that in part to
17 account, to provide funds for such things as
18 administration, monitoring, active management,
19 those kinds of things, correct?

20 DR. AMBROSE: Yeah, that's much clearer
21 from the testimony than it was from the HEP.

22 MR. ELLISON: But that's your
23 understanding now, correct?

24 DR. AMBROSE: It is my understanding
25 now.

1 MR. ELLISON: Okay. And I understand
2 your point here in the final line where you say
3 the cost may be a realistic estimate of the
4 project as currently envisioned, but they do not
5 include the substantial safety buffer that Duke
6 claims.

7 I understand the point you're making
8 there is that that doubling is intended to account
9 for monitoring, administration and I'm going to
10 use the phrase active management, rather than a
11 safety buffer, is that your point?

12 DR. AMBROSE: That was my point.

13 MR. ELLISON: Okay. Now, I understand
14 the active management is intended to respond to
15 unforeseen events, if you will. Is that also your
16 understanding?

17 DR. AMBROSE: Yes.

18 MR. ELLISON: So there's some safety
19 margin in providing money for unforeseen events,
20 is there not?

21 DR. AMBROSE: There is.

22 MR. ELLISON: It's been represented to
23 me, and I'm not asking you to agree with this or
24 disagree with it, but just for the sake of the
25 question, it's been represented to me that Duke

1 assumed that 25 percent of that doubling was
2 intended to be for monitoring. And the other
3 percentages were for the administration and active
4 management and what-not.

5 So, I'd like you to assume for the next
6 few questions that's correct, that the 25 percent
7 of that doubling was for monitoring.

8 By doubling the construction costs the
9 doubling represents -- the 25 percent of the
10 incremental doubling is the same as saying 25
11 percent of the base construction costs, correct?

12 DR. AMBROSE: That sounds right.

13 MR. ELLISON: Okay.

14 (Laughter.)

15 MR. ELLISON: So Duke has essentially
16 assumed, accepting my 25 percent, that they've
17 provided project-specific monitoring funds equal
18 to 25 percent of the construction costs, correct?

19 DR. AMBROSE: Yes.

20 MR. ELLISON: Okay. Now, the staff, as
21 I understand it, took Duke's number, the \$9.7
22 million, which represents the doubling of the
23 construction costs, and doubled that, is that
24 correct? Is that also your understanding?

25 MR. ANDERSON: That was one of the ways

1 we arrived at the number, 19.4.

2 MR. ELLISON: Is there any other way
3 that you arrived at it?

4 MR. ANDERSON: Yeah, we looked at it
5 from several standpoints. One was in our, you
6 know, in our PSA we had, I think, \$11- to \$22-
7 million. The habitat equivalency acreage was very
8 similar to the Board's. In fact, I think it was
9 the same as the Board's.

10 We didn't propose an exact project in
11 our FSA testimony on the HEP. We just took a look
12 at the HEP, and we estimated the types of costs
13 that probably would be appropriate, since we
14 considered your proposal to be quite an
15 understatement.

16 So, in looking at doubling your money
17 because we thought you were understating by as
18 much as four to six times, as Mike pointed out.
19 We also considered the Board's 12- to 25-million
20 was in the ballpark with what we had that in the
21 PSA where we used costs of acreage that we
22 obtained from the National Estuary Program, from
23 Mike Multari.

24 And both of those ended up in about the
25 middle of the Board's range and our PSA range.

1 And so those were a couple ways we looked at it.
2 They're just estimates, but they're more than what
3 Duke estimates.

4 MR. ELLISON: Now you understand that
5 the Board's range is a range for achieving a 42
6 percent or 52 percent sediment reduction overall
7 as part of their TMDL program, correct?

8 MR. ANDERSON: Well, I understand they
9 talked about it; 42 percent would cost 12 million;
10 and 52 percent would cost 25 million. I don't
11 know that the ultimate decision for the cost will
12 identify 42 or 52, that's the TMDL program, not
13 mitigation for the power plant.

14 MR. ELLISON: Well, that's what I was
15 asking, thank you. That's my point.

16 So the 12- to 25-million is apples to
17 oranges to the cost of mitigating the
18 modernization project, correct?

19 MR. ANDERSON: Well, I'd say that
20 they're spending that money on sedimentation
21 control which doesn't increase the habitat of the
22 Bay. It simply slows the decline.

23 So, if they were to just mitigate only
24 for that, we would say it was inadequate.

25 MR. ELLISON: That's not my question.

1 My question is -- never mind, we'll just skip past
2 it.

3 So you said that in addition to just
4 doubling it, you doubled it also to correspond to
5 what you thought the Regional Board's \$12- to \$25-
6 million range was, and also to be within the range
7 in the PSA? That's what I understood you to say.
8 Is that right?

9 MR. ANDERSON: Somewhat.

10 MR. ELLISON: Okay. Back to my other
11 question. When you double, we've agreed that
12 assuming that 25 percent of Duke's doubling of the
13 high end of the construction costs is Duke's
14 assumption for monitoring, project-specific
15 monitoring.

16 When the staff doubles that, it would be
17 at 50 percent of the high end of the project
18 construction costs, correct?

19 MR. ANDERSON: We don't agree with your
20 calculations at all. So you came up with 100-and-
21 some acres, and the Board came up with 391 to 759.
22 So you're down by -- you're about 25 percent of
23 their calculated acreage.

24 So, the amount of money you're proposing
25 on hypothetical projects doesn't make much sense

1 to us. It's way low.

2 MR. ELLISON: I understand that the
3 staff believes the number is low. I understand
4 that you disagree with it. That's not my
5 question.

6 My question is assuming that Duke was
7 assuming the 25 percent of the doubling of the
8 high end of the construction costs would go to
9 monitoring, project-specific monitoring, do you
10 have that assumption in mind?

11 MR. ANDERSON: Well, I'd rather you just
12 give me the figure, 25 percent of what?

13 MR. ELLISON: Duke doubled the high end
14 of the construction costs, correct?

15 MR. ANDERSON: Okay, what is the high
16 end of the construction costs? Are you talking
17 about \$9.7 million or half of that?

18 MR. ELLISON: The high end of the
19 construction costs would be half of the \$9.7
20 million.

21 MR. ANDERSON: Okay, 4.84 million.

22 MR. ELLISON: Right. Okay. Duke
23 doubled that to get to 9.7.

24 MR. ANDERSON: Okay.

25 MR. ELLISON: And it did so in part to

1 provide money for project-specific monitoring,
2 correct?

3 MR. ANDERSON: I heard that yesterday.

4 MR. ELLISON: Okay. Do you have any
5 reason -- in accepting that that's true, and
6 accepting that Duke intended that 25 percent of
7 that would be allocated by the NGO to
8 monitoring, --

9 MR. ANDERSON: Twenty-five percent of
10 4.8 million --

11 MR. ELLISON: Right.

12 MR. ANDERSON: -- or half of the --

13 MR. ELLISON: Twenty-five percent of 4.8
14 million, --

15 MR. ANDERSON: Okay.

16 MR. ELLISON: Okay? And the 25 percent
17 of 4.8 million represents 25 percent of the high
18 end of the construction costs, correct?

19 MR. ANDERSON: I'm confused at what you
20 mean by the high --

21 MR. ELLISON: This is just --

22 MR. ANDERSON: -- construction --

23 MR. ELLISON: Mr. Anderson, this is just
24 math.

25 MR. ANDERSON: Okay.

1 (Laughter.)

2 (Parties speaking simultaneously.)

3 MR. ANDERSON: -- numbers on the board,
4 then I could figure it out. What was --

5 MR. ELLISON: I, like the staff, would
6 actually like to be able to cite to something in
7 the record for my math. So, bear with me.

8 Twenty-five percent of the construction
9 costs, assume that Duke allocated 25 percent of
10 the construction costs, the high end of the
11 construction costs, to project-specific
12 monitoring. Do you have that assumption in mind?

13 MR. ANDERSON: Okay.

14 MR. ELLISON: Okay. And the staff
15 doubled the 9.7 to get to 19.4, that doubles the
16 25 percent and makes it 50 percent, correct?

17 MR. ANDERSON: Yes.

18 MR. ELLISON: Okay. Now, in addition to
19 that, the staff proposed \$8 million for
20 monitoring, correct?

21 MR. ANDERSON: Yes.

22 MR. ELLISON: Okay. The raw numbers
23 here are 25 percent of \$4.8 million is roughly
24 \$1.25 million, give or take, correct?

25 MR. ANDERSON: Close enough.

1 MR. ELLISON: Okay. When you double
2 that you're at 2.5, right?

3 MR. ANDERSON: Yeah.

4 MR. ELLISON: So 2.5 is 50 percent of
5 the high end of the construction costs, right?

6 MR. ANDERSON: The 2.5 is 25 percent of
7 9.7. Is that what you mean --

8 MR. ELLISON: -- it's 50 percent of the
9 4.8, right, roughly?

10 MR. ANDERSON: Yes.

11 MR. ELLISON: Okay, --

12 MR. ANDERSON: I don't understand the
13 high end of the construction costs. I don't know
14 what that means.

15 MR. ELLISON: Okay.

16 MR. ANDERSON: I'm not trying to be
17 difficult.

18 MR. ELLISON: I understand. Let's take
19 Philip Williams and Associates. They presented a
20 range of possible construction costs in their
21 report, correct?

22 MR. ANDERSON: Yes.

23 MR. ELLISON: And Duke took the high end
24 of that range, --

25 MR. ANDERSON: Okay.

1 MR. ELLISON: -- and doubled it.

2 MR. ANDERSON: Okay.

3 MR. ELLISON: That's what I mean.

4 MR. ANDERSON: Okay.

5 MR. ELLISON: Okay. And the high end of
6 that range results in roughly 4.8 million in
7 construction costs, right?

8 MR. ANDERSON: Okay, yes.

9 MR. ELLISON: Okay. So, 2.5 million is
10 roughly 50 percent of the high end of those
11 construction cost estimates, right?

12 MR. ANDERSON: Okay.

13 MR. ELLISON: Correct?

14 MR. ANDERSON: It's 50 percent of 4.8
15 million.

16 MR. ELLISON: Which is the high end of
17 the construction costs, right?

18 MR. ANDERSON: Okay.

19 MR. ELLISON: And the staff is adding 8
20 million for monitoring to that, correct?

21 MR. ANDERSON: Yeah, we did.

22 MR. ELLISON: Okay, so that results in a
23 total of \$10.5 million for monitoring, correct?

24 MR. ANDERSON: No, that's an endowment
25 to provide \$250,000 a year for monitoring. That's

1 to prevent having to, 25 years from now, still
2 trying to get a \$250,000 payment from whatever.

3 It reduces risk of the money being there
4 by having the endowment. So it's \$250,000 a month
5 just as the Board is asking. We're asking for an
6 endowment up front that will provide the money.

7 MR. ELLISON: And the endowment is \$8
8 million --

9 MR. ANDERSON: Yes.

10 MR. ELLISON: -- I'm sorry, were you
11 finished? I mean the endowment is \$8 million,
12 right?

13 MR. ANDERSON: Yes, it is.

14 MR. ELLISON: And the 8 million plus the
15 2.5 is 10.5, right?

16 MR. ANDERSON: 2.5 is your money?

17 MR. ELLISON: Correct. Well, it's all
18 Duke's money -- the 2.5 represents the monitoring
19 share of the staff's \$19.4 million based upon the
20 assumptions that we've been talking about?

21 MS. HOLMES: I have to register -- I
22 don't want to call it an objection because I don't
23 want to appear difficult, but it seems to me that
24 what's going on is that Mr. Ellison is asking the
25 staff to make certain conclusions based on Duke's

1 assumptions about how much money of the 4.8 or
2 the -- I'm getting confused -- the 9.8 is being
3 devoted to monitoring.

4 And staff simply didn't do their
5 calculations assuming that a certain percentage,
6 the same percentage that you assumed, is going to
7 monitoring.

8 So, I think we're running into trouble
9 because you're assuming that staff is agreeing
10 that a certain percentage of your dollars are
11 devoted to monitoring, whereas staff pulled out
12 separately the construction costs, which you
13 didn't do. At least you changed it yesterday.

14 We dealt with the monitoring costs
15 separately. And I think that may be the basis of
16 some of the confusion here. I hope I haven't made
17 things worse.

18 MR. ELLISON: I understand.

19 And maybe we can just cut to the chase
20 here. Let me ask you this, now that you have
21 heard that Duke intended that doubling provide
22 money for administration and monitoring and active
23 management, does that cause you to change, for
24 example, your \$8 million for monitoring? Or would
25 it remain the same?

1 MR. ANDERSON: It would remain the same.
2 We don't agree with your numbers. We agree that
3 our numbers are more appropriate.

4 MR. ELLISON: When you developed your \$8
5 million --

6 MR. ANDERSON: Yes.

7 MR. ELLISON: -- were you assuming that
8 there was any monitoring that would be done with
9 the 19.4?

10 MR. ANDERSON: No.

11 MR. ELLISON: When you developed your \$4
12 for administration, were you assuming that any
13 administration would be done with the 19.4?

14 MR. ANDERSON: No.

15 MR. ELLISON: What were you assuming
16 would be done with the difference between the
17 construction costs and the full \$19.4 million?

18 MR. ANDERSON: Well, we considered the
19 \$19.4 the construction costs. I mean you put
20 forward some hypothetical projects. We don't
21 necessarily agree that they're all going to
22 mitigate the impact.

23 So our 19.4 doesn't really relate to
24 your construction costs, because we think some of
25 the project's inappropriate.

1 MR. ELLISON: Okay. So, you're assuming
2 that all of the -- that the projects, then, for
3 example, Philip Williams and Associates, at the
4 high end of their estimates, assume would cost
5 \$4.8 million; and you're assuming will cost 19.4,
6 is that what you're saying?

7 MR. ANDERSON: Well, I assume from past
8 calculations of information provided by Mike
9 Multari of the National Estuary Program an
10 estimate of cost for the replacement of the
11 acreage types that were identified by the Regional
12 Board. I believe their acreages were much more
13 appropriate and relevant than the acreages that
14 Duke developed.

15 MR. ELLISON: For the clarity of the
16 record let me just ask it this way. You do not
17 disagree that the high end of the construction
18 costs estimated by Philip Williams and Associates
19 and the National Estuary Program for these
20 projects was \$4.8 million, roughly, correct?

21 DR. AMBROSE: Yeah, I guess I agree with
22 that.

23 MR. ELLISON: Okay. And staff is
24 assuming that those same projects, construction
25 costs only, will be \$19.4 million, correct?

1 DR. AMBROSE: Yes.

2 MR. ELLISON: All right.

3 DR. AMBROSE: That's an estimate.

4 MR. ELLISON: Let me just say this, with
5 respect to the calculation that Dr. Foster
6 presented on the -- that we had such considerable
7 discussion about this morning, I simply cannot
8 cross-examine on that without having more time to
9 talk with the Duke team.

10 As you'll notice, several of them are
11 not here. I've asked them to go off and take a
12 look at that calculation.

13 This completes my cross-examination with
14 the caveat that I would like the opportunity to
15 resume it perhaps based upon my discussion with
16 them about that specific calculation.

17 MS. HOLMES: Staff has no objection to
18 making the witnesses available later today.

19 MR. ELLISON: Thank you.

20 HEARING OFFICER FAY: Thank you, Mr.
21 Ellison. Rather than move at this time to
22 CAPE, --

23 SPEAKER: (inaudible).

24 HEARING OFFICER FAY: Oh, perhaps we
25 will start with CAPE for ten minutes. We're going

1 to be breaking for lunch around 12:00, but it's
2 not quite time yet.

3 But I did want to apologize to Ms.
4 Holmes because I failed to invite you the
5 opportunity to move your testimony in, and other
6 exhibits, into evidence.

