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STATE OF MAINE

BOARD OF ENVIRONMENTAL PROTECTION

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IN RE: PUBLIC HEARING ON KENNEBEC RIVER
HYDROPOWER PROJECTS LOCKWOOD,
HYDRO-KENNEBEC, SHAWMUT AND
WESTON

* * * * *

PRESIDING OFFICER: ERNEST HILTON

This hearing was held pursuant to Notice at the
Calumet Club, Northern Avenue, Augusta, Maine, on
March 15, 2007, beginning at 9:00 a.m.

1 (This hearing was held before the Board
2 of Environmental Protection, at the Calumet Club,
3 Northern Avenue, Augusta Center Drive, Augusta,
4 Maine, on March 15, 2007, beginning at 9:00 a.m.)

5 * * * * *

6 HEARING OFFICER HILTON: Good morning. I
7 call to order this hearing of the Board of
8 Environmental Protection on the Maine hydropower
9 permits and water quality certifications for the
10 following four dams located on the Kennebec River;
11 the Lockwood, number L-20218-33-C-N, and the
12 Hydro-Kennebec Projects number L-11244-35-A-N,
13 both located in Waterville and Winslow; the
14 Shawmut Project, number L-19751-33-A-M, located in
15 Fairfield, Benton and Clinton; and the Weston
16 Project number L-17472-33-C-M, located in
17 Skowhegan, Norridgewock, Starks and Madison.

18 My name is Ernie Hilton. I'm a member of
19 the Board of Environmental Protection and the
20 presiding officer for this hearing. Members of
21 the Board here today are, well, we see Don Guimond
22 here, Dick Gould here, code enforcement officer,
23 former legislator from Greenville; Don Guimond,
24 the town manager of Fort Kent and a local farmer;
25 Nancy Zeigler is not yet here, she's an attorney

1 from South Portland; Elizabeth Ehrenfeld, a
2 microbiologist from Falmouth and then myself, I'm
3 Ernie Hilton, I'm from Starks. We also have Dana
4 Murch, the hydropower power licensing staffer from
5 the Department of Environmental Protection, Carol
6 Blasi who resides at the Attorney General's
7 office, Terry Hanson is over to my left, except
8 that she's not actually there, and Cynthia
9 Bertocci who is the Board's executive analyst. I
10 see that Nancy Anderson is now arriving hurrying
11 to her position. This public hearing was
12 scheduled by the Board in response to petitions
13 filed by Douglas Watts and Friends of Merrymeeting
14 Bay. The Petitions requested that the Board
15 modify the permits and certifications for the
16 Lockwood, Hydro-Kennebec, Shawmut and Weston dams
17 to require immediate upstream and downstream
18 passage for American eel, American Shad, blueback
19 herring, alewife and Atlantic salmon. The purpose
20 of the hearing is to receive evidence from the
21 parties and the general public on whether the
22 standards in 38 M.R.S.A. Section 341-D(3) for
23 modification, revocation or suspension of the
24 license have been met and whether the Board should
25 exercise its discretion to modify the permits and

1 water quality certifications to require immediate
2 upstream and downstream fish passage, except
3 upstream fish passage on Lockwood and downstream
4 fish passage at Hydro-Kennebec and downstream eel
5 passage at each of the dams. This hearing is
6 being held by the Board pursuant to the Maine
7 Administrative Procedures Act, Title 5, Sections
8 9051 through 9064 and Chapter 20 of the Department
9 of Environmental Protection rules.

10 Notice of the hearing was published in the
11 Kennebec Journal and Morning Sentinel on Monday,
12 February 12, 2007 and Wednesday, March 7th, 2007.
13 Notice was also sent to the parties and all those
14 specifically requesting notification.
15 Additionally, press releases and public service
16 announcements were distributed to regional media
17 outlets on February 23, 2007.

18 During this hearing, the Board will receive
19 evidence from the licensees, being FPL Energy
20 Maine, Merimil Limited Partnership and
21 Hydro-Kennebec Limited Partnership and from the
22 intervenors, Doug Watts and Friends of
23 Merrymeeting Bay. Intervenor Save Our Seabasticook
24 did not submit testimony but may cross-examine the
25 witnesses of the other parties. Testimony of the

1 parties was pre-filed in advance of the hearing.
2 That testimony is part of the record and Board
3 members have received copies. Portions of the
4 pre-filed testimony of the parties are essentially
5 legal argument as opposed to evidence. I have
6 reminded the parties in the course of some
7 correspondence yesterday and in a meeting just a
8 few minutes ago that they will not be permitted to
9 cross-examine one another on legal argument, and
10 we have also made a determination that we're going
11 to refrain from discussion of legal aspects of
12 this proceeding even during our direct
13 presentations.

14 Today's hearing will begin with an
15 introduction of the Department file by DEP project
16 manager Dana Murch. We will then receive
17 testimony from Douglas Watts and Friends of
18 Merrymeeting Bay. Cross-examination of Mr. Watts
19 and FOMB will proceed in the following order:
20 FPL/Merimil, Hydro-Kennebec, then Save Our
21 Sebasticook followed by questions from Board
22 members and staff. We will then receive testimony
23 from FPL/Merimil, followed by cross-examination of
24 FPL/Merimil's witnesses and then testimony from
25 Hydro-Kennebec, followed by cross-examination and

1 Board questions. After all parties have presented
2 their testimony, we will hear from representatives
3 of Department of Marine Resources, Inland
4 Fisheries and Wildlife and the Atlantic Salmon
5 Commission. Please note that members of the
6 Board, counsel to the Board and DEP staff may ask
7 clarifying questions at any time. If there are
8 members of the public here today that wish to ask
9 questions of the witnesses, you must submit your
10 questions to me in writing. Paper is available at
11 a location in the southwest, northwest, northeast
12 corner of the room, back there. I will review the
13 questions, make a determination as to their
14 relevance and ask the questions as time permits.
15 The Board will receive testimony from members of
16 the general public during the evening session
17 which begins at 6:30 p.m. tonight.

18 This hearing is being recorded and
19 transcribed by Alley & Morrisette. Joanne Alley
20 is here today.

21 All witnesses at this hearing will be sworn
22 and all evidence entered into the record will be
23 available during the course of the hearing for
24 inspection by anyone who wishes to do so. After
25 the hearing, the project file will be available

1 for public inspection during regular business
2 hours at the DEP office in Augusta. At the
3 conclusion of the hearing no further evidence or
4 testimony will be allowed into the record except
5 for matters specifically identified by the Board.
6 These matters will be identified before the close
7 of the hearing.

8 At this time I ask that all persons
9 testifying stand and raise their right hand. Do
10 you all affirm the testimony you are about to give
11 us is the whole truth and nothing but the truth?

12 (Witnesses respond in the affirmative.)

13 HEARING OFFICER HILTON: Thank you. Are
14 there any questions about the procedure we'll be
15 following during this hearing? For your
16 information, we plan to break at approximately
17 12:00 for lunch and at 5:30 for dinner. The
18 evening session will convene at 6:30 p.m.

19 I make particular note that today is the
20 Ides of March. We are not Ceasars at this table.
21 You are not Brutus or senators, please sheathe
22 your long knives. I will begin by asking
23 Department staff to officially enter the
24 Department file into the record. Mr. Murch, thank
25 you.

1 MR. MURCH: Thank you, Chairman Hilton.
2 Dana Murch, dams and hydro supervisor for the
3 Department of Environmental Protection. At this
4 point I would like to enter into record the
5 Department file in this matter. Materials in that
6 file are outlined in a memorandum dated January
7 17th that I sent to the Board members and to all
8 the parties. The last item in that, number 7, is
9 labeled file materials relating to fish passage
10 compliance at these four dams. The specific
11 materials in those files were identified to all
12 the parties in a memorandum from me dated February
13 2nd, and that's a modified list and there were no
14 objections from the parties so I assume they are
15 all comfortable with those materials.

16 I wanted to then briefly summarize the staff
17 exhibits that were sent to you in January. This
18 is the black folder. Exhibit 1 contains a basin
19 map that is, in fact, from the Lockwood Project
20 file and the following map shows a number of dams
21 in the Kennebec basin and all of the dams covered
22 by the so-called KHDG Agreement are identified on
23 that map. Exhibit 2 is a summary of fish passage
24 facilities and requirements for these four dams.
25 Exhibit 3 are some project descriptions that I

1 took from the file materials that I have and some
2 site maps or plans that I took from file
3 materials. I would point out that a number of the
4 parties have submitted additional project diagrams
5 and photographs, so I would refer you to those
6 also. Exhibit 4 has two pieces. The first piece
7 is called Lower Kennebec River Comprehensive
8 Hydropower Settlement Accord. This is the
9 over-arching Kennebec River Agreement that really
10 was centered around the removal of the Edwards dam
11 in Augusta. It's a blue sheet about halfway
12 through that tab and what follows that is what
13 every one today will refer to as the KHDG
14 Agreement. This is the 1998 Agreement regarding
15 passage for eels and anadromous fish at these four
16 dams plus several other dams. The specific
17 requirements of that agreement dealing with eel
18 passage begin on page 5, and following that
19 beginning on page 8 are the specific requirements
20 for upstream and downstream and anadromous fish
21 passage.

22 Lastly, Tab 5 contains a copy of the
23 Department's condition compliance orders regarding
24 downstream anadromous fish or eel passage at these
25 four dams. They're all issued in 2006, and one

1 last thing, Cindy has passed out to you one sheet
2 that's labeled Generic Hydropower Project Layout.
3 I prepared this actually for another purpose and
4 the Board has seen this before and we're providing
5 it to you now just as a guide to what a generic
6 hydropower project looks like and definitions of
7 some terms that you may find useful. The parties
8 have all seen this.

9 I'd be happy to answer any questions.

10 HEARING OFFICER HILTON: Questions of Dana
11 Murch?

12 MS. ZIEGLER: Will we have another
13 opportunity to ask questions -- I'm sorry, will we
14 have an opportunity later to ask questions of Dana
15 or do we have to do them all now?

16 HEARING OFFICER HILTON: I would presume
17 so.

18 MS. BERTOCCI: Yes.

19 HEARING OFFICER HILTON: I would presume
20 so. He's not going anywhere.

21 MR. MURCH: And I will label this Generic
22 Project Layout as Hearing Exhibit 1, and we'll
23 label every other piece of paper that comes in
24 today with a hearing exhibit number and all the
25 parties will get copies at some point after the

1 hearing. Thank you.

2 HEARING OFFICER HILTON: And you're going
3 to be the ultimate arbiter as to what the exhibit
4 numbers are, hearing exhibit numbers?

5 MR. MURCH: Yes, this is #1.

6 HEARING OFFICER HILTON: We need our first
7 witness from the petitioners. Ed and Doug, you
8 probably ought to come over to the witness table.
9 That's the one in the middle.

10 MR. WATTS: He's going to go first.

11 HEARING OFFICER HILTON: I think you've
12 both seen the schedule that Cindy came up with.

13 MR. FRIEDMAN: The 15-minute part you
14 mean?

15 HEARING OFFICER HILTON: Well, you have 35
16 minutes between you, and I trust that you've
17 somehow sorted out who's going to take how much
18 time. Not that you need to necessarily tell us
19 right now, but just be aware that there's a --
20 we'll use the clock back there in the back of the
21 room as the hearing chronometer.

22 MR. FRIEDMAN: How do you hear me?

23 HEARING OFFICER HILTON: Very well.

24 MR. FRIEDMAN: Okay. So I'm Ed Friedman,
25 as you know, Chairman of Friends of Merrymeeting

1 Bay, and I'd just start off by saying as an
2 editorial comment I need to note the difference
3 between a photograph of war and the visceral
4 sensations of actually being there, the sights,
5 the smell, the fear, and it's disturbing to me
6 that while we've got some photos here, I do have
7 some cut up eels in the car. I've got a beautiful
8 stuffed taxidermy mount of an eel that was -- died
9 from internal injuries at Benton Falls, and I
10 really didn't want to bring them in here because I
11 was concerned about people being offended, people
12 thinking that was theatrics, what have you, and I
13 don't want to lose any votes here clearly, but the
14 divorce from reality does make this something of
15 an illusion for me as does the photo of a war
16 scene. Knowing what I know, I would be complicit
17 if I wasn't here, knowing what I know about the
18 destruction of our rivers, if I wasn't here
19 representing Friends of Merrymeeting Bay before
20 you.

21 You'll probably hear from the dam owners,
22 probably almost for sure from the agencies, the
23 phrase that often means quite the opposite, trust
24 us, we're the experts, and if Doug and I didn't
25 disagree with that, we probably wouldn't be here

1 today. We feel the agencies are not following the
2 law and are not enforcing the law and that's why
3 we're here, and I could reference page 17 of our
4 testimony, the letter from the DMR commissioner.

5 I'll start off with a little story. A few
6 years ago I was part of a number of environmental
7 groups that met with the then DEP Commissioner
8 Dawn Gallagher and we were there to talk about the
9 Androscoggin River, and Dawn had us by way of
10 introduction go around the room and state what a
11 healthy river would mean to us, and we went around
12 and Commissioner Gallagher said that for her a
13 sign of a healthy Androscoggin would be if she
14 could take a kayak out in the river and not get
15 any slime residue on it, and for me representing
16 Friends of Merrymeeting Bay, it was that our
17 fishery stocks would be in numbers enough that a
18 sustainable commercial harvest would be possible
19 and that the fish would be safe to eat, and I was
20 shocked at the time by the really low aspirations
21 of someone who clearly represented the Department
22 and who really represented the state at the time.

23 Something we use in our work with Friends of
24 Merrymeeting Bay quite a bit and that has gone
25 around the state quite a bit through Inland

1 Fisheries and Wildlife and the Department of
2 Conservation, Maine Natural Areas Program, is
3 beginning with habitat set of maps and programs
4 about how important it is to be aware of wildlife
5 habitat in the state and where that is focused,
6 and besides large contiguous areas of habitat, the
7 focus is generally in the riparian corridors where
8 something like 60 percent or more of our
9 biodiversity is. So as we progress through the
10 day, I hope that you'll think of healthy arteries
11 when you think of healthy rivers because we need
12 to keep the circulation going, we need to get the
13 fish passing to keep those arteries, those rivers,
14 flowing. If they are blocked, we are dead. I
15 could spend a long time today quoting chapter and
16 verse supporting our case. I could elaborate in
17 detail on turbine injuries. You'll hear quite a
18 bit I think about direct mortality a little bit
19 later. I want you to remember that indirect or
20 delayed mortality is a huge factor as well, and
21 that when a fish is injured, it might not be
22 killed right then but even a little fin clip or
23 something might -- will lessen his chance of
24 surviving and reproducing later on, and in the
25 status review on the Atlantic salmon, the

1 Biological Review Team throws out a number of 77
2 percent is what that could go up to for small
3 salmon smelt, let alone a large eel or an adult
4 salmon.

5 I can tell you that the U.S. Supreme Court
6 in Warren affirmed the states' rights to deal with
7 water quality. I hope Mr. Manahan won't object to
8 that, and that U.S. Fish and Wildlife Service in
9 their status review while they denied endangered
10 species listing for the eel, they did say in
11 summary that turbines, particularly within a
12 watershed, turbines on terminal dams, which means
13 the dam is closest to the tidewater or the ocean,
14 can cause substantial mortality within those
15 watersheds and that's supported by the literature
16 from around the world and estimates go up to a
17 hundred percent.

18 Conditions are very variable. Should the
19 luck of the draw dictate our resource protection
20 policy? I don't think so. I could even give you
21 the Wal-Mart challenge. Go down to Wal-Mart over
22 lunch, find a window fan without a screen, bring
23 it back and I'll give you 500 bucks and walk
24 away. I don't think you can find it out there and
25 that's for a reason.

1 A couple of core points here. We believe
2 the KHDG is not working well, might even consider
3 parts of it being violated. Obviously everyone
4 knows here the eel studies that are somewhat in
5 question here are not completed. They were
6 supposed to be due in 2002 and we're still talking
7 about more studies. There's also a reference in
8 there that Atlantic salmon, once salmon are found
9 in the impoundments of the various dams, that if
10 turbines are to be counted as passage, which the
11 dam owners have stated repeatedly in their
12 testimony, that there need to be site-specific
13 studies done on the effects of adult shad and
14 salmon going through those turbines before that
15 can be allowed to happen. To my knowledge that
16 has not happened, and that's in our written
17 testimony as well, site-specific quantitative
18 studies designed in consultation with the resource
19 agencies, et cetera. So my feeling is that we're
20 in violation right now because salmon have been
21 brought up into the Sandy River, they're trying to
22 get out, they're in the impoundments now and those
23 studies haven't been done. Obviously there will
24 be some discussion amongst us all about what can
25 be modified and what can't be, reopens or not.

1 There's a mention here in the Maine Supreme Court
2 opinion just stating that reopener authority is
3 essential because the conditions are not as
4 effective as planned, water quality standards will
5 not be met and the BEP's goal to restore and
6 maintain the chemical, physical and biological
7 integrity of the state's waters will not be
8 achieved. Well, then, it also sort of follows in
9 my mind that if there is no reopener, it doesn't
10 mean that magically conditions are great suddenly
11 or that the BEP doesn't stick to their mission and
12 goal. So irregardless of reopener or no reopener,
13 we need to be looking at water quality standards
14 being met, we need to be looking at maintaining
15 the integrity of the system and making sure
16 conditions are effective, and that takes us to
17 Gulf Island Pond and the phrase I'm sure you've
18 heard a lot that when the Conservation Law
19 Foundation asked for reopeners to be put in, that
20 was denied. The DEP and the BEP said essentially
21 it doesn't matter, the Board can modify any water
22 quality cert whenever it finds, among other
23 things, that approved activity poses a threat to
24 the environment or there's been a change in any
25 condition or circumstance that requires

1 modification of the terms of the certification,
2 thus, the DEP already has statutory authority to
3 reopen the water quality certs to impose new
4 conditions regarding eels as may be warranted in
5 the future.

6 The DEP needs to be consistent in applying
7 standards, and it needs to specify, in our
8 opinion, in water quality certs that fish kills
9 are prohibited. So as I hope you all know, the
10 mission of the Board is to provide informed,
11 independent and timely decisions on
12 interpretation, administration and enforcement of
13 the laws relating to Environmental Protection.
14 Note the word independent. That's independent of
15 the DEP, of the Attorney General, of IF&W, of
16 DMR. The Board implements various aspects of the
17 Federal Clean Water Act objective which is to
18 restore and maintain the chemical, physical and
19 biological integrity of the nation's water,
20 similarly under Maine law the Legislature has set
21 the following goal, that the water quality be
22 sufficient to provide for the protection and
23 propagation of fish, shellfish, wildlife and
24 provide for recreation in and on the water.

25 So we're not presenting you with an

1 either/or situation here today and through this
2 process. We're really here to say that it's not
3 either fish passage or hydroelectricity. We're
4 here to say that there can be safe passage at the
5 dams and that electricity can also be generated
6 and that's really all I have to say right now.

7 HEARING OFFICER HILTON: Thank you, Ed.
8 Doug.

9 MR. WATTS: Thanks. Douglas Watts, good
10 morning.

11 HEARING OFFICER HILTON: Pull your
12 microphone over just a little bit.

13 MR. WATTS: Sure. Just everything, you
14 know, the way this process goes, I mean, we're
15 just reviewing what we've already put into written
16 -- in the written testimony anyway, so I just
17 felt that today would be really just to make one
18 or two points and let the -- the detailed paper
19 stuff is going to have to stand for itself.
20 There's the record. As I understand this entire
21 thing, having been now involved in it since the
22 fall of 2005, the petition process that we're here
23 for is really just asking a very simple question,
24 the extent to which the water quality certificates
25 for these dams allow for and require full

1 attainment of the legal water quality standards
2 for the Kennebec River. That's the purpose of
3 these certifications is to literally certify the
4 activity will not violate water quality
5 standards. That's the only reason these
6 certifications exist, and they are issued by the
7 Board through the Federal Clean Water Act, the
8 Board acting as the state enforcement arm of a
9 federal law, in this case hydroelectric dams which
10 are regulated by the Federal Government. This is
11 the state's one opportunity to regulate hydro dams
12 is through certification. The question that the
13 Board has to answer whenever it does its
14 certification is that does the activity allow for
15 attainment or does the activity bring the river
16 out of attainment with its standards. The way
17 water quality certificates are written and the
18 reason why they have conditions is to say the
19 following conditions are necessary on the activity
20 to make sure it doesn't -- the activity doesn't
21 cause a violation of the standard. Theoretically
22 if there's no way an activity can be modified such
23 that it does not violate standards, the Board is
24 not allowed to issue the certificate, and that was
25 probably what was going to happen at the Edwards

1 dam in Augusta that it looked that there was no
2 way that dam could meet standards, allow for
3 standards to be met.

4 In this case, the issue here -- and I'm going
5 to have to use a little diagram here -- our laws
6 in the State of Maine -- our laws in the State of
7 Maine, our standards, our water quality standards,
8 state that in rivers with migratory fish which
9 require the ability to safely move up and down the
10 river that an activity does not prevent them from
11 doing so because we know that migratory fish if
12 they can't go to saltwater, they don't live. They
13 have to go back and forth safely to the sea. It's
14 just as important to them as oxygen in the water.
15 On the Kennebec -- I'm just going to use this for
16 a second -- this is a basic --

17 HEARING OFFICER HILTON: Maybe you can
18 swing that around so the other parties can see it,
19 too.

20 MR. WATTS: Yeah, I just drew up a basic
21 schematic right here, very easy, rough. This is
22 the Kennebec River, the big bend, this is
23 Skowhegan, this is Norridgewock, this is the Sandy
24 River coming in, Augusta is down here, we're down
25 here, just a very basic map. Here are the four

1 dams that we're talking about today. Here's
2 Weston at Skowhegan, that's Shawmut in Fairfield,
3 that's Hydro-Kennebec in Waterville and that is
4 Lockwood in Waterville. These are the four dams.
5 This is the Kennebec and this is the Sandy. Now,
6 for, let's say, an American eel that has to go to
7 the ocean to give birth, an adult American eel,
8 that resides somewhere up in here, okay? It has
9 to swim past all of these dams to make it to the
10 ocean to give birth. Now, as our written
11 testimony shows, there have been two studies thus
12 far on the Kennebec River to determine how many
13 eels make it past a dam alive to continue their
14 migration. One was done at the Lockwood dam and
15 another one was done at the Benton Falls dam on
16 the Seabasticook River. These were done in 2001
17 and 2002. They were small. What they did was
18 they radio tagged live eels and released them
19 above the dams and followed them to see what
20 happened. Because of the cost of the transmitters
21 and the difficulty in getting eels, they only
22 could get a small number, less than a dozen. So
23 it's a small -- what they call a small sample
24 size, but the results were essentially that about
25 half of the eels made it, the other half didn't.

