

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

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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

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Richard Anderson

Richard F. Ambrose, Professor and Director  
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APPLICANT

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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

## I N D E X

	Page
Proceedings	1
Opening Remarks	1
Topics	2
Habitat Enhancement Plan - continued	2
Applicant witnesses M. Rosegay, K. Johnson, D. Mayer, S. Friant, T. Campbell, L. Kuhn - resumed	2
Examination by Committee	2
CEC Staff witnesses R. Anderson, R. Ambrose and M. Foster	24
Direct Examination by Ms. Holmes	24
Exhibits 304	24/127
Cross-Examination by Mr. Ellison	84
Exhibit 317	127/127
Cross-Examination by Mr. Naficy	127
Afternoon Session	136
Habitat Enhancement Plan - continued	
NMFS NOAA Fisheries Bryant Chesney Presentation	136
CEC Staff witnesses R. Anderson, R. Ambrose and M. Foster - continued	139
Redirect Examination by Ms. Holmes	139
Recross-Examination by Mr. Ellison	141
Rebuttal by applicant	210
Direct-Examination by Mr. Ellison	210
Exhibit 319	220/221
Cross-Examination by Ms. Holmes	221
Redirect Examination by Mr. Ellison	223
Regional Water Quality Control Board, Michael Thomas	225
Questions by Committee	225

## I N D E X

	Page
Topics - continued	
Habitat Enhancement Plan - continued	
Intervenor CAPE witnesses H. Groot, P. Henderson, S. Pryor	170
Direct Examination by Mr. Naficy	170
Exhibits 305, 306, 307, 308, 309	171/206
Exhibit 318	189/206
Cross-Examination by Mr. Harris	207
Public Comment	228
Don Boatman	
Coastal Alliance on Plant Expansion	228
Robert Freiler	233
Closing Remarks	237
Adjournment	237
Reporter's Certificate	238

## P R O C E E D I N G S

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
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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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