7 MS. HOLMES: Can I have one question on
8 redirect before lunch?

9 HEARING OFFICER FAY: Well, we're not
10 through with cross-examination.

11 MS. HOLMES: This is not -- well,
12 perhaps I should ask then, Mr. Ellison, are you
13 done with the discussion about -- my understanding
14 was that his remaining question was solely related
15 to the backcast, if you will, of the assumptions
16 resulting from the HEA model about productivity
17 that Dr. Foster talked about.

18 HEARING OFFICER FAY: Sure, but we
19 normally go through all --

20 MS. HOLMES: That's fine.

21 HEARING OFFICER FAY: -- the parties'
22 cross-examination and then back to you for
23 redirect. So, --

24 MS. HOLMES: I'm sorry, I thought --

25 (Parties speaking simultaneously.)

1 HEARING OFFICER FAY: -- CAPE --
2 MS. HOLMES: -- CAPE didn't have any --
3 HEARING OFFICER FAY: -- next --
4 MS. HOLMES: I'm sorry, I thought CAPE
5 said they didn't have any. I'm sorry.
6 HEARING OFFICER FAY: I don't think --
7 MS. HOLMES: I misunderstood.
8 MR. NAFICY: CAPE hasn't said anything
9 on the subject.
10 (Laughter.)
11 MS. HOLMES: I'm sorry, I thought I
12 heard somebody say they didn't have any --
13 HEARING OFFICER FAY: Well, before I
14 lose further track, I would invite you, at this
15 time, if you wish, to move your testimony and
16 exhibits.
17 MS. HOLMES: I won't decline the second
18 invitation. Staff would like to move exhibit 304
19 into evidence at this time.
20 HEARING OFFICER FAY: Any we also marked
21 for identification the staff PowerPoint
22 presentation; that will be docketed and served on
23 all parties. And that is designated as exhibit
24 317. Do you move that, as well, at this time?
25 MS. HOLMES: I think that would be a

1 good idea.

2 HEARING OFFICER FAY: All right. Is
3 there objection? I hear none, we enter those into
4 evidence.

5 And now, we would like to know Mr.
6 Naficy's determination of whether he has cross-
7 examination.

8 MR. NAFICY: I have very few questions.

9 HEARING OFFICER FAY: Okay.

10 CROSS-EXAMINATION

11 BY MR. NAFICY:

12 Q There was a discussion earlier about
13 these three phrases, preservation, restoration
14 and -- well, let's just concentrate on
15 preservation and restoration.

16 I'm not sure who wants to answer this,
17 but when we talk about restoration does that imply
18 a certain, you know, when you restore a habitat
19 does that imply anything about the state of that
20 particular habitat at the present time?

21 DR. AMBROSE: It implies that the
22 habitat is degraded, or not functioning the way
23 that you would like the restored habitat to
24 function, or the -- habitat function.

25 MR. NAFICY: Okay, now is there a

1 natural succession of habitat within an estuary
2 from one type of habitat to another over time?

3 DR. AMBROSE: Yes, there is.

4 MR. NAFICY: So, --

5 DR. AMBROSE: Although it might not be a
6 linear succession. I mean there's a natural
7 change.

8 MR. NAFICY: Right, so for example is
9 there a succession maybe too high, low marsh, and
10 then from eelgrass to marsh habitat? Is that one
11 of those successions?

12 DR. AMBROSE: You know, over a
13 geologically short time period that's often what
14 happens, is that estuary will fill in with
15 sedimentation.

16 It's a lot more complicated when you
17 start looking at, you know, sea level-wise and
18 tectonic effects and things like that.

19 But in general, yeah, the general
20 succession would be that open water would fill in
21 and low marsh would fill in to high marsh.

22 MR. NAFICY: So you don't necessarily,
23 when you look at high marsh you don't necessarily
24 think oh, that's degraded low marsh. I mean
25 there's a natural succession that doesn't

1 necessarily imply that the habitat is degraded
2 because it's moved on from one type to another, is
3 that correct?

4 DR. AMBROSE: That's true. You don't
5 necessarily think that.

6 MR. NAFICY: So when we talk about
7 restoring that marsh habitat to eelgrass, is that
8 according to your definition, really a proper use
9 of the word restore?

10 DR. AMBROSE: You know, I think the
11 difficulty is that the term restoration has so
12 many different connotations. It's used in so many
13 different ways.

14 And so from an ecological point of view,
15 if you just look at the ecology of those habitats,
16 the functioning of those habitats, if the marsh
17 was functioning well, then you would not
18 necessarily think that changing it to eelgrass was
19 in improvement of the habitat, if that's what
20 you're trying to get at.

21 MR. NAFICY: Yes.

22 DR. AMBROSE: I think, though, that lots
23 of times when restoration is used you have
24 superimposed on that term human objectives, not
25 just ecological objectives.

1 MR. NAFICY: Within the habitat
2 enhancement program that has been proposed, have
3 you seen an analysis of the productivity of the
4 marsh habitat that is being nominated for
5 conversion to eelgrass?

6 DR. AMBROSE: No, I haven't seen any
7 data at all on the productivity of these habitats
8 in Morro Bay.

9 MR. NAFICY: So do you have any reason
10 to believe that that marsh habitat is degraded or
11 somehow not productive?

12 DR. AMBROSE: No reason to believe that.

13 MR. NAFICY: In your, the appendix that
14 was created, I believe, by yourself, there is a
15 suggestion, and I just wanted to talk about that a
16 little bit, about whether energy transfer rates
17 are fixed across all habitats.

18 Do you believe that energy transfer
19 rates are fixed at different geographical
20 locations and for different type of ecosystems, or
21 do they vary from habitat to habitat and
22 geographic area to geographic area.

23 DR. AMBROSE: They undoubtedly vary; and
24 also when you're talking about energy transfer
25 rates, I think the easiest way to think about it

1 is in the food web that Dr. Foster presented. And
2 so every site will have its own particular food
3 web with different amounts of energy going to
4 different elements of that food web. And that
5 changes from site to site.

6 MR. NAFICY: Is there an inherent margin
7 of error when you use a fixed number across all
8 habitat and say, well, this is the energy
9 transfer?

10 DR. AMBROSE: There certainly would be
11 some uncertainty around that value.

12 MR. NAFICY: Now, take an ecosystem like
13 the Morro Bay estuary; there was testimony
14 yesterday, you're undoubtedly aware, that there
15 are other stressors besides, for example, -- well,
16 there are anthropomorphic stressors within the Bay
17 such as pollution, you know, with pesticide, heavy
18 metals, that sort of thing. Are you aware of
19 that?

20 DR. AMBROSE: I heard that testimony.

21 MR. NAFICY: Okay. Now would the
22 presence of such stressors within an ecosystem
23 affect the energy transfer rate, do you believe?

24 DR. AMBROSE: You know, I really don't
25 know.

1 MR. NAFICY: Dr. Foster?

2 DR. FOSTER: I mean obviously if they're
3 stressed enough that everything was killed, it was
4 obviously affected; it's just a matter of degree.
5 You can't really answer questions like that.

6 MR. NAFICY: Well, I mean short of it
7 being killed, could the presence of stressors
8 reduce energy transfer rate as compared to an
9 ecosystem with similar structural features that is
10 not so stressed?

11 DR. FOSTER: In theory. And actually I
12 guess maybe I'm confused about energy transfer
13 rate. Energy transfer for sure. But whether it's
14 the trophic efficiency, if that's what you're
15 asking about?

16 MR. NAFICY: Yes.

17 DR. FOSTER: Yeah, that I don't know.
18 But for energy transfer, the actual amount of
19 energy that moves to different elements in that
20 food web, that would definitely be affected.

21 But, you know, what fraction of primary
22 productivity goes to a particular element, I don't
23 know the answer to that.

24 MR. NAFICY: Finally, there was a
25 discussion yesterday involving Dr. Campbell --

1 well, there was a discussion about value or
2 productive value of different types of habitat.
3 And I asked a series of questions about whether,
4 for example, an acre of eelgrass is as productive
5 or as valuable to the overall productivity of an
6 ecosystem like the Morro Bay regardless of how
7 much other eelgrass habitat may be present. Do
8 you recall that discussion?

9 DR. AMBROSE: I do.

10 MR. NAFICY: I wanted to ask your
11 opinion about that. Do you believe how much other
12 eelgrass habitat is present in Morro Bay has any
13 relationship to the productivity of any
14 hypothetical acre of eelgrass within the Bay?

15 DR. AMBROSE: So, the productivity of an
16 acre of eelgrass, as in, say, grams of carbon
17 fixed per meter squared per year which is the
18 metric that they're using for primary
19 productivity, probably does not depend on whether
20 there's 10 acres or 100 acres in the Bay.

21 So, one acre of eelgrass probably is
22 productive; same amount of productivity whether
23 there is a lot of eelgrass or less, in terms of
24 primary productivity.

25 MR. NAFICY: What about the value in

1 terms of the ecological health of that estuary or
2 the health of the food web? Would the
3 productivity from any one unit of eelgrass, that
4 the importance of that productivity vary depending
5 on how much other eelgrass is present in that
6 system?

7 DR. AMBROSE: That, I think, is true.
8 It would vary. Again, if you think back to the
9 food web diagram, what's not on that diagram but
10 what in a true full food web analysis is done is
11 there's actually measured amounts of energy that
12 goes along each one of those links.

13 And so what you're asking is if you
14 increase the amount of eelgrass in the Bay does
15 that have an effect. And does it matter whether
16 there's a lot of eelgrass already there or a
17 little bit of eelgrass already there.

18 And the answer is it will have an effect
19 because it will change the amounts of energy that
20 flows throughout that diagram; it will make some
21 populations become more abundant, some populations
22 become less abundant depending on where the
23 energy's going.

24 MR. NAFICY: Thank you. I have nothing
25 further.

1 HEARING OFFICER FAY: Okay, Ms. Holmes,
2 if you don't mind, unless you have very brief
3 redirect, I'd like to break for lunch. Is that
4 all right? Okay. Fine.

5 Mr. Pryor, is that going to work? Is
6 lunch available now, do you know?

7 While Mr. Pryor enjoys lunch -- okay, so
8 we will return at 12:30 with staff's redirect of
9 its witnesses.

10 (Whereupon, at 12:02 p.m., the hearing
11 was adjourned, to reconvene at 12:30
12 p.m., this same day.)

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1 HEARING OFFICER FAY: Okay, we're back
2 on the record. And I'd like to ask if the City of
3 Morro Bay has any cross-examination for the staff.

4 MR. SCHULTZ: No cross-examination.

5 HEARING OFFICER FAY: Okay, thank you.
6 I also understand that we have a representative
7 from Marine Fisheries who has a time constraint,
8 and with your indulgence, Ms. Holmes, we'll allow
9 the representative to speak on behalf of his
10 agency before we go to redirect.

11 MS. HOLMES: That's fine, thank you.

12 HEARING OFFICER FAY: Okay, thank you.
13 Sir, could you come up and introduce yourself.

14 MR. CHESNEY: Hi, I'm Bryant Chesney
15 with the NOAA Fisheries, National Marine Fisheries
16 Service. I have a prepared statement to give to
17 you regarding the proposed project and the HEP.

18 As I mentioned to you at the previous
19 evidentiary hearings, NOAA Fisheries has an
20 obligation to provide recommendations to federal
21 or state agencies that permit, fund or carry out
22 projects that might have the potential to impact
23 essential fish habitat.

24 And at that time we also stated that the
25 continued use of once-through cooling would,

1 indeed, have an adverse impact on EFH. And we
2 also concurred with the opinion of the Energy
3 Commission Staff that the use of dry cooling would
4 be a feasible alternative to avoid this impact.

5 We continue to maintain this position
6 and wish to reaffirm our opinion, avoidance of the
7 impact, if feasible, is the most responsible
8 course of action.

9 On the other hand, if dry cooling is
10 deemed infeasible, NOAA Fisheries would support a
11 habitat enhancement approach. However, the
12 approach that Duke has proposed thus far we feel
13 is inadequate.

14 It provides little assurance that it
15 will provide, it will mitigate successfully for
16 the impacts. Specifically, many of the
17 assumptions in the HEA model that they used aren't
18 justified. They over-state benefits.

19 Moreover, the success criteria and the
20 monitoring proposed by Duke is not sufficient to
21 adequately determine whether these efforts will
22 actually compensate for the losses due to the
23 entrainment.

24 These and many other issues that are
25 also identified in the supplemental FSA, and from

1 what I've heard from the testimony today, point
2 out the many flaws in Duke's proposal.

3 Because of these flaws NOAA Fisheries
4 recommends that the project that's currently
5 proposed should not be approved.

6 However, we would support the staff's
7 approach whereby certain conditions or if the
8 technical working group got together to go over
9 these flaws, work them out, so that we can better
10 insure successful mitigation, we would support
11 that approach.

12 So, in summary, if we develop these
13 conditions they should be agreed upon by our
14 agency, NOAA Fisheries, as well as other
15 appropriate agencies and the other stakeholders
16 involved.

17 So that's basically the opinion of the
18 NOAA Fisheries. Thank you for the opportunity.

19 HEARING OFFICER FAY: Okay, thank you.
20 Have your recommendations been reduced to writing?

21 MR. CHESNEY: Yes, I gave Caryn today a
22 copy --

23 HEARING OFFICER FAY: Okay, and,
24 Ms. Holmes, --

25 MR. CHESNEY: -- of the letter that was

1 recently signed.

2 HEARING OFFICER FAY: -- can you make
3 sure that gets docketed?

4 MS. HOLMES: We will docket and serve
5 it.

6 HEARING OFFICER FAY: Okay, thank you
7 very much, --

8 MR. CHESNEY: Thank you.

9 HEARING OFFICER FAY: -- Mr. Chesney.
10 Okay, Ms. Holmes, any redirect of
11 your --

12 MS. HOLMES: I have one, I hope, brief,
13 question of Dr. Ambrose.

14 REDIRECT EXAMINATION

15 BY MS. HOLMES:

16 Q Dr. Ambrose, earlier this morning there
17 was an extensive discussion of costs. And you, in
18 particular, referenced experience that you have
19 had in cost issues associated with several
20 projects in southern California.

21 I wonder whether you could provide a
22 summary of recommendations about what should be
23 done to derive accurate costs for a habitat
24 approach for this particular project?

25 DR. AMBROSE: I think I have two

1 recommendations. The first one is to be careful
2 about under-estimating the true cost. So the
3 experience I've had in southern California have
4 been for projects where even after agreements were
5 made between agencies, or working groups, and
6 there was some preliminary work that indicated
7 what the restoration cost would be, when it
8 actually came time to doing the construction, the
9 construction costs were always much much higher
10 than the -- perhaps by even a factor of four
11 higher than what the estimates were.

12 And then the second recommendation I
13 think is that you really can't even get those
14 preliminary cost estimates until you've done quite
15 a bit of preliminary work on the site and on the
16 project.

17 So, I guess I would try to make sure
18 that you had enough flexibility so that you didn't
19 get locked into costs until you had quite a good
20 idea about what those costs were going to be.

21 MS. HOLMES: Just one follow-up
22 question, then. Are you saying it's probably not
23 possible to come up with accurate cost estimate
24 until you've actually gone out and done some
25 specific work in the estuary that hasn't been done

1 so far?

2 DR. AMBROSE: You know, I can't address
3 whether the work's been done already. I don't
4 know really what stage those cost estimates are,
5 but it seems to me they have to be site specific
6 and project specific. And it's more than just a
7 back-of-the-envelope, you know, or a quick
8 preliminary cost estimate by an engineering firm
9 or by a consulting firm.

10 Because those were the sorts of
11 estimates that people were using for the projects
12 that I'm familiar with. And then later they were
13 found to be inaccurate.

14 MS. HOLMES: Thank you. Those are my
15 only questions.

16 HEARING OFFICER FAY: Okay, thank you.
17 Any recross?

18 RECROSS-EXAMINATION

19 BY MR. ELLISON:

20 Q Dr. Ambrose, just to follow up on
21 exactly that same topic. I think I understood you
22 to say that, let's take the Philip Williams report
23 for example, that you have not -- you don't have
24 an opinion as to how much work was done in
25 developing those estimates, or whether those

1 estimates are correct, is that fair?