1 Now, I want to get my little chart here. So we're
2 starting out with the only information we have
3 thus far on this river system shows that half the
4 eels make it past the dam alive. Now, let's take
5 10,000 eels above Skowhegan. We're going to start
6 out with 10,000. Assuming 50 percent that go by
7 Weston, well, we lose half; they hit Shawmut, we
8 lose half; they hit Hydro-Kennebec, we lose half;
9 they hit Lockwood, we lose half. Over the course
10 of several days, we have gone from 10,000 living
11 female eels to 625, and we've had 9,300 -- we've
12 now had a fish kill of 9,375 fish, assuming that
13 we started off with 10,000 up here. That is a 94
14 percent death rate, 94 percent of the eels die
15 just swimming from Skowhegan to Waterville which
16 is about a half-hour drive. This is the only data
17 we have for the Kennebec River is 50 percent
18 mortality per dam. We don't have any other data
19 that shows better than that. Now, let's assume
20 we'll be generous and say we're getting a lot
21 better than that, okay? Let's say -- let's be
22 extremely optimistic. Let's put on rose-colored
23 glasses and say actually those studies were wrong,
24 completely wrong, utterly useless, deceptive.
25 Let's assume and be generous that 90 percent

1 survive at each dam. We'll start again with
2 10,000, all right, and they go by Weston, we lose
3 10 percent; they go by Shawmut, we lose 10
4 percent; they go by Hydro-Kennebec, we lose 10
5 percent; they go by Lockwood, we lose 10 percent.
6 In 30 miles we've gone from 10,000 to 6,500.
7 We've lost -- one-third of the animals have been
8 killed. This is with 90 percent survival at each
9 dam, and it's simply because we have a river
10 system with four dams right in a row, cumulative
11 impact. Arithmetic is not the eels' friend on
12 this river. You can see it gets bad. I'm not
13 going to do the number out but even if we had 95
14 percent survival at each dam which is considered
15 what you'd get with state-of-the-art downstream
16 passage facilities specifically designed to pass
17 these animals, even with 95 percent we're still
18 going to start out up at Weston up at the junction
19 of the Sandy and the Kennebec at Norridgewock,
20 we're going to end up down at Lockwood with
21 8,145. We're going to lose 1,855. That's 20
22 percent dead. We're still losing a fifth of the
23 animals even at what would be considered an
24 exceptionally good state-of-the-art fish passage
25 outcome trying to hit 95 percent at each dam.

1 This is the reality. This is arithmetic. These
2 fish have to get from here to here. If they
3 don't, if they die, they don't breed, they don't
4 give birth. The eels coming down here, in
5 particular, are pregnant. They're pregnant female
6 eels. Now, the reason why this is important for
7 water quality standards is that Maine's water
8 quality standards require that the Kennebec River
9 be suitable habitat for American eel. That means
10 by definition that they are able to live in the
11 river and they're able to live and give birth for
12 the same reason that we don't allow a factory to
13 put something into the water that literally
14 removes the oxygen so they can't breathe. Now, I
15 want to take this again, this is 90 percent.

16 HEARING OFFICER HILTON: Doug, it might be
17 helpful if you labeled those as to which ones are,
18 you know, 50 percent, 90 and 95.

19 MR. WATTS: Oh, I'm sorry, okay. I brought
20 colored markers. Yeah, this is 90 percent right
21 here, 90 percent survival. Actually I think what
22 I should do here, this is -- this would be 95
23 percent.

24 HEARING OFFICER HILTON: Will you be
25 looking to enter those into the record?

1 MR. WATTS: Well, this is all in the
2 written testimony.

3 HEARING OFFICER HILTON: The numbers are.
4 I don't know that those charts are.

5 MR. WATTS: No, the charts aren't. I just
6 did them as -- I just did them as tables tables in
7 our testimony.

8 HEARING OFFICER HILTON: Yeah, you should
9 be entering them, and Dana can assign a hearing
10 number to them.

11 MR. WATTS: Okay, that's fine.

12 HEARING OFFICER HILTON: Because when we --
13 when we're asking you questions about those, we're
14 going to want to be able to make reference to a
15 particular hearing exhibit number and that's how
16 we kind of coordinate these hearings.

17 MR. WATTS: Very good, very good, very
18 good. This is 50 percent. The point that I was
19 going to make was that -- 90 percent -- I'm
20 thinking of the Board now looking at, say, a
21 facility that discharged into the river, a
22 factory, say like S.D. Warren's mill up in
23 Hinckley, for example, which discharges in right
24 about there not that far above Shawmut, but what
25 would the Board do, for example, if you had

1 factory A, B, C, D and their cumulative discharge
2 into the river of wastewater was such that a fish
3 migrating down the river you lost a third of them,
4 they just simply -- the cumulative effect of the
5 pollution killed all of them, killed a third of
6 them.

7 MS. ZIEGLER: I think it might be helpful
8 if you on each one of those -- it's a little
9 confusing because you have the survival rate at
10 each dam. You don't have the final result. You
11 just have it as the numbers.

12 MR. WATTS: Okay, yeah. This is the 90
13 percent survival at each dam produces 65 percent
14 total survival, 35 percent total mortality; 50
15 percent would be 94 percent total mortality, 50
16 percent -- oh, I'm sorry, no, that's wrong -- that
17 would be 4 percent total -- no, is it 6?

18 MR. FRIEDMAN: Yes.

19 MR. WATTS: 6 percent total survival; and
20 the 95 percent bracket would be 81 and 19, 81
21 percent total survival, 19 percent total
22 mortality.

23 HEARING OFFICER HILTON: While we're at it,
24 Dana, why don't you put -- the 50 percent would be
25 Hearing Exhibit 2 and, Doug, while you're at it

1 there with your markers, the first placard that
2 you made up that's going to be Hearing Exhibit 2
3 and at some point we'll be able to ask the parties
4 as to whether they're going to be willing to admit
5 them.

6 MR. WATTS: Okay.

7 HEARING OFFICER HILTON: So that's Hearing
8 Exhibit 2 and the next one would be Hearing
9 Exhibit 3 or -- yeah, 3 and 4.

10 MR. WATTS: What I was attempting to say
11 before by way of analogy that if a factory
12 discharged -- if the cumulative impact of four
13 factory discharges resulted in one-third of the
14 fish dying just as they swam over a 30-mile
15 stretch of river, I would find it hard to believe
16 that this Board could find that all of these four
17 discharges were all in complete compliance with
18 water quality standards given that one-third of
19 the fish swimming down the river every year were
20 being killed by the cumulative effect, because,
21 you know, as you folks are well aware, Maine's
22 water quality standards are outcome based. It
23 says this is the goal, this is what we want, the
24 habitat should be suitable, it describes an end
25 point which makes sense because that type of

1 definition allows you folks to consider cumulative
2 effects because this is what happens in the real
3 world. On a theoretical basis, the Weston dam,
4 for example, might have, you know, 90 percent of
5 the fish swimming over the Weston dam or past it
6 survive. It sounds great. Unfortunately, from
7 the fish's perspective, they have to go past all
8 of these to survive, and it raises significant
9 problems when you try to square what we've got in
10 the river now, its built condition, with what
11 water quality standards say the Kennebec River
12 must be which is established by the Legislature.

13 The reason I'm here before you in making
14 this petition to modify these certifications is
15 because the way they are written today, they are
16 not enforceable in the sense that there is no
17 language in these certifications that says you
18 must have 90 percent of the fish live. In fact,
19 from what we know from the only -- the only data
20 we have right now, the only studies that have been
21 done are suggestive of a 50 percent survival at
22 each dam which suggests that we are looking at
23 for, say, American eels for those who are swimming
24 out of the Sandy River, we're looking at 94
25 percent mortality and only 6 percent are actually

1 making it to Augusta alive. The certifications as
2 written now don't specify what is the -- what's
3 the number here? What are we trying to get? What
4 are we trying to get at the bottom of the river
5 system? In other words, is this acceptable? Is
6 19 percent mortality and 80 percent survival, is
7 that acceptable? There's no performance
8 benchmarks within the certifications that say this
9 is what we need to end up down here alive in order
10 to be in compliance with state standards. What we
11 have really now the way the certificates are
12 written is whatever is all right, which sort of
13 defeats the purpose of having a standard. It's a
14 standard without a standard. It says that 50
15 percent, 90 percent, whatever, is here, and the
16 reason I say that, and I'm going to quote one
17 thing from our testimony -- I need a glass of
18 water -- and I'm going to finish up with this.
19 You've been very indulgent. In a way what brought
20 me here to some extent was that the Benton Falls
21 dam on the Sebesticook River which is where one of
22 the studies was done, it's a few miles from
23 Lockwood, it is -- the Sebesticook there is
24 shallow. You can go out there and if you wade up
25 to your chest like I did, you can actually see

1 where the eels are being killed and this was the
2 case in 2004, and it's been detailed in our
3 testimony. There was -- you know, myself and Nate
4 Gray of DMR witnessed and documented a severe fish
5 kill there. Hundreds of eels were scattered all
6 over the river bottom chopped up. The first thing
7 we did back at DMR headquarters down in Hallowell
8 was, well, what are we going to do about it,
9 what's the response of the state going to be now
10 that we have confirmed that there is a severe kill
11 going on on this -- at this dam. An e-mail went
12 out because there was a meeting between Dana and
13 the Department of Attorney General to discuss what
14 the state could do about what apparently was an
15 ongoing severe fish kill that was going to

16 continue for weeks because the migration season
17 still had many weeks to go. The reason I'm
18 bringing up Benton Falls Associates is because its
19 language regarding fish passage for eels is
20 identical to what's in the certifications for
21 these four dams. The language is the same. The
22 Department of Attorney General examined the
23 language in the certification and what they
24 concluded was there's nothing in the certification
25 that prohibits them from killing eels, and there's

1 nothing in the certification that requires them to
2 provide safe passage for eels and, in fact, the
3 certification actually acts as a legal bar to
4 prevent the state from saying, hey, you've got to
5 stop doing this, and I'm going to read now from
6 what Dana wrote in an e-mail. It was acknowledged
7 that the dam owner, Benton Falls Associates, is
8 not currently in violation of its FERC license or
9 its DEP water quality certification for the
10 project, both of which have eel passage provisions
11 based upon the 1998 KHDG Agreement. Under the
12 terms of the agreement, DMR is still studying,
13 quote, the appropriate permanent downstream eel
14 passage measures to apply to the project, and
15 that's the end of the e-mail, the part that I'm
16 quoting. Basically what the state said was that
17 the certificate is written in a way that they are
18 not, A, required to provide safe passage for eels;
19 and, B, there's nothing in there that prohibits
20 them from killing eels so our hands are tied.
21 They haven't done anything wrong and the reason
22 why the state reached that conclusion was because
23 the certificate, in essence, allows them to kill
24 every fish coming down the river and that is what
25 happened. It's the same language in these

1 certificates for these four dams. Essentially --
2 and this is according to the Maine Attorney
3 General's reading of this --

4 MS. VERVILLE: Mr. Chairman, I've let this
5 line of testimony go on for a while. I would
6 submit that we're getting into legal argument as
7 far as what the Attorney General thought with
8 respect to the situation at Benton Falls and the
9 provisions of that certification. I would note my
10 objection on the record.

11 MR. WATTS: That's fine; that's fine.

12 HEARING OFFICER HILTON: I'm going to
13 uphold that objection.

14 MR. WATTS: That's fine.

15 HEARING OFFICER HILTON: Okay, actually you
16 need to wrap up.

17 MR. WATTS: I know; I know. So the numbers
18 I've showed you here, I'm simply showing you these
19 because this is reality. You know, you have to --
20 we have to -- in order to do our job, we have to
21 look at this situation through the eyes of the
22 animals that the law was written to protect, and
23 this is what they see coming down, and we can plug
24 in any percentage here. We can plug in 95, 94.
25 Whatever performance level that these dams are

1 achieving for passage today is going to be
2 somewhere along that spectrum, and I just wanted
3 to show you this to say, A, 50 percent, this is
4 what the data shows we're probably getting now and
5 by simple arithmetic that means for animals
6 swimming from Skowhegan down to Augusta, we're
7 losing -- almost all of them are dying, and to be
8 extremely generous and to assume for a moment
9 these dams are extremely effective, it's safely
10 guiding these fish away from the turbines, even at
11 95 percent, we're still losing a fifth of them.
12 To me the take-home message is these facilities
13 have to be designed exceedingly well in order to
14 do the job that we want them to do and right now
15 we haven't even started that job yet and the
16 certifications don't require any date certain time
17 for this to be done except June of 2002 which is
18 now five years gone. Thank you.

19 HEARING OFFICER HILTON: Thank you, Mr.
20 Watts. Ed?

21 MR. FRIEDMAN: Just one sentence briefly to
22 remind you on these figures, these are just
23 immediate mortality figures as opposed to delayed
24 mortality which would be added in which the
25 Services estimated for smolts to be between 42 and

1 77 percent, little smolt.

2 HEARING OFFICER HILTON: Thank you.

3 MR. WATTS: Mr. Chair, like I said, I just
4 want to touch on this one point of this issue,
5 because we're dealing with multiple species, some
6 of what I said here really is exclusively applied
7 to eels, some of it equally applies to the other
8 species as well. I just want to make sure that
9 it's not interpreted that I have tried to
10 generalize this entire issue right here. I'm just
11 trying to use the time that we've got. Thanks.

12 HEARING OFFICER HILTON: Thank you, Mr.
13 Watts and Mr. Friedman. I think we have cross by
14 FPL.

15 MR. THALER: Mr. Hilton, we had talked
16 earlier, Attorney Verville and I, and I agreed
17 that she would go first if that's all right with
18 the Chair.

19 HEARING OFFICER HILTON: We have eminent
20 flexibility.

21 MS. VERVILLE: Okay, Mr. Friedman, you have
22 introduced in your pre-filed direct testimony a
23 number of photographs of eels at different dams.
24 Were any of these photographs taken at the
25 Hydro-Kennebec dam?

1 MR. FRIEDMAN: No.

2 MS. VERVILLE: Have you introduced any
3 evidence with respect to eel mortality at the
4 Hydro-Kennebec dam?

5 MR. FRIEDMAN: Only in general.

6 MS. VERVILLE: Is there anything specific
7 in the record with respect to eel mortality at the
8 Hydro-Kennebec dam?

9 MR. FRIEDMAN: No.

10 MR. WATTS: I did. I'm sorry, can we not
11 do this together? Because I filed different stuff
12 than Ed.

13 MS. VERVILLE: Can you point in the
14 testimony where that is?

15 MR. WATTS: I filed it in -- what I filed
16 was in relation to the U.S. Fish and Wildlife
17 Service consultation letter of May 12.

18 MS. VERVILLE: Yes, you did, I agree.

19 MR. WATTS: And that is the -- as I recall,
20 that's the key thing that I submitted was their
21 opinion of whether eel passage was going to be
22 provided.

23 MS. VERVILLE: But there's nothing in the
24 record with respect to having observed eel
25 mortality at the Hydro-Kennebec dam?

1 MR. WATTS: The site's posted --

2 MR. VERVILLE: I only asked one question.

3 MR. WATTS: Okay, the site's posted. You
4 can't get in there. You're trespassing if you go
5 in.

6 MS. VERVILLE: How long have you been
7 working on the Kennebec River according to your
8 testimony, both of you?

9 MR. WATTS: '91.

10 MS. VERVILLE: Okay, and I think your
11 testimony was since the mid-eighties you've been
12 guiding?

13 MR. FRIEDMAN: Yup.

14 MS. VERVILLE: On the Kennebec and
15 Androscoggin Rivers. So in those 15 to 20 years
16 you haven't seen anything with respect to
17 Hydro-Kennebec?

18 MR. FRIEDMAN: I don't guide up around
19 Hydro-Kennebec. I work down in the Merrymeeting
20 Bay region so I would not be around these dams.

21 MR. WATTS: The site is posted.

22 MS. VERVILLE: I understand but --

23 MR. WATTS: I'd be breaking the law to try
24 to do any observation there, and I don't like to
25 break the law.

1 MS. VERVILLE: It's only posted at the
2 immediate tailrace. You can definitely get into
3 the project vicinity.

4 MR. WATTS: That's where you'd see them,
5 and the other thing you've got to go through --

6 MS. VERVILLE: And you don't see them --
7 wouldn't you see them also going downstream?

8 HEARING OFFICER HILTON: Just a minute. We
9 have a court reporter here who's trying to keep up
10 with the conversation.

11 MS. VERVILLE: Sorry.

12 HEARING OFFICER HILTON: She's actually the
13 screen for us because we find it difficult with
14 interrupted conversation so we blame her.

15 MS. VERVILLE: Okay.

16 MR. FRIEDMAN: The question was --

17 MS. VERVILLE: I'm all set, thank you.

18 MR. FRIEDMAN: They sink.

19 MS. VERVILLE: Mr. Watts, the simulation of
20 cumulative impacts that you've just presented to
21 us which you also presented in your pre-filed
22 direct or possibly it was your rebuttal is very
23 similar to the simulation model that Professor
24 McCleave put forth in his article which is
25 attached as an exhibit to the testimony. It's the

1 same type of assumption, right?

2 MR. WATTS: Right.

3 MS. VERVILLE: So it's all based on
4 assumption?

5 MR. WATTS: Well, it's based on
6 arithmetic. You can plug in any number you want
7 to.

8 MS. VERVILLE: Exactly.

9 MR. WATTS: It's just basic take 10,000
10 times --

11 MS. VERVILLE: I understand. So it's all
12 based on assumption that if you assume a certain
13 level of mortality at each dam?

14 MR. WATTS: Yup.

15 MS. VERVILLE: Okay. Now, would you agree
16 that Mr. McCleave in that article also talked
17 about turbine mortality at any particular project
18 is highly site specific?

19 MR. WATTS: Actually I'm not very familiar
20 with Mr. McCleave's paper. Personally I'm not.

21 MR. FRIEDMAN: We entered the -- we entered
22 Mr. McCleave's paper.

23 MS. VERVILLE: Okay, Mr. Friedman, can I
24 have you read from a portion? If you'd just read
25 the highlighted section, I'd appreciate it.

1 HEARING OFFICER HILTON: I'm sorry, which
2 exhibit number is that?

3 MS. VERVILLE: I'm sorry, it's Friends of
4 Merrymeeting Bay Exhibit 6 and it's page 594 of
5 Professor McCleave's article, and I'm going to ask
6 Ed to read numeral 3 on the top left-hand column
7 of page 594.

8 MR. FRIEDMAN: Yup, mortality rate, right?

9 MS. VERVILLE: Yes.

10 MR. FRIEDMAN: Mortality rate is dependent
11 not only on the turbine and dam characteristics
12 but also on operating additions such as flow and
13 relation to percentage and efficiency of
14 generating capacity, and I think we said that
15 earlier in our testimony.

16 MR. WATTS: I agree with that.

17 MS. VERVILLE: Okay, thank you. So you
18 agree that it's highly site specific; what happens
19 at one project doesn't necessarily happen at
20 another project?

21 MR. WATTS: No, I said it's highly site
22 specific. In other words, they all generate
23 electricity.

24 MR. FRIEDMAN: And condition specific.

25 MR. WATTS: I mean, they all generate

1 electricity but they are all different.
2 Generally, you know, there are site specific
3 differences. I mean, they're not all the same
4 dams but by the same token, the electricity that
5 comes out of them is the same. So, I mean, site
6 specific is a, you know, site-specific term.

7 MS. VERVILLE: So do you agree that the
8 fact that one project may result in significant
9 eel kills does not automatically mean that another
10 project also results in significant eel kills?

11 MR. WATTS: Occam's Razor would say if they
12 got turbines and eels are going through them that
13 are four-feet long, the eels are going to get
14 chopped up just as if a six-year-old child went
15 through a turbine. It's going to kill them.
16 That's why they're all posted that says danger,
17 dam because if you go through the turbine, you're
18 dead.

19 MS. VERVILLE: What is your definition of
20 safe, immediate, effective fish passage, Mr.
21 Friedman?

22 MR. FRIEDMAN: It's defined in our
23 testimony here.

24 MS. VERVILLE: So as I read your testimony,
25 all fish going above -- migrating upstream and all

1 fish migrating downstream?

2 MR. FRIEDMAN: That's how we've defined
3 it.

4 MS. VERVILLE: So no -- is any level of
5 fish mortality acceptable?

6 MR. FRIEDMAN: I think that to be
7 realistic, that's where we're starting. That's a
8 goal to strive for so that's why we have it there,
9 yup.

10 MS. VERVILLE: So what level is
11 acceptable?

12 MR. FRIEDMAN: At this point safe -- at
13 this point a hundred percent passage.

14 MS. VERVILLE: Are you aware of any --
15 let's talk about downstream passage for eels.

16 MR. FRIEDMAN: Okay.

17 MS. VERVILLE: Are you aware of any measure
18 that would result in no mortality of downstream
19 migrating eels?

20 MR. FRIEDMAN: Yeah.

21 MS. VERVILLE: And that is?

22 MR. FRIEDMAN: Well, totally effective
23 passage, a shut down of the turbine, adequate
24 screening of the turbine, dam removal.

25 MS. VERVILLE: Dam removal, okay.

1 MR. FRIEDMAN: That's one but that's not
2 what we're talking about here.

3 MS. VERVILLE: All right, so nighttime shut
4 down?

5 MR. FRIEDMAN: Nighttime shut down would
6 help. Blocking the turbines are fundamental to
7 the issue we're talking about.

8 MS. VERVILLE: And if you had nighttime
9 shut down, how long?

10 MR. WATTS: Can I?

11 MR. FRIEDMAN: Yeah, go ahead.

12 MR. WATTS: Sarah, this is where we have to
13 talk about all the species as well.

14 MS. VERVILLE: No, I'm -- but, Doug, with
15 respect to -- let me clarify.

16 MR. WATTS: Okay, with respect to eels.

17 MS. VERVILLE: Because at Hydro-Kennebec,
18 if you recall, the issue on the table here is
19 downstream passage for eels.

20 MR. WATTS: That's right.

21 MS. VERVILLE: Not all species.

22 MR. WATTS: That's right.

23 MS. VERVILLE: So with respect to eels for
24 Hydro-Kennebec, what I'm trying to find out from
25 you is what is safe, effective fish passage?

1 MR. WATTS: At Hydro-Kennebec looking at
2 the design drawings that I've seen, if you had the
3 rack iron, essentially what's the trash rack,
4 extending to the bottom of the turbine intake like
5 a window screen and it had a three-quarter or
6 half-inch spacing which would physically prevent
7 an animal this big from going through, that to me
8 would be where you'd start. Hopefully it would
9 work. You'd have to fine tune it. Benton is
10 trying that now. What they're seeing is they're
11 getting impingement. The force of the current
12 coming in is pinning the fish against the screen.

13 MR. VERVILLE: So that sounds like it's not
14 safe and effective in your mind.

15 MR. WATTS: Well, there are ways that you
16 can deal with that. You could put it out
17 further. This is the stuff -- this is the stuff
18 that fishery scientists work on. This is where
19 we're trying to go here.

20 MS. VERVILLE: Isn't that in essence -- it
21 may not be the solution that Hydro-Kennebec has
22 employed, but isn't that what they're doing right
23 now? They've put in a facility to prevent eel
24 mortality and eel injury and they are studying its
25 effectiveness to see if it works and if changes

1 need to be made and under in your proposal,
2 wouldn't Hydro-Kennebec just be doing the same
3 thing, they're putting in, albeit a different type
4 of mechanism, but then you're suggesting that they
5 would need to study it to make sure that it's safe
6 and effective and that's the kind of thing that
7 fishery scientists do?

8 MR. WATTS: With respect to Hydro-Kennebec
9 and American eels, this is why we cited the
10 consultation letter from the U.S. Fish and
11 Wildlife Service from May 12th which specifically
12 said -- their fisheries design engineer, Ben
13 Rizzo, specifically said what they have proposed
14 is not sufficient for American eels.

15 MS. VERVILLE: What they actually said if
16 you look at your comment letter is that --

17 MR. WATTS: Additional measures will need
18 to be taken.

19 MS. VERVILLE: -- additional measures will
20 be needed --

21 MR. WATTS: For eels.

22 MS. VERVILLE: -- may be needed for eels to
23 minimize entrainment.

24 MR. WATTS: Right.

25 MS. VERVILLE: But they also need to study

1 in order to figure out what additional measures,
2 if any?

3 MR. WATTS: Well, I take issue with that
4 because --

5 MS. VERVILLE: I'm sorry, but isn't that
6 what they said?

7 MR. WATTS: Hydro-Kennebec proposed a
8 downstream fish passage system for all species
9 other than American eels. This was not proposed
10 as a specific downstream passage for eels.

11 MS. VERVILLE: So you're objecting to the
12 facility they have in now as being safe and
13 effective?

14 MR. WATTS: For the other species --

15 MS. VERVILLE: For eels?

16 MR. WATTS: It isn't because they're going
17 to go underneath.

18 MS. VERVILLE: What do you base that on?

19 MR. WATTS: Because of their behavior.
20 This is why they go under trench lines.

21 MS. VERVILLE: And you don't want to rely
22 on fishery scientists for this particular
23 facility?

24 MR. WATTS: The fishery scientist said this
25 was not adequate for American eels. That's why we

1 put this in our testimony. Ben Rizzo said this is
2 great for salmon and shad and alewives but this is
3 not the eel solution. They're going to have to do
4 extra stuff for silver eels.

5 MS. VERVILLE: Let's go back to what you
6 both consider safe, immediate, effective fish
7 passage. What is safe, immediate and effective?
8 Is that a hundred percent passage?

9 MR. WATTS: One hundred percent is the
10 goal.

11 MS. VERVILLE: And if they don't make it,
12 is it safe, effective and immediate?

13 MR. WATTS: No.

14 MS. VERVILLE: Okay. I don't have any
15 further questions.

16 HEARING OFFICER HILTON: Mr. Thaler.

17 MR. THALER: Where do you want me to ask

18 questions from? I'll speak loudly, but it's a
19 little odd to be behind them. I don't want to be
20 disrespectful. Actually I can move up to this
21 table.

22 HEARING OFFICER HILTON: Do you want to use
23 that table?

24 MR. THALER: I can try to use this table
25 here.

1 MS. ZIEGLER: Ernie, I think it would be
2 helpful if when on cross or one of the parties in
3 answering talks about a particular exhibit, it
4 would be helpful to know which one it is. So you
5 were talking about the U.S. Fish and Wildlife
6 letter dated May, the 12th, I think you said.

7 HEARING OFFICER HILTON: Yeah, that
8 consultation letter, Mr. Watts, what's the exhibit
9 number on that?

10 MR. WATTS: That would be -- did you guys
11 give it an exhibit number?

12 MR. FRIEDMAN: I don't know if it's a
13 separate exhibit or we just quoted it.

14 MR. WATTS: Mr. Hilton, I quoted it within
15 the body of my testimony. I'm not as helpful as I
16 probably --

17 HEARING OFFICER HILTON: Mr. Friedman, do
18 you know the number -- was that an exhibit? I
19 remember reading it a couple times.

20 MR. NICHOLAS: I think it was quoted
21 verbatim in Doug's testimony.

22 MR. FRIEDMAN: I don't think we included it
23 as a separate --

24 HEARING OFFICER HILTON: Okay. Well, we'll
25 just move on then. Thank you very much.

1 MR. THALER: I just want to make sure
2 that's working okay. Members of the Board, Mr.
3 Friedman, Mr. Watts, my name is Jeff Thaler from
4 Bernstein, Shur. I'm here representing the
5 FPL/Merimil Projects. I had organized my
6 questions by petitioner so I'll attempt to start
7 with Mr. Friedman and then, Mr. Watts, I will come
8 back to you, just for clarity sake. Mr. Friedman,
9 you said in your opening remarks this morning that
10 really one of the primary reasons you're here is
11 that you don't trust the state agencies, the
12 resource agencies, is that correct?

13 MR. FRIEDMAN: I quoted a book called Trust
14 Us, We're the Experts. I further said that we
15 have problems with the way the agencies are both
16 following the law or attempting to follow the law
17 and with their enforcement.

18 MR. THALER: So just specifically so we
19 know what agencies we're talking about, one would
20 be the Maine Department of Marine Resources,
21 correct?

22 MR. FRIEDMAN: Yeah. Well, the DEP is the
23 agency tasked with enforcement as I understand it
24 for the most part.

25 MR. THALER: Well, that's a legal issue

1 that will be talked about later, but one of the
2 state agencies you don't trust because they are a
3 fish resource agency with some degree of power and
4 input is DMR, correct?

5 MR. FRIEDMAN: That's a blanket statement I
6 wouldn't agree with. I trust a lot of what they
7 do. I'm speaking about following the law and I'm
8 speaking about enforcing the law, and they don't
9 enforce the law as far as I know.

10 MR. THALER: Well, when you said that there
11 are state agencies you don't trust with respect to
12 enforcement or involvement in the KHDG Agreement,
13 which state agencies?

14 MR. FRIEDMAN: I have problems with all of
15 them.

16 MR. THALER: Well, is one of them
17 Department of Marine Resources?

18 MR. FRIEDMAN: One of them is. For
19 instance, in --

20 MR. THALER: I'm just trying to find out
21 the names of the agencies first. One of them is
22 DMR. Is another one of them the Maine Atlantic
23 Salmon Commission?

24 MR. FRIEDMAN: It would be.

25 MR. THALER: Is another one Department of

1 Inland Fisheries and Wildlife?

2 MR. FRIEDMAN: Based on my other experience
3 I'd say it would be overall. They're not as
4 involved in this as the Marine resource and the
5 DEP.

6 MR. THALER: Now, did either you or Friends
7 of Merrymeeting Bay appeal any of the three water
8 quality certificates when they were issued by the
9 Maine DEP and Board with respect to these
10 projects?

11 MR. NICHOLAS: We have an objection to that
12 because that's basically getting into a legal
13 issue.

14 MR. THALER: It's a fact question, did they
15 appeal?

16 MR. NICHOLAS: Yeah, but the point of the
17 question is -- I mean, I think we know why you're
18 asking the question and the whole point is we're
19 here today to modify the water quality
20 certifications and we've got a hearing on that,
21 and whatever happened before doesn't really
22 matter.

23 MR. THALER: I think whether or not
24 somebody has appealed is a fact question with all
25 due respect.

1 HEARING OFFICER HILTON: Quite frankly, the
2 fact of it as to whether they appealed or not is a
3 matter of record. I mean, is there any point
4 in --

5 MR. THALER: Well, it's not necessarily a
6 matter of record. I mean, we've asserted it, they
7 haven't admitted it in their testimonies that were
8 pre-filed I think confirming -- we're going to
9 spend longer debating than what the answers would
10 be.

11 HEARING OFFICER HILTON: I'm going to allow
12 the question as just a fact-based question as long
13 as it doesn't go too far.

14 MR. THALER: I'm not arguing the legal
15 significance of it at this point.

16 MR. FRIEDMAN: I think you'll find in the
17 record that we didn't appeal the licenses and that
18 we have every right to be here today requesting
19 modification.

20 MR. THALER: Have you or Friends of
21 Merrymeeting Bay filed a petition with FERC
22 seeking or requesting FERC to amend or modify the
23 FERC license with respect to any of the FPL
24 Projects here?

25 MR. FRIEDMAN: No.

1 MR. THALER: And it was interesting, Mr.
2 Friedman, I didn't hear from you and we'll talk
3 with Mr. Watts in a few moments, but there was in
4 the pre-filed testimony of petitioners a fair
5 amount of talk about the review by the federal
6 U.S. Fish and Wildlife service of a petition filed
7 by Mr. Watts and his brother to list the American
8 eel as an endangered or threatened species. You
9 are familiar with that petition, correct?

10 MR. FRIEDMAN: I am.

11 MR. THALER: And are you familiar with the
12 fact that the agency came out about six weeks ago
13 with a decision to deny that listing?

14 MR. FRIEDMAN: I mentioned that when I
15 spoke earlier.

16 MR. THALER: All right. In terms of the
17 harvesting of fish, whether they be eels or
18 anadromous fish, is it true that under Maine law
19 -- and I'm not going to argue significance -- but
20 that individuals can fish for or angle for eels
21 and anadromous fish?

22 MR. FRIEDMAN: Individuals, yes.

23 MR. THALER: Both recreationally and
24 commercially?

25 MR. FRIEDMAN: Yup.

1 MR. THALER: And that a recreational
2 fisherman can harvest up to 50 eels per day?

3 MR. FRIEDMAN: Yes.

4 MR. THALER: And a commercial fisherman can
5 harvest an unlimited number of eels per day, is
6 that true?

7 MR. FRIEDMAN: I'm not sure about that. It
8 depends on probably what stage -- how they're
9 fishing for them, pot, net or weir or hook and
10 line.

11 MR. THALER: When the Kennebec-Hydro
12 Development Agreement was finalized by the
13 agencies, the resource agencies, did either you or
14 Friends of Merrymeeting Bay appeal that to any
15 court?

16 MR. FRIEDMAN: We did not.

17 MR. THALER: You also mentioned in your
18 opening statement to the Board this morning, once
19 or twice actually, you mentioned the S.D. Warren
20 case and the Maine Supreme Court decision. I'm
21 not going to ask you about any details of the
22 decision but since you mentioned it, isn't it true
23 that the underlying proceeding their involving
24 S.D. Warren was not a modification of an existing
25 water quality certificate but rather S.D. Warren

1 was seeking -- applying for a water quality
2 certification?

3 MR. FRIEDMAN: Yup.

4 MR. THALER: And that's a procedural
5 difference between where S.D. Warren was in that
6 proceeding versus this proceeding here in front of
7 the Board?

8 MR. NICHOLAS: That I object to as along
9 the lines of legal argument.

10 MR. THALER: He's already admitted they
11 were seeking a water quality certification. You
12 agree that this proceeding is not the project
13 seeking a water quality certification, correct?

14 MR. FRIEDMAN: I agree with that. To share
15 things in common.

16 MR. WATTS: May I --

17 MR. THALER: We'll come back, Doug, on
18 that.

19 MR. WATTS: The certifications we're
20 discussing --

21 HEARING OFFICER HILTON: Doug, there's no
22 question before you right now.

23 MR. THALER: Thank you, Mr. Chairman. Let
24 me just also clarify, Mr. Friedman, neither you
25 nor Friends of Merrymeeting Bay appealed any of

1 the compliance orders that the Department issued
2 with respect to the FPL Projects involved in this
3 proceeding, correct, the recently issued
4 compliance orders late 2006 or early 2007, is that
5 correct?

6 MR. FRIEDMAN: If I recall, that's correct
7 and that was because we --

8 MR. THALER: I don't need to know why.

9 MR. FRIEDMAN: -- they were coming up again
10 and there was no need to. We were due to be here
11 already.

12 MR. NICHOLAS: I think he should be able to
13 explain or have an opportunity to explain.

14 MR. THALER: You'll have redirect. I think
15 I can ask the yes or no question.

16 HEARING OFFICER HILTON: Well, I do think,
17 Mr. Thaler, the witness should be allowed a little
18 bit of lenience here as far as explaining their
19 answers.

20 MR. THALER: All right. I appreciate
21 that.

22 MR. FRIEDMAN: There was no need to appeal
23 the compliance orders because we were already
24 scheduled for a hearing before this Board.

25 MR. THALER: You, Mr. Friedman, in your

1 pre-filed testimony, I'm not sure you discussed it
2 today, talk about the projects -- the operation of
3 the projects having a significant impact upon the
4 fisheries populations, is that generally correct?

5 MR. FRIEDMAN: Yes.

6 MR. THALER: And when you talk about
7 significant impact upon the fisheries, what
8 standard are you applying there? What do you mean
9 by significant impact? Because any fish are
10 killed or any eels are killed, that's the zero
11 mortality standard?

12 MR. FRIEDMAN: Well, that would be one
13 standard. I think in terms of science we
14 generally use typically a 95 percentile figure.
15 If we look at what Doug just presented and talk
16 about mortality and look at what estimates of
17 mortality are, even if you look at 95 percent
18 survival, you're looking at very significant
19 mortality and estimates fall far below that 95
20 percentile.

21 MR. THALER: Are you aware of any provision
22 in Maine law or regulations that applies the
23 standard as you've just described it of either a
24 zero mortality or even, at best, a five percent
25 mortality standard with respect to either eels or

1 anadromous fish?

2 MR. FRIEDMAN: Well, I think that's what
3 Doug mentioned. That's the problem. That's why
4 we're here. We have a water quality certificate
5 program without standards.

6 MR. THALER: So, in essence, you're
7 complaining about what the Legislature has said
8 are the governing water quality standards?

9 MR. FRIEDMAN: Complaining about how the
10 certificates are issued and the lack of substance
11 and specificity in them.

12 MR. THALER: But the certificates are
13 issued pursuant to a legal -- a statutory
14 standard, both federal and state, correct?

15 MR. FRIEDMAN: That's correct.

16 MR. THALER: And Doug's nodding his head,
17 so I'll at least note that for the record, and in
18 terms of the Maine Legislative standards, you
19 mentioned earlier today Maine's water -- Maine has
20 water quality laws, correct? As a general matter,
21 you're familiar with those?

22 MR. FRIEDMAN: Providing suitable habitat
23 and so forth and important biological structure
24 and continuity in the community, biological
25 community, yup.

1 MR. THALER: And you're also -- are you
2 familiar with the fact that under Maine's water
3 quality laws, what's called the anti-degradation
4 standard, that significant impact is a defined
5 term by the Maine Legislature with respect to
6 fisheries?

7 MR. FRIEDMAN: Um-hum.

8 MR. THALER: I'm sorry, you have to
9 verbalize your answer. I heard you say um-hum
10 but --

11 MR. FRIEDMAN: Yeah, you can refresh me as
12 to what it says if you'd like, and I'll tell you
13 what I have for significant impact here.

14 MR. THALER: Okay.

15 MR. FRIEDMAN: I have impairing the
16 viability of an existing population, including
17 significant impairment to growth and reproduction
18 or alteration of the habitat which impairs the
19 viability of the existing population --

20 HEARING OFFICER HILTON: Mr. Friedman, one
21 thing you always have to keep in mind is that the
22 court reporter -- you might think I run the
23 meetings but she actually does, and you can't read
24 fast because she can't take it down that quickly
25 and when she's changing tapes or whatever, we try

1 to stop. Thank you very much.

2 MR. THALER: You can read it again. I
3 believe you were reading it correctly but it would
4 be helpful for the Board and the court reporter to
5 be able to hear it.

6 MR. FRIEDMAN: Okay. For the purposes of
7 this division, significant impact means impairing
8 the viability of the existing population,
9 including significant impairment to growth and
10 reproduction or an alteration of the habitat which
11 impairs viability of the existing population, and
12 I would submit that these eels to my right and
13 that we've described would fit that bill.

14 MR. THALER: And the standard for
15 significant impact is -- the issue is the
16 viability of the population, correct, under Maine
17 law as you just read it?

18 MR. FRIEDMAN: Impairment to -- it's a
19 number of things. Impairment to growth and
20 reproduction or an alteration of the habitat which
21 impairs viability of the existing population.

22 MR. THALER: Right, and wasn't that also
23 the standard that U.S. Fish and Wildlife used
24 generally with respect to its listing decision?
25 It looked at the impact of a number of factors on

1 the viability of the population of American eels?

2 MR. FRIEDMAN: No, they looked at the
3 impact of population -- they looked at the impact
4 on the population as a total species population
5 from Greenland to Brazil. I can't believe that
6 the Maine statute is referring to that here as
7 opposed to the population in Maine on a particular
8 river or in a particular reach of river between
9 two dams.

10 MR. THALER: Well, one part of the statute
11 you didn't read but you have in front of you says
12 what the Department considers when it looks into
13 population?

14 MR. FRIEDMAN: That's right.

15 MR. THALER: It says the Department shall
16 determine what constitutes a population of a
17 particular species based upon the degree of
18 geographic and reproductive isolation from other
19 individuals of the same species. Did I read that
20 correctly?

21 MR. FRIEDMAN: Yeah, and this is probably
22 not the only statute that applies, but in this
23 case certainly an eel between Shawmut and Weston,
24 for example, is pretty well isolated from its
25 brethren in the Sargasso Sea, particularly one

1 that has two more dams to descend through.

2 MR. THALER: And you've read the February
3 2nd, 2007 publication of the U.S. Fish and
4 Wildlife decision on Mr. Watts' petition, have you
5 not? Have you read it?

6 MR. WATTS: This isn't in the record.

7 MR. THALER: Yes, it is. It's in the
8 agency comments. It's an exhibit to their
9 comments.

10 MR. FRIEDMAN: Refresh me then on what
11 it --

12 MR. THALER: I just asked you whether
13 you've read it.

14 MR. FRIEDMAN: I don't know that I have.
15 Tell me where it is. Is it part of the listing
16 decision?

17 MR. THALER: I asked you whether you've
18 read the listing decision. If you haven't, just
19 say so.

20 MR. FRIEDMAN: I read the listing decision.

21 MR. THALER: All right. Do you agree that
22 what they found was that the American eel for a
23 number of different reasons -- I'll move my
24 glasses here -- threats acting individually or in
25 combination do not threaten the species or the

1 population level. Do you agree that's what their
2 finding was?

3 MR. FRIEDMAN: That's what their finding
4 was. I don't agree with the conclusion.

5 MR. THALER: Understood. Mr. Friedman, I
6 may be done with you. Let me check my notes for a
7 moment. Oh, I do have one or two other
8 questions. Mr. Friedman, you indicated in your
9 rebuttal that the Board could request that DMR,
10 Department of Marine Resources, or IF&W, Inland
11 Fisheries and Wildlife, could petition FERC to
12 modify its licenses and that's pursuant to the
13 federal procedure wherein either FERC or the
14 federal or state resource agencies can request
15 FERC to modify or look at changing a license, is
16 that the basis?

17 MR. NICHOLAS: Objection. I thought that
18 we weren't going to get into the --

19 MR. THALER: I'm just asking in pre-filed
20 testimony what he meant by that, what he
21 understood that to be. If that's out of bounds,
22 then --

23 HEARING OFFICER HILTON: No, I'll allow
24 it.

25 MR. FRIEDMAN: My understanding is that the

1 resource agencies -- Fish and Wildlife agencies
2 can petition FERC and the way that would work
3 would be the Board here would modify the
4 certificate and then the recommendation will go
5 forward to send out those petitions.

6 MR. THALER: Well, is there anything in the
7 FPL Projects involved here in either their water
8 quality certificates or licenses that has a
9 provision saying this Board can on the initiative
10 of anyone modify the water quality certificates?

11 MR. NICHOLAS: Well, objection, we're
12 obviously here for this very proceeding because
13 the regulations allow us to modify.

14 MR. THALER: It's difficult, Mr. Chairman,
15 when he gives an answer and makes what could
16 arguably be a legal assertion if I can't follow up
17 and ask him what's the basis of it.

18 MR. NICHOLAS: Yeah, but now we're just
19 getting into this whole area of discussion and
20 obviously we're here for modifications.

21 MR. THALER: But I didn't -- they brought
22 it up, David, in their opening presentations,
23 and --

24 MR. FRIEDMAN: We're here because we have a
25 right to request a modification of any permit.

1 MR. THALER: Well, we disagree with that
2 but we'll leave that debate for legal argument.
3 I'll move on, but I think there was a lot of
4 discussion in their presentations that touched on
5 law and whether Mr. Manahan will rise to the bait,
6 as they say, or not will remain to be seen. Do
7 you -- and, Mr. Friedman, let me just ask
8 generally, do you agree that hydropower is a
9 designated use of Maine's rivers under Maine's
10 law?

11 MR. FRIEDMAN: I believe it is, yes.

12 MR. THALER: Oh, Mr. Friedman, you said in
13 one of your testimonies that -- you talked about
14 a, quote, massive alewife kill at Shawmut. I
15 didn't see any documentation in your testimony on
16 that. When did that massive alewife kill happen,
17 Mr. Friedman?

18 MR. FRIEDMAN: That statement is based on
19 the fact that we have photographs of dead alewives
20 from Shawmut so it's clear that it did occur. I
21 don't know when the -- I don't know the particular
22 date. It's clear that it's happening.

23 MR. THALER: Do you know what year the
24 massive alewife kill supposedly was at Shawmut?
25 You're talking to Mr. Watts. Do you have any

1 personal knowledge about this alleged massive
2 alewife kill?

3 MR. FRIEDMAN: I'm asking Mr. Watts when
4 that photograph was taken.

5 MR. THALER: Did you go to the scene --

6 MR. FRIEDMAN: No.

7 MR. THALER: -- to see the supposed massive
8 alewife kill?

9 MR. FRIEDMAN: No.

10 MR. THALER: So you have no personal
11 knowledge of it yourself, correct?

12 MR. FRIEDMAN: That's correct.

13 MR. THALER: I'll shift my chair a little
14 bit, Mr. Watts. I have some questions for you,
15 and I'll let you shift the mike. You get two
16 mikes I guess.

17 MR. WATTS: Wow, two mikes.

18 MR. THALER: You get a big one and a small
19 one. You must be important. This is more like a
20 Congressional hearing. I'll ask you a couple
21 questions that you heard me ask Mr. Friedman, but
22 you agree, because I didn't hear it come up in
23 your presentation this morning, that U.S. Fish and
24 Wildlife decided not to list the American eel as a
25 threatened or endangered species, correct?

1 MR. WATTS: Yup, and my brother and I's
2 legal counsel now are now discussing filing a
3 lawsuit challenging that decision in Federal
4 Court.

5 MR. THALER: But when you initially came in
6 front of the Board last year to ask for hearings
7 to be held here, at that point the Fish and
8 Wildlife Agency hadn't made what is called its
9 12-month finding or --

10 MR. WATTS: Right, because we had to sue
11 them just to get what just came out. We had to
12 file suit against them.

13 MR. THALER: Right. So one circumstance
14 that's changed since you were before the Board
15 initially to have a hearing is that now there is
16 this finding of the agency?

17 MR. WATTS: That's true.

18 MR. THALER: And is it also true that
19 Atlantic salmon upstream from Edwards dam are not
20 presently listed as threatened or endangered under
21 the Endangered Species Act.

22 MR. WATTS: Well, that's a very, very --
23 and, again, I don't want to get into legal stuff.
24 Arguably they are right now given the way the
25 listing decision was written but, again, that

1 would -- that would be an eight-page iteration of
2 exactly how the listing -- how the ESA works and
3 how that particular listing decision on November
4 17th, 2000 operated.

5 MR. THALER: I'll try to keep it simple.
6 Isn't there -- there's still pending a petition
7 that's being reviewed about whether or not to list
8 the Kennebec salmon as endangered or threatened?

9 MR. WATTS: Again, I would argue that the
10 November 17th, 2000 decision and the subsequent
11 issuance of a status review pretty much says they
12 are now. So, again, I mean, you know, another --
13 someone else can say exactly what, you know, was
14 said in the written testimony so that -- but to me
15 an argument could clearly be made that they're
16 listed now, they're covered.

17 MR. THALER: And as I had asked Mr.
18 Friedman, isn't it true that you did not appeal
19 the state's issuance of the amended water quality
20 certificates for Lockwood, Shawmut and Weston when
21 they incorporated the Kennebec-Hydro --

22 MR. WATTS: July 31, '98, no, I did not.

23 MR. THALER: Well, July 31, '98 was when
24 the agreement was -- there was a subsequent
25 modification of I think it was the Lockwood.

1 MR. WATTS: Oh, and I was fully involved in
2 the Lockwood relicensing.

3 MR. THALER: All right, but you didn't
4 appeal what was ultimately issued for the water
5 quality certifications?

6 MR. WATTS: No, I did not. I did not. I
7 didn't appeal the Lockwood license.

8 MR. THALER: Right, and is your -- strike
9 that, and I just want to make sure, in your
10 rebuttal you said that this proceeding has nothing
11 to do with the FERC license. Am I understanding
12 your position correctly on that?

13 MR. WATTS: Well, it's to do with the FERC
14 license because Section 401 of the Clean Water Act
15 kicks in whenever a federal license is issued.
16 That is the trigger point which then gives the
17 state the opportunity to then issue a
18 certification for the activity which the state can
19 waive that authority as well if it chooses to do
20 so.

21 MR. THALER: Right, and I believe you said
22 earlier, and I agree with you, but just to
23 clarify, the water quality certification is
24 something that the state does and sends the
25 certification to FERC for FERC's purpose pursuant

1 to the Federal Clean Water Act, is that correct?