2 DR. AMBROSE: That's correct. In where
3 I was laying out in terms of don't trust the cost
4 estimates at too preliminary a stage, I'm not sure
5 where those estimates are in that.

6 MR. ELLISON: Okay, so to be fair, what
7 I understand you to say is you're not expressing a
8 criticism of the costs that Duke relied upon,
9 you're just stating generally that preliminary
10 estimates generally go up, in your experience. Is
11 that a fair --

12 DR. AMBROSE: That's correct.

13 MR. ELLISON: Okay. Do you have any
14 basis for believing that the past experiences that
15 you've had with specific projects, and the costs
16 that ultimately were incurred was not considered
17 by, for example, Philip Williams?

18 DR. AMBROSE: I don't have a specific
19 reason, but my general experience is that
20 unanticipated problems crop up when you get closer
21 to actually implementing the projects.

22 So, I would say, in general, yes, the
23 stage that the Philip Williams report is at is
24 still early enough that when it comes time to
25 actually developing the details of those projects,

1 some unexpected event is reasonably likely to come
2 up that would cause them to be more expensive.

3 MR. ELLISON: Which is why there's a
4 safety margin, correct?

5 DR. AMBROSE: I can't say --

6 MS. HOLMES: Excuse me, are you asking
7 if that's why you included a safety margin or are
8 you asking him about whether or not he included a
9 recommendation for a safety margin?

10 MR. ELLISON: Let's just skip that.
11 What I'm really asking, though, is this, the
12 Philip Williams' report is fairly recent. The
13 experience with these kinds of projects, as I
14 understand it, including what you're testifying
15 to, is growing, the knowledge base among experts
16 is growing.

17 Do you have any reason to believe that
18 Philip Williams didn't take into account all the
19 available information, including the experiences
20 that, for example, you're referring to?

21 DR. AMBROSE: The Philip Williams people
22 have a great amount of experience with these
23 projects. I'm sure they use all the information
24 they can to come up with the cost estimates based
25 on their experiences.

1 The problems that I'm talking about are
2 unexpected problems that you really can
3 anticipate. It's every -- a particular project
4 has a particular problem that, for -- I mean just
5 to give you one example, at San Dieguito Lagoon
6 there was a hydrologist did a lot of hydrological
7 modeling that, you know, everybody, all the
8 engineers, all the scientists working on the
9 project thought they understood the nature of the
10 problem.

11 And then it turns out there was a
12 homeowners group that was concerned about erosion.
13 And, in fact, they filed a lawsuit that's causing
14 a delay.

15 You know, that's not a project -- that's
16 not a problem that the engineers would have
17 anticipated, but it causes, you know, a redesign
18 of that project. So those are the sorts of
19 problems I'm talking about.

20 Philip Williams couldn't -- nobody can
21 anticipate the nature of those problems.

22 MR. ELLISON: You're testifying that
23 nobody could specifically identify them and cost
24 them out?

25 DR. AMBROSE: Right.

1 MR. ELLISON: But in coming up with an
2 estimate you could take that kind of uncertainty
3 into account in developing a range of potential
4 costs, could you not?

5 DR. AMBROSE: Yes, you probably could.
6 You could have some range that would say, you
7 know, here's what we think is the most likely
8 cost, and then, you know, we might have these
9 types of problems and they would cause this to be
10 a change.

11 So that would be a possibility.

12 MR. ELLISON: And do you have any reason
13 to believe that Philip Williams did not do that?

14 DR. AMBROSE: I have no reason to
15 believe that they did do or didn't do it. I just
16 don't know.

17 MR. ELLISON: Okay. And do you have any
18 basis for believing that you have knowledge that
19 they did not have?

20 DR. AMBROSE: No, I don't.

21 MR. ELLISON: Thank you.

22 HEARING OFFICER FAY: Is that all?
23 Okay, thank you.

24 Okay, any recross?

25 MR. NAFICY: No.

1 HEARING OFFICER FAY: And the City?

2 MR. SCHULTZ: No.

3 HEARING OFFICER FAY: Okay. Ms. Holmes,
4 anything further?

5 MS. HOLMES: No. I'm sorry, I didn't
6 realize you were asking me a question.

7 HEARING OFFICER FAY: Well, I hadn't
8 yet. I was waiting until I got your attention.

9 MS. HOLMES: I was getting a stare and I
10 didn't --

11 HEARING OFFICER FAY: Nothing further,
12 then?

13 MS. HOLMES: Nothing further.

14 HEARING OFFICER FAY: Okay. All right.
15 So, does the Committee have any questions?

16 PRESIDING MEMBER KEESE: Let me ask a
17 question. What we've heard from everybody here, I
18 believe, is that there's an uncertainty. Duke
19 suggested that they were conservative in assuming
20 that 100 percent of the larvae would have been
21 lost by entrainment. They asserted conservancy in
22 the 4 percent number. They asserted conservancy
23 in the 10 percent number. And there was another
24 conservative figure in there.

25 As they built, and then, as I understand

1 it now, even with that, then they suggest it's 4.7
2 million of construction costs; we'll double that,
3 and then we'll add 2.5 million for other
4 contingencies.

5 Now, the staff starts with the 9.7;
6 doubles it and then adds on contingencies.

7 It looks like if that's the way you
8 built the case, that we're adding contingencies on
9 top of contingencies. Can you help me out? Do
10 you accept that fact that there's some
11 conservatism in Duke's building its case?

12 I'm accepting Dr. Anderson's statement
13 that they just don't think that's enough. So, I'm
14 accepting it. But do you accept that four out of
15 ten was conservative? And that putting 100
16 percent entrainment is conservative? And the --
17 do you follow my questioning?

18 MS. HOLMES: I suggest that we have --
19 with respect to the technical questions about
20 conservative assumptions, that we have Dr. Foster
21 answer those.

22 PRESIDING MEMBER KEESE: Sure.

23 MS. HOLMES: And then in terms of
24 dollars, we have Mr. Anderson answer those.

25 DR. FOSTER: Having sat in on the

1 technical work group I don't accept that 100
2 percent mortality is very conservative. I think
3 it's probably reflective of about --

4 PRESIDING MEMBER KEESE: Well, they were
5 suggest -- I mean -- that's why I --

6 DR. FOSTER: So I don't think --

7 PRESIDING MEMBER KEESE: -- so that's --

8 DR. FOSTER: -- that as being
9 conservative.

10 PRESIDING MEMBER KEESE: -- that's not a
11 conservative factor --

12 DR. FOSTER: Right.

13 PRESIDING MEMBER KEESE: -- in the --

14 DR. FOSTER: All right, and if my
15 analysis of, from my understanding of the way they
16 computed the plant biomass to fish kilograms, I
17 don't think that's very conservative, either.

18 PRESIDING MEMBER KEESE: So in the four
19 to ten, you accept the four to ten range, but four
20 is probably a good -- the better number?

21 DR. FOSTER: It actually doesn't hinge
22 so much on the transfer efficiency numbers. It
23 hinges on the fact of that not all that biomass
24 goes into fish.

25 It has nothing -- that's why I didn't

1 want to phrase my last answer to the question in
2 terms of percent, because it gets confusing. But
3 the transfer efficiency is one issue. The other
4 issue is how much of the plant biomass actually
5 goes into that particular interaction in the food
6 web versus how much goes somewhere else.

7 For example, let's say that only half of
8 it did, okay? Well, then they dealt with this
9 with the fish they're going to produce. If half
10 of it went export out of the estuary or was eaten
11 by something else and never got to fish --

12 PRESIDING MEMBER KEESE: Okay, so what
13 you're saying is the four, in a range of four to
14 ten, taking four as conservative, but in your
15 opinion perhaps only half of it went in, so --

16 DR. FOSTER: To start with. Right.

17 PRESIDING MEMBER KEESE: To start with,
18 so --

19 DR. FOSTER: Right. And I would agree
20 with what Mr. Chesney just said is that I think
21 that these are technical issues that we need to
22 sit down and resolve. It's hard to do it here.
23 So I would say that several things they used I
24 would agree on, probably conservative. Other ones
25 I don't think so. And how that all washes out in

1 terms of a realistic end product from the biology
2 point of view is simply not clear.

3 PRESIDING MEMBER KEESE: Accepting the
4 fact, since everybody has said we are uncertain in
5 this area, that the uncertainty leaves us -- the
6 Committee, I'm just trying to equate these --

7 DR. FOSTER: Certainly.

8 PRESIDING MEMBER KEESE: --
9 uncertainties. And --

10 DR. FOSTER: Right.

11 PRESIDING MEMBER KEESE: -- so, are you
12 adding new -- are you adding a factor for new
13 uncertainties that they already added? And what
14 is the relationship between those? And I think I
15 hear you saying you don't accept a lot of the
16 stuff over there. You may be accepting their
17 uncertainty, but you're not accepting the big --

18 DR. FOSTER: Right.

19 HEARING OFFICER FAY: Did you answer
20 that affirmatively?

21 DR. FOSTER: Yes.

22 HEARING OFFICER FAY: Okay.

23 PRESIDING MEMBER KEESE: Thank you.

24 COMMISSIONER BOYD: Perhaps a couple
25 questions have evolved. The diagram -- I've

1 forgotten what you called it, I still can't get
2 spaghetti chart out of my mind --

3 (Laughter.)

4 COMMISSIONER BOYD: But I --

5 DR. FOSTER: Food web.

6 MS. HOLMES: Put it up on the --

7 COMMISSIONER BOYD: No, no, no. This
8 is -- do I assume some form of equilibrium in this
9 diagram? But the amount of flow through the
10 arrows can vary depending upon the water body and
11 all that it's influenced by. But there is, you
12 know, some basic equilibrium and you're going to
13 get different values for different locations, but
14 it basically comes out the same?

15 There is some form of equilibrium I
16 guess I'm asking, it can vary internally.

17 DR. FOSTER: I wouldn't use the word
18 equilibrium, but we can assume that if those
19 organisms are present, those sort of pathways will
20 occur.

21 How much energy goes in which direction
22 is not a simple matter to figure out. And it does
23 change from year to year and as the estuary
24 evolves. So, the best you can do with those
25 diagrams, without further data, is just suggest,

1 well, this is where the energy can go, given what
2 we have in an estuary.

3 COMMISSIONER BOYD: And, Dr. Ambrose,
4 the whole idea of wetland restoration, estuary
5 restoration and all that we're about, from my --
6 this is my own personal opinion, I guess, you
7 know, mankind for a couple hundred years on this
8 continent has been mucking around with estuaries,
9 wetlands, streams and what-have-you.

10 And in my view in the last maybe two
11 decades we've come to the realization that in many
12 cases we've created quite a mess with maybe
13 sometimes deliberately, and sometimes unknowingly,
14 with channelizations and everything else that have
15 occurred.

16 I speak from my experience on the Tahoe
17 Conservancy, where restoration had failed. And
18 they've gone back and done it a different way,
19 which turned out to be a correct way. And then
20 that model has been exported to a lot of the other
21 areas up there. And to my satisfaction, been
22 quite successful.

23 So, I mean we learn by doing. And I
24 appreciate the idea that there's a tremendous
25 amount of unknown and uncertainty. And thus, you

1 know, to know you're even in the ballpark of cost
2 estimates, or an ability to forecast success is
3 extremely difficult.

4 But nonetheless, many have committed to
5 the idea we've got to move in that direction; that
6 we owe it to the environment, if not to ourselves,
7 to do these kinds of things to try to make up for
8 what we've done.

9 Do you agree universally that that's
10 kind of a right direction to be going? Or do we
11 need to wait long periods of time to learn more
12 information before setting out and taking some
13 risks?

14 DR. AMBROSE: I completely agree with
15 what you say, both the historical context and what
16 you're talking about in terms of what we should be
17 doing now.

18 I'm a restoration ecologist. I work on
19 wetland restoration. I'm doing wetland
20 restoration projects, myself, right now. And
21 obviously I think they're very important.

22 I think, though, there is a very
23 important distinction to make between doing
24 wetland restoration project to enhance the
25 environment because you're trying to improve the

1 environment, and so that's your objective. Versus
2 a wetland restoration project that's done as
3 mitigation for some sorts of impacts or for
4 compensation just on the type of impact.

5 So, in the former case, if your
6 restoration is not successful or doesn't provide
7 all the resources or all the functions that you
8 would like to have, your environment is still
9 improved over what it was when it was an ag field,
10 or, you know, a vacant lot or something like that.

11 In the latter case, in the case of
12 compensatory mitigation, the idea is you have to
13 produce enough resources to compensate for the
14 lost resources. And that's really where I become
15 much more concerned about the success of wetland
16 mitigation.

17 So, for example, I mentioned that I'm on
18 the Scientific Advisory Panel for the Southern
19 California Wetlands Recovery Project. That, I
20 think, is a great group. They are trying to
21 coordinate and facilitate and partially fund
22 restoration projects throughout southern
23 California, mostly to improve the environment, to
24 try to fix problems that we've caused in the past.

25 And although the scientists on that

1 panel are very concerned about assessing the
2 success of those projects, and how to monitor
3 those projects, and we're spending a good amount
4 of time on those issues, we're not so concerned --
5 I mean we are concerned that they be successful,
6 but we are very concerned to make sure that we do
7 the preservation and the restoration to try to fix
8 the environmental problems.

9 But, again, when you're talking about
10 the mitigation, now you're talking about making
11 sure that the project provides the resources it's
12 supposed to, or else, you know, you've made this
13 deal and the deal hasn't come through.

14 So, my concern in the uncertainty about
15 the success of restoration here is, for example,
16 the habitat equivalency analysis focuses on
17 primary productivity.

18 Now I have, I think, a fundamental
19 concern about that, as a fundamental assumption
20 for that model. And we've talked about that for
21 the food web.

22 But even if you accept that that's the
23 right metric, the problem is that I know of
24 wetland restoration projects that have been done,
25 they've been done by reputable firms in situations

1 where we thought they would be successful. And
2 yet the plants don't grow. There's very very
3 sparse vegetation or no vegetation.

4 And so there's just some things that we
5 don't know about. So, some of those situations
6 that I know of have been mitigation situation.
7 And so in those cases, the mitigation -- the
8 impact has gone unmitigated because of the lack of
9 success.

10 COMMISSIONER BOYD: Thank you for that
11 distinction.

12 HEARING OFFICER FAY: This is for the
13 panel, I suppose, although it relates to Dr.
14 Ambrose's answer.

15 In terms of your testimony, and I don't
16 mean this as a legal question at all, but in terms
17 of the way you did your testimony, if in terms of
18 establishing your concern about a nexus between
19 the HEP and the impacts of the project, I assume
20 because of staff position that you were focusing
21 on compensating, fully mitigating for a CEQA
22 impact, is that correct? A significant impact
23 under CEQA?

24 MR. ANDERSON: Yes.

25 HEARING OFFICER FAY: So, hypothetically

1 if you were to step back and be analyzing this
2 from say Duke's point of view to the extent that
3 they argue that there is no significant
4 environmental impact, would your standard be any
5 different for establishing a nexus between the
6 entrained species and the habitat improvement
7 levels needed?

8 MR. ANDERSON: That's a tough one. We
9 focus on the impacts and we try to mitigate for
10 the impacts. Now, the way I see it there are two
11 lists of efforts that could possibly mitigate, or
12 let's say enhance the Bay.

13 One is a long list of all kinds of
14 things that include sediment control and maybe
15 things where there's septic tanks leaking or
16 something. And then there's a second list that is
17 directed at the power plant impacts, the
18 entrainment impacts, which really needs to create
19 habitat. Sedimentation doesn't create habitat; it
20 just slows the loss, slows the sedimentation. So,
21 it doesn't create more gobies, for example.