2 MR. WATTS: That is correct, and, in
3 general, until the state sends it, FERC will not
4 in a relicensing, as on Sebago Lake now, until the
5 state does its certification, FERC will not issue
6 the license. They're waiting for the state so
7 long as the state says it's coming along unless
8 the state says we're waiving our certification
9 authority completely, go FERC, issue the license.

10 MR. THALER: And I asked this generally of
11 Mr. Friedman and so I'll give you the same
12 opportunity. Is it your sort of bottom line
13 position that the state resource agencies, DRM,
14 IF&W, Atlantic Salmon Commission are not properly
15 doing their jobs, can't be trusted?

16 MR. WATTS: I would never say that.

17 MR. THALER: Okay.

18 MR. WATTS: I would never say that.

19 MR. THALER: Is it your position that DMR,
20 IF&W and Atlantic Salmon Commission with respect
21 to these four projects have been doing their jobs
22 properly?

23 MR. WATTS: I think they've been doing them
24 to the best of their abilities given what they've
25 got to deal with and given the amount of time that

1 they've got to spend. A lot of what they do is
2 putting out fires and I think everyone here has a
3 list of -- a to-do list that greatly exceeds their
4 ability. I have a great deal of respect for all
5 the work they do.

6 MR. THALER: Okay. Let me just also
7 clarify, in your direct testimony you said that
8 the state's failure to petition FERC for five
9 years essentially nullifies the water quality
10 certification. Are you aware of any law anywhere
11 that says that?

12 MR. WATTS: I didn't mean in a legal
13 sense. I meant in effect that -- and I was
14 responding -- in my opinion I was responding to
15 what had been said in the past that the state
16 always has the -- the state has the opportunity
17 and the right to petition FERC to say -- in any
18 one of these issues to say, hey, we need you,
19 FERC, to help us resolve an issue here on the
20 river, and to me that's not a substitute, an
21 adequate substitute, for having a properly
22 prepared certification that gives the state the
23 independent enforcement authority to enforce its
24 own statutes. FERC's job is not to enforce state
25 statute. That's the State of Maine's job. So,

1 yeah, the state can petition. The fact is the
2 state has not petitioned. I don't know why.

3 MR. THALER: Have you petitioned FERC?

4 MR. WATTS: In --

5 MR. THALER: With respect to these four
6 projects?

7 MR. WATTS: In August of 2004, I wrote a
8 letter specifically regarding the Lockwood dam to
9 FERC asking FERC to take action to ask the
10 Lockwood dam owners to provide downstream passage
11 for eels because we had just had a study done that
12 was showing we're getting mortality there in the
13 range of 40, 50 percent and FERC never replied to
14 my letter.

15 MR. THALER: All right. Did you then file
16 a petition with FERC?

17 MR. WATTS: Well, you know, I write letters
18 to FERC and they don't answer me. So that's why I
19 stopped writing.

20 MR. THALER: Okay. Then is the answer,
21 yes, that you did not file a petition with FERC?
22 I know you know how to petition agencies, federal
23 agencies.

24 MR. WATTS: Well, actually, citizens don't
25 have petition authority at FERC. All citizens can

1 do is write a letter. Only agencies and the state
2 actually have a formal petitioning authority that
3 FERC is compelled to respond to. I don't. That's
4 why I didn't.

5 MR. THALER: You mentioned Lockwood but the
6 upstream and downstream eel passage issues at
7 Lockwood are not part of this proceeding. You
8 agree with that, right?

9 MR. WATTS: Downstream eel passage is.

10 MR. THALER: That --

11 MR. WATTS: Downstream eel passage is.

12 MR. THALER: There was a procedural
13 order --

14 MR. WATTS: For upstream anadromous and
15 upstream eel for Lockwood. Downstream anadromous
16 is off the table at Hydro-Kennebec, and upstream
17 eel is off the table for all four.

18 MR. THALER: And with respect to your
19 charts that you were showing earlier, those
20 charts, the graphs you were doing on the poster
21 board, some of the -- Attorney Verville asked you
22 a couple questions about assumptions, but what you
23 were doing assumed, first of all, that every eel
24 or fish going downstream would go through the
25 turbines, correct?

1 MR. WATTS: No, no. What I was doing was
2 just taking a very broad-brush view and saying if
3 you have D and X, how many -- what percentage of
4 fish survive passing the dam, how many make it
5 alive below the dam. That was all.

6 MR. THALER: And you agree that there's a
7 portion of the river for each project that doesn't
8 go through the turbines?

9 MR. WATTS: Depending on flows.

10 MR. THALER: Right.

11 MR. WATTS: If the river flows are low,
12 you've got probably close to 90 percent of the
13 flow going through the turbines, but like last
14 fall we had floods. The river flooded for a
15 couple weeks. Probably 80 percent of the flow was
16 going over the top of the dam.

17 MR. THALER: Right.

18 MR. WATTS: Because the river was flooded.

19 MR. THALER: And your little charts also
20 assumed that the survival rate at each of the dams
21 you showed would be the same, is that correct? In
22 other words, you weren't taking into account any
23 variability on the different projects?

24 MR. WATTS: Right. I could have done an
25 exercise where we had 90 percent survival at

1 Weston, 85 percent survival at Shawmut, 65 at
2 Hydro-Kennebec. You could just sit here and plug
3 the numbers in. Start out with 10,000 and see
4 what you get at the bottom, and that is probably
5 the case because Lockwood is a very different dam
6 than Hydro-Kennebec in terms of the way it's
7 structured.

8 MR. THALER: And Benton Falls is not on the
9 Kennebec River?

10 MR. WATTS: No, it's on the Sebesticook.

11 MR. THALER: You also talked about -- in
12 your presentation this morning, you mentioned the
13 name Gulf Island Pond and talked about --

14 MR. WATTS: Ed did.

15 MR. THALER: Oh, Ed did, I'm sorry.

16 MR. WATTS: But I mentioned it in my
17 testimony.

18 MR. THALER: All right, but you generally
19 would agree, as Mr. Friedman did, hydroelectric
20 generation is a designated use?

21 MR. WATTS: Oh, yeah.

22 MR. THALER: And point source discharges
23 are --

24 MR. WATTS: On the Kennebec it is. It's
25 not on Class Double A rivers.

1 MR. THALER: And, generally speaking, maybe
2 this is better addressed to Mr. Friedman, I'm not
3 sure which one of you talked about things being
4 discharged into the rivers; but, for example, if
5 there were --

6 MR. WATTS: I think I did.

7 MR. THALER: You think you did?

8 MR. WATTS: Yeah.

9 MR. THALER: Okay, so whether it's waste
10 treatment plants or industrial facilities
11 discharging, those are generally not designated
12 uses?

13 MR. WATTS: The statute states clearly that
14 discharge is not a designated use.

15 MR. THALER: Okay.

16 MR. THALER: Mr. Chairman, if I could just
17 have one moment just to double-check if I have
18 anything else.

19 HEARING OFFICER HILTON: Certainly.

20 MR. THALER: I have to change tables.

21 HEARING OFFICER HILTON: The official
22 timekeeper says you have about 20 more minutes.

23 MR. THALER: I will not be using it, not
24 all of it anyway. I don't have anymore
25 questions. I don't know if Ms. Verville wants to

1 ask anything with the remaining 20 minutes.

2 MS. VERVILLE: I'm going to show you the
3 Condition Compliance Order issued by the DEP on I
4 think it was September 14th with respect to the
5 downstream passage facility at Hydro-Kennebec.
6 Let me know if you want to take a look at it, but
7 --

8 HEARING OFFICER HILTON: Is this an exhibit
9 number someplace?

10 MS. VERVILLE: The Condition Compliance
11 Order is in the Department's exhibits.

12 MR. WATTS: Yes.

13 MS. VERVILLE: It's Department 5.

14 MS. ANDERSON: Which one?

15 MS. VERVILLE: For Hydro-Kennebec.

16 MR. NICHOLAS: Is it in the package that
17 Dana circulated?

18 MS. BERTOCCI: Yes.

19 MS. ANDERSON: It's the second one of Tab
20 5.

21 MR. NICHOLAS: Which one are you looking
22 at?

23 MS. VERVILLE: The one for Hydro-Kennebec.

24 HEARING OFFICER HILTON: Which page are you
25 on, Sarah?

1 MS. VERVILLE: I'm going to refer you to
2 page 6 to the two conditions.

3 MR. NICHOLAS: Page --

4 MS. VERVILLE: Page 6 of 7, conditions 1
5 and 2. Would you agree that the order requires
6 Hydro-Kennebec to conduct an effectiveness study
7 of the facility in 2007 in order to assess the
8 effectiveness of that facility for downstream
9 passage of eels and to make changes to the
10 facility depending upon the results of the study?

11 MR. WATTS: Number 1 is not in regard to
12 eels. It's everything else.

13 MS. VERVILLE: Where do you see that it's
14 not in regard to eels?

15 MR. WATTS: It doesn't mention eels.

16 MS. VERVILLE: So they do not have to do an
17 effectiveness study for eels, is that what you're
18 saying this says?

19 MR. WATTS: Because as I understand, Ms.
20 Verville, the -- and, again, is that -- oh, right
21 there. I'm going to have to read this, I'm
22 sorry.

23 MS. VERVILLE: I guess my question is you
24 don't think this order applies to eels?

25 MR. WATTS: Well, I'm just looking at

1 number 2 and it says that only if eels are
2 observed dead. It doesn't say you've got to do it
3 because we need to take care of this. It actually
4 says that consultation will occur --

5 MS. VERVILLE: Can you start with -- why
6 don't you go to the paragraph above reading
7 therefore.

8 MR. WATTS: Yeah, and that's from the --

9 MS. VERVILLE: And, therefore, based upon
10 the above findings of fact --

11 MR. WATTS: I disagree with it.

12 MS. VERVILLE: -- the Department concludes
13 that Hydro-Kennebec has complied, et cetera, et
14 cetera, with respect to improving existing
15 operational measures for downstream passage for
16 anadromous fish where needed and to providing
17 downstream passage for eels at the Hydro-Kennebec
18 Project subject to the following conditions, one,
19 an effectiveness study plan?

20 MR. WATTS: I disagree completely with the
21 Department's conclusions on that page.

22 MS. VERVILLE: Okay, but I'm not asking you
23 about your opinion with regard to --

24 MR. WATTS: Well, the document is what it
25 is, yeah. I completely disagree with it.

1 MS. VERVILLE: Okay, thank you. Are you --
2 the date on this order is September 14, 2006. Are
3 you aware whether the DMR whom you claim objected
4 to the downstream fish passage facility --

5 MR. WATTS: I don't claim. There's a
6 letter. I don't have to claim.

7 MS. VERVILLE: And what was the date of
8 that letter?

9 MR. WATTS: The letter was from May 8th, I
10 believe. That was the consultation letter. Well,
11 no, I'm going to have to check that. That was the
12 letter --

13 MS. VERVILLE: I believe it was in February
14 of 2006 which is quoted in your testimony.

15 MR. WATTS: Okay, I'm going to have look
16 here.

17 MS. VERVILLE: Okay.

18 MR. WATTS: That's right; that's right.
19 I'm sorry, Sarah. I was thinking about the
20 appeal.

21 MS. VERVILLE: Thank you, and this order is
22 dated September 2006?

23 MR. WATTS: The --

24 MS. VERVILLE: The Condition Compliance
25 Order.

1 MR. WATTS: Yes, that was the September --
2 what was it -- 14th, yeah.

3 MS. VERVILLE: Do you know if DMR appealed
4 the Condition Compliance Order because they were
5 -- did not like the downstream fish passage
6 facility for eels at Hydro-Kennebec?

7 MR. WATTS: I don't know what DMR does in
8 stuff like this because I'm not informed. I don't
9 know what goes on in their heads. All's I know is
10 they wrote in May that this thing is not
11 acceptable, and then they all of a sudden said,
12 oh, we don't have a problem.

13 MS. VERVILLE: You've answered my question,
14 Mr. Watts.

15 MR. WATTS: Yup, thanks.

16 HEARING OFFICER HILTON: So is that it from
17 FPL and from Hydro-Kennebec for now?

18 MR. THALER: Yes.

19 MS. VERVILLE: Yes.

20 HEARING OFFICER HILTON: Save Our
21 Sebasticook, I think it's your opportunity. Oh,
22 one item is, Doug and Ed, did you want to
23 introduce those exhibits into the record?

24 MR. WATTS: Right here? Yeah, those are
25 all I have. I just have to say that.

1 HEARING OFFICER HILTON: Is there any
2 objection to those being entered into the record?

3 MS. VERVILLE: No objection.

4 MR. THALER: No objection.

5 HEARING OFFICER HILTON: Jane or Jeff, any
6 objection to those three placards being introduced
7 into the record?

8 MS. EDWARDS: No.

9 MR. VANDEN HEUVEL: No.

10 HEARING OFFICER HILTON: Thank you.

11 MR. VANDEN HEUVEL: Jeff Vanden Heuvel from

12 Save Our Seabasticook. A question for Doug Watts.
13 When you say 95 percent alive is best available
14 technology through a turbine, is that the total
15 size array or is that just larger fish because
16 we're talking about large fish and large eels,
17 right?

18 MR. WATTS: Yeah, Jeff, I meant -- when I
19 said 95 percent, I meant 95 percent of the fish
20 above the dam are alive below the dam, however
21 they get past the dam. It's a performance
22 standard.

23 MR. VANDEN HEUVEL: That's all fish.

24 That's not any size array?

25 MR. WATTS: Well, no, you'd have to do that

1 -- you know, you could do it for each species. I
2 mean, you could set a performance standard however
3 you wanted to. You could do it for different
4 species, you know, different numbers. It's an
5 abstract number. When I said 95 percent, that's
6 the goal or that's the best.

7 MR. VANDEN HEUVEL: I'll reword it
8 different. Have you seen any numbers on what's
9 the best available technology for fish over 15
10 inches, fish or eels?

11 MR. WATTS: Well, I know that the American
12 Tissue dam on Cobbossee Stream I believe is
13 getting 100 percent survival for eels because they
14 have put a perforated steel plate over the turbine
15 intake, and I don't think they're getting
16 impingement either. I mean, if they're not
17 getting a hundred, they're getting close to it
18 because they're keeping them out of the turbines
19 -- the turbine.

20 MR. VANDEN HEUVEL: Another question, with
21 your expertise, what percent of dead eels do you
22 believe the eel studies are capturing on each of
23 the specific dams?

24 MR. WATTS: Well, there's only been two
25 that have been done. One was done at Lockwood and

1 one was done at Benton. That was 2001 and 2002.
2 Those are the only two, and they were both in the
3 range of 40 to 50 percent were not making it
4 alive.

5 MR. VANDEN HEUVEL: Okay, I'll reword that
6 one. What percent of the dead eels do you believe
7 the eel observations are capturing in your
8 opinion?

9 MR. WATTS: Well, they only -- these two
10 studies, they only used less than a dozen eels.

11 MR. VANDEN HEUVEL: Not the studies, the
12 observations.

13 MR. WATTS: Oh, well, that depends on where
14 you are. I mean, it's Shawmut. The river channel
15 is a thousand feet wide. It's up to your chest or
16 deeper. There's no way you can look. You try to
17 go in there, you'll drown. You know, you're
18 talking about looking at 50 acres of river.

19 MR. VANDEN HEUVEL: So at Shawmut, what
20 percent do you believe in your expertise that
21 these fish observations are capturing dead eels?

22 MR. WATTS: I think it's a small percent.

23 MR. VANDEN HEUVEL: And at Lockwood?

24 MR. WATTS: It's a small percent. Lockwood
25 is virtually really hard to look.

1 MR. VANDEN HEUVEL: And at Weston?

2 MR. WATTS: I have not been to Weston but
3 given that it's in a canyon and it's deep and it's
4 turbulent and visibility in the Kennebec is only
5 about six or seven feet because the water's brown,
6 these are all the things that make it hard to see
7 them.

8 MR. VANDEN HEUVEL: Thank you.

9 MS. EDWARDS: Doug, I'd like to ask a
10 little bit about that.

11 HEARING OFFICER HILTON: Jane, if you could
12 just identify yourself.

13 MS. EDWARDS: Oh, I'm sorry. Jane Edwards,
14 Save Our Sebesticook. I'm interested because at
15 my house which is not on the Kennebec, it's on the
16 Sebesticook, I observe dead eels, and I know -- I
17 don't live immediately below the dam.

18 MR. WATTS: You're in the impoundment.

19 MS. EDWARDS: I live around the bend on the
20 Fort Halifax impoundment.

21 MR. WATTS: Right.

22 MS. EDWARDS: So I'm wondering when they do
23 these observations and mortality studies, do they
24 go below the dam at all and how far below the dam
25 do they go?

1 MR. WATTS: It's different for every dam,
2 Jane.

3 MS. EDWARDS: From my experience, you would
4 need to go beyond the immediate tailrace of the
5 dam?

6 MR. WATTS: Yeah, at Benton Falls, if you
7 go right up near the dam, you don't see any. They
8 collect about a third of a mile down river and all
9 of a sudden, boom, they're everywhere.

10 MS. EDWARDS: I guess that's about where I
11 live, a third of a mile down the river.

12 MR. WATTS: This is just above the bend
13 where stuff accumulates.

14 MS. EDWARDS: When you go out observing, do
15 you notice bald eagles eating these eels?

16 MR. WATTS: That's how I found out the
17 Benton kill. That's how I found where the eels
18 were. There's a gravel bar out in the center of
19 the channel and I saw a bald eagle take off with a
20 big eel in its talons and I'm like, oh, and I
21 walked out there and sure enough there were dead
22 eels in the shallows all around that. If it
23 hadn't been for that bald eagle, I wouldn't have
24 ever discovered that there were all those dead
25 eels out there.

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1 MS. EDWARDS: Well, it happens below that
2 dam. That dam is in an essential habitat.

3 MS. VERVILLE: Mr. Chairman, I would like
4 to object to the relevancy of the discussion of
5 Benton Falls and the Sebesticook River.

6 MS. EDWARDS: Okay. Well, I would just
7 like to ask about the number of -- I know there
8 are a lot of bald eagles on the Kennebec River so
9 I guess I could rephrase the question. Given the
10 fact that we all know there are a number of listed
11 habitats of bald eagles on the Kennebec River,
12 would this be possibly a concern?

13 MR. WATTS: Well, the thing is with the
14 Kennebec -- the four dams we're discussing here --
15 and this is something that's in our testimony that
16 was an e-mail that Nate Gray of DMR sent to me
17 back December 20th, I believe, of this past year
18 is that -- is that the tail waters of the four
19 dams we're talking about are deep and so the bald
20 eagles don't really have the opportunity to forage
21 for them in shallow water the way they might at a
22 smaller river. That's why they're hard to find.

23 MS. EDWARDS: So it would depend on the
24 circumstances?

25 MR. WATTS: For example, at Lockwood

1 Taconic Bay is the big pool directly below
2 Lockwood and Taconic Bay is in places 25 feet deep
3 and that's where the current slows down so the
4 eels are probably going to be settling in water
5 that's 15 or 20 feet deep which obviously a bald
6 eagle is not going to have any access to.

7 MS. EDWARDS: I guess I thought probably
8 everything that died in the river eventually
9 floated to the top but maybe it doesn't. I don't
10 understand that. Mr. Friedman, I wanted to ask
11 you if you would explain because of my trying to
12 understand how an ecosystem works and because
13 we're talking about the quality of Maine's waters
14 and that all of the indigenous species and the
15 species that are here now should be able to
16 survive or to remain here, what is the role -- can
17 you tell me what is the role of the eels in terms
18 of their relationship to the ecosystem and their
19 relationship to the other fish species or other
20 species both in the elver stages and in the -- I
21 don't -- what is their role when they're up in the
22 headlands? Why are they important?

23 MR. FRIEDMAN: Well, when they're small,
24 they're primary forage stock for many of the
25 larger fish. Any striped bass fisherman will tell

1 you that young eels are the favorite and most
2 choice bait. As they get older, they become less
3 prey and more predator and when they're old, as
4 these eels can be up to 50 years old before they
5 out migrate, they are a predator. They're hanging
6 around, they're eating anything, they're benthic,
7 they're on the bottom. They actually probably
8 play an important role in cleaning up our rivers
9 and vis-a-vis the bald eagle question and watching
10 the bald eagles eat the eels up here around
11 Benton, as I think people here know because it's
12 in our testimony, we actually tested a number of
13 the dead eels from Benton for toxics and found
14 that they're very high in PCBs, they're long
15 lived, they're fatty, both of which go against
16 them in this regard, and the levels that we were
17 finding in 23 year old eels was about 500 parts
18 per billion. To put that in perspective, the
19 state toxicologist issues a fish consumption
20 advisory when fish tissue levels are at 11 parts
21 per billion for PCBs. So we're seeing these high
22 levels of contaminants get recycled or mainlined
23 back into high-end predators like the eel or if
24 they just slowly dissolve at a different rate back
25 into the ecosystem whether it's otters or fish of

1 some sort, and if we were to let those eels get
2 out, those contaminants would go with them which
3 is not to say that the Sargasso would be a happier
4 place for that but we're talking about recycling
5 in relatively confined sections of our ecosystem
6 between dams here.

7 MS. EDWARDS: Thank you. I think that's
8 all I have to ask, Jeff.

9 HEARING OFFICER HILTON: We need to ask

10 some Board questions now.

11 MR. NICHOLAS: Actually, can I do redirect?

12 HEARING OFFICER HILTON: We do redirect
13 after the Board asks its questions. It's 11:00.
14 I think it might be a good time for Joanne to take
15 a break.

16 (OFF RECORD)

17

18 HEARING OFFICER HILTON: So now is the time
19 and the opportunity for the Board members to ask
20 questions of these two witnesses. Who would like
21 to go first?

22 MS. ANDERSON: I have a question for each
23 of you. Doug, I was curious about your estimate
24 of the eel population currently existing above the
25 dams. I know you threw out the number 10,000 but

1 I wondered what your current estimate actually is
2 and what the basis of that would be if you have
3 one.

4 MR. WATTS: Actually, Ms. Anderson, I'm
5 looking at right now in my pre-filed testimony
6 page 23, it's an e-mail from Nate Gray of the
7 Department of Marine Resources and he says, quote,
8 we don't have a clue as to what's going on there,
9 meaning the upper Kennebec River above Skowhegan.

10 MS. ANDERSON: Okay.

11 MR. WATTS: He said we don't have a clue as
12 to what's going on there or what the population
13 looks like as far as numbers in the upper
14 watershed. I'm thinking diminished to a great
15 extent but then that is just a guess. The number
16 -- when I selected 10,000, I selected it
17 randomly. I could have used a thousand. I just
18 wanted to show the proportional sense of attrition
19 that occurs.

20 MS. ANDERSON: Well, I was curious in part
21 because one of the arguments that's made by the
22 dam owners is that in some cases the upstream eel
23 passageways have just been installed, and their
24 guesstimates are that for at least seven years
25 those eels wouldn't be coming downstream. So I

1 was curious what you think we're dealing with
2 coming downstream right now.

3 MR. WATTS: There are definitely some
4 coming down. I believe I included it as a short
5 footnote in my -- in my -- this would be in my
6 rebuttal testimony at page, oh, let's see where it
7 is here, very briefly it was an e-mail I received
8 from a scientist named Ethan Nadeau who is a
9 freshwater mussel scientist who received an e-mail
10 himself from a person who worked for Cianbro up at
11 the Harris dam up where they do the rafting on the
12 top of the Kennebec River just below Moosehead,
13 and that person had been up there in 2005 and saw
14 small eels up there.

15 MS. ANDERSON: Okay.

16 MR. WATTS: So we know that some eels are
17 somehow getting up way up the river even without
18 eel fish passageways in place, and they're up
19 there and now that we've got these fish -- the eel
20 passageways in operation now at the four dams,
21 we're certainly going to be seeing more in
22 addition to those that are already up there.