22 And in order to mitigate for the problem
23 you have to do something that increased the size,
24 really, the area so that the number of whatever,
25 all those living things would increase. That's

1 difficult.

2 Now, it doesn't mean that, of course,
3 you folks couldn't make a distinct decision that
4 you're going to choose an overall good for the
5 estuary that may be -- that would not have a clear
6 nexus to the power plant. That's always a
7 possibility.

8 HEARING OFFICER FAY: So, the way you
9 conceived of it, although you didn't take that
10 position, you say it's within the framework of, I
11 guess in that case it would be the Clean Water Act
12 being applied, to have a slightly different view
13 of nexus than under a CEQA analysis, is that fair
14 to say in light of what you just answered?

15 MS. HOLMES: You know, we, when we wrote
16 our -- when staff drafted its testimony, I asked
17 them to address specifically the question about
18 316(b) versus CEQA. And there's a statement in
19 there that basically simply says we would expect a
20 similar set of concerns would be raised.

21 But that's the extent of the staff
22 testimony on that subject.

23 HEARING OFFICER FAY: That's fine. On
24 page -- at the bottom of page 8 you talk about
25 empirical evidence of sedimentation being one

1 component affecting the estuary.

2 Is it fair to say that even a -- that a
3 HEP that yearly were to improve that situation
4 alone, would still be moving in the direction of
5 improvement for the estuary? Is that something we
6 can assume?

7 MR. ANDERSON: We can assume that it
8 would slow the loss of sediment to this habitat.
9 If the power plant didn't exist, the sedimentation
10 work would still be needed. I think it would
11 still be valuable.

12 So, it's completely separate from the
13 impacts of the power plant. It would be
14 beneficial to the overall prolonged -- I guess it
15 would be -- as the Board describes it, it prolongs
16 the life of the estuary for hundreds of years. A
17 lot of things can happen in 100 years, but in
18 general, I agree with that, that it would be good
19 for the estuary.

20 HEARING OFFICER FAY: Okay. And on page
21 9 you mentioned something about monitoring the --
22 measuring and monitoring increases in larval
23 production of species impacted by the cooling
24 water intake structure.

25 Would you recommend just replicating the

1 type of measuring and monitoring that occurred for
2 the 316(b) study, or do you have a different type
3 of recommendation on how to do that?

4 DR. FOSTER: There's a couple things you
5 could do. You could do something like the 316(b)
6 study; it may not be necessary to be exactly like
7 that, because you're doing, you're actually trying
8 to do something slightly different. You're trying
9 to detect whether or not there's been an increase
10 related to these various projects.

11 But then as Dr. Cailliet pointed out, we
12 now have better information on how you could
13 actually sample some of the adults related to the
14 larvae that are being entrained. In his
15 particular case he showed some methods of sampling
16 gobies.

17 So, it's also possible to monitor for
18 that in any project. See whether those gobies,
19 and then you could do a little bit of work to find
20 out, you know, what their reproduction output is,
21 larvae output. And you could sort of make a
22 reasonable judgment about whether or not the new
23 gobies present in their new habitat were
24 compensating for what was lost.

25 So, yes, I think it's very possible.

1 And seems to me that's one of the problems -- or
2 that is a much more direct nexus.

3 HEARING OFFICER FAY: Now, that kind of
4 measurement, if you went about doing it, would
5 still be at risk of being compromised by outside
6 stressors, is that correct?

7 DR. FOSTER: True.

8 HEARING OFFICER FAY: Okay. Do you know
9 any way to tease those out, to correct for those?

10 DR. FOSTER: Well, I think if you --
11 let's say that you did this hoary cress stuff,
12 marsh conversion, that's a representative project.

13 And there might be a fringe of mudflat
14 there, okay? And that's where, you know, the
15 preliminary data that Dr. Cailliet talked about,
16 that's where you might find gobies. And so you'd
17 sample that.

18 And so the question would be, well,
19 there's no gobies in there, all right? So the
20 question is is that because there's some other
21 stressor in the estuary that's not allowing them
22 to occupy that habitat.

23 And so I think that would simply require
24 further investigation into what's going on.
25 Whether or not you could ever end up tying it

1 directly to the power plant or not, I couldn't say
2 at this point.

3 HEARING OFFICER FAY: On page 9 of the
4 testimony you discuss realistic and measurable
5 goals for restoration projects, I guess in terms
6 of disagreeing with the applicant's HEP proposal.

7 Can you give us some examples of what
8 those goals might be?

9 MR. ANDERSON: I may not be the only one
10 to answer this, but my thoughts are it's a two-
11 level type of goal. First of all, the goals would
12 be set by a group of experts after considerable
13 discussion. So they would be sensible, and they
14 would be do-able, hopefully.

15 And some of them would have to do with
16 the general health, probably similar to 316(b),
17 but identified concentrations of larvae and eggs;
18 something that would happen over time so we could
19 see if there was a trend up or down.

20 If the trend is down, we still have to
21 then understand why, and what can we do to turn
22 that around. So, there needs to be some level of
23 monitoring on individual specific projects to make
24 sure that they're successful. And on the type of
25 project and what types of monitoring could be

1 done, and obviously we'd want those monitoring to
2 be as inexpensive and as simple as possible, but
3 they need to be effective.

4 It's hard to identify anything in
5 detail, but that's kind of a concept.

6 DR. AMBROSE: And just as a follow-up,
7 Dr. Cailliet had given a monitoring program for
8 the SONGS mitigation project, the San Dieguito
9 wetlands restoration. So that -- and it had
10 physical parameters, things like the topography
11 staying the same as designed, and water quality
12 parameters not being degraded. And it had
13 biological objectives, too.

14 So I think that could be a model of the
15 types of goals that you would have for a
16 restoration project, a particular project.

17 HEARING OFFICER FAY: Okay. And I
18 believe on page 10 you refer to -- referring to
19 Dr. Ambrose's testimony, the staff testimony notes
20 or recommends sort of a re-monitoring every five
21 years.

22 And if there was that kind of sort of
23 milestone checking, maybe the answer's the same,
24 but again, in terms of teasing out other
25 stressors, is there any guidance you could give us

1 that would give the Committee some confidence that
2 that kind of checking, monitoring every five
3 years, would actually measure improvements
4 contributed by something like the HEP, as opposed
5 to, you know, the rest of the universe affecting
6 the estuary?

7 DR. AMBROSE: I'm not sure if this is
8 going to be specific enough for you, but in
9 general the way we do this is that we measure a
10 restoration site, and then you measure reference
11 sites where the restoration didn't occur.

12 And so you try to infer from what's
13 happened at these reference sites whether your
14 restoration is effective or not.

15 And, in fact, what we find is that in a
16 situation like Morro Bay it's a little bit more
17 complicated because Morro Bay is such an isolated
18 estuary. There are not similar estuaries nearby.

19 But, in general, we find that it's
20 useful to have reference sites within the system
21 that's being restored; and then also reference
22 sites outside of that system. So that if there is
23 some systemic influence, excess nutrients or
24 excess contaminants into the system, it might
25 affect all of your within-system reference sites,

1 as well as your restoration site. But if you go
2 outside you can compare to what's happening
3 outside.

4 That would be a little bit harder here,
5 because the nearest estuaries are pretty far away.
6 But that's the general philosophy that we would
7 take.

8 HEARING OFFICER FAY: Okay, thank you.
9 Mr. Anderson, has staff recommended compensatory
10 mitigation in prior cases? I believe you said
11 that they have.

12 MR. ANDERSON: Yes. Most of our cases
13 are -- we try to avoid significant impacts. And
14 then we mitigate for the impacts that occur. It's
15 common in all of our cases.

16 It's a little different, the only one
17 that we could probably relate to this project
18 would be Moss Landing, since it's a water thing.
19 Moss Landing had quite a few differences in this
20 project -- do you want me to describe those?

21 HEARING OFFICER FAY: Well, no, that's
22 not what I was getting at. In the more general
23 sense, in terms of whether it's marine
24 compensatory habitat, like Moss Landing, or
25 whether it's kit fox habitat, or French toad

1 lizard, that sort of thing, has the staff ever
2 required a performance bond?

3 MR. ANDERSON: We haven't required what
4 we call a performance bond. There's two things
5 that I'd like to say. One is that this type of
6 project is unusual because it's a chronic loss,
7 every year, every day. It's not just occupied
8 habitat, you know, kind of this is the impact and
9 then you lose that habitat forever. This keeps on
10 pumping life out of the estuary.

11 And I've forgotten the --

12 (Laughter.)

13 MR. ANDERSON: -- question. Performance
14 bond. No, but it's common for us to required an
15 amount of money that we also accompany with an
16 endowment, what we call an endowment, which is
17 really what I meant by performance bond.

18 Some way of assuring that all the money
19 that we need to accomplish, the mitigation is
20 there with some way of returning it if needed, or
21 if appropriate.

22 But most of our projects, if it's kit
23 fox or whatever, would have money involved for the
24 protection of habitat at some increased ratio over
25 what's lost. Plus money for what we call

1 maintenance and management, but it includes
2 planning and permitting and any other efforts that
3 are required.

4 And that usually is an amount that, an
5 interest rate that accomplishes the goal, because
6 we consider it for in-perpetuity, whatever that
7 is.

8 HEARING OFFICER FAY: Back to your first
9 point, in terms of differentiating this project
10 from others, if a developer builds a power plant
11 in kit fox habitat, and the power plant stays
12 there, is that a continuing impact, as long as the
13 power plant stays there?

14 MR. ANDERSON: Yeah, that piece of
15 habitat is lost, but it's -- an equal size isn't
16 lost each year. There's a difference.

17 We're losing some percentage of the
18 living entrained organism on an annual basis. If
19 they only pumped for one year, and then spent 50
20 years trying to mitigate for it, that would be
21 more comparable with terrestrial loss.

22 HEARING OFFICER FAY: All right, thank
23 you.

24 All right, thank you very much. So, any
25 follow-up, Ms. Holmes, after --

1 MS. HOLMES: The only question I have at
2 this point, I don't have any follow-up questions,
3 is whether or not the applicant plans to conduct
4 additional cross-examination on the question of
5 trophic efficiency and energy transfer.

6 MR. ELLISON: We do plan to make a
7 presentation of our panel. But, no, I'm not going
8 to conduct any further cross-examination, at least
9 as far as I know at this time.

10 HEARING OFFICER FAY: Okay. And we'll
11 hold that until the end --

12 MR. ELLISON: -- that's probably the --
13 unless the Committee feels strongly the other way,
14 I think it's probably the best thing to do.

15 HEARING OFFICER FAY: Yeah, I think we
16 might as well, if that works for you.

17 And the City did not file any testimony.
18 So then we'll move to CAPE's direct testimony.
19 Ms. Holmes did you have something?

20 MS. HOLMES: I just wanted to confirm my
21 recollection of the final arrangement about the
22 applicant's addressing of this addition issue is
23 somewhat fuzzy. Is the understanding that they're
24 going to present a presentation and parties will
25 have a chance to ask questions --

1 HEARING OFFICER FAY: Yes, it --

2 MS. HOLMES: -- and that's it? Okay.

3 HEARING OFFICER FAY: -- won't just be
4 one-sided. We'll --

5 MS. HOLMES: Okay, thank you.

6 HEARING OFFICER FAY: Mr. Naficy.

7 MR. NAFICY: Good afternoon. I have the
8 CAPE panel, Ms. Groot to my right, Dr. Henderson
9 and Mr. Pryor to my left. I'll allow them, in a
10 minute, to give a brief introduction as to their
11 background and involvement with preparing the
12 testimony.

13 HEARING OFFICER FAY: Excuse me, has Mr.
14 Pryor been sworn previously?

15 MR. NAFICY: No, I was just getting to
16 that, actually.

17 HEARING OFFICER FAY: Okay, --

18 MR. NAFICY: Before I do that I want
19 to --

20 HEARING OFFICER FAY: -- sorry to
21 interrupt.

22 MR. NAFICY: And I'm not sure if Ms.
23 Groot has been sworn in, either -- Dr. Groot. So,
24 I ask that they be sworn in now.

25 HEARING OFFICER FAY: Okay. Thank you.

1 Will those two witnesses please stand, Mr. Pryor
2 and Dr. Groot. Dr. Henderson, you're previously
3 sworn.

4 Whereupon,

5 HENRIETTE GROOT and STEPHEN PRYOR
6 were called as witnesses herein, and after first
7 having been duly sworn, were examined and
8 testified as follows:

9 Whereupon,

10 PETER HENDERSON
11 was recalled as a witness herein, and having been
12 previously duly sworn, was examined and testified
13 further as follows:

14 HEARING OFFICER FAY: I didn't want to
15 interrupt the court reporter. Dr. Henderson,
16 you're previously sworn and you remain under oath.

17 Please proceed.

18 DIRECT EXAMINATION

19 BY MR. NAFICY:

20 Q Before I turn it over to the panel I
21 just wanted to ask a few, you know, questions
22 establishing the testimony.

23 This is generally to the panelists. Was
24 the testimony that was filed on behalf of CAPE
25 prepared by you or at your direction?

1 MR. PRYOR: Yes, it was. We have a
2 correction to make to one part of the testimony,
3 though.

4 MR. NAFICY: Okay.

5 DR. HENDERSON: Yes.

6 DR. GROOT: Yes.

7 HEARING OFFICER FAY: I'm sorry, Mr.

8 Naficy, --

9 MR. NAFICY: Yes.

10 HEARING OFFICER FAY: -- I guess we need
11 to get the names on the record of each of your
12 witnesses.

13 MR. NAFICY: Okay. Go ahead.

14 HEARING OFFICER FAY: An introduction.

15 MR. NAFICY: Give your name.

16 DR. GROOT: Henriette Groot; that's
17 spelled H-e-n-r-i-e-t-t-e, Groot is G-r-o-o-t.

18 DR. HENDERSON: Peter Henderson.

19 MR. PRYOR: Stephen Pryor.

20 HEARING OFFICER FAY: And could you
21 spell that, please?

22 MR. PRYOR: Stephen, S-t-e-p-h-e-n;
23 Pryor, P-r-y-o-r.

24 HEARING OFFICER FAY: Thank you.

25 MR. NAFICY: So was the testimony that

1 was prepared and submitted by CAPE true and
2 correct to the best of your knowledge?

3 DR. GROOT: Yes, it was.

4 DR. HENDERSON: Yes.

5 MR. PRYOR: Yes, with the correction.

6 MR. NAFICY: And does the testimony, and
7 the testimony you're about to give today
8 constitute your best professional judgment as to
9 the matters that you're testifying on?

10 DR. GROOT: Yes.

11 DR. HENDERSON: Yes.

12 MR. PRYOR: Yes.

13 MR. NAFICY: Okay, now Mr. Pryor has a
14 correction, so he'll make that at the time. I
15 believe the order we're going to go in is Dr.
16 Henderson, Mr. Pryor and then Dr. Groot. So, I'll
17 turn it over to Dr. Henderson.

18 MR. HARRIS: Excuse me, could we get the
19 correction now in case it impacts our cross-
20 examination, just up front, if that's all right.

21 MR. NAFICY: Sure.

22 MR. HARRIS: Thank you.

23 MR. PRYOR: It's a small correction on
24 page 4 in the third paragraph. The testimony
25 reads: The authors of the study concluded the

1 populations are not determined by mechanistic
2 density dependent mechanisms, and that different
3 and subtle factors played a role in determining
4 the overall characteristics of a population."

5 The correction should read: The authors
6 of the study concluded the populations are
7 determined by both realistic non-linear density
8 dependent biological mechanisms, and exogenous
9 environmental forces. They further conclude that
10 different and subtle factors play a role in
11 determining the overall characteristics of a
12 population."