23 MS. ANDERSON: Do you concur that the
24 larger amount will be coming down -- not coming
25 down for at least seven years?

1 MR. WATTS: The ones that are passing with
2 the new eel fishways by definition, yeah, they're
3 not going to be coming down. The mortalities that
4 are being observed, for instance, at Shawmut, the
5 images there, these are all animals that probably
6 went up river 15 years ago. So there's -- there
7 are eels getting up river, they've always been
8 getting up river, but certainly fewer now that
9 they have an actual passage system. They've been
10 just wriggling through the crevices and stuff like
11 that.

12 MS. ANDERSON: Pretty amazing.

13 MR. WATTS: Yeah, what's scary is that if
14 you've ever seen Wyman dam, it's huge, and the
15 little eels that the Cianbro guy saw up at Harris,
16 they got over Wyman somehow. I don't know how.

17 MS. ANDERSON: Yeah, thank you. So my
18 question for Friends of Merrymeeting Bay is that I
19 went back and I looked at your original petition
20 to the Board and in it it indicated that what you
21 were looking for at the time, it was by September
22 2006, require permanent eel passage consisting of
23 either seasonal nighttime turbine shut downs or
24 punch plate eel excluders over intakes in
25 combination with deep gate passage. So I'm

1 curious, has that evolved? I'm getting the sense
2 that it has, and why?

3 MR. FRIEDMAN: Well, actually, I don't know
4 that it's evolved a whole lot. I think it's -- to
5 get technical, there's some real differences in
6 barriers over a turbine or over a pen stock which
7 is a tube that would lead down to a turbine, and
8 there's been some issues with bar grates, iron
9 bar, like quarter inch by two inch, three inch,
10 whatever it is, which is the sort of thing that
11 they put up in Benton. There's a lot more pounds
12 per square inch on an eel body that's rubbing up
13 against or being pressed against something like
14 that than there is on a piece of plate with a
15 number of round holes in it where you can slide
16 along that easier, there's more service area. So
17 I think that in my mind punch plate has an
18 advantage over bar grate. Angling either one of
19 those towards an alternative pass through the dam,
20 whether it's a deep gate or, you know, wherever
21 that gate is will go a long way towards avoiding
22 the impingement process as well where it's
23 90-degree perpendicular the plate to the flow.

24 MS. ANDERSON: So you still would feel that
25 seasonal nighttime turbine shut downs or punch

1 plate eel excluders would do the job?

2 MR. FRIEDMAN: Well, I think personally
3 that probably the nighttime -- I think the
4 turbines need to be blocked. I don't actually
5 know the extent to which a four-foot, five-foot
6 eel going through a turbine that is actually shut
7 down, you know, there's still a number of blades,
8 I'm not quite sure what damage would be done to
9 that eel in that case, presumably less than if the
10 blades are spinning but ideally the turbines
11 should be blocked off and I would mention that one
12 of our exhibits in the -- I think it was the
13 rebuttal, I'm not sure, it might have been the
14 original.

15 MS. ANDERSON: Can you just tell me the
16 number or you don't know?

17 MR. FRIEDMAN: Yeah, actually I can but
18 give me a second to look on the list here.
19 Exhibit 17 in our testimony shows an example of a
20 dam on the Rimouski River in Quebec and what
21 they've done there is not just dealt with eels,
22 which is where a lot of our focus is in what we've
23 been going through and we've got some pretty big
24 spacing on some of those eel grates, but they're
25 looking at something that's protective of salmon

1 salmon smolt as well and they're talking about one
2 centimeter spacing on their grates and they're
3 angled and to minimize the clogging of those
4 grates, they've installed a couple of compressors
5 underneath them that will keep the grates clear of
6 debris and so forth. So this technology is not
7 pie in the sky. It's out there.

8 MS. ANDERSON: Thank you very much.

9 HEARING OFFICER HILTON: Anyone else? Yes,
10 Nancy.

11 MS. ZIEGLER: I was wondering if we could
12 request the letters that you have -- that Mr.
13 Watts quoted in his testimony but did not produce
14 as exhibits for U.S. Fish and Wildlife May 6, 2006
15 and also maybe a DMR consultation letter as well.

16 MR. WATTS: Ms. Ziegler, those I believe,
17 Dana, are in the state's package. That was sort
18 of the correspondence trail over the last 12
19 months. I don't know the numbers because I don't
20 have the list right here, but those are in the
21 package. There was a May 8th letter and May 12th
22 letter.

23 MS. ZIEGLER: They're in what we have
24 already?

25 MR. WATTS: Yes, yes, and what I did in my

1 testimony I simply quoted from them.

2 MS. ZIEGLER: Okay, in the DEP exhibits.
3 All right, thank you.

4 MR. MURCH: As point of clarification, I
5 don't believe they're in the DEP exhibits that I
6 presented to you, but they're in the record that I
7 entered -- in the file materials that I entered
8 into the record this morning and I can make those
9 two letters available to the Board members.

10 MS. ZIEGLER: That would be helpful, thank
11 you, and I just want to follow up on Nancy
12 Anderson's questions which I thought were very
13 helpful because there's a lot of talking around
14 the issue I think by both sides, and I really --
15 and I think Nancy has kind of pointed it out -- we
16 really want to know about some of these fish
17 passage methods and what seems to be working and
18 what doesn't seem to be working and Kennebec-Hydro
19 has a -- this is GLH4 I think, and the other thing
20 is that these exhibits are not labeled so I kind
21 of had to figure that one out. So I'd like to
22 have a page on the front that labels all your
23 exhibits. That would be helpful, but just as an
24 example, obviously we're not ruling on that, but
25 shows that a diversionary boom and recognizing

1 site specific limitations, do you believe that a
2 diversionary boom like this is something that
3 would probably be necessary on the other dams?

4 MR. WATTS: Yeah, and, again, this goes
5 back to the May -- I believe it was the May 8th
6 letter by the Department of Marine Resources in
7 which I think they did a good job of explaining it
8 as except during spring flood, except when the
9 river is flooding. You know, these dams normally
10 have 80 percent or more of the river flow goes
11 through the turbines because that's the object.
12 That's what you want to do. I mean, that's why
13 the term is called wasted water if you have it
14 going over the spillway rather than generating
15 electricity, and then all other things being
16 equal, if 80 percent of the flow is going through
17 the turbines, then probably 80 percent of the fish
18 are going to go through the turbines as well and
19 also if some of these dams -- I know Shawmut for
20 example is that during the -- when the river comes
21 down, they put up flash boards which are large
22 sheets of plywood across the spillway of the dam
23 that allows a couple more feet of water to build
24 up behind it, you've got a little bit more head,
25 you generate some more power but the fish can't

1 get past those flash boards. So they can't just
2 go over the dam, and so if you have low water
3 conditions, you're really looking at a situation
4 where the fish really don't have many choices
5 other than going through a turbine or there might
6 be a small sluice nearby that some of them might
7 use, but the experience on the Kennebec drainage,
8 for example, I'll say it again because it's one of
9 the best studied ones, is Benton. The eels do not
10 seem to use the surface bypass if they can go
11 through the turbines. The eels apparently are
12 swimming not right on the surface but a few feet
13 down and that's why you have a functioning
14 downstream passage system at Benton but you're
15 still getting massive kills of eels, and DMR said
16 this back in 2002, I believe. They said, you
17 know, it's obvious that the downstream passage for
18 alewives, for example, is not working for eels.
19 We're going to have to come up with a separate
20 system to deal with the eels coming down. You
21 know, this has been a process of learning more as
22 the years have gone on.

23 MS. ZIEGLER: So the methods in place at
24 Lockwood and Weston and Shawmut at this point
25 which I gather some -- there are some -- there's a

1 sluice?

2 MR. WATTS: There's some sluices
3 essentially so that the fish have the opportunity
4 to go through a sluice which then gets them past
5 the dam and it allows them to bypass the
6 turbines. Those do exist. Some of them were old
7 log sluices.

8 MS. ZIEGLER: And that's ineffective mostly
9 because the eel choose not to use it or they're
10 not really diverted to those sluices?

11 MR. WATTS: Well, we've learned that the
12 two studies that have been done show that even if
13 you have these sluices, the eels aren't using them
14 or a significant number are not using them.
15 They're going through the turbines and, again,
16 part of that is because you might have, oh, 95
17 percent of the water is going through the turbines
18 and only 5 percent, maybe 50 cubic feet per
19 second, is going through the sluice; whereas,
20 2,000 cubic feet per second are going through the
21 turbines, and just based on proportionality, the
22 fish don't know there's a turbine up ahead.
23 That's the problem. If we could put a sign up,
24 don't go there. The fish are just following the
25 flow field, they just think -- they follow the

1 current, they don't know what's ahead.

2 MS. ZIEGLER: And those studies, are they
3 in your exhibits?

4 MR. WATTS: These are -- they're all fully
5 cited in both I think what Ed did.

6 MS. ZIEGLER: Do you have the exhibit
7 numbers? And he can look for it. I just want to
8 ask another question.

9 MR. WATTS: Yeah, I think they're cited and
10 there's one at Benton Falls and one at Lockwood.
11 Those are the two that have been done on the
12 Kennebec.

13 MR. ZIEGLER: Okay.

14 MR. WATTS: 2001 and 2002.

15 MS. ZIEGLER: All right, those two studies,
16 okay.

17 MR. WATTS: Yeah, they wanted to do more
18 but they had trouble finding eels, had high water,
19 there's a lot of things that make these studies
20 difficult to accomplish.

21 MS. ZIEGLER: Okay, you didn't identify
22 which so now I understand it was those two
23 studies, okay, and I think -- I'll defer. I may
24 have another question.

25 HEARING OFFICER HILTON: Elizabeth?

1 MS. EHRENFELD: I appreciated your modeling
2 for the numbers of fish or numbers of eel going
3 downstream to get an idea of how that worked and
4 understand it's just a model as well. I had a
5 question when you were asked about what percent of
6 dead eels are viewed by visual observation and you
7 were saying small, would that be -- so of the eels
8 that have died, a small percentage you're seeing,
9 would that be ten percent, one percent, point one
10 percent?

11 MR. WATTS: It would depend on the site. I
12 mean, for example, up in 2004 I spent a Sunday
13 below the Shawmut dam, a Sunday afternoon, and the
14 water is deep, you can wade, it's too deep. It's
15 about this deep (indicating) and the current is so
16 strong it will knock you over. So I walked along
17 the shoreline. I walked along the shoreline. I
18 could only see out about from here to that table,
19 and I saw I think three or four and the river
20 channel there is about a thousand feet wide. So I
21 was only able to look at a small fraction of the
22 possible area, and in our -- Nate Gray in our
23 testimony says the same thing that the Kennebec is
24 a big river, and it's a big, wide river and during
25 the fall the river is running pretty fast and it's

1 deep, and the other thing is you're looking during
2 middle of October and you're starting to lose your
3 daylight. You only get maybe from 11 to 2:30 in
4 the afternoon where you've got good vertical light
5 coming down. So as the season progresses, it gets
6 harder and harder to see, and I believe that
7 FPLE's -- one of their scientific consultants said
8 that, you know, what's been done so far you're
9 really just looking at -- you know, you really
10 don't -- I mean, you really don't know until I
11 guess if you went out there to, say, Shawmut, for
12 example, and did a transit back and forth and back
13 and forth and back and forth and back and forth
14 and then said, okay, what did we see, you don't
15 know how many are there. The other thing is the
16 river. Some of these -- some of these animals
17 could be carried down a half mile. So because of
18 the -- my experience was on Cobbossee Stream in
19 Gardiner which is only maybe the width of this
20 room or smaller. You can wade it. The water is
21 clearer. It doesn't have a brown stain to it.
22 You can see them, and the Kennebec you can't do
23 that. It's just very difficult. So I don't
24 know. I mean, it's just like what Nancy said, you
25 know, how many eels are coming down the river

1 every year from Skowhegan? I don't think anyone
2 knows. We know some are.

3 MS. EHRENFELD: Okay. I have another short
4 question which also is a little bit on my sort of
5 lack of understanding of fishery sciences. I've
6 seen throughout the years a number of people
7 fishing for eels as they're going upstream and
8 they've got nets.

9 MR. WATTS: Elvers.

10 MS. EHRENFELD: Yeah, is it not possible to
11 do that for the eels going downstream and be able
12 to kind of differentiate those are alive and those
13 are dead downstream from a dam?

14 MR. WATTS: Meaning -- I'm not sure I --

15 MS. EHRENFELD: Again, as a laboratory
16 scientist, this may be totally impossible in a
17 river, but having nets out there and you capture
18 the eels that come down and you could figure out
19 the percent that were dead or alive?

20 MR. WATTS: You could, but you would -- I
21 mean, it would all depend on being able to capture
22 them, and being the size of the Kennebec River --

23 MS. EHRENFELD: A small percent, say a
24 small area. I guess my question is that's not
25 something that is done in fishery sciences?

1 MR. WATTS: This, in fact, was the
2 objective of the two studies that have been done
3 was to take X number of eels, in fact, FPLE has
4 proposed doing the same thing but with a larger
5 sample size. I think Bob Richter is probably
6 going to talk about that. You take, let's say, 20
7 eels, radio tag them, release them above the dam,
8 follow them as they move downstream and see where
9 they go. It's difficult to do because you have to
10 get the animals first and then you have to put the
11 little tag in it. Gail does this. I mean, you've
12 got to surgically implant these things inside
13 their body, make sure that they're not hurt
14 because that's going to affect their behavior.
15 That's been done twice now on the river -- well,
16 once in the Seabasticook and once at Lockwood, and
17 the numbers are 40 to 50 percent of the eels
18 apparently are not making it continuing their
19 migration down river. That's what we know now,
20 and if you -- Bob Richter from FPLE, he wants to
21 do a bigger sample size which depends on getting
22 more animals, which depends on having more
23 transmitters, which depends on having the river
24 not go to flood in the fall which it did this past
25 year, and that's going to give you -- the number

1 or the answer that you're looking for is what
2 percentage -- you know, that's going to give you
3 the number that I was writing down on our chart.
4 Then you could actually start saying we can assign
5 a real number to Weston, we can assign a real
6 number to Shawmut, and then we can add them up and
7 get a real attrition number rather than just a
8 spectrum of possibilities.

9 MS. EHRENFELD: Thank you.

10 HEARING OFFICER HILTON: Doug, you cite two
11 studies having been done on eels, one in the
12 Seabasticook, one in the Kennebec. One of those
13 studies involved five eels.

14 MR. WATTS: That was Lockwood.

15 HEARING OFFICER HILTON: Two of the eels
16 made it through, two of the eels did not or we
17 don't know what happened to them.

18 MR. WATTS: Right.

19 HEARING OFFICER HILTON: And then the fifth
20 eel was found in one of the backwater pools, as I
21 understand it, and I don't know that they checked
22 to see what was actually the circumstances with
23 that one.

24 MR. WATTS: I'm not sure either. I'd have
25 to go back and look at the write-up that Nate and

1 Skip and Gail did for that study.

2 HEARING OFFICER HILTON: Do you know
3 whether they actually checked the status of the
4 two eels that left as to whether they were
5 actually healthy or not?

6 MR. WATTS: I believe they were observed to
7 be continuing to move down the river so it was
8 presumed, A, that they were probably -- they were
9 continuing their migration.

10 HEARING OFFICER HILTON: So do these eels
11 have -- I'll be asking these questions of the dam
12 owners also. Do these eels have some sort of
13 radio transponders?

14 MR. WATTS: They were the surgically
15 implanted radio transponders.

16 HEARING OFFICER HILTON: And were they able
17 to track where in the physical dam they actually
18 went through?

19 MR. WATTS: I believe they were in -- I
20 believe that there were -- were there antennas in
21 the --

22 MR. NICHOLAS: Ed, Exhibit 6.

23 MR. WATTS: Again, I defer to the expert.
24 I defer to the person who conducted the study.

25 HEARING OFFICER HILTON: If you don't know

1 the answer, that's fine.

2 MR. WATTS: Yes.

3 HEARING OFFICER HILTON: And there's that
4 study. There's the one at Benton Falls which I
5 won't go into. You understand that Hydro-Kennebec
6 has proposed that there be a study of the interim
7 passage by which they would tether some eels with
8 string or whatever. What other studies do you
9 know of that are specific to the Kennebec River?

10 MR. WATTS: Well, those are it. Those are
11 the only two. I mean, a controlled formal study,
12 you know, the way Elizabeth was describing, to my
13 knowledge those are it.

14 HEARING OFFICER HILTON: So in the course
15 of your eel petition, endangered species petition,
16 and all the reading you did in association with
17 that and all the reading that I guess the agency
18 did and the studies they cited, you don't know of
19 any other studies that either specifically or
20 certainly generally applied to the Kennebec
21 probably, but you don't know of any that have
22 close relevance to the Kennebec?

23 MR. WATTS: Well, I know that, you know, a
24 lot of the material that is within here through
25 the listing process, stuff that DMR has done, has

1 cited studies done on other rivers, and one of
2 them is the Moses Saunders dam on the St.
3 Lawrence, and so, you know, again, as Sarah
4 mentioned is that you have different size dams,
5 different size turbines, different rotations,
6 different revolutions per minute, different blade
7 designs, all those things are going to create
8 differences in terms of what the percentage of
9 mortality or injury is. In general, a smaller
10 turbine that spins faster is going to be more
11 dangerous than one that's very large and spins
12 slower as a general rule. A lot of studies have
13 been done on that. I mean, there's a huge
14 literature on turbine mortality and injury on
15 various migratory fish.

16 HEARING OFFICER HILTON: Were you involved
17 at all in the negotiations to the 1998 agreement?

18 MR. WATTS: No, they were secret. No one
19 knew about it until it was released except for the
20 parties.

21 HEARING OFFICER HILTON: Were you even
22 aware of them?

23 MR. WATTS: I was a member of Kennebec
24 Valley TU at the time and essentially the deal was
25 -- because they're a member of the Kennebec

1 Coalition -- the deal was that only the board of
2 directors were told really what was going on
3 within the negotiations because the context of
4 them was it was going to be a settlement
5 negotiation and they didn't want word getting out
6 while they were trying to do it.

7 HEARING OFFICER HILTON: I'm looking on
8 page 6 of the -- and I'm looking at the copy that
9 Dana supplied us -- page 6 of the agreement and
10 this is as regards eels, and it talks about these
11 studies that are going to be completed by December
12 31, 2001.

13 MR. WATTS: Right.

14 HEARING OFFICER HILTON: And it makes
15 mention that the study shall cost no more than
16 \$427,000 and shall be paid for by DMR.

17 MR. WATTS: Right.

18 HEARING OFFICER HILTON: In the course of
19 your discussions with dam owners or others or
20 agency members, DMR folks, has there been any kind
21 of understanding as to what the importance was or
22 where that number came from? Does it represent
23 some sort of a limitation on all studies into the
24 end of time on eels?

25 MR. WATTS: I could -- I could stand to be

1 corrected but my understanding is that those --
2 that funding number, that 400,000 is coming out of
3 the pool of money that the dam owners put in. I
4 mean, in exchange for the delays in upstream fish
5 passage, et cetera, et cetera, the KHDG dam owners
6 put forward money in an initial lump sum and also
7 in annual contributions. I believe that DMR with
8 the state worked out how that pot of money was
9 going to be divided up to do different things.
10 One of the things on the list to do was the type
11 of eel studies with radio tagging that Gail did,
12 and apparently that number was assigned, we've got
13 this much to do these eel studies.

14 HEARING OFFICER HILTON: So it indicates
15 that the study is going to be paid for by DMR.

16 MR. WATTS: Right.

17 HEARING OFFICER HILTON: It does not make
18 reference to this National Fisheries Trust Fund
19 which was supposed to be the recipient of this
20 seven and a quarter million dollars.

21 MR. WATTS: My understanding, Mr. Hilton,
22 is that the understanding was that the money was
23 going to go -- it's complicated but that was not
24 going to come out of DMR's general fund budget,
25 for example. DMR was going to take money from a

1 dedicated Kennebec River restoration pool of money
2 to do that.

3 HEARING OFFICER HILTON: What has been the
4 response from the DMR people and IF&W and other
5 agency people as to the results of this -- of the
6 expenditure of some or all of this money on eel
7 passage on the Kennebec and the results of that?
8 When you speak with them, I take it you spoke with
9 them personally as well as in writing?

10 MR. WATTS: Oh, yeah.

11 HEARING OFFICER HILTON: What has been the
12 response as far as the results of these studies
13 because the only two studies seem to indicate a 50
14 percent mortality?

15 MR. WATTS: Right. I think -- I mean,
16 again, the folks who did the studies are right
17 behind me, Gail.

18 HEARING OFFICER HILTON: I don't think
19 we're going to be hearing from her.

20 MR. WATTS: Okay. Well, this is
21 conversations mostly with Skip Zinc, Nate, Tom
22 Squires, Gail is that the sample -- it would be
23 nice to have a bigger sample size. Rather than
24 five eels going over Lockwood it would have been
25 nice to have 50 but the cost of radio tags are

1 high and you've got to get eels because you need
2 eels that are actually ready to begin their
3 migration up river and I know at Lockwood these
4 were acquired on the Carrabassett Stream in Caanan
5 which is above Shawmut, and they went to a weir
6 fisherman and got them. Well, if you get high
7 water, you don't get them. So the -- I know that
8 the idea was '99, 2000, 2001 the idea was to get
9 these studies done and get good data, get a good
10 sample size to get a feeling of what's going on,
11 you know, how many -- we know there's going to be
12 some going through the turbines. That's just sort
13 of axiomatic. Well, how many, and is Lockwood
14 better? Lockwood seems intuitively better as the
15 spillway is bigger, more flow goes over the
16 spillway.

17 HEARING OFFICER HILTON: So Lockwood is
18 sort of a best-case scenario for non-turbine
19 passage, is that what you're saying?

20 MR. WATTS: Yeah, because of the way it's
21 configured. I mean, it's just like Sarah said.
22 It's a site-specific thing. The Lockwood turbines
23 don't have the capacity as, say, Hydro-Kennebec
24 does. So a lot of times 50 percent of the water
25 is going over the dam which means, all things

1 equal, you're probably going to get 50 percent of
2 the fish are going to go over the dam too; whereas
3 if you have like Hydro-Kennebec, the turbines are
4 bigger. It's a 13 megawatt dam. They're able to
5 funnel a lot more of the flow into the turbines
6 rather than having it go over the top, and I know
7 from talking to DMR folks is that after -- see,
8 they did the Lockwood study in I believe 2001.
9 They wanted to go back and do some more, but high
10 water, there was a problem getting eels, there was
11 like two or three years in a row, in fact, in 2004
12 they were going to do it and then as the
13 documentation from DMR notes, they were all set to
14 do -- they were planning on doing the radio tag
15 study at Lockwood in 2004, but then we had this
16 big kill at Benton and DMR put all of its folks
17 over to Benton to figure out -- counting dead eels
18 so that it never got done.

19 HEARING OFFICER HILTON: You're aware of
20 the interim passage that Hydro-Kennebec has
21 provided?

22 MR. WATTS: That's right, the one that they
23 submitted application for last February, yup.

24 HEARING OFFICER HILTON: Yup, and we have
25 pictures of it.

1 MR. WATTS: Yup.

2 HEARING OFFICER HILTON: And that
3 represents a specifically designed, engineered,
4 constructed passage. What are the specific fish
5 passage elements at the other three dams?

6 MR. WATTS: Well, first of all, the
7 facility at Hydro-Kennebec was -- the U.S. Fish
8 and Wildlife Service said this is not sufficient
9 for eels.