13 HEARING OFFICER FAY: Would you mind
14 repeating the corrected sentence, please?

15 MR. HARRIS: Do you have it written down
16 by any change and we could copy it?

17 MR. PRYOR: Right here.

18 HEARING OFFICER FAY: Distributed. That
19 would help. But I would like you to repeat it for
20 the record, please.

21 MR. PRYOR: The sentence should read:
22 The authors of the study concluded that
23 populations are determined by both realistic non-
24 linear density dependent - in parentheses -
25 biological mechanisms and exogenous environmental

1 forces. They further conclude that different and
2 subtle factors play a role in determining the
3 overall characteristics of a population."

4 HEARING OFFICER FAY: Thank you.

5 DR. HENDERSON: Well, my name's Peter
6 Henderson. I'm an ecologist, and I've studied for
7 25 years the effects of once-through cooling power
8 plant on estuarine habitats.

9 Also, more recently I have been working
10 on wetland restoration programs, and following the
11 effects of changes brought about by habitat
12 manipulation.

13 I work as a Senior Research Associate to
14 the University of Oxford England, and I also am a
15 Director of a consultancy called Pisces
16 Conservation, Limited.

17 Now, turning to my thoughts on this.
18 The habitat enhancement program cannot simply be
19 considered in terms of the worth of the projects
20 which are being proposed. It's really important
21 that we consider whether they're appropriate and
22 sufficient to mitigate entrainment and the other
23 adverse impacts that come about from a cooling
24 water system. And that is, in fact, the actual
25 point to which I'm going to be starting my

1 consideration.

2 Further, as well as making sure they're
3 appropriate and sufficient, we have to really
4 consider the probabilities of success, and any
5 risks which come about from unknown and unexpected
6 outcomes. Ecology is littered with unexpected
7 outcomes and funny things happening. We can go in
8 our evidence and show some of the examples of this
9 occurring.

10 Now, much is made of the conservative
11 nature of the proposal and its assumptions.
12 However, I would point out to begin with that the
13 use of habitat mitigation for entrainment is a
14 pretty well unproven science.

15 I've found in my research very few
16 examples are being used. And where it is
17 presently being used, as for example, at Salem on
18 the Delaware estuary, it is still unproven; it's
19 still ongoing. And I don't think we can yet say
20 it works.

21 Therefore, we really are asking people
22 to take, as a conservative approach, an approach
23 which is not yet been fully applied and is known
24 to work.

25 Now, moving on from that, Duke argues

1 that increased production constitutes a sufficient
2 nexus between the damage done by the death of the
3 larvae, of the fish, the crustaceans,
4 phytoplankton, and everything else by the power
5 plant. I believe this is flawed on really two
6 grounds.

7 First of all, it makes an over-
8 optimistic appraisal of the production, I believe,
9 that can be gained by their habitat enhancement
10 program. So, I think there's insufficient amounts
11 of investment there proposed.

12 Secondly, and more importantly, I don't
13 think it's possible to equate simple production
14 with mitigation. So I think the actual proposal
15 is really inappropriate to the problem.

16 First of all, let's consider the
17 weakness of the productivity measures, the
18 sufficiency aspects of this thing. The
19 productivity or quality of the created habitat is
20 effectively assumed to eventually reach levels
21 which would be as high as that of natural areas.
22 This, I think, is really quite questionable.

23 For a start, we really are going to
24 modify or the proposals to modify areas which, at
25 present, evidently are not suitable for these

1 organisms, be they eelgrass, pickle weed or
2 anything else.

3 Now, that means we can well be asking
4 and expecting the organism, the plant, to grow in
5 an area which is far from optimum for it. We
6 don't actually know because there are no actual
7 siting studies and initial studies done to see
8 whether this is going to be the case.

9 Now, there can be other reasons why the
10 habitat might be sub-optimal for the species. For
11 example, turbidity, wrong nutrification levels, et
12 cetera, oxygen.

13 Now, secondly, the area which is
14 disturbed and planted with eelgrass is, to some
15 extent, already productive. Now, it has been
16 assumed in the -- calculations that there's
17 effectively zero productivity say in the open mud
18 habitat which will be converted to the eelgrass.

19 Now, this, I think, is self evidently
20 wrong. We know full well that mud habitat can be
21 full of life. That's why it's fed on by birds,
22 for example. And just because it isn't growing
23 plants doesn't mean to say it isn't functioning
24 fully within the processes of an estuary.

25 I, for example, work on an estuary which

1 is very productive, quite equal to this one, in
2 the British Isles, where there are no subtidal or
3 underwater plants whatsoever because the turbidity
4 is so high light can't penetrate. But that
5 estuary still functions in a way which is
6 remarkably similar to this one.

7 How can that be so? Is because it's
8 fundamentally driven by detrital processes. The
9 detritus coming from the terrestrial landward side
10 entering into the system, and then being used by
11 the bacteria and lower invertebrates moving up the
12 food web to the fish.

13 That, in some sense, is what happens to
14 the open mud habitat here. It's receiving
15 detritus from the land, from the ocean, even. And
16 it's processing it via the bacteria into the lower
17 worms, mollusks and up the food chain.

18 So, I believe that really that any
19 benefit that's gained from -- plant and eelgrass
20 planting should have subtracted from it the
21 productivity which is being lost by our
22 interference with those areas.

23 Now, the hoary cress habitat, I think in
24 many senses the same argument can be advanced,
25 although here it is weaker. Now, it is actually

1 stated in one of Duke's documents that hoary cress
2 does not provide any aquatic benefit. I find that
3 to be a quite extraordinary statement.

4 It's basically the case that hoary cress
5 must have living on it insects and other animals
6 of one kind or another. Some of those will surely
7 blow across land and water and hence produce input
8 into the estuarine system.

9 Now, before anybody could tell me that
10 the hoary cress is having no measurable benefit
11 whatsoever on the aquatic system, I would like
12 them to actually show, say by studies of carbon
13 isotope ratios, that this is not the case.

14 In the past arguments along this line
15 have been advanced before. For example, in the
16 Salem study one of the major objectives was to
17 replace phragmites beds with other types of
18 grasses.

19 Now it was assumed that the phragmites
20 essentially offered no real benefit to the fish
21 and other aquatic life. But more recent studies
22 have indicated, as you might well anticipate, that
23 carbon and detritus does flow from phragmites into
24 the estuary and into the estuarine ecosystem just
25 as it would do if it's being replaced by spartina

1 and other grasses.

2 So, I think that's really a pushing or
3 devaluing the habitat to a degree which is
4 excessive.

5 Now, finally, new habitat takes time to
6 develop. It's not only do we have the initial
7 disturbance of an any civil works, remove mud,
8 dredging, et cetera, but we also have to gradually
9 enhance the productivity of the area when you
10 initially plant.

11 Now, even given the growth of plants and
12 the planting of say zostor(phonetic) or other
13 plants, which is actually very difficult, and has
14 proven in some cases to be disappointingly poor.

15 After all, remember these are not
16 agricultural plants which have evolved for a very
17 long time to be handled by man. It's not like
18 planting wheat or cabbages, which we've, of
19 course, specially selected so we can plant them.
20 We're dealing with wild organisms which have got
21 perhaps rather poorly understood and rather
22 particular requirements.

23 In fact, they surely are poorly
24 understood because this is why some schemes have
25 been successful and others have failed, because we

1 don't truly understand the needs of the plant, I
2 think, in the case of the eelgrass.

3 Now, we can be sure of one thing, it
4 takes time for habitat to gradually develop its
5 full productivity. And to a certain extent in
6 their proposal Duke did take this into account.
7 However, I suspect that that's seriously
8 underestimating the time it can take for the
9 climax community which lives within the -- bed to
10 fully develop.

11 The fish are highly mobile, and it's
12 probably true that some juvenile fish will move in
13 very quickly because they're really only after
14 shelter and habitat, to stop from being eaten or
15 attacked by larger fish.

16 But the full repertoire of the
17 invertebrate community can take considerable time
18 to develop. Certainly studies in a lot of
19 estuarine areas which have been highly disturbed
20 by man would indicate that ten-plus years might be
21 required for a full community to develop anything
22 like the diversity of the original undisturbed
23 form.

24 So, I think for these reasons I suspect
25 that there's been a considerable under-estimation

1 of the -- over-estimation, sorry, of the
2 productivity gains which are available from the
3 actual habitat enhancement program.

4 Now, in terms of the nexus, one thing
5 that does concern me about these issues is that we
6 can, from the moment the power plant is turned on
7 it will be killing organisms. However, given the
8 fact that it takes time to develop and refine a
9 habitat and to get it going, even if it should be
10 successful, there's going to be a temporal
11 mismatch between when the damage is done and when
12 the mitigation is carried out.

13 I find it difficult to believe that you
14 can really argue for a successful nexus when you
15 have a dislocation in time. Basically, taken to
16 its ultimate conclusion, you could end up with a
17 rather situation where a species is being pushed
18 to the brink of extinction before you give it the
19 habitat it needed to grow in, which is obviously
20 ridiculous.

21 Now, that's really considerations of the
22 sufficiency. Now I'd like to consider a little
23 bit about the appropriateness of the actual
24 proposed habitat enhancement program.

25 Now, essentially the HEP is really

1 designed to replace the losses from the
2 entrainment at some sort of level which is
3 comparable and substantially similar to that which
4 would be achieved by a dry cooling system.

5 Now, the Duke view is that the primary
6 production is the only function the eelgrass and
7 the hoary cress projects, for example, need to
8 provide to offset this debit.

9 Now, taken logically if production is
10 what you need to inject in to compensate for
11 entrainment then why not truck in a load of
12 nitrogenous fertilizer and grow algae in the
13 place. We could produce a very high level of
14 primary production. But it clearly isn't.

15 And, in fact, --

16 MR. HARRIS: Mr. Fay, --

17 HEARING OFFICER FAY: Yes.

18 MR. HARRIS: -- I'm concerned. I don't
19 see much of this in the direct testimony. If I'm
20 wrong, I --

21 DR. HENDERSON: I think it is there.

22 MR. HARRIS: -- corrected, but if you
23 can point me to a spot in your testimony? And
24 I've let it go on for awhile because you have some
25 latitude, but you've lost me at this point.

1 HEARING OFFICER FAY: Mr. Naficy, can
2 you point us to where this was in the prefiled
3 testimony?

4 MR. NAFICY: I'm sorry, where what was?
5 I mean what exactly are you talking about?

6 HEARING OFFICER FAY: Well, Mr. Harris
7 says that the witness is bringing up matters that
8 were not addressed in the prefiled testimony.

9 MR. NAFICY: Right. Mr. Harris, which
10 part of the testimony are you having difficulties
11 on?

12 MR. HARRIS: I can't point to a spot
13 where it's not in here.

14 (Laughter.)

15 MR. HARRIS: That's the basic issue.

16 MR. NAFICY: Well, which part of his
17 testimony are you thinking that's --

18 MR. HARRIS: I've been letting it go for
19 quite awhile here. But the last thing was
20 something about dumping nitrites or something
21 about nitrites. I've really lost the train --

22 MR. NAFICY: Yeah, --

23 (Parties speaking simultaneously.)

24 MR. HARRIS: Just tell me where we are,
25 and I'll be glad to --

1 MR. NAFICY: I think the point that
2 primary production is the only way to look at
3 compensation is in the testimony. Now, he's
4 giving an example to illustrate the point, which
5 is that not all biomass, you know, or primary
6 production in the estuary is equally valid as a
7 way to compensate.

8 If you want you can just --

9 HEARING OFFICER FAY: Well, let me do
10 this. I'd like to save some time. Rather than
11 quibble about this, let me just admonish Dr.
12 Henderson to please, you know, keep it confined.
13 Not verbatim, but to the subjects that you
14 addressed.

15 Because the whole idea is that all the
16 parties to the proceeding are n notice of your
17 testimony when you prefile it. And that your oral
18 testimony can clarify some things, et cetera. But
19 it doesn't expand the scope.

20 DR. HENDERSON: Yeah, I'm sorry, it's
21 perfectly true that I did not, in my written
22 testimony, talk about fertilizing the place. But
23 I think I did make reference to the fact that some
24 primary production was not necessarily an
25 appropriate measure.

1 The next point I was going to make that
2 really we're concerned with maintaining the
3 diversity and the functional relationships within
4 the estuary. And therefore, what we need to
5 replace and to consider carefully is whether or
6 not the habitat enhancement program is producing
7 the species in the right form and the right place
8 to replace the larvae lost by the power plant.

9 I think, although say for example,
10 eelgrass bed can be a very important habitat, and
11 there's no doubt all ecologists would agree that
12 it needs to be conserved and looked after, it is
13 not going to produce the same functional position
14 in the ecosystem as that lost by the power plant.

15 Essentially the eelgrass beds are for
16 habitat to certain types of juvenile fish; whereas
17 the power plant would kill mostly larval fish.
18 Other groups where this is important is also the
19 fact they've got to remember that the water being
20 sucked into the power plant effectively is taking
21 animals and algae, as well, from the open water
22 system. Whereas, of course, the habitat
23 enhancement program will enhance the shallow,
24 enclosed systems, the sort of the more benthic
25 part of the ecosystem, really.

1 So, I think there's a mis-match in the
2 nexus there between the part of the system which
3 would be enhanced by the habitat enhancement
4 program and the part which is damaged by the
5 cooling water intakes.

6 So, all in all, to summarize, I feel
7 that you could say that there are, I believe,
8 serious weaknesses in this habitat enhancement
9 program. It isn't large enough to fully mitigate,
10 and it doesn't actually address the right parts of
11 the ecosystem.

12 In particular, we have to have concerns
13 about maintaining the really quite special and
14 particular diversity of these small estuaries.
15 And I don't think it can do that.

16 And I also feel that there are different
17 problems with using the habitat equivalency
18 analysis which in many ways is quite appropriate
19 for being applied to a one-of case of damage such
20 as an oil spill, where essentially the people are
21 faced with a problem. Something's been destroyed.
22 We have to decide how best to compensate for that.

23 However, it's not really appropriate to
24 do that when we're projecting into the future
25 about a damage. After all, in this particular

1 case there is a way of stopping the damage in the
2 future. It's by not pumping the water through the
3 power station.

4 Thank you.

5 MR. PRYOR: My testimony goes to
6 basically two to three statements in the HEP. It
7 seems that the HEP is based around a habitat as a
8 limiting factor for production in the Bay. And it
9 appears as if there's this idea that it's kind of
10 the field of dreams, the estuary of dreams. If
11 you build it they will come.

12 And that's not quite the case. And I'd
13 like to give you several examples of where that's
14 not the case. The error correction in Duke's
15 testimony is related directly to an article that
16 unfortunately was not docketed, it was overlooked.
17 I was wondering if I could submit that article
18 now. It is referenced in Duke's testimony.

19 HEARING OFFICER FAY: Do you have a copy
20 of that to show counsel?

21 MR. PRYOR: Yes, I have many copies.

22 HEARING OFFICER FAY: Why don't you make
23 sure that gets distributed to all the parties.

24 When you have a chance, Mr. Pryor, could
25 you reference where in Duke's testimony this is --

1 MR. PRYOR: I'm sorry, I must make a
2 correction now. I shouldn't say in Duke's
3 testimony; I should have said in CAPE's testimony.

4 HEARING OFFICER FAY: Oh, CAPE's
5 testimony?

6 MR. PRYOR: Yes, sorry about that.

7 HEARING OFFICER FAY: So this was
8 referred to in CAPE's testimony?

9 MR. PRYOR: Yes, it was referred to very
10 near the correction I made in CAPE's testimony.

11 MR. NAFICY: I do want to add that it
12 was referred to, and we really are providing this
13 for the convenience of the folks. And, you know,
14 because it was referenced we're certainly entitled
15 to discuss it with or without the actual reference
16 being docketed.

17 So, this is just for the convenience of
18 everyone.

19 HEARING OFFICER FAY: Sure. Let's mark
20 it for identification. That will be exhibit 318.

21 MR. HARRIS: Can I ask why this wasn't
22 part of your prefiled, if you thought it was
23 important?

24 MR. NAFICY: I just explained that it
25 was referenced in the document. Anyone and

1 everyone could have actually gone and looked it
2 up.

3 I mean Duke referenced dozens and dozens
4 of articles in their testimony, and not one of
5 them was actually prefiled. So, because he wants
6 to refer to it, we're providing it for convenience
7 of the parties.

8 MR. HARRIS: Okay, well, --

9 MR. NAFICY: There's certainly no
10 requirement to docket and present as evidence
11 testimony --

12 MR. HARRIS: Agreed to a certain extent,
13 and you probably will disagree once I tell you the
14 extent.

15 The article is offered for the citation.
16 This assumption, however, is contradicted by
17 credible peer-reviewed studies, and so if you're
18 speaking to the limited portion of the article
19 that refers to this reference, it's okay. But are
20 you going to speak about the entire article?

21 MR. NAFICY: I certainly believe that
22 this discussion is about the reference that was in
23 CAPE's prefiled testimony.

24 MR. HARRIS: Okay, we'd like to hear it
25 and obviously reserve --

1 HEARING OFFICER FAY: Sure, --

2 MR. HARRIS: We won't know until we
3 hear.

4 HEARING OFFICER FAY: -- let's go ahead.

5 MR. PRYOR: Okay, I use this -- there's
6 several arguments going on as to whether is it
7 habitat, is it larvae and the environment. Is it
8 a density-dependent, is the density of the larvae
9 what is dictating the adult population. Is it the
10 habitat, is it the adult population dictating the
11 larvae. And then, in turn, dictating the
12 following adult population.

13 Well, Duke seems to lay their cards on
14 the fact that habitat is the limiting resource.
15 And in some cases, yes. In many cases, I will
16 give that -- I will agree with that.

17 But habitat is not the only limiting
18 resource. And it is not the fact that as said in
19 Duke's HEP, page 27, section 3.2, paragraph 2,
20 line 7 that so long as suitable habitat exists,
21 the existing reproductive capacity of the species
22 in question is sufficient to insure that those
23 habitats will be fully occupied.

24 This article goes into looking at the
25 dungeness crab populations on the Pacific Coast.

1 And what they found is basically there is a marsh
2 dynamic equilibrium of dungeness crab populations
3 on the coast. The cycle is approximately every
4 ten years.

5 Why this is important is that, and Mr.
6 Boyd, you can understand this having been on the
7 Fish and Game Commission, the dungeness crab
8 fishery revolves around only harvest of males.
9 Therefore there is no impact upon the number of
10 dungeness crab larvae in the population.

11 We assume that the offshore habitat of
12 the dungeness crab population remains at a static
13 nature -- inside the trawl line -- bottom trawling
14 will affect habitat.

15 However, given that the larvae numbers
16 are unaffected by the fishery, which would be take
17 in this case, the habitat remains constant. Yet,
18 even with those two parameters being as they are,
19 the population still fluctuates significantly over
20 a ten-year cycle.

21 So, in that case, habitat is not the
22 deciding factor. There are other factors that go
23 into play. So, to rely on habitat in this HEP,
24 and dungeness crab is one of the species that is
25 monitoring to determine impact, looking at this

1 study habitat is not the be-all, end-all that it
2 is portrayed to be.

3 Similar I think about I can't use
4 fisheries as an example to bring it all down to
5 the levels that can be understood.

6 Conversely when we look at something
7 like the near-shore rockfish fishery, and this is
8 again to go to understanding the importance of
9 habitat, we see the fisheries that is in severe
10 decline, the habitat is not affected, but the
11 number of larvae are severely reduced by proxy of
12 capturing the adults.

13 Now, we're seeing that fishery recover
14 because we are limiting, there are size limits in
15 place, the fish are kept in population until they
16 are of a reproductive age and producing larvae.
17 Therefore, we see that larvae are important, the
18 number of larvae are important in the near-shore
19 fisheries -- in the near-shore fishery for near-
20 shore rockfish. That's two examples of how
21 habitat is not the end-all to populations.

22 Andreferring to Mr. Keese, I heard some
23 questions earlier regarding populations reaching a
24 static level. I believe populations will reach an
25 equilibrium, but the marine environment is

1 considerably different than deer in a field.

2 Now if the deer could fly and were blown
3 around heavily and dispersed by high winds, we
4 might have a similar comparison. But marine and
5 terrestrial habitats I don't believe are quite
6 comparable along those lines.

7 The same point in the HEP I will
8 address. And, again, this was pointed to in CAPE
9 testimony, is that there's an assumed simplicity
10 of life cycles in the HEP. And they're referred
11 to, page 28, footnote 22.

12 Larvae produced by populations in the
13 back Bay areas of Morro Bay remain in the back Bay
14 for a week or two before growing large enough to
15 begin setting out in their mudflat habitat.

16 Well, that may be true. However, no
17 data was collected from the back Bay to even
18 determine if there are any larvae in these back
19 Bay habitats where they would exist for a week or
20 two before they settle out.

21 TetraTech did a study looking at
22 residence times. It was determined in the back
23 Bay there was residence times of 10 and 15 days.
24 I'm not aware of any water quality sort of
25 analyses that were done on this water masses. As

1 we know, water heats up, dissolved gases are
2 driven off. Within these dissolved gases are
3 dissolved oxygen. When the dissolved oxygen
4 concentrations decrease, as they're very likely to
5 do in back bay water that's been heating up, the
6 habitability of those environments really
7 decreases.

8 So, that's statement on footnote 22 is
9 essentially, it's not backed up by anything. And
10 it's a great over-simplification.

11 Also I would like to address not the
12 next sentence, but after that: In addition,
13 larvae carried by tidal flow into the outer part
14 of Morro Bay are faced with inevitable transport
15 by the same type of currents out of Morro Bay with
16 little or no chance of recruiting to the Morro Bay
17 parent populations.

18 Once again, I think that's a gross over-
19 simplification of what happens in biological
20 transport within estuarine environments. And I
21 will refer to exhibit 308 which is a study by Dome
22 and Allen. Or I should -- it's a paper by Dome
23 and Allen.

24 In this paper they give examples of four
25 invertebrate life cycles and four fish cycles

1 which are considerably different than the
2 simplistic week or two hanging out in the back bay
3 and then settling out onto the mudflat habitat.

4 This article will also give you a good
5 idea of how these planktonic organisms also
6 utilize active movement to place themselves within
7 moving water masses heading out of or into the
8 Bay. And they use this active movement to remove
9 themselves from water masses heading into or out
10 of the Bay. Based on the species, whether the
11 species is actively trying to be transported back
12 up into the Bay, or whether it is actively trying
13 to be transported out of the Bay.

14 Also to state that little or no chance
15 of recruiting to the Morro Bay parent populations
16 is a reach, as well. As soon as these organisms
17 that are specifically part of their life cycle
18 that they be transported out of the Bay. And many
19 of them will return to the Bay via active
20 transport, that being placing themselves in a
21 tidal current instead of coming back into the Bay.

22 Vertical -- migrations, things like that
23 are very well known occurrences among many
24 planktonic organisms.

25 Being though I don't want to get into

1 anything that wasn't said in CAPE's testimony, I
2 will get into one other aspect having to do with
3 exposure time. And it is referred to in this
4 article. It's referred to sort of out of hand.

5 It discusses the length of time that
6 dungeness crab spend in the --

7 MR. HARRIS: Excuse me --

8 MR. PRYOR: -- plankton --

9 MR. HARRIS: You referenced a couple
10 articles. Which article are you talking --

11 MR. PRYOR: I'm sorry, exhibit 318, the
12 one, the stochastic dynamics, germanistic
13 skeletons.

14 MR. HARRIS: The one you handed out?

15 MR. PRYOR: Yes.

16 MR. HARRIS: Okay.

17 MR. PRYOR: First paragraph, let's see,
18 third sentence: After hatching in winter, pelagic
19 dispersal of larvae in the spring, juvenile crabs
20 settle near shore in late spring and early summer.

21 There seems to be the number four days
22 exposure to entrainment has been thrown around.
23 I'm not sure if that's quite accurate. But I
24 think it's quite a misrepresentation of actually
25 how long these organisms spend in the plankton.

1 Four days may represent some fish
2 species, which ones I don't know. However, for --
3 hatching in winter, dispersing in spring and
4 settling out in late spring, they spend quite a
5 bit more time than four days in the plankton.

6 So, with that I will end my testimony.
7 Thank you.

8 DR. GROOT: My name is Henriette Groot.
9 I have a PhD in psychology from UCLA. More
10 relevant today is my volunteer service at the NEP,
11 where I have a seat on the technical working
12 group, that is the committee that first reviews
13 incoming proposals. And also I'm seated on the
14 implementation committee.

15 So I know quite a bit of how the NEP
16 operates. However, I want to make clear I'm not
17 speaking for the NEP. I might also mention that
18 as President of CAPE, I have read far more about
19 the marine biology than I ever cared to.

20 The main question I wish to address is
21 Duke's contention that their funds are critically
22 needed in the estuary. Duke, in the rebuttal to
23 our testimony, says we have not offered any cogent
24 and persuasive reason for an opposition to their
25 habitat enhancement proposal.

1 The answer simply is 50 more years of
2 damage to the marine life in the estuary. That
3 cost is too high.

4 Are we opposed to all habitat
5 enhancement, of course not. There are, I'm sure,
6 very many worthwhile attempts at doing habitat
7 enhancement, although apparently not all of them
8 are successful.

9 This is a summary of some of the work
10 that has been done by the NEP since ratification
11 of the CCMP, that's the Comprehensive Conservation
12 and Management Program. And the date on this
13 document is June 30th of this year. And in that
14 document there are listings of various project.
15 Eight of them have the SED notification
16 designation, you know, concentrating on
17 sedimentation. Ten of them are designated HAB for
18 habitat. So you can see work is being done in
19 these areas.

20 MR. HARRIS: Henriette, what are you
21 referring to? Is it the last pages of your
22 filing?

23 MR. NAFICY: No, it's not. It's
24 actually a list of projects that are, I guess,
25 currently before the NEP. This piece of paper

1 isn't important. She's testifying that there are
2 many programs being undertaken by the NEP
3 currently that address sedimentation and/or
4 habitat, which is from our testimony.

5 We'd be happy to show you a copy of
6 this, but this isn't the thrust of the testimony.

7 MR. HARRIS: Are you moving off of it
8 now, basically?

9 MR. NAFICY: No, she was -- well, she
10 wasn't reading off of it. She was --

11 MR. HARRIS: No, I said are you done
12 with this point? Are you moving on to another
13 point?

14 MR. NAFICY: Yeah.

15 MR. HARRIS: Because, if so, let's just
16 move on. But if you're going to talk about that
17 for awhile, I haven't seen it, it wasn't prefiled.

18 DR. GROOT: Yeah, I did want to point
19 out something on this that there are no projects
20 that talk about fish. And mention has been made
21 here that the CCMP does not speak about the
22 impacts of the power plant intakes on the estuary.

23 The simple reason being that the impacts
24 were not known when the CCMP was formulated. The
25 316(b) studies came out after that.

1 Now I will move off this. Projects
2 before the NEP include work on the Walter Ranch.
3 Now this is a project that is mentioned in the
4 HEP, Duke's HEP.

5 Are you aware of the fact that the NEP
6 has already a proposal about this in front of us?
7 And that the proposal on that work has been made
8 by CalPoly? The point being here that work in the
9 estuary is proceeding in a worthwhile manner.

10 The newspapers just reported the
11 conclusion or, no, the initiation of it, of work
12 on Hollister Ranch, which is another good example
13 of the kind of leveraging that the NEP is
14 successful in doing. A number of agencies have
15 been involved with that, the PPL Trust or Land or
16 something, and the -- let's see now, the State
17 Coastal Conservancy, mentioned in our testimony,
18 is involved in that project.

19 And I want to say something more about
20 the State Coastal Conservancy. Again, your
21 rebuttal says that that money from the Conservancy
22 unfortunately was not available for us. True, the
23 money from the southern California projects, from
24 the Coastal Conservancy, are not pertaining to us.

25 However, as you can see, they are active

1 already in this area. And there are discussions
2 taking place with the Coastal Conservancy about
3 obtaining -- the possibility of obtaining funds
4 from them for this area.

5 This goes to the point that of the
6 question of whether Duke funds are critically
7 needed here. I'm trying to point out that I do
8 not think so.

9 Are you aware of the October 3rd
10 announcement by Congresswoman Lois Capps, of about
11 \$300,000 made available for habitat restoration
12 here in the estuary. I'm sure that relates to
13 Army Corps of Engineers' work.

14 So, I'm saying there are other resources
15 that can be used instead of the Duke funds, and
16 that would not have the terrible penalty of 50
17 more years of damage.

18 The California Coastal Conservation
19 Conservancy has an annual budget of \$185 million,
20 and up till now they have been active in southern
21 California and San Francisco.

22 There's an agency called the California
23 Resources Agency, and they put out a call for
24 proposals. They called this the Environmental
25 Enhancement and Mitigation Program. And they have

1 three categories in which they accept projects,
2 highway landscape, and urban forestry, roadside
3 recreational.

4 The one that's pertinent here is
5 resource lands. Project for the acquisition,
6 restoration or enhancement of watersheds, wildlife
7 habitat, wetlands, forests or other natural areas.
8 Again, these are funds that we should be trying to
9 get for the work here.

10 Michael Thomas yesterday stated that
11 big-time money was needed in this estuary. I
12 don't see that, because really what Duke is
13 proposing here is a piecemeal approach; a little
14 bit of work here, a little bit of work there, a
15 little bit of work there, all together adding up
16 to a big ticket. But the individual projects
17 still have to be identified and addressed. And do
18 not need one large lump sum.

19 Finally, how will we go about getting
20 large funding from major foundations? If we have
21 to say well, we think this is a beautiful estuary,
22 but sorry, it has this power plant that is using
23 it. And depleting its marine life continuously.
24 And that's going to happen for another 50 years.
25 Will any foundation say, well, that's a good

1 estuary to try and put our money in.

2 I don't think so, particularly if you
3 have to say well, you know, if you do manage to
4 increase the productivity in this estuary, I'm
5 sorry, one-third of that additional productivity
6 is also going to go down the tube.

7 Thank you.

8 MR. NAFICY: I believe that concludes
9 CAPE's direct testimony.

10 HEARING OFFICER FAY: Okay. Thank you.
11 What we'd like to do is take a ten-minute break
12 before we make your panel available for cross-
13 examination. So we'll be back in ten minutes.

14 (Brief recess.)

15 HEARING OFFICER FAY: We're back on the
16 record now. Did you have any testimony that you
17 wanted to move into the record at this time?

18 MR. NAFICY: Yes, I do, actually.

19 HEARING OFFICER FAY: Let's do that.

20 MR. NAFICY: We have testimony as well
21 as some other exhibits that were articles we
22 docketed and added to the exhibit list.

23 Those are exhibit 305, '6, '7, '8 and '9.

24 HEARING OFFICER FAY: 305, 306, 307 and

25 30- --

1 MR. NAFICY: 308, and --

2 HEARING OFFICER FAY: -- and 308.

3 MR. NAFICY: -- then 309 --

4 HEARING OFFICER FAY: And 309?

5 MR. NAFICY: Well, 309 was not actually
6 served on the parties. We referred to it and then
7 Duke provided a citation, a web citation. We
8 don't absolutely need it, but it's not physically
9 been submitted, but it's an item that has been
10 referred to and discussed in these hearings.

11 HEARING OFFICER FAY: Okay, so --

12 MR. NAFICY: And then there was also
13 exhibit 318 that we brought that today for the
14 parties' convenience, and since there was a
15 discussion of it, I think it's appropriate to
16 enter it into evidence.