10 HEARING OFFICER HILTON: Okay, I understand
11 that.

12 MR. WATTS: Okay, I just wanted to mention
13 that. You know, based on what FPLE has described,
14 there isn't anything specifically designed at the
15 three other dams for the passage of eel. There
16 are sluices that are being kept open during the
17 fall, and that's when the May 8th letter from DMR,
18 the consultation letter to FPLE responding
19 directly to that proposed passage by FPLE, Maine
20 DMR wrote, quote, Maine DMR is concerned the
21 controlled spill via bypass gates will not be an
22 effective measure for downstream eel passage and
23 that significant injury or mortality to eels will
24 occur unless additional measures are taken. In
25 September and October river flow exceeds hydraulic

1 capacity only 5 to 15 percent of the time at the
2 Shawmut and Weston Projects and 40 to 50 percent
3 of the time at the Lockwood Project. If migrating
4 eels are randomly distributed in the river, then
5 eels will pass through the turbines at Shawmut and
6 Weston 85 to 95 percent of the time and through
7 the turbines at Lockwood 50 to 60 percent of the
8 time.

9 HEARING OFFICER HILTON: Are you familiar
10 enough with the construction of these four dams
11 specifically -- I guess you're aware now of what
12 Hydro-Kennebec has done on their dam?

13 MR. WATTS: Yes.

14 HEARING OFFICER HILTON: They cut a four by
15 eight slot through one of the walls?

16 MR. WATTS: Yes, I've seen all the
17 photographs, yup, and the design drawings.

18 HEARING OFFICER HILTON: And are you
19 familiar enough with the actual on-the-ground
20 construction of the other three dams to be able to
21 specify what you feel they should do,
22 understanding the limitations they have in terms
23 of their preference that it not cost a great deal?

24 MR. WATTS: Right.

25 HEARING OFFICER HILTON: Their preference

1 -- your preference that these punch plates or
2 trash type configurations be further out to reduce
3 impingement, et cetera?

4 MR. WATTS: Right, right, yeah, exactly.
5 It's like Ed said is that, you know, I've
6 scratched my head up and down and gone around and
7 looked for every possible solution here because I
8 know someone is going to say, well, you know, Mr.
9 Know it All, what should we do, and angle iron
10 that goes to the full depth, and this is one of
11 the things that Fish and Wildlife Service
12 mentioned, is that the objective here is to block
13 -- physically deprive these fish of access to the
14 turbine and one of the ways to do that is to use
15 angle -- you know, a rack that goes all the way
16 down to the bottom so that they can't get under
17 it, and that to me, and I know this is being done
18 down -- I believe it's being done now at the
19 Holyoke dam on the Kennebec River (sic) as part of
20 their relicensing.

21 HEARING OFFICER HILTON: Which dam?

22 MR. WATTS: The Holyoke dam on the
23 Connecticut River.

24 HEARING OFFICER HILTON: The Connecticut,
25 okay.

1 MR. WATTS: Because the situation we're
2 looking at on the Kennebec is now we've got adult
3 Atlantic salmon coming down from the Sandy. These
4 are big animals, and they have a propensity to
5 follow the flow as well, and we know how many
6 salmon are up above these dams because the Maine
7 Atlantic Salmon Commission brought them up there
8 in a truck this year. We've got I think 11.
9 We've got 11 salmon. There are 11 adult salmon
10 now above, and so we know how many, and the
11 question is how do we protect them? Well, the way
12 you're going to protect them is really the same
13 way you're going to protect eels is you've got to
14 keep these animals from getting into the turbines
15 because an animal this big (indicating) going
16 through a turbine is going to get whacked.

17 HEARING OFFICER HILTON: You're gesturing
18 about three feet --

19 MR. WATTS: Yeah, they're 30-inches,
20 32-inches long. They're big fish.

21 HEARING OFFICER HILTON: Anybody else have
22 any questions? Nancy.

23 MS. ANDERSON: I just have a clarifying
24 question. I thought that the salmon died when
25 they got up to the top of the river.

1 MR. WATTS: That's Pacific salmon.

2 MS. ANDERSON: Hum?

3 MR. WATTS: That's Pacific.

4 MS. ANDERSON: That's Pacific, okay. So
5 the Atlantic get away with spawning and then they
6 get to go back to the ocean again?

7 MR. WATTS: Yup. The Atlantic -- in fact,
8 that's how we get the big ones. The big ones are
9 usually the ones that have repeated, and we know
10 from the historic records that the Kennebec had 18
11 and 22 pound salmon from historic records going
12 back to the early 1800s, the commercial
13 fisheries. Now you're talking about 40-inch
14 salmon. That's how -- an Atlantic salmon, a
15 native Maine Atlantic salmon is this big
16 (indicating). It's as big as your leg, and most
17 of those have gone out to sea and come back.

18 MS. ANDERSON: Thanks.

19 HEARING OFFICER HILTON: Nancy Ziegler.

20 MS. ZIEGLER: I just would like some
21 clarification. We've focused mostly on American
22 eel and I'm glad that we touched a little bit on
23 the salmon. We are not talking about the issue of
24 providing upstream passage at three of the dams
25 but these threshold triggers, do they factor in at

1 all into what we're doing here?

2 MR. WATTS: Yeah, I mean, the wording of
3 the petition that we've submitted is simply to
4 require safe and effective fish passage meaning
5 upstream and downstream, which means the triggers
6 would no longer be in place, meaning if there's
7 fish to be passed, pass them.

8 MS. ZIEGLER: Okay.

9 MR. WATTS: That's the substance of the
10 petition.

11 MS. ZIEGLER: Okay. So then we talked
12 about coming downstream and you've touched on
13 salmon having some of the same issues as eel
14 because they become very large. What about
15 alewives and I don't really quite understand
16 what's happening with shad, whether or not they're
17 even coming down or what's going on there.

18 MR. WATTS: The adults -- in fact, the
19 photograph here that's on the first page of FPL --
20 I'm sorry -- of Friends of Merrymeeting Bay's, the
21 picture of the alewife, the color photograph of
22 the person holding up a half of an alewife,
23 they're a big package, that photo was taken by a
24 guy named Marshall Demont who is an avid fisherman
25 from Waterville up at Shawmut, and that was taken

1 I believe in June of 2004, and that was an alewife
2 that had been truck transported up to Wesserunsett
3 Lake in Cornville and spawned and then started
4 making its way down river.

5 MS. ZIEGLER: You know it was truck
6 transported because it had identifying --

7 MR. WATTS: Because there's no upstream
8 fish passage on the Kennebec with these dams. The
9 only way they can get up river was to be trucked.

10 MS. ZIEGLER: What's their life cycle in
11 terms of the timing? They're not long lived.

12 MR. WATTS: Four or five years.

13 MS. ZIEGLER: Do they come down every
14 year?

15 MR. WATTS: Oh, yeah, they repeat, they
16 repeat. See this alewife -- particular alewife
17 had spawned up at Wesserunsett Lake and came down
18 Wesserunsett Stream, came into the river right
19 along Route 2 where the pines are, right in there,
20 was coming down the river, apparently it went --
21 this I think was probably late -- because they
22 spawn in late June, this would have been early
23 July when Marshall took this photo. He saw it, he
24 was fishing, and apparently it went through the
25 turbines, and you can see this is what happens

1 with what we call a turbine strike. This alewife
2 was trying to swim back out to the ocean and then
3 come in next year to spawn again. Not all of them
4 make it. Some of them get -- they're too weakened
5 from the spawning to make it, but there's a good
6 percentage of them will come in again, repeat
7 spawners, and it's the same thing with shad. Once
8 the fish -- the fish trap at Lockwood didn't catch
9 shad last year but once you start catching shad,
10 somehow catching them, bringing them above these
11 dams, American shad adults are big animals. They
12 can be seven or eight pounds. They can be 28
13 inches long. Now you're running into the same
14 issue as with eels. You're dealing with a big
15 fish going through a turbine. If it goes through
16 a turbine, it is most likely going to end up like
17 we've seen with the eels because they're long
18 fish. These are our -- these are the fish that if
19 they can get down, they will come back in again.
20 You know, we're trying to rebuild the population.
21 It's important that these animals get back to the
22 sea because northern populations of shad, for
23 example, are 50 percent repeat spawners. It's
24 important these fish get back to the ocean after
25 they've spawned so they can come in again.

1 HEARING OFFICER HILTON: Okay, Doug, we're
2 kind of running out of time here. You might want
3 to keep your answers a little bit shorter. Mrs.
4 Bertocci has a question.

5 MS. BERTOCCI: With respect to upstream
6 fish passage, I'd like to hear from both Mr. Watts
7 and Mr. Friedman what is wrong with the phased
8 approach of a certain population density reaching
9 a certain stretch of the river, then triggering
10 construction and fish passage at that point?
11 What's your fundamental complaint about that
12 approach to deciding when to construct upstream
13 passage for fish?

14 MR. FRIEDMAN: A fundamental issue for me I
15 think is the shad, and Doug might want to
16 elaborate on some of the other species, but I
17 believe the language is there's got to be 8,000
18 shad entering the fish lift at Lockwood to trigger
19 the next step, and there's a great deal of
20 question as to whether that will even ever
21 happen. Shad are very, very flighty, scared of
22 their shadow. We know there are shad in the
23 river. We did have an odd year last year with
24 high flows but still I'm not convinced that we're
25 going to see those numbers or that they're going

1 to enter the lift. There are large numbers, you
2 know, within a mile of Lockwood. What are we
3 going to do when they don't go into the lift and
4 how long is that going to be? Do you want to
5 follow up?

6 MR. WATTS: I guess there's two parts to
7 this, Ms. Bertocci, is that if you read the
8 statute, if you read the Maine Water Quality
9 Statute and if you read how the courts have
10 interpreted it -- and I'm going to stop right
11 there -- it's not clear whether you can have
12 triggers like this because what about those 6,000
13 shad that want to go up river? What about them?
14 What about the designated use of the river? What
15 about the kid that lives up in Skowhegan that
16 wants to see shad in the river for the first time
17 in his life and because we only hit 6,000 instead
18 of 8,000, that poor kid is going to sit there for
19 another five, ten years, who knows. You know, I
20 understand the context in which the agreement was
21 established, and it was intended to serve a lot of
22 purposes. It was by definition a compromise and I
23 fully understand that, but that was also in 1998
24 and now we're coming up on the tenth year and I
25 personally feel this is a good time now to revisit

1 what was done then and reflect upon what we know
2 now that we didn't know in 1998. The Edwards dam
3 hadn't even been removed yet and to say, you know,
4 what's going to work here, what is consistent with
5 Maine law, first of all, and so that's why I think
6 in trying to come up with a proposal for this
7 Board to review, I think we ended up saying let's
8 keep it simple instead of trying to come up with
9 something even more complex than what we've got
10 now, and the simplest thing seemed to be make it
11 fully consistent with Maine's statute, and that's
12 how we came up with what we came up with.

13 HEARING OFFICER HILTON: Dana, I think you
14 have some questions?

15 MR. MURCH: Just one question to clarify.
16 Ed, I'll be referring to the first page of your
17 direct testimony.

18 HEARING OFFICER HILTON: What was that
19 question, Dana? I missed it.

20 MR. MURCH: I'll be referring to the first
21 page of Ed Friedman's direct testimony, and I'll
22 read a portion of that under item number 2. FOMB
23 asks that all relevant provisions in the water
24 quality certifications relating to fish and eel
25 passage be replaced with the following language:

1 the dam owner shall provide immediate, safe and
2 effective upstream and downstream passage for all
3 indigenous migratory fish. You then go on to
4 define a few terms, one of them being safe and you
5 define that as means that all fish migrating
6 upstream can pass a dam and no fish migrating
7 downstream are killed or injured by the dam; and
8 by way of clarification, I'm just trying to
9 understand the implications of this. Let me start
10 with upstream passage, and my purpose here is not
11 to trap you so let me lay out where I'm coming
12 from. For upstream passage, I'm not aware of any
13 fish passage facilities that are 100 percent
14 effective in passing migrating fish upstream. Are
15 you?

16 MR. FRIEDMAN: No.

17 MR. MURCH: And I'm also not aware that any
18 upstream passage facility that's been designed
19 will, in fact, pass, necessarily pass, all species
20 of indigenous fish, for example, striped bass who
21 I've been told by the biologists don't use
22 fishways.

23 MR. FRIEDMAN: Yeah, there are different
24 types of passage. There are lifts, there are
25 ladders, et cetera, et cetera, yeah, so one

1 solution doesn't fit every species.

2 MR. MURCH: So just with upstream passage,
3 my question then is if this is the standard you
4 want the Board to adopt, how does anyone meet this
5 standard if there are no passage facilities that
6 can provide a hundred percent upstream passage?

7 MR. FRIEDMAN: Well, I think as we alluded
8 to before or actually specifically described, this
9 is a goal, it's a gold standard, it's something to
10 strive for. If we only have, you know, an
11 ineffective fish ladder like we have at
12 Brunswick/Topsham on the Androscoggin and there's
13 all kinds of fish that don't go into it, then we
14 should be changing that, whether it's a different
15 design or whether it's adding a different type of
16 passage, perhaps a lift. So we want to try and --
17 these fish are important to the integrity of our
18 water, the river, and that's what we're about. We
19 need to do the best that we can to make sure that
20 they are passed and it's particularly so in my
21 mind when we're talking about essentially the
22 private use of a public resource. We need to hold
23 those users to the highest standard that we can.
24 That's where we're going with this.

25 MR. MURCH: Bear with me here. I

1 understand this is a gold, G-O-L-D, standard that
2 you're proposing, but if the Board writes this
3 standard in a certification and there's no passage
4 facilities that can meet the standard, what then
5 happens in your view?

6 MR. FRIEDMAN: Well, we'd have to see but
7 you don't see Benton Falls at the table here or
8 Burnham because they are trying to do the right
9 thing, and while they're having troubles, they're
10 working through those troubles. So we're not here
11 to -- we're not here to actually make sure that
12 all one hundred of those fish pass, but we want to
13 see that whoever is responsible for passing those
14 fish is doing the best job that is possible.

15 MR. MURCH: And this is the reason for my
16 question of clarification and I'm not looking to
17 put words in your mouth but the standard I just
18 heard was if people are trying, that might be
19 okay, and I just would implore you to be clear on
20 what the standard is. If the standard is a
21 hundred percent upstream passage of all fish,
22 again, just let me be straightforward about this.
23 I don't know how to do that without taking the
24 dams out.

25 MR. FRIEDMAN: It's an unlikely standard to

1 be able to meet but we didn't put that down with
2 the intent that the dams come out. We're putting
3 that in there to try and get the best job done
4 possible.

5 MR. MURCH: And then just a quick
6 follow-up, with respect to downstream passage, we
7 would have the same discussion? There's no fish
8 passage facilities that exist out there today that
9 will safely pass all fish downstream?

10 MR. FRIEDMAN: That may be. I think the
11 intent there is more clear in that there's a
12 fundamental need to block access to the turbines.

13 MR. MURCH: Two other quick items. Ed at
14 some point, either during his testimony or in
15 answer to a question referred to a photograph of
16 eels that I'm looking at, and I need everyone to
17 decide if that's going to be entered into evidence
18 as an exhibit. He did point to it. It's in the
19 chair next to Ed.

20 MS. ANDERSON: That's already in.

21 MR. MURCH: And for the Board's
22 information, obviously many of you have questions
23 about the life history of various fish. There
24 will be a number of state agency fishery
25 biologists who will be testifying and be available

1 to answer those questions later in the hearing;
2 and, lastly, just another point of clarification,
3 during the cross by Sarah Verville on behalf of
4 Kennebec-Hydro, there was a question raised -- a
5 point raised that DMR did not appeal DEP's
6 Condition Compliance Orders on these and I'd let
7 that stand as a fact, but as a point of
8 information for the Board, it's my understanding
9 that state agencies who participate in the review
10 process before the DEP do not have the right to
11 appeal any DEP order. This was established in the
12 Pittston Oil Refinery hearings in 1970 I think.
13 That's it, thank you.

14 HEARING OFFICER HILTON: Redirect, Dave or

15 Bruce?

16 MR. NICHOLAS: I have two questions for
17 Ed. Ed, have you -- would you like to add
18 something about an evaluation of the --

19 HEARING OFFICER HILTON: You need to check
20 your microphone.

21 MR. NICHOLAS: Would you like to clarify,
22 Ed, something about the Lockwood study of the
23 downstream eel passage?

24 MR. FRIEDMAN: Yeah, as I look at the
25 results of the Lockwood study which are our

1 Exhibits 7 I guess, it's always been unclear to me
2 and I guess Gail isn't speaking but she might be
3 able to clarify this, there were five fish that
4 were in that study, and two of them passed through
5 a turbine, and were -- did not continue migrating,
6 were presumed to be injured or dead. There was
7 one fish that went through the bypass and
8 continued on its merry way or seemed to. That's
9 fish tag number 12, and then there were two fish
10 that passed the dam in an unknown fashion, 11 and
11 15, and then it says they were located on several
12 dates below the project. Eel 15 was found
13 opposite the Waterville boat launch on October
14 30th, 31, November 4 and 12, so four days in the
15 same place. Eel 11 was located on October 30, 31
16 below the Sebasticook River on the east shore, and
17 what I'm wondering here is if, in fact, those two
18 unknowns ended up dead as well, because they don't
19 seem to have moved, and it's not clear in here and
20 my concern is that we actually might be looking at
21 some delayed mortality and that we'd be talking
22 about four of the five eels, in fact, not making
23 it very far and I don't know if that can get
24 clarified or not, but the unknowns are unknown
25 unless Gail can shed some light on it, and we use

1 the 40 percent figure a lot as 40 percent
2 mortality. It may be more.

3 MR. NICHOLAS: And you're familiar with the
4 stocking of Atlantic salmon in the Sandy River,
5 correct?

6 MR. FRIEDMAN: Yes.

7 MR. NICHOLAS: And there were 15 stocked at
8 the Sandy River last year?

9 MR. FRIEDMAN: Yeah, I've seen two figures,
10 14 and 15, yeah.

11 MR. NICHOLAS: And have you done an
12 analysis of what the chances are of survival for
13 those fish trying to migrate downstream?

14 MR. FRIEDMAN: I did.

15 MR. NICHOLAS: And, if so, what is it?

16 MR. FRIEDMAN: Well, I basically did the
17 same thing Doug did. What I did is in the -- it's

18 page 7 of our rebuttal, there's a quote from the
19 section from the status review on the Atlantic
20 salmon and there's an EPRI, the Electric Power
21 Research Institute, estimate of 10 to 30 percent
22 entrainment of salmonids, and then on page 8 or
23 bottom of 7 and 8, it goes on to say where
24 multiple dams exist such as the Penobscot, losses
25 of downstream migrating smolts from entrainment

1 are often cumulative and biologically
2 significant. Because of their larger size, with
3 turbine mortality of kelts which are the outbound
4 spawners, it's expected to be significantly
5 greater than 10 to 30 percent. So I just used the
6 30 percent number on those 15 salmon to be very
7 conservative and that's a FERC figure, by the way,
8 and if you start with 15 and you go through all
9 four dams, you end up with 3 fish at the bottom or
10 80 percent mortality, and a concern for Doug and I
11 has always been what percentage of the total fish
12 in the Kennebec are those 15 fish that bumped up
13 against Lockwood and got moved up above and, you
14 know, what's going to happen to them when they try
15 and leave. So that's again just doing the
16 analysis, the same thing that Doug showed you
17 before, using a conservative estimate that only 20
18 percent of those transplanted salmon have survived
19 and, again, we don't know in what condition.

20 They're big fish. Anything else, Dave?

21 MR. NICHOLAS: No.

22 HEARING OFFICER HILTON: Bruce, anything?

23 MR. MERRILL: I just have a couple
24 questions for Doug. Going back to a question that
25 Sarah was asking you concerning observational

1 methods, first, I believe that you started to
2 indicate what are the problems with trying to make
3 visual observations at the Kennebec-Hydro plant?

4 MR. WATTS: Hydro-Kennebec. Well, the
5 Hydro-Kennebec is kind of a unique dam. It's
6 actually almost built into a gorge in the river.
7 It's right above the Waterville bridge, right
8 around the corner. The east side if you're
9 looking upstream would be the right side of the
10 river is entirely occupied by the old Scott Paper
11 Mill. It's built right up to the water line, and
12 that keeps going up, up to where the dam is and
13 where the turbines are and stuff like that. The
14 opposite side is extremely -- the opposite bank of
15 the river is extremely difficult to get all the
16 way up to the -- to the face of the dam; in fact,
17 I remember the last time I was up there I had to
18 run through the Maine Central Railroad rail yard
19 to get in there which it's dangerous because
20 there's 30 tracks and you're worried about getting
21 run over by a train, and so in reality for an
22 individual such as myself, it's virtually
23 impossible to go up the base of the Hydro-Kennebec
24 dam and look for injured eels, like I said before,
25 without trespassing. So it's impossible. That's

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1 why I've never gone up there.

2 MR. MERRILL: Is it posted to keep people
3 off?

4 MR. WATTS: Well, I don't like to just
5 waltz right into the headquarters of a dam and
6 say, hi, I'm Doug Watts, I'm here looking for dead
7 eels. So I haven't tried to walk through their
8 front gate, put it that way.

9 MR. MERRILL: But my question is, are there
10 any signs that say posted, no trespassing?

11 MR. WATTS: I've never tried to go in there
12 because, like I said, I've -- you know, I -- I've
13 got in trouble with trespassing before and I'm
14 trying to like pull back a little.

15 MR. MERRILL: What are some of the general
16 problems with observational methods?

17 MR. WATTS: Well, I think we touched on a
18 lot of this stuff earlier with Elizabeth. On the
19 Kennebec, the problems are really a very wide
20 river, deep river, fast moving river, cold water,
21 high water, the possibility that the eels could be
22 dispersed over an enormous area and essentially a
23 needle-in-a-hay-stack situation, and the material
24 that we submitted from Nate Gray attests to that
25 in detail about the difficulty at these big dams.

1 I mean, Nate's -- the quote that Nate used was --

2 MR. MERRILL: For the Board's benefit, this
3 is in Doug's rebuttal testimony. It's his
4 response to paragraph 13.

5 MR. WATTS: This is actually in my original
6 testimony, Bruce.

7 MR. MERRILL: It's also in your rebuttal.

8 MR. WATTS: This was Nate Gray -- here it
9 is. It's page 23 of my testimony. It says --
10 it's an e-mail from Nate. Nate is the guy, him
11 and Skip Zinc, looking for the eels. He goes into
12 great detail about how they have tried to do this,
13 and what success they've had and what the problems
14 are.

15 HEARING OFFICER HILTON: What page are you
16 on, Doug?

17 MR. WATTS: 23 of my testimony. I think
18 there's one quote that stands out that I think is
19 important for everyone to pay attention to and
20 this is Nate Gray, quote, the big dams with deep
21 tailraces could hide an army of dead and you'd
22 never know, and that's true. That's my
23 experience. It's just simply because you're
24 talking about a big river and a big dam and you're
25 talking about deep water, and these things you

1 could have hundreds and hundreds and hundreds and
2 you'd never find them. Unfortunately, I wish we
3 could find them.

4 HEARING OFFICER HILTON: We need to kind of
5 move along here.

6 MR. MERRILL: My next question to you,
7 Doug, has to do with the non-listing by U.S. Fish
8 and Wildlife. Mr. Thaler had asked you some
9 questions about that. You have read that, I
10 assume?

11 MR. WATTS: What, the fed's response?

12 MR. MERRILL: Yes.

13 MR. WATTS: Yeah, I read it.

14 MR. MERRILL: What can you tell us with
15 regard to what U.S. Fish and Wildlife said about
16 turbines in conjunction with eel mortality?