17 HEARING OFFICER FAY: All right. Is
18 there any objection to entering those documents?

19 MS. HOLMES: I just missed the number of
20 the errata, the exhibit number for the errata.

21 MR. NAFICY: 318.

22 MS. HOLMES: Thank you very much.

23 HEARING OFFICER FAY: No, 318 is not the
24 errata. 318 is the science article.

25 MR. NAFICY: Wait, the --

1 HEARING OFFICER FAY: The errata, I'm
2 not sure we need an exhibit number, it's --

3 MS. HOLMES: It's not going to be --

4 HEARING OFFICER FAY: -- a correction
5 that he made on the record, and he also handed out
6 in letter form for our convenience. But we do
7 have it in the transcript, as well.

8 Is there objection to admitting those
9 documents into evidence?

10 MR. HARRIS: No objection to those
11 documents.

12 HEARING OFFICER FAY: Okay. I hear no
13 objection, so we order those exhibits entered into
14 the record at this time.

15 And, Mr. Naficy, is your panel available
16 now?

17 MR. NAFICY: They are.

18 HEARING OFFICER FAY: Okay, Mr. Harris,
19 are you conducting cross for Duke or --

20 MR. HARRIS: Yes.

21 HEARING OFFICER FAY: All right.

22 MR. HARRIS: I actually have just a
23 couple of questions.

24 CROSS-EXAMINATION

25 BY MR. HARRIS:

1 Q I want to go to a statement that's in
2 your testimony on page 5. First, while you look
3 for page 5, I'm not sure who on the panel to
4 direct the question to, but maybe Dr. Henderson.

5 This statement in here that says
6 basically at the very bottom, next to the last
7 line on page 5: There's good reason to believe
8 that Morro Bay is not as productive as it once
9 was."

10 Can you tell me the basis for that
11 statement?

12 DR. HENDERSON: Really it comes from
13 anecdotal evidence from talking to the local
14 people, the residents of the area. And also from
15 a comparison of the limited amount of data from
16 the two impingement studies, the older one and the
17 more recent one. But it's fundamentally anecdotal
18 in its origins.

19 MR. HARRIS: Thank you, --

20 MR. NAFICY: I'm sorry, let me just
21 amplify that. We in the prior --

22 MR. HARRIS: Wait, I had the question
23 answered; I'm fine.

24 MR. NAFICY: Well, I would like --

25 MR. HARRIS: -- to move on. That's

1 really --

2 MR. NAFICY: It's not really for your
3 benefit, it's for the benefit of the Committee.

4 MR. HARRIS: You can have a chance on
5 redirect, but you don't testify, so --

6 HEARING OFFICER FAY: Yeah, let's hold
7 off. Just keep it to the witnesses for now. If
8 you need to clarify something later, that's all
9 right.

10 MR. HARRIS: I want to ask you briefly
11 about the Salem project that you reference in your
12 testimony. Now, isn't it correct that that
13 project was related to the renewal of an NPDES
14 permit, is that correct?

15 DR. HENDERSON: I believe so, yes.

16 MR. HARRIS: And that project also was
17 related to the restoration of wetlands, is that
18 correct?

19 DR. HENDERSON: Yes.

20 MR. HARRIS: No more questions.

21 HEARING OFFICER FAY: Okay. Does staff
22 have any questions of CAPE?

23 MS. HOLMES: Staff does not.

24 HEARING OFFICER FAY: Does the City have
25 any questions of CAPE? The City's not here.

1 (Laughter.)

2 HEARING OFFICER FAY: All right. Mr.
3 Naficy, any redirect?

4 MR. NAFICY: I'd just like to point out
5 that we submitted the testimony, the two letters
6 from two local residents, including Dr. Smith, who
7 testified here yesterday, about their observations
8 about abundance of species over the last 20 or 30
9 years in the Bay.

10 So, that's actually in the record from
11 the prior hearing.

12 HEARING OFFICER FAY: Okay, thank you.
13 All right. That concludes the direct testimony
14 for the parties. We did tell Duke that they would
15 have a chance to rebut the staff's calculations.

16 Mr. Ellison, can you, to keep everything
17 fair and square, give us a characterization of the
18 scope of your rebuttal, what it is limited to?

19 MR. ELLISON: Scope, in terms of time?

20 HEARING OFFICER FAY: Well, that would
21 help. But in particular, subject matter. In
22 other words, this isn't a chance to rehash
23 anything that staff ever said --

24 MR. ELLISON: Oh, no, I understand that.
25 We will focus explicitly on page 1 of Dr. Foster's

1 handout, the calculation that he did. We're not
2 going outside that.

3 I will reserve the right, recognizing
4 that I've asked our witnesses to respond to this
5 in real time here, in the interest of conserving
6 the Commission's hearing time, we're going to go
7 ahead and do this in real time, and give you a
8 response.

9 But I do want to reserve the right,
10 pursuant to our earlier conversation, to submit
11 something else in writing. We may choose not to
12 do that, but --

13 HEARING OFFICER FAY: Understood. And
14 to help everybody, that calculation sheet is part
15 of exhibit 317, staff's PowerPoint presentation.

16 Go ahead.

17 MR. ELLISON: Okay, thank you. I'm
18 going to address my questions to Dr. Mayer.

19 DIRECT-EXAMINATION

20 BY MR. ELLISON:

21 Q Dr. Mayer, you've had a chance to
22 briefly review the first page of exhibit 317?

23 DR. MAYER: I have had, briefly.

24 MR. ELLISON: Could you summarize the
25 panel's response to what is represented there?

1 DR. MAYER: I'd like to comment just
2 briefly on Dr. Foster's creative method of
3 calculating or estimating, I guess, the biomass of
4 fish and crab larvae in Morro Bay.

5 And if we could look at -- is everybody
6 familiar with page 1 that we're looking at? They
7 have a hard copy?

8 (Pause.)

9 HEARING OFFICER FAY: Yeah, I think you
10 can assume that most people have a copy.

11 DR. MAYER: Okay.

12 (Pause.)

13 DR. MAYER: All right, thank you.
14 Looking at, let's say referring to Dr. Foster's
15 slide, I wanted to look first, and actually
16 probably only look at the first estimate of the
17 total biomass fish and crab in Morro Bay, which is
18 the number in his corrected presentation of 13,384
19 kilograms per year.

20 That number, if you will look at his
21 handout later, or in more detail, actually is
22 carried throughout his calculations. So, I want
23 to focus on the idea that we want to look at that
24 number to make sure that's a valid number, because
25 it cascades throughout the rest of the

1 calculations in Dr. Foster's presentation.

2 So, first of all, this number is not an
3 accurate estimate for the total larval biomass
4 produced in Morro Bay. The CEC analysis I'm
5 referring to, Dr. Foster's presentation, reflects
6 a fundamental misunderstanding of the term PM,
7 that stands for proportion mortality.

8 And if I can take just a moment to
9 remind you or everyone here if we've heard this
10 before at the marine biology hearing, you know,
11 it's in the 316(b) that proportional mortality
12 estimate is really something entirely different
13 that is not, in fact, a number that can be used to
14 simply multiply times a biomass estimate to get an
15 estimate of more biomass.

16 The proportional mortality number is
17 actually an estimate of the risk of entrainment at
18 the power plant.

19 The way it was truly derived was the
20 power plant estimate of the number of entrained
21 organisms was compared to the number of organisms
22 of the same species in Morro Bay, a fraction of
23 those was formed on that basis of those entrained
24 to those that were in Morro Bay, which we called
25 the source water.

1 That fraction was actually then used
2 again in combination with an estimate of the
3 larval duration of the species, individually in
4 Morro Bay. And that conversion of the proportion
5 of the species entrained from Morro Bay multiplied
6 by the larval duration gives us an estimate of the
7 risk of entrainment.

8 This number has now become something
9 quite different than just a fraction of the number
10 of species being entrained from Morro Bay.

11 More importantly, the number that Dr.
12 Foster uses in his calculation, 25 percent -- and
13 I'll talk about that in just a minute -- is
14 actually an average of those risk of entrainment
15 numbers for ten species, okay, that we focused on
16 in the 316(b) study.

17 So now we have an average of the risk of
18 entrainment which has nothing to do with, in fact,
19 the amount entrained, numbers entrained or
20 anything else. It's been adjusted for the fact
21 that in some species there are more at risk than
22 others, and so we have a number that is simply a
23 different kind of a variable.

24 I'm going to give you an analogy to make
25 my point. And I'll apologize if the analogy

1 doesn't work completely.

2 Let's imagine a garden, a vegetable
3 garden. And I'll just, to make this as accurate
4 as I can, ask you to imagine that the vegetable
5 garden is in the shape of a piece of pie.

6 And the garden is laid out sort of from
7 the point of the pie into the broader circle of
8 the pie in different crops. So let's just imagine
9 closest might be tomatoes; the next one out is
10 potatoes; it doesn't really matter. And then
11 further out is a strip of corn, and maybe, let's
12 say, furthest out might be beets.

13 And as you can imagine, that as the pie
14 expands in this direction, the shape of it, with
15 these strips of vegetables going out in this
16 direction, they get bigger. The total acreage or
17 square feet of each vegetable plot is bigger with
18 the pie shape.

19 The farmer or gardener decides to pick
20 some vegetables. So he takes the vegetable
21 basket; he starts at the point of the pie and
22 walks out through his garden. And he picks
23 tomatoes, because they're closest, and let's just
24 say for sake of example, he picks about 30 percent
25 of all the tomatoes that are in that small piece

1 of pie shape tomato patch in the garden.

2 He walks a little further and the next
3 row might be corn. He picks about 5 percent of
4 all the corn that's in that piece of pie and puts
5 it into his basket.

6 He goes out a little bit further and he
7 picks another 5 percent of the next crop, let's
8 just say it's beans. The furthest out-crop might
9 be beets in this piece of pie. He decides not to
10 pick any. You know, he just doesn't want beets.

11 The analogy is now we take this basket
12 of vegetables the farmer's collected, and we have
13 the percentages now of how much of each one of
14 those crops the farmer picked as he walked out
15 through the vegetable garden.

16 We take an average of those percentages
17 that are in the basket, the things that he chose
18 in the basket, remembering it's missing a
19 vegetable all together. We take an average of
20 those percentages, and then we weigh the basket.
21 And we take that fraction and say that the weight
22 of the basket plus this average of what he chose
23 to pick that day is the way that we'll compute
24 from that how much biomass is in the total garden.

25 So the total garden biomass, I think if

1 you follow me, couldn't possibly be derived by
2 looking at what's in the basket based on the
3 percentage of harvest or collection of individual
4 vegetables in that basket, times the weight of the
5 basket.

6 There's just no relationship between
7 that and what's in the garden. And that's what
8 we're being asked to do in this calculation. This
9 proportional mortality number, or it's an average,
10 which is really a risk of entrainment number, 25
11 percent. And applying it to the biomass, which is
12 what was entrained. That's what HEA does; it took
13 the numbers entrained and converted them to
14 biomass. Multiplying those two numbers together
15 and coming up with an estimate of the total fish
16 and crab larvae in Morro Bay. Mathematically it
17 just can't work.

18 The next thing I'd like to remind us is
19 that we look at the number, 25 percent. Dr.
20 Foster said it was an average of the 17 and 33.
21 Those two numbers are -- they really can't be
22 averaged. If we go back to the 316(b) the 33
23 percent is based on an assumption that we were
24 using a period of risk of exposure, or risk of
25 entrainment for each species of larvae that were

1 included in that estimate based on their maximum
2 age, the oldest larvae of that species found in
3 Morro Bay.

4 That number can't be averaged and come
5 up with anything meaningful with anything else.
6 It is a number in itself. So it's either 33; and
7 the 17 is based on the average larval age.
8 There's really nothing in between that makes sense
9 that we would multiply those -- or derive those
10 numbers and then average those two numbers
11 together. There just wouldn't be any meaning to
12 the resulting number.

13 So that we appreciate taking 25 percent
14 instead of 30 percent, when we're running these
15 numbers, in the end result it really doesn't add
16 up to a meaningful number for the calculation.

17 So, basically the PM numbers of either
18 17 or 33 percent don't have any relationship to
19 the total biomass in Morro Bay. It can't be
20 derived from multiplying PM times the total
21 biomass. And basically, in the simple term,
22 proportional mortality is not proportional
23 biomass.

24 MR. ELLISON: Okay, thank you, that's
25 all we have.

1 HEARING OFFICER FAY: I'm going to go a
2 little bit out of order. That's all from any of
3 your panel? Okay.

4 Dr. Mayer, you know, that has not been
5 clear to me. I've seen the percentages and I had
6 the impression that the Water Board scientists
7 were expressing a range of possible impacts. You
8 say that's not true, because it's not somewhere
9 between 17 and 33 percent?

10 DR. MAYER: No, I don't think that that
11 has ever been expressed that way. It would either
12 be 17 or it would be 33. Because there really
13 isn't a range.

14 The 17 is derived by taking a specific
15 citation from the scientific literature for each
16 of the species that tells us that we use to
17 estimate the duration of that species larvae.

18 So the only way there could really be a
19 range between that is we took the variance in the
20 duration of those larvae and build that into the
21 estimate for each one. And that could produce, if
22 you ran the calculation at their mean, let's say
23 their mean age or larval duration plus one
24 deviation, that could give you an intermediate
25 step.

1 But really, when you're basing that
2 calculation on the duration, there are only two
3 differences between 17 and 33; and that is the way
4 we estimate the duration of the larvae, that is
5 their risk to entrainment, for each of the species
6 that were included in the PM estimate.

7 There's really no in between 17 and 33.
8 One is one, and one is the other. And that's why
9 I say, averaging the two doesn't really produce a
10 meaningful number.

11 MR. ELLISON: If I can just add to this,
12 the Committee may recall that at the end of the
13 last hearing that we had on these issues, I asked
14 if Dr. Mayer and Dr. Raimondi could get together
15 and put together a table that showed what the
16 different outcomes for proportional mortality
17 would be if you made different -- it would depend
18 on how the Committee decided on the various
19 assumptions that were in dispute at the time.

20 And that has been submitted to the
21 record. And this was one of the reasons that I
22 wanted you to have that table. Because this is
23 fundamentally a question of assumptions driving
24 you to different numbers. And you can't
25 necessarily average between different assumptions.

1 You either make one or you don't, you know, you do
2 it one way or you do it the other. But you can't
3 do it in an in-between kind of way.

4 And then, I guess, the most important
5 point here, I hope it's not lost on the Committee,
6 is regardless of whether you use 17 percent or 33
7 percent, or Duke's 10 percent, proportional
8 mortality is the wrong number to be using at all,
9 regardless of the actual value, to try and come up
10 with the larval biomass produced in Morro Bay.
11 That's the essential point we're trying to convey
12 here.

13 HEARING OFFICER FAY: All right. Staff,
14 do you want to take a moment?

15 MS. HOLMES: I may have a few questions.

16 HEARING OFFICER FAY: Sure. Let's go
17 off the record.

18 (Off the record.)

19 HEARING OFFICER FAY: We will mark this
20 exhibit for identification as exhibit 319.

21 MR. ELLISON: That's fine; we will serve
22 it. And I'd move its admission at this time, as
23 well.

24 HEARING OFFICER FAY: Any objection?

25 All right, it's so ordered, it is admitted.

1 And now, Ms. Holmes.

2 MS. HOLMES: Just a couple of quick
3 questions. At least I hope they are.

4 CROSS-EXAMINATION

5 BY MS. HOLMES:

6 Q Dr. Mayer, on page 10 of exhibit 312,
7 which is the original Water Quality Control Board,
8 the draft permit for this project, if you could
9 take a look at that for just a second.

10 DR. MAYER: Give me a minute to get that
11 out.

12 MS. HOLMES: Certainly.

13 (Pause.)

14 MS. HOLMES: Page 10. Do you have that
15 in front of you now?

16 DR. MAYER: All right, yes.

17 MS. HOLMES: I'll just read the last
18 sentence on the page. It says: Proportional
19 larval loss is the number of larvae entrained
20 relative to the number of larvae in a source water
21 body.

22 Do you agree or disagree with that
23 statement?

24 DR. MAYER: It's not a complete
25 statement, but that is an approximate statement of

1 what that means.

2 MS. HOLMES: And would you agree or
3 disagree that larvae that are entrained are larvae
4 that are removed from the source water?

5 DR. MAYER: Larvae entrained by the
6 power plant are removed from the source water, --

7 MS. HOLMES: Thank you.

8 DR. MAYER: -- by definition.

9 MS. HOLMES: Secondly, I wanted to know,
10 did the Regional Board use the proportional
11 mortality estimates to derive the acreage of
12 mitigation that's required for this project?

13 DR. MAYER: In their latest report they
14 make that calculation.

15 MS. HOLMES: Was the same calculation
16 also made for the Moss Landing plant?

17 DR. MAYER: Similar.

18 MS. HOLMES: Thank you.

19 That's it.

20 HEARING OFFICER FAY: Okay. Does CAPE
21 have any questions?

22 MR. NAFICY: No.

23 HEARING OFFICER FAY: All right. Mr.
24 Ellison, redirect?

25 MR. ELLISON: Could I just have 60

1 seconds to confer with the witness, please?

2 HEARING OFFICER FAY: Sure.

3 (Pause.)

4 MR. ELLISON: Thank you. Just one
5 question.

6 REDIRECT EXAMINATION

7 BY MR. ELLISON:

8 Q Dr. Mayer, following up on Ms. Holmes'
9 question, could you explain why it is appropriate
10 to use proportional mortality in the manner that
11 the Regional Water Board Staff has used it? But
12 not appropriate to use it in the fashion that Dr.
13 Foster has used it?

14 DR. MAYER: Probably the simplest way to
15 say it is in the Regional Board's method and their
16 use of the proportional mortality is that the
17 actual acreage of Morro Bay habitat is a given.
18 That's already been measured and calculated.

19 In this case we're trying to use a
20 proportional mortality estimate multiplied by the
21 biomass entrained by a power plant, the Morro Bay
22 Power Plant, to calculate, back-calculate really,
23 how much biomass is out there.

24 To be analogous, we would have already
25 known in this case what the biomass of Morro Bay

1 was, total biomass.

2 (Pause.)

3 DR. MAYER: I'm finished.

4 HEARING OFFICER FAY: I just want to be
5 very clear when you say "in this case," were you
6 referring to staff's --

7 DR. MAYER: Yes. In the discussion of
8 the CEC Staff's method of employing proportional
9 mortality multiplied times the biomass entrainment
10 by the power plant to calculate or estimate the
11 total biomass in Morro Bay of fish and crab
12 larvae.

13 HEARING OFFICER FAY: Okay. Anything
14 further, Mr. Ellison?

15 MR. ELLISON: No.

16 HEARING OFFICER FAY: Okay. Ms. Holmes?

17 MS. HOLMES: No, nothing further.

18 HEARING OFFICER FAY: Okay, great. We
19 thank the parties for their testimony, direct,
20 rebuttal, all of it.

21 And Commissioner Keese has some
22 questions of Michael Thomas, if you could come up
23 to one of the mikes, Mike -- Michael.

24 PRESIDING MEMBER KEESE: Thank you for
25 sticking around. I guess the first question would

1 be when I was questioning Duke they indicated that
2 under a calculation method you had you might come
3 to the number 5 million versus the 12 to 25 they
4 had.

5 And I had indicated I might ask the same
6 question -- I would ask the same question of staff
7 and CAPE. Staff came close to answering it. I
8 neglected to ask CAPE.

9 You're the best source. Would you like
10 to give us your opinion --

11 MR. THOMAS: I think that calculation
12 could be done. I talked to Dr. Mayer before the
13 hearing started yesterday, and he mentioned that
14 that calculation could be done. I agree, it could
15 be done. I don't agree that I would come to the
16 conclusion that \$5 million is adequate.

17 At this point in time, given the
18 information we have, I would say that the range of
19 \$12- to \$25-million is the range that we're
20 discussing.

21 PRESIDING MEMBER KEESE: So that using a
22 methodology it might come to 5, but you still
23 believe that the range is probably 12 to 25?

24 MR. THOMAS: I'm acknowledging that the
25 calculation could be done that would result in a

1 \$5 million number. I'm not saying that I would
2 agree with that number.

3 PRESIDING MEMBER KEESE: Right, --

4 MR. THOMAS: The range that I would use
5 at this time is \$12- to \$25-million.

6 PRESIDING MEMBER KEESE: -- still 12 to
7 25.

8 MR. THOMAS: But that would be an
9 adequate range to discuss for projects that could
10 be implemented.

11 PRESIDING MEMBER KEESE: Thank you.

12 HEARING OFFICER FAY: Since you went on
13 early yesterday and have been here throughout, do
14 you have any other remarks you'd like to make to
15 the Committee in light of what you've heard?

16 (Laughter.)

17 HEARING OFFICER FAY: And if not, that's
18 allowed.

19 MR. THOMAS: Well, I think that watching
20 all this transpire the last couple days, and the
21 arguments back and forth, I think a better forum
22 for having this type of debate would be a
23 technical worker meeting, to spare you folks some
24 of this agony.

25 I think that we have a lot of smart

1 people in this room, and a lot of smart people on
2 all sides of the issue for each party. And that
3 in a technical worker meeting we could probably
4 resolve a lot of these issues.

5 I know there's not a lot of time left in
6 this process if you want to get a certification or
7 permit out in the next several months. But, it
8 might be valuable to revisit it in a technical
9 worker meeting.

10 I don't even know if that's an option,
11 but I throw that out there. That maybe if we had
12 Duke Energy's experts and the Energy Commission
13 experts and the Regional Board experts and folks
14 from CAPE there, as observers, as well, the way we
15 have in the past, that we might be able to flesh
16 out some of these issues and come up with a
17 project or a program that is more reasonable in
18 the eyes of each party.

19 And that's not presuming that you would
20 go this route, but just that you would have this
21 alternative or this option in front of you and
22 have a littlebit more agreement around it.

23 I am sure that there would still be
24 disagreement, but at least we will have fleshed
25 out these issues and would be able to present a

1 couple of maybe alternative viewpoints. And you'd
2 be able to pick from those more reasonably.

3 HEARING OFFICER FAY: Okay, thanks very
4 much, Mr. Thomas. We appreciate your being here
5 throughout.

6 All right, we do want to take limited
7 public comment for those who were not able to
8 address us yesterday. And one person who actually
9 showed up yesterday and didn't quite make the boat
10 was Mr. Boatman, Don Boatman.

11 (Pause.)

12 MR. BOATMAN: Thank you.

13 HEARING OFFICER FAY: And you folks will
14 understand that I'd like to keep it to three
15 minutes apiece, just like we did last night, in
16 fairness to your neighbors.

17 MR. BOATMAN: I appreciate you calling
18 me first; you promised me you would last night,
19 and you haven't.

20 I want to comment, and this isn't quite
21 so much on HEP, some of it is, but address some of
22 Chairman Keese's comments last night about the
23 difficult decisions you face.

24 He remarked that based on power needs,
25 biological needs and people willing to spend the

1 money to build a power plant. And I have about
2 four points that I'd like to make.

3 This is not probably the normal power
4 plant siting situation you run into. Number one,
5 a new Morro Bay Power Plant has nothing to do with
6 adding power to the grid, other than maybe 100
7 megawatts.

8 We have a running 1000 megawatt plant
9 right next door. So, your decision does not need
10 to be based on more power for California. This
11 plant runs good. Duke has said they can run it
12 for another 20 years. So that should take some
13 weight off your shoulders.

14 Number two, I testified before you in
15 December, almost a year ago. And Stu Baker of
16 your CEC Staff, in discussions about duct firing,
17 talked at length about the need on the grid to
18 have load followers. These modern generation
19 plants like they're building, the cogens or the
20 combined cycles, are not good load followers. And
21 he wanted duct firing here.

22 And what I want to say is we have an
23 existing plant here that is 1000 megawatts of load
24 following which Stu Baker said was extremely
25 important in a new system because you're not

1 getting load following.

2 And also provides 1000 megawatts of just
3 pure power whenever you need it, when Duke chooses
4 to sell it. So for summer peaking or for load
5 following we have what the grid needs here now.

6 Duke probably is concerned about making
7 money from this plant, but I understand from
8 reading that FERC has been trying to get a \$1000
9 megawatt cap. That doesn't mean that's how much
10 they'll get, but power prices out here seem to go
11 to the top of the cap.

12 Number three, the existing plant is
13 running about 10 percent of the time right now,
14 and that's a rough guesstimate. Just I live here
15 and I can hear it when it runs.

16 And that greatly reduces the impact on
17 marine life that we've been all talking about here
18 today and yesterday.

19 In the summer months it may run three
20 months solid. But in the long run, this older
21 plant is going to do like most older plants, it's
22 going to run less and it's going to have less
23 impacts on our air quality and on our marine life
24 quality here that we're talking about.

25 Also, this is the kind of plant,

1 merchant power plant people, people who build
2 plants to sell power, would not build. They won't
3 build a plant that is more a standby than it is
4 100 percent use. I think in Duke's shutting down
5 of six construction projects in the last few
6 weeks, and stopping consideration on another one
7 in Avenal, is the exact proof that unless the
8 price is right and the need is there, they don't
9 want to build a plant that won't run.

10 We have one here that they can afford to
11 not run so often, because it's paid for.

12 Let's see -- I'm not concerned about the
13 old plant being torn down at the end of its life,
14 which may be 10 to 20 years. I think the only
15 Duke company right now making money is Duke realty
16 company. And that land that the plant sits on is
17 worth a lot of money. And they make more, judging
18 by the prices of California power right now, they
19 may make more with a big hotel there than a power
20 plant. They're making less money than PG&E made
21 when they ran it. I worked for PG&E 30 years.

22 As for the Water Board, I do not agree
23 with Duke's assertion and the Water Board's
24 assertion that they are the estuary's only chance
25 to get funding to help preserve our national

1 estuary here.

2 Henriette Groot has suggested many other
3 agencies. And I believe that funding is there. I
4 do not believe Duke is our only choice to help
5 that national marine estuary.

6 HEARING OFFICER FAY: Okay, can you wrap
7 it up, then. It's been about four minutes.

8 MR. BOATMAN: Oh, okay. Finally, use of
9 the old plant by Duke can be -- it can be run and
10 they can provide much smaller mitigation for the
11 smaller amount of problems they have. And the old
12 plant will eventually go away, like old plants do.

13 Thank you.

14 HEARING OFFICER FAY: Before you leave,
15 could --

16 PRESIDING MEMBER KEESE: Thank you.

17 HEARING OFFICER FAY: -- I ask, Mr.
18 Freiler is next, would you prefer if Mr. Boatman
19 just handed you the microphone? Would that be
20 convenient?

21 MR. FREILER: Yeah, sure.

22 HEARING OFFICER FAY: Mr. Boatman, can
23 you just pull that microphone towards you, and
24 hand it to Mr. Freiler.

25 Can't do that, huh? Then would somebody

1 please assist us there.

2 MR. BOATMAN: It's got tape on it,
3 electrical tape.

4 (Laughter.)

5 HEARING OFFICER FAY: Thank you.

6 MR. BOATMAN: Thank you.

7 MR. FREILER: Robert Freiler. Thank you
8 for the opportunity to speak before you.

9 Morro Bay national and state estuary,
10 it's not a closed system. What I don't understand
11 here is that tremendous energy in the resources
12 and time in argument is going into habitat
13 enhancement plan, and that's in the back of the
14 Bay.

15 And then at the mouth of the Bay you
16 have this giant kill going on, continuously, and
17 on and on. Why generate life in the back if
18 you're taking such a kill in the front? No matter
19 how much extra you produce in the back, you're
20 still taking the same in the front. Matter of
21 fact, if you produce more you kill more, because
22 there's more there to be killed.

23 There's a giant kill going on with the
24 water that the plant uses for cooling.

25 Entrainment kills 100 percent of larvae

1 and all the billions of gallons of water going
2 through Duke's power plant cooling system. The
3 HEP is a calculated attempt on the behalf of
4 science to mitigate this total kill.

5 The effectiveness of this HEP plan can
6 be studied and debated, studied and debated,
7 studied and debated. And there will never be a
8 conclusive scientific answer as to the
9 effectiveness of this habitat enhancement plan.

10 Dry cooling is an existing technology
11 that would be 100 percent scientifically effective
12 in eliminating the negative effect of entrainment
13 and entrapment. Seems kind of obvious that you go
14 for the for-sure thing.

15 And lastly I need to bring credibility
16 of the company that's putting forth these plants.
17 I'd like to read a couple of newspaper clippings.

18 The first one is: "Duke under-reported
19 profits audit finds. Duke Power Company
20 underreported \$124 million in profits from
21 1998 to 2000, seeking in some cases to
22 mislead regulators, an audit of a
23 whistleblower's claim has concluded."

24 "Carolina's largest utility, the owner of
25 the Morro Bay Power Plant, feared that full

1 disclosure of its profits could lead to a cut
2 in customer power rates."

3 "Instead the report released Tuesday by an
4 accountant, Grant Thornton, regulators relied
5 on information provided by utilities to set
6 rates."

7 "Quote: "Duke undertook a coordinated
8 effort to identify and record entries which
9 would lower Duke's net utility operating
10 income reported to the state commissions,"
11 Grant Thornton said.'"

12 And the report, which was requested by
13 regulators, it took ten months to compile.

14 The second article that I have is from
15 September 18th of this year: "Report blackouts
16 weren't necessary. Companies could have
17 prevented crisis." This is from an L.A.
18 Times article. "Southern California could
19 have avoided all hours of blackouts in 2001
20 and northern California, most of them, if the
21 state's five big private power plant
22 companies had produced as much electricity as
23 they were capable of generating through the
24 worst of the state's electrical crisis,
25 according to a state report released

1 Tuesday,"

2 "The report by the Public Utilities
3 Commission investigators does not challenge
4 the claims of the energy companies that power
5 plants were shut down because of mechanical
6 troubles or air pollution rules. But even
7 assuming that every reported shutdown was
8 legitimate, the report concluded the five
9 companies withheld between 37 and 46 percent
10 of the available capacity to generate
11 electricity from November 2000 to May 2001."

12 "Sufficient generating capacity for
13 California's families and businesses existed,
14 concludes the report, which was a year in the
15 making."

16 And then finally there's: "Low demand
17 prompts shutdown of Morro plant."

18 And as the previous person said, I read
19 that there was three plants that are shut down
20 after 40 percent of the work has been done on
21 them. And you abandon a plant that you put 40
22 percent of the work in, and walk away from it now?
23 And you're going to gamble and play around and
24 habitat enhance or local environment?

25 I mean it just doesn't make sense to me.

1 Thank you.

2 HEARING OFFICER FAY: Okay, thank you,
3 Mr. Freiler.

4 Okay, we want to thank all the parties
5 for their professional participation.

6 We especially want to thank the citizens
7 of Morro Bay, members of the public and the
8 serious and respectful way that they've
9 participated in our evidentiary process.

10 We do anticipate returning to your
11 community after the proposed decision, the
12 Presiding Member's Proposed Decision has been
13 published, probably about three weeks after it's
14 been published, to allow people to make comments
15 on the proposed decision.

16 They certainly can submit written
17 comments anytime during the 30-day comment period,
18 but our practice is to return to the community and
19 receive oral comments as a convenience to the
20 public.

21 So, we will be back, and look forward to
22 returning. Thank you very much. We're adjourned.

23 (Whereupon, at 3:00 p.m., the hearing
24 was adjourned.)

25 --o0o--

CERTIFICATE OF REPORTER

I, JAMES RAMOS, an Electronic Reporter, do hereby certify that I am a disinterested person herein; that I recorded the foregoing California Energy Commission Hearing; that it was thereafter transcribed into typewriting.

I further certify that I am not of counsel or attorney for any of the parties to said hearing, nor in any way interested in outcome of said hearing.

IN WITNESS WHEREOF, I have hereunto set my hand this 24th day of November, 2002.

JAMES A. RAMOS

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