17 MR. WATTS: Yeah, the feds, the U.S.
18 Department of Interior, it was their conclusion
19 that because an awful lot of -- there are quite a
20 few rivers in the Eastern Seaboard, for example,
21 that don't have hydro dams on them, that turbine
22 mortality for the entire American eel population
23 globally, which is from Labrador to North and
24 South America, turbine mortality isn't a huge, big
25 deal for the species. I don't share that

1 conclusion myself.

2 HEARING OFFICER HILTON: Okay, we need to
3 keep the answers short because we had ten minutes
4 for redirect. We're at that point now.

5 MR. MERRILL: Specifically do they make a
6 difference between a distinct population segment
7 and the population as a whole? And I'll direct
8 you specifically to FOMB's Exhibit 29, the second
9 page of that exhibit. Do they make a distinction
10 between a local effect and the population --

11 MR. WATTS: All right, I'm sorry. For the
12 purposes of Maine's water quality standards, it
13 doesn't matter. Water quality -- the standard
14 we're talking about is the Class B water quality
15 standard established by the Legislature for the
16 Kennebec River. It requires that American eels be
17 able to live in their own native habitat. It
18 doesn't say that so long as there's eels somewhere
19 else, it's okay that they're absent from the
20 Kennebec.

21 MR. MERRILL: No other questions. Thank
22 you.

23 HEARING OFFICER HILTON: Nancy Ziegler --
24 actually what we should do probably is wait and do
25 recross first and then the Board or do you have

1 something that's really pressing?

2 MS. ZIEGLER: Well, I could wait, okay, if
3 that's the procedure, sure.

4 HEARING OFFICER HILTON: Any recross?

5 MS. VERVILLE: Yes, just --

6 HEARING OFFICER HILTON: Ten minutes and,
7 Doug, just keep your answers quite brief,
8 succinct.

9 MS. VERVILLE: Mr. Watts, have you ever
10 asked permission to make observations at the
11 Hydro-Kennebec facility?

12 MR. WATTS: No, ma'am.

13 MS. VERVILLE: When you worked for the
14 prior owner of the Hydro-Kennebec facility were
15 you ever prevented from visiting the
16 Hydro-Kennebec facility?

17 MR. WATTS: Bill Fiedler, that's right, I
18 used to work for him. No, at that time I wasn't
19 -- I wasn't aware of this eel problem actually.

20 MS. VERVILLE: When did you work for --

21 MR. WATTS: That would have been back
22 during the nineties. I was cleaning out the
23 fishway at Bond Brook down the street here.

24 HEARING OFFICER HILTON: Can you put your
25 microphone closer?

1 MR. WATTS: Yeah. I cleaned the fishway at
2 Bond Brook for Bill Fiedler at Hydro-Kennebec once
3 a week. He paid me \$10.

4 MS. VERVILLE: One last question and then
5 I'm through. You stated -- I believe you stated
6 that generally there's more mortality of eels at
7 projects with smaller, faster rotating turbines?
8 Did you say that?

9 MR. WATTS: It's my understanding that if
10 you have a larger, slower moving turbine that the
11 degree of mortality could be smaller. Again, I'm
12 -- I'm paraphrasing an awful lot of literature
13 but as a general rule, something that's spinning
14 very, very, very fast, it's going to be harder for
15 a fish to successfully swim through than something
16 that's spinning like this (indicating).

17 MS. VERVILLE: And do you know whether
18 Hydro-Kennebec is a larger, slower turbine?

19 MR. WATTS: Larger and slower.

20 MS. VERVILLE: Thank you.

21 HEARING OFFICER HILTON: Mr. Thaler.

22 MR. THALER: I just had a couple. I'll do
23 it from here if you don't mind. I think I'll talk
24 loudly enough. Mr. Friedman, you were asked by
25 your attorney about your arithmetic calculations

1 going downstream from the Sandy River with 15
2 salmon, do you recall that?

3 MR. FRIEDMAN: I recall that.

4 MR. THALER: And you used the 30 percent
5 figure and then you did your arithmetic. Again,
6 you were assuming when you did that calculation
7 that all of the salmon would be going through the
8 turbines, correct?

9 MR. FRIEDMAN: I'm just using a figure
10 that's given as likely turbine mortality. So some
11 of them are not going through the turbines, no.
12 That's fish passing down. Some are going to pass
13 through turbines, some are not.

14 MR. THALER: So you agree that in order to
15 actually figure out or assess how many salmon
16 would go from the Sandy River downstream through
17 the Kennebec because each facility is different,
18 sluiceways are different, gates are different,
19 size, how much spillage goes on would be
20 different, you'd have to take all that into
21 account to really have a good approximation or
22 calculation ultimately, correct?

23 MR. FRIEDMAN: That's correct.

24 MR. THALER: Mr. Watts, in terms of --

25 MR. FRIEDMAN: Let me just say to have a

1 good number, not an approximation.

2 MR. THALER: A good number, thank you. Mr.
3 Watts, in terms of you mentioned Class B for the
4 Kennebec but, in fact, with the three dams of FPL
5 here, only one of them, Weston, is Class B,
6 correct?

7 MR. WATTS: Actually I'm not positive
8 myself. I'd have to pull out the map and look at
9 the --

10 MR. THALER: The record will indicate
11 there's also Class C stretches of the Kennebec
12 River involved in this proceeding, would you
13 generally agree with that?

14 MR. WATTS: And the standards for what
15 we're talking about are identical.

16 MR. THALER: And that standard that you're
17 talking about is whether in the instance you just
18 mentioned whether eels can live in the river,
19 correct?

20 MR. WATTS: Indigenous aquatic species.
21 It's the narrative water quality standard.

22 MR. THALER: Correct, and the last question
23 or two, looking at that page you pointed the Board
24 to, page 23 of your pre-filed direct, Nate Gray's
25 December 20, 2006 e-mail. Are you there at this

1 point?

2 MR. WATTS: Yes, yup.

3 MR. THALER: A couple portions of it you
4 did not point out. If you look up at the two,
5 four -- roughly fourth line where he's talking
6 about 2004 at Shawmut, and he's saying -- and I'll
7 read it aloud and tell me if I read it correctly
8 -- water conditions, bracket, 2004, bracket,
9 allowed us to deploy the small jet boat at the
10 tailrace launch and poke around for a while. We
11 had an underwater camera set up and we
12 investigated the east turbine out falls and
13 tailrace, slash, pool below and saw no eels. Did
14 I read that correctly?

15 MR. WATTS: Yup.

16 MR. THALER: He also indicated that they
17 went back to the boat ramp, looked at the south,
18 new turbine tailrace, found some adults that had
19 been likely entrained, there were not a lot. Is
20 that what he wrote to you?

21 MR. WATTS: Yup.

22 MR. THALER: Further down about halfway
23 down through the e-mail he talks about we
24 performed four passes, paren, eight one ways, end
25 paren, on different blinds of drift. Do you see

1 that area?

2 MR. WATTS: Yup.

3 MR. THALER: He went on to say different
4 blinds of drift to see what there was to see, and
5 this has to do with Lockwood, and he wrote to you,
6 we saw none, meaning no dead eels, correct?

7 MR. WATTS: Okay, yup.

8 MR. THALER: And he said there were enough
9 velocity --

10 MR. WATTS: Refuges.

11 MR. THALER: Refugia, R-E-F-U-G-I-A. What
12 is that?

13 MR. WATTS: Refugia, it's just the plural
14 for refuge.

15 MR. THALER: Okay, and there were enough
16 velocity refugia that if there were a significant
17 event, I believe we would have seen evidence of
18 entrainment. Did he write that to you?

19 MR. WATTS: Right.

20 MR. THALER: And he did not see any
21 evidence of significant entrainment when he was
22 there that day?

23 MR. WATTS: Right.

24 MR. THALER: Thank you. That's all I have,
25 Mr. Chairman. Thank you.

1 HEARING OFFICER HILTON: Sebasticook, any
2 questions? Mr. Vanden Heuvel, any questions?

3 MR. VANDEN HEUVEL: No.

4 HEARING OFFICER HILTON: Nancy Ziegler.

5 MS. ZIEGLER: Yeah, I want to go back to
6 something I read somewhere in the testimony about
7 the Sebasticook, that there was more observation
8 of eel in the river versus the Kennebec, and this
9 concept of the species in their habitat. The
10 basis for that in the Kennebec is it from an
11 historical record? I mean, I'm a little confused
12 by this because it seems to be that we really
13 don't know.

14 MR. WATTS: What? What don't we know?

15 MS. ZIEGLER: We don't know whether
16 American eel really used the upper reaches of the
17 Kennebec.

18 MR. WATTS: They're up there now.

19 MS. ZIEGLER: I understand but they're not
20 there in the numbers. We're talking about the
21 numbers, and I'm thinking about also the listing
22 by the Interior Department which talk about eel
23 being -- American eel being present in the coastal
24 waters in greater numbers and not going up the
25 reaches of the river, understanding obviously that

1 dams would block them, but I'm just really trying
2 to understand testimony which suggested that the
3 Sebasticook was apparently a more conducive
4 environment or something or habitat. There seemed
5 to be more of them there than in the Kennebec.

6 MR. WATTS: There's no evidence showing
7 that and what you're looking at is watershed
8 size. The area from Waterville up to -- the area
9 from Waterville up river on the Kennebec comprises
10 probably over 3,500 square miles of drainage area;
11 whereas the entire drainage area for the
12 Sebasticook is 980 square miles. So just in sheer
13 numbers of -- the sheer amount of water on the
14 Kennebec is four to five times higher than in the
15 Sebasticook. So all things being equal, you would
16 expect that there would be four to five times more
17 eels in the Kennebec than in the Sebasticook.

18 Eels use all types of habitat. There's no
19 scientific reason they would prefer the
20 Sebasticook to other parts of the Kennebec
21 drainage, and I'm not aware of any -- any studies
22 that DMR has done which show that there would be
23 some preferential reason that eels would go up the
24 Sebasticook rather than truck on up the Kennebec.

25 MS. ZIEGLER: Okay. The other thing I'd

1 like to -- I just -- in the listing on page -- and
2 this is in the DMR submission to us, they've
3 attached the Federal Register listing, and on page
4 4992.

5 MR. WATTS: I don't have a copy of that.
6 I've read it but I don't have it in front of me.

7 HEARING OFFICER HILTON: What page is that?

8 MS. ZIEGLER: It's on the DMR submissions
9 to us. It's in a couple places but they have all
10 of it there.

11 MS. ANDERSON: What was the page again,
12 Nancy?

13 MS. ZIEGLER: 4992, and specifically I was
14 struck by this discussion of the cumulative
15 mortality specifically from cumulative impact of
16 multiple hydroelectric projects within a watershed
17 and I was wondering if our particular situation
18 fits that description.

19 MR. WATTS: That's exactly what I showed
20 you with the chart was how you start with X number
21 in Skowhegan and whatever number percentage
22 survival you plug in, because you're dealing with
23 four dams, you're going to see a high attrition
24 rate, and it's very -- as we saw, even at 95
25 percent survival at each dam, you're still losing

1 a fifth of the animals just because they have to
2 go over -- they're getting hit four times.

3 MS. ZIEGLER: Right, and I should have read
4 the whole sentence. It says -- and it's on the
5 first full paragraph in 4992 in the middle -- it
6 says the cumulative impact of multiple
7 hydroelectric projects within a watershed as
8 simulated by McCleave, 2001 B, page 602 indicates
9 substantial decrease in overall eel reproductive
10 contribution from a watershed even when survival
11 rates of eel passage were high through each
12 successive turbine or dam project.

13 MR. WATTS: That is exactly what I was
14 trying to illustrate with the chart.

15 HEARING OFFICER HILTON: Okay, we need to
16 close and break for lunch. We're 20 minutes
17 behind schedule. We're going to break until
18 quarter after I think. Is 25 minutes, 1:00,
19 acceptable?

20 (LUNCH RECESS)

21 HEARING OFFICER HILTON: Okay, the Board is
22 ready. Joanne, are you ready?

23 MR. THALER: Thank you.

24 MR. WILEY: Mr. Hilton, other members of

25 the Board, my name is Al Wiley. I am vice

1 president for FPL Energy Maine Hydro, LLC, and for
2 Kennebec-Hydro Resources, Inc. FPLE is the owner
3 of the Shawmut and Weston Projects and is a 50
4 percent owner of the Lockwood Project through its
5 subsidiary of KHR. I've worked for 24 years with
6 CMP and with FPLE. I've been very involved with
7 these and other hydro projects throughout the
8 state. I was also involved on behalf of CMP and
9 the other hydro developers in negotiating the 1998
10 KHDG Agreement. As you know, my testimony
11 basically summarizes the role of the various state
12 and federal agencies on fish passage issues, on
13 hydro licensing issues and I also provided
14 testimony in regards to the Settlement Accord and
15 the 1998 KHDG Agreement that led to the removal of
16 Edwards dam and the various conditions that are
17 embedded in the water quality certifications and
18 the FERC licenses for the projects that we're
19 discussing about here today.

20 To my right is Bob Richter. Bob is a
21 fisheries specialist for FPL Energy. He's been
22 working on issues, whether it be these projects or
23 other hydro projects, for some 24 years. He also
24 participated in the negotiations of the KHDG
25 Agreement on behalf of CMP and the other hydro

1 developers. Bob has provided testimony in regards
2 to the implementation measures that FPLE and
3 Merimil have installed at the Lockwood, Shawmut
4 and Weston Projects. He's kind of our eyes and
5 ears. He manages our fish passage operations
6 studies and things of that nature on the Kennebec
7 so he's, again, our eyes and ears on the river.
8 His office actually sits in the Lockwood
9 powerhouse overlooking the tailrace of Lockwood.

10 To Bob's right is Brandon Kulik. Brandon is
11 a fisheries scientist from Klein-Schmidt
12 Associates up in Pittsfield. He's our senior
13 person on this team. He's had 28 years' worth of
14 fishery biology experience. He's done a number of
15 studies on the Kennebec itself and he has provided
16 testimony regarding upstream and downstream
17 anadromous fish and he likewise has provided
18 testimony as it pertains to the listing of
19 Atlantic salmon.

20 Finally, to my left is Scott Ault. Scott
21 is the vice president and senior fisheries
22 biologist for Klein-Schmidt Associates. He works
23 out of Pennsylvania. He's got 24 years of fishery
24 biology experience, and he has specialized some of
25 his work on American eel for the past 13 years,

1 and his testimony is provided dealing specifically
2 with downstream eel passage and, likewise, he's
3 provided testimony as it pertains to the petition
4 to list the American eel as a threatened or
5 endangered species.

6 Again, in summary, I think Dana had pointed
7 this out and Mr. Watts had as well, if you look on
8 the map, the projects we're talking about as you
9 come up the Kennebec, again, are Lockwood, Shawmut
10 and Weston, as far as we're concerned, and then
11 Hydro-Kennebec's Project is in between Lockwood
12 and Shawmut. You can see as you go off to the
13 right here that's the Sebasticook River. You've
14 heard discussions in regards to Benton Falls and
15 Burnhan and Fort Halifax. Those are the projects
16 on the Sebasticook River, not the Kennebec River.
17 They also are part of the KHDG Agreement for those
18 facilities as well.

19 The summary of our testimony is that the
20 petitions should be dismissed for a number of
21 reasons; first and foremost, that FERC is actually
22 the proper forum for this proceeding, not the BEP;
23 that petitioners have not met their burden of
24 proof, that the statutory requirements for
25 modification for the water quality certificates

1 they haven't met for the variety of reasons listed
2 below that the projects do not pose a threat to
3 human health or the environment, that there's been
4 no change in circumstance or condition that
5 requires modification to the water quality
6 certifications, that the water quality
7 certifications for the subject projects did not
8 omit any standard or limitation legally required
9 on the date on which they were issued, and finally
10 that we have not violated any law administered by
11 the Department or any condition of the water
12 quality certifications.

13 As I mentioned before, we take the position
14 that FERC, not the BEP, is the proper forum to
15 challenge the fish passage concerns raised by the
16 petitioners. As I think Mr. Watts pointed out
17 earlier, when a FERC license is issued, FERC is
18 responsible and obligated to incorporate
19 applicable terms and conditions of a water quality
20 certification in the license. FERC is the actual
21 entity that administers a license, and they're the
22 ones who are responsible for enforcing the terms
23 and conditions of a license.

24 MR. NICHOLAS: Excuse me, I object to this
25 because it's legal argument and it also happens to

1 be incorrect. I could cross-examine him on it but
2 we're getting into an area that seems to be a
3 legal one and now, unfortunately, we're going to
4 have to address that, but I raise that concern.

5 HEARING OFFICER HILTON: Yeah, Mr. Wiley,
6 if you could sort of distance yourself a little
7 bit from those discussions. I think that there's
8 going to be plenty of opportunity in the briefing
9 process to address the appropriateness of this as
10 a forum.

11 MR. WILEY: Thank you. If we can go back
12 to that one slide for a moment, the licenses, the
13 water quality certs, both incorporate the terms
14 and conditions of the KHDG Agreement in regards to
15 the applicable requirements for fish passage and
16 specifically included in the KHDG Agreement is
17 that if there are any disputes, those disputes are
18 to be handled through the FERC process.

19 Some of this gets back into the whole issue
20 of reopeners and whether or not the ability of the
21 Board to deal with circumstances if there are no
22 reopener provisions in the water quality
23 certification. The fact of the matter is here
24 that there are no reopener provisions. As opposed
25 to getting into the legality, the point being made

1 that there are no reopener provisions.

2 MR. NICHOLAS: Again, we disagree with that
3 as well.

4 HEARING OFFICER HILTON: Yeah, we need to
5 kind of move on. There's plenty of factual
6 territory here regarding the eels and presence of
7 them.

8 MR. WILEY: And we will get to those.

9 HEARING OFFICER HILTON: Okay.

10 MR. THALER: Let me just make a point
11 again. We did not get your order until yesterday
12 afternoon. There had been no motion pending so we
13 prepared our presentation today based on what we
14 knew up until mid afternoon yesterday.

15 HEARING OFFICER HILTON: I certainly
16 understand and your point is well taken, Mr.
17 Thaler, and I'm sure that Sarah will make the same
18 point.

19 MR. WILEY: In regards to the KHDG
20 Agreement and the Settlement Accord, these were
21 agreements that were entered into voluntarily by
22 CMP at the time and now FPLE is responsible for
23 the terms and conditions of those, and they were
24 done so in the spirit of cooperation. As you
25 know, in our testimony there was a great deal of

1 dispute in regards to the Edwards dam and fish
2 passage there that ultimately had implications on
3 the balance of the river, and as a result of that
4 agreement and our participation in that agreement,
5 we've been able to establish the fish passage
6 mechanisms that are appropriate for the various
7 facilities in a rational, sequential and
8 scientific manner. Again, we have highlighted in
9 our testimony in part 2 of our testimony, at pages
10 9 through 10 there's a list of a number of things,
11 15 items that we've listed in there in regards to
12 the benefits that have been derived as a result of
13 this agreement and our participation in them.

14 One provision that we have discussed in our
15 testimony is that in coming to the agreement with
16 the various parties, there were certain provisions
17 that were incorporated into the agreement that are
18 at least important for the Board to understand.

19 MR. NICHOLAS: We object to this as well
20 because now we're getting into the legal
21 significance.

22 MR. WILEY: I'm discussing the KHDG
23 Agreement.

24 MR. NICHOLAS: This is all legal.

25 MR. THALER: All witnesses went into KHDG

1 Agreement this morning. So I can't -- we had a
2 ruling that that was appropriate.

3 HEARING OFFICER HILTON: I'm going to allow
4 the point because I think we need to -- certainly
5 they're able to describe their testimony. I think
6 the points that Mr. Wiley is making right now
7 don't really go to the heart of the legality
8 here. They're tangential and so I'm going to
9 allow it.

10 MR. WILEY: The provisions in the KHDG
11 Agreement provide certain consequences of
12 termination, one of which is that to the extent
13 that any of the parties or if the FERC or DEP
14 altered provisions of the KHDG Agreement in a way
15 that is essential to any party, then that party
16 has the ability to terminate the agreement
17 creating it null and void. One of the provisions
18 if indeed that does happen is that the state is
19 obligated to refund the contributions made by the
20 dam owners, and in this case there's been a little
21 over four million dollars contributed to date and
22 another \$720,000 worth of contributions that are
23 scheduled from 2007 to 2010 that would not take
24 place, and perhaps more important, frankly, in the
25 whole scheme of things is that we, along with

1 other parties, entered into this agreement in an
2 effort to try to put fish passage issues behind us
3 in terms of litigation that have been going on,
4 and like any other agreement the Board has been
5 familiar with in the past that have been dealt
6 with, whether it be the KHDG Agreement, Indian
7 Pond Settlement Agreement, there's a whole host of
8 things that have been negotiated over the years by
9 hydro developers and fishery agencies, NGOs and so
10 forth, part and parcel of why people do that is to
11 enter into agreements so there's some level of
12 certainty in terms of where things are going on
13 all parties' expectations, and to the degree that
14 agreements like this get changed after the fact,
15 then that can have a chilling effect on the
16 interest of parties to go forward with such
17 agreements in the future. With that, I will turn
18 it over to Mr. Richter who can get into the
19 nonlegal questions and answers in regards to his
20 testimony.

21 HEARING OFFICER HILTON: Thank you, Mr.
22 Wiley. Mr. Richter, welcome.

23 MR. RICHTER: Yes, thank you. Hello, my
24 name is Bob Richter and the following is a summary
25 of my testimony. Current fish passage measures at

1 our hydro projects are adequate and consistent
2 with the KHDG Agreement and the water quality
3 certifications. I spent a considerable amount of
4 time at the Kennebec River Projects and as Al has
5 said, my office is located right at the Lockwood
6 dam overlooking the Lockwood tailrace, and there
7 is no evidence of significant fish kills at the
8 Lockwood, Shawmut or Weston Projects. Upstream
9 anadromous fish passage at the Kennebec River
10 projects is provided via the agencies' trap and
11 truck program from the Lockwood fish lift. There
12 are a number of existing downstream passages for
13 eels and anadromous fish at the Kennebec River
14 Projects and these include gates, spillways and
15 turbine passage.

16 We're going to be planning some additional
17 anadromous fish passage studies at Lockwood from
18 2007 to 2009. We're also going to be doing some
19 additional downstream eel passage studies at
20 Lockwood, Shawmut and Weston from 2007 through
21 2008 and you probably heard it described a little
22 bit. These studies are going to consist of
23 basically putting radio tags in fish and following
24 their movements around the dams, and when we do
25 these studies, if they demonstrate that the fish

1 are not passing the projects effectively, the
2 existing passage routes, we'll consult with the
3 resource agencies and implement new passage
4 measures or modify existing measures, and this is
5 similar to what we've done at some of our other
6 projects in Maine. And with that, I'd like to
7 turn it over to Brandon Kulik.

8 MR. KULIK: Good afternoon. I'm Brandon
9 Kulik, and my testimony pertains to anadromous
10 fish passage at the three FPLE sites. It's my
11 opinion that these hydro projects do not pose a
12 threat to the environment and human health because
13 they currently do provide fish passage. Each of
14 these sites is equipped with sluices and gates
15 that are specifically opened and maintained to
16 pass fish during the downstream fish passage
17 season as Mr. Richter's testimony has indicated,
18 and this is a fairly conventional way of passing
19 fish that's been employed at any number of other
20 hydroelectric sites both in Maine and throughout
21 the Northeast to pass the same species during the
22 same times of the year. So from that standpoint,
23 this is fairly conventional. Furthermore, these
24 sites are inspected routinely, cleaned of debris,
25 observed for problems and those are addressed

1 through routine observation and maintenance. The
2 tailraces are also routinely observed for evidence
3 of fish entrainment and mortality, both by FPLE
4 and also by the Maine Department of Marine
5 Resources and even though this is a programmatic
6 method, very little in the way of the types of
7 massive fish kills that the petitioners have
8 indicated are happening have ever been
9 discovered. Furthermore, FPLE is initiating the
10 very types of studies that we heard about this
11 morning that are needed for the scientists to make
12 the final decisions on whether these current
13 measures are adequate or not. The studies that
14 Mr. Richter just mentioned are, again, very
15 standard, routine types of downstream fish passage
16 migration studies that are routinely performed at
17 almost every hydro site that is FERC licensed
18 where downstream fish passage has to be
19 evaluated. The studies are done in concert with
20 the regulatory and biological agencies that have
21 to review and evaluate the fish passage, the data
22 is used to determine if the existing fish passage
23 is adequate or whether further modifications have
24 to be performed to enhance it further. This is
25 the normal process that is being undertaken at

1 these sites. It is routine in virtually every
2 downstream FERC license fish passage project I've
3 ever been involved in.

4 Further on the subject of changed
5 circumstances, I disagree that there is a change
6 in circumstance pertaining to Atlantic Salmon.
7 The Atlantic salmon in the Kennebec River,
8 although currently it is agreed that they are part
9 of the distinct population segment shared by other
10 Gulf of Maine Atlantic salmon, there is currently
11 no decision on the part of the Department of
12 Interior that includes those salmon that are
13 passing these three hydro sites on the Kennebec to
14 be considered as listed on the Endangered Species
15 Act. It may happen in the future or it may not
16 but currently that is a matter of speculation.
17 Thank you. Scott Ault will now address eel
18 passage.

19 MR. AULT: Good afternoon. My name is
20 Scott Ault, and I'm here today to testify on
21 behalf of FPL specifically on the issue of whether
22 operation of the three FPL projects pose a threat
23 to human health or the environment as it relates
24 to downstream passage of American eel. In
25 addition, I'm here to testify on whether or not

1 there's been a change in circumstances that would
2 warrant revocation of the water quality
3 certificates, again, as it relates to downstream
4 passage of American eel.

5 To summarize my testimony, I'd like to note
6 that systematic surveys of the tailraces show that
7 significant eel mortalities as asserted by the
8 petitioners are not occurring at the projects and,
9 therefore, there's no threat to human health or
10 the environment. My conclusion on this issue is
11 based on conducting similar surveys in other
12 tailraces. Another issue that is included in my
13 written testimony I'd like the Board to remember
14 today is that scientific studies on America eels,
15 European eels and eels from New Zealand and
16 Australia indicate that turbine mortality and
17 downstream behavior -- I'm sorry -- the behavior
18 of downstream migrating eels is very site specific
19 and highly variable. This dictates that
20 implementation of successful downstream passage
21 requires site specific understanding and knowledge
22 of how fish are migrating and react to powerhouse
23 and spillway configurations. To obtain this site
24 specific information and understanding of eel
25 behavior, FPL will conduct effectiveness studies

1 in 2007 and 2008 to determine whether additional
2 passage measures are needed at the three projects,
3 and this work will be conducted in conjunction
4 with the Maine Resource Agencies.

5 And, finally, I'd like the Board to note that
6 the greater weight of the current scientific
7 evidence indicates that there has been no change
8 in circumstances that would require modification
9 of the certificates or the FERC licenses. This
10 has been underscored and emphasized by the recent
11 U.S. Fish and Wildlife decision not to list the
12 American eel as a threatened and endangered
13 species and that this species, in fact, remains
14 widely distributed and abundant throughout its
15 natural range.

16 I'm going to turn the microphone back over to
17 Al now.

18 HEARING OFFICER HILTON: Mr. Ault, you said
19 it was distributed throughout central -- what was
20 your last couple words, your conclusion?

21 MR. AULT: Oh, I'm sorry, they continue to
22 be distributed widely throughout its natural
23 range.

24 HEARING OFFICER HILTON: Oh, natural range,
25 okay.

1 MR. WILEY: As we get to our conclusions
2 and wrap things up, again, our position is that
3 the petitioners' claims are unsupported, that, you
4 know, the concept of requiring immediate, safe and
5 effective upstream and downstream passage as
6 defined by the petitioners, the concept that all
7 dams have to have fishways now as opposed to in
8 sequential order based upon input from the fishery
9 agencies that have the responsibility to manage
10 the fishery resources in this state simply does
11 not comport with any long-standing policy, any law
12 that we're aware of, and, indeed, the Department
13 has made similar points on pages 19 and 22 of
14 their draft order that they are unaware of any
15 requirement that immediate passage has to be
16 required at all facilities and the concept that
17 every single fish that is migrating either
18 upstream or downstream must be able to pass and to
19 pass without mortality or injury is a standard
20 that, again, we were not aware of that is written
21 anywhere in the laws, it is not incorporated in
22 any certificates that we're aware of such that
23 that standard could effectively be implemented.

24 Again, in conclusion, we believe FERC is the
25 proper place for this venue. We believe that the

1 petitioners have not met their burden of proof,
2 again, the burden of proof being does the
3 operation of the projects as certified when the
4 certificates were written, do they cause or pose a
5 threat to human health or the environment. We do
6 not believe that that requirement has been met.
7 There has not been any change in condition or
8 circumstance that would warrant modification to
9 the certificates. The projects when they were
10 certified and the certificates did not omit any
11 standard or limitation that was legally required
12 at the time of their issuance, and, finally, that
13 we have not violated any law administered by the
14 DEP or any condition of the certificates as they
15 exist today. Thank you.

16 HEARING OFFICER HILTON: Thank you, Mr.

17 Wiley. We have cross-examination by Friends and
18 Mr. Watts. Mr. Watts and Friends, how are you
19 going to proceed?

20 MR. NICHOLAS: I think we would actually
21 just --

22 MR. FRIEDMAN: Doug can go ahead. MR.
23 NICHOLAS: Doug will proceed first and then if
24 there's anything remaining --

25 HEARING OFFICER HILTON: Okay. Now, as I

1 understand it, there's been an allocation of 45
2 minutes for cross by your table, by the two of
3 you.

4 MR. FRIEDMAN: Yup.

5 HEARING OFFICER HILTON: Mr. Watts, you're
6 going to conduct the actual cross-examination?

7 MR. WATTS: I just have a couple questions,
8 sir.

9 HEARING OFFICER HILTON: Is there any
10 likelihood, Dave or Bruce, that you're going to be
11 cross-examining also?

12 MR. NICHOLAS: Yes, but I do not anticipate
13 a lengthy cross at all. I think we're going to be
14 moving along very quickly.

15 HEARING OFFICER HILTON: Okay.

16 MR. MERRILL: Not on behalf of Doug. It
17 would be Friends of Merrymeeting Bay.

18 HEARING OFFICER HILTON: I see, all right.
19 It's your room, Doug.

20 MR. WATTS: Welcome to Augusta. I live
21 across the river now. Mr. Ault, the Federal
22 Register notice that you cited that stated that
23 Department of Interior didn't feel that American
24 eel needed to be listed under the Endangered
25 Species Act, to your knowledge, was that document

1 peer reviewed?

2 MR. AULT: The process by which that
3 document was established and written came about
4 through an extensive peer review and input by
5 scientists throughout North America. I do not
6 know whether the document in its draft form was
7 peer reviewed before it went out.

8 MR. WATTS: For everyone here, could you
9 explain the difference between that document and a
10 paper that would be published in a formal refereed
11 scientific journal?

12 MR. AULT: A paper that would be published
13 in a formal refereed journal, the journal would be
14 put out for review to anonymous reviewers, usually
15 three, sometimes five, they submit their comments
16 and then an author responds to those comments and
17 resubmits the manuscript for review again by the
18 editor of that journal usually, and if the
19 comments have been addressed and the editor finds
20 that those comments are addressed appropriately
21 and there's no analyses conducted or whatever the
22 commenters wanted, then the article is accepted
23 for publication.

24 MR. WATTS: Are you aware if that process
25 occurred with this Federal Register document, that

1 it went out to anonymous reviewers?

2 MR. AULT: I am not aware.

3 MR. WATTS: Thank you.

4 HEARING OFFICER HILTON: Is that the extent
5 of your questioning, Mr. Watts?

6 MR. WATTS: Yup.

7 HEARING OFFICER HILTON: Mr. Watts?

8 MR. WATTS: Yup.

9 MR. NICHOLAS: Ed actually is going to ask
10 his own question. At the end when we recross, I
11 guess Bruce and I would like the opportunity to
12 possibly ask some questions but he has a question
13 and I think he might as well just ask it himself
14 at this point.

15 MR. FRIEDMAN: I've just got one or two.

16 HEARING OFFICER HILTON: If you could move
17 the microphone over for Ed.

18 MR. FRIEDMAN: Thank you. Question for Mr.
19 Richter. Do you have a copy of my rebuttal handy
20 or not?

21 MR. RICHTER: Yes. I do.

22 MR. FRIEDMAN: At page 9, number 15. I can
23 give you mine.

24 MR. RICHTER: We have it.

25 MR. FRIEDMAN: You did acknowledge that

1 turbine passage was a legitimate form of passage
2 for you now, and if you would just read between
3 the brackets there, the excerpt from the KHDG
4 Agreement about that, please.

5 MR. RICHTER: Yup, in the event that adult
6 shad and/or adult Atlantic salmon begin to inhibit
7 the impoundment above the Lockwood Project and to
8 the extent the licensee desires to achieve interim
9 downstream passage of out migrating adult salmon
10 and/or shad by means of passage through turbines,
11 licensee must first demonstrate through site
12 specific quantitative studies designed and
13 conducted in consultation --

14 MS. ANDERSON: Can you speak more into the
15 microphone? It's really hard to hear you.

16 MR. RICHTER: I'm sorry, I'm sorry. In
17 consultation with the resource agencies that
18 passage through the turbines will not result in
19 significant injury and/or mortality immediate or
20 delayed.

21 MR. FRIEDMAN: So I think we established
22 before that there are adult salmon above these
23 dams due to the transplant?

24 MR. RICHTER: Yeah, that's correct.
25 There's 15.

1 MR. FRIEDMAN: So that, in fact --

2 MR. RICHTER: As of 2006 was the first
3 year.

4 MR. FRIEDMAN: So we are -- they're up
5 there in apparent violation of the agreement
6 because to my knowledge those site specific
7 quantitative studies have not occurred. You
8 talked about them occurring in the near future?

9 MR. RICHTER: That's correct. The salmon
10 were put up there last year for the first year.
11 We've opened up downstream bypasses to let those
12 salmon migrate past the project plus the spill we
13 have and this year we're going to be conducting
14 studies at the Lockwood project to evaluate
15 downstream passage for the salmon kelts, salmon
16 smolts, the American shad, alewives and eels.

17 MR. FRIEDMAN: Thank you, and a question
18 for Mr. Ault I guess. You mentioned that eels
19 still have a wide distribution?

20 MR. AULT: Yes, I did.

21 MR. FRIEDMAN: And you know I'm sure that
22 the eels tend to radiate out from as far as what
23 we know are the spawning grounds, breeding
24 grounds, Sargasso, right?

25 MR. AULT: Correct.

1 MR. FRIEDMAN: Is it fair to think of that
2 as sort of a radius out there, obviously not
3 regular but getting up to Greenland and going down
4 to South America?

5 MR. AULT: Correct, as well as European
6 eels.

7 MR. FRIEDMAN: So a wide distribution does
8 not necessarily mean in any great number as, for
9 example, we know the eel fishery dropped out of
10 the bottom on the St. Lawrence relatively
11 recently. You could have eels up there but not in
12 great quantities, correct?

13 MR. AULT: That's correct.

14 MR. FRIEDMAN: Okay. So I just want to be
15 clear about that with the Board that just because
16 they're there, it doesn't mean they're in
17 substantial quantities and, in fact, as that
18 radius is shrinking back, as the eel population
19 does decline, whoever drifts up there may, in
20 fact, drift up there but not in adequate numbers
21 and, again, we've seen that on the St. Lawrence.
22 I like to make the analogy of a --

23 MR. THALER: Mr. Chairman --

24 HEARING OFFICER HILTON: Mr. Friedman, a
25 couple problems here. First is that you're going

1 way too fast, and the second is that you're making
2 a speech not asking questions.

3 MR. FRIEDMAN: Okay.

4 HEARING OFFICER HILTON: And Mr. Thaler may
5 have another.

6 MR. THALER: I think his testimony was
7 supposed to have been completed this morning. I
8 don't think he can re-testify.

9 HEARING OFFICER HILTON: Experienced
10 attorneys have ways of kind of couching speeches
11 into questions. You need to go to law school for
12 that, but because you're a layperson I might give
13 you a little bit more latitude but that was a
14 little bit over the edge.

15 MR. FRIEDMAN: I'm sorry. The point was
16 made that distribution does not equate to
17 numbers.

18 HEARING OFFICER HILTON: Okay.

19 MR. AULT: Do you have a question to me
20 relative to abundance?

21 MR. FRIEDMAN: I think I'm all set.

22 MR. AULT: Okay, thank you.

23 HEARING OFFICER HILTON: So there was no
24 question then?

25 MR. NICHOLAS: We're all set.

1 HEARING OFFICER HILTON: Anything further,
2 Mr. Friedman? I really don't mean to shut you off
3 at all. Please proceed.

4 MR. FRIEDMAN: I think those were my two
5 points.

6 MR. NICHOLAS: We have no other questions.

7 HEARING OFFICER HILTON: No other
8 questions? Save Our Sebasticook, Jeff or Jane?
9 Do you have any questions through
10 cross-examination? Oh, I'm sorry, Sarah Verville,
11 I think that you may have been next in line before
12 Save Our Sebasticook. Do you want to do your
13 cross-examination right now or do you want to wait
14 until after Save Our Sebasticook?

15 MS. VERVILLE: I'd like to wait.

16 HEARING OFFICER HILTON: Jeff, do you have
17 any questions on cross-examination?

18 MR. VANDEN HEUVEL: Yes, I do. Accuracy,
19 efficiency of mortality studies seems to question
20 methodology. Do you have any plans for changes in
21 your mortality studies?

22 MR. WILEY: Who is that question directed
23 to?

24 MR. VANDEN HEUVEL: You.

25 MR. WILEY: I'll let Mr. Richter answer

1 that seeing that he's our study guy.

2 MR. RICHTER: Hello, Jeff. Yeah, the
3 studies that we're going to do in -- the studies
4 that we're going to do this year basically are
5 going to have -- they are going to be
6 radiotelemetry studies but they're going to have a
7 large sample size of up to 50 fish, they're going
8 to actually be more sophisticated than the ones
9 that were done in 2002. We're using different
10 radio tags that have mortality sensors on them
11 that you can detect if an eel passes the project
12 if there was a mortality. We're going to be doing
13 a lot more mobile surveys after the eels pass the
14 project. So the study that we're going to do this
15 year is going to be much better, much more
16 comprehensive and get the results that we need to
17 make a decision on what's happening at that
18 project.

19 MR. VANDEN HEUVEL: Mr. Ault or Mr. Kulik,
20 could you make an estimate of overall mortality,
21 delayed mortality and mortality by size ratio,
22 since I haven't heard any of this information and
23 you appear to be the experts, by dam site?

24 MR. KULIK: I think we have to -- as you
25 heard earlier it's highly variable.

1 MR. VANDEN HEUVEL: I know it's highly
2 variable. That's why I asked for an estimate, a
3 rough estimate.

4 MR. KULIK: It really wouldn't be
5 appropriate to try and give an estimate without
6 having some information from a study first.

7 MR. VANDEN HEUVEL: Would you say five
8 percent?

9 MR. KULIK: I really couldn't say without
10 doing a study.

11 MR. VANDEN HEUVEL: Would you say our
12 studies -- our methodology of our mortality
13 studies is adequate considering that we're dealing
14 in the case of Weston zero, zero and zero in 2004,
15 2005 and 2006?

16 MR. KULIK: I'm not entirely sure what you
17 mean by zero, zero, zero. Could you clarify
18 that?

19 MR. VANDEN HEUVEL: You did studies in
20 2004, 2005 and 2006 as part of tailrace
21 observations per your documents, and in Weston you
22 reported zero eel deaths, zero eel deaths and zero
23 eel deaths.

24 MR. KULIK: Okay.

25 MR. VANDEN HEUVEL: Would you say that the

1 mortality studies in that case the methodology is
2 appropriate?

3 MR. KULIK: I believe what you're referring
4 to is the tailrace monitoring program which is not
5 specifically a study. Monitoring is when you go
6 out and check something on a routine basis. A
7 study is when you have a mathematical design where
8 you're conducting an experiment to test a
9 hypothesis, and I thought that's what you were
10 asking about. Those studies haven't occurred
11 yet. That's what Mr. Richter was just describing,
12 and I'm not directly involved in the tailrace
13 observation monitoring that you're asking about.
14 That question would be better answered by Mr.
15 Richter.

16 MR. VANDEN HEUVEL: Mr. Kulik or Mr.
17 Ault --

18 HEARING OFFICER HILTON: Jeff, did you want
19 an answer to that question? He said that somebody
20 else might be better able to answer the question.

21 MR. VANDEN HEUVEL: If they can answer the
22 question.

23 MR. RICHTER: Yeah, basically, Jeff, the
24 observations include waiting in the tailraces
25 below the projects, Weston, Shawmut and Lockwood.

1 We basically put chest waders on and walk along
2 the shallow areas along the shoreline where we
3 believe eels would be concentrating and flowing
4 out. At Lockwood and Shawmut we have used canoes
5 and underwater cameras to get out and look in some
6 deeper areas, and like we said in our testimony,
7 we cannot search every single square inch of the
8 tailrace due to safety issues with velocity and
9 depth but we are looking in the areas that we can
10 look in at areas where eels have concentrated,
11 especially below Shawmut and Lockwood, but you're
12 right. We have not found any below Weston, and
13 Weston, to be honest, is one of the tougher
14 tailraces to do that type of observation in.

15 MR. VANDEN HEUVEL: Next question, Mr.
16 Kulik or Mr. Ault, do shut downs have to be 12
17 hours? It seems to me that the fish and eel are
18 stockpiling immediately above a dam because of the
19 dam's turbines and to wait for nightfall.
20 Wouldn't even a one- or two-hour shut down be
21 conducive to numbers of migrators going over the
22 dam? Have you ever experienced that?

23 MR. AULT: That, in fact, could be the
24 case. There have been a number of studies that
25 show that the downstream migration of American

1 eel, for example, is very episodic or diurnal in
2 nature; in other words, they move a few hours at
3 dusk and a few hours at dawn and perhaps an hour
4 or two at midnight. So that could, in fact, be
5 the case.

6 MR. VANDEN HEUVEL: Thank you. Mr. Ault,
7 do you think that Kaplan and tube turbines versus
8 the Francis turbine are acceptable from a
9 mortality of adult salmon and adult eel standpoint
10 given the state directive to minimize mortality?

11 MR. AULT: In a general sense downstream
12 migrating American eels are just the opposite of
13 most other fish relative to the extent of turbine
14 mortality that they experience when they pass
15 through a turbine. Most fish experience a higher
16 rate of mortality when they pass through Francis
17 turbines which are shaped differently than Kaplan
18 or tube turbines and they experience a lower rate
19 of mortality when they pass through Kaplan
20 turbines. It's just the opposite for American
21 eels. I'm not sure I answered your question
22 directly so could you restate it, please?

23 MR. VANDEN HEUVEL: Do you think that the
24 Kaplan turbine and the tube turbine are acceptable
25 for mortality of adult salmon and do you think

1 they're acceptable for the mortality of the adult
2 eel given the state directive to minimize
3 mortality?

4 MR. AULT: I don't know because that hasn't
5 been determined yet what the mortality rate of
6 those Kaplan turbines or the tube turbine is at
7 the facility.

8 MR. VANDEN HEUVEL: There isn't literature,
9 studies done elsewhere?

10 MR. AULT: Yes, there are but interestingly
11 enough, there have been studies done throughout
12 Europe and the United States, quite extensive
13 studies, where fish have been tagged with radio
14 transmitters and put through turbines. There's
15 also another technique called the Hiezie turbine
16 tag -- it's named after a gentleman whose last
17 name is Hiezie -- where they attach a deflated
18 balloon to fish of all sizes and shapes, adult
19 American eels, it's been conducted on adult
20 American eels at a number of facilities. They
21 introduce the fish through the turbine and once
22 the fish goes through the turbine, the balloon
23 inflates on the other side and biologists and
24 technicians recover the fish and examine them for
25 mortality and they hold them for delayed

1 mortality. Relative to the results of turbine
2 mortality studies throughout the world they're
3 extremely variable and there's often a lot of
4 surprises in the data set when you look at it.
5 You would expect that -- and I believe it was
6 testified this morning by Mr. Watts that in
7 general large, slow rotating turbines impact
8 mortality at a lower rate than fast spinning
9 smaller turbines which is true. When you look at
10 the eel data set from across the world, there are
11 a number of surprises in there. For example, a
12 small, relatively fast rotating turbine on the
13 Shenandoah River had a mortality rate of only 9
14 percent versus turbines on the St. Lawrence River
15 had a mortality rate of 25 percent. You expect
16 just the opposite. It's one of the complicating
17 factors with studying American eel right now is
18 that the data set that's available is very
19 variable and it's not as robust in terms of sheer
20 numbers of studies as many other fish like salmon
21 or shad that migrate both up and down our
22 tributaries.

23 MR. VANDEN HEUVEL: Thank you. In 2004,
24 2005 and 2006 as part of tailrace observations and
25 even though you can't get an exact count, there

1 were at Lockwood five deaths, one death and zero
2 eel deaths, at Weston zero, zero, zero, and at
3 Shawmut 15, 27, and 38 eel deaths. There are six
4 Francis and two tube turbines at Shawmut. What is
5 causing the majority of mortality of adult eels at
6 Shawmut in your opinion?

7 MR. RICHTER: Most of the eels that we have
8 located below Shawmut have been just below the
9 number 7 and 8 units which are the tube turbines.
10 We have not -- there's been a very, very small
11 percentage of eels that we found below Shawmut
12 that have been below --

13 MS. ZIEGLER: I'm sorry, I can't hear you.
14 Could you start over again, please?

15 MR. RICHTER: I'm sorry. The vast majority
16 of the eels that we found below Shawmut have been
17 just below the tailrace for the number 7 and 8
18 units which are the tube units. We have found a
19 very small percentage below the 1 through 6 units
20 which are the Francis units.

21 MR. VANDEN HEUVEL: Thank you. Mr. Kulik,
22 you said overall survival studies going through
23 turbines, are there studies on survival rate of
24 adult female eels and adult salmon going through
25 turbines or any studies based upon size for the

1 various turbines?

2 MR. KULIK: I'll let Mr. Ault discuss the
3 question in terms of eels if that's okay.

4 MR. VANDEN HEUVEL: Sure, because I think
5 we're most interested in adult salmon and adult
6 eels which are greater than 15 inches.

7 MR. KULIK: Yes, there have been quite a
8 number of studies. Mr. Ault described some of the
9 methods, in fact, of doing these studies
10 particularly with inducing fish in an experimental
11 mode, feeding them through a turbine, recollecting
12 them at the other end and observing their
13 survival.

14 MS. ANDERSON: Talk into the microphone,
15 please.

16 MR. KULIK: Yup. The short answer is, yes,
17 there have been some studies on adult fish. The
18 answer is, yes, there have been some studies of
19 adult anadromous fish as well.

20 MR. VANDEN HEUVEL: The real question is
21 can you put any numbers on that as far as
22 efficiency going through turbines of adults?

23 MR. AULT: Most of the -- in fact, all of
24 the studies that have been done on turbine passage
25 mortality of eels have, in fact, been done on

1 adults, whether they're done in Europe or in New
2 Zealand or in the United States from the simple
3 fact that adults are the ones that are out
4 migrating so all the data that is available for
5 American eel or European eel are on adults and
6 that data is highly variable and ranges from six
7 percent to a hundred percent depending on where
8 the turbine -- excuse me, depending on where the
9 study was done, the turbine type, the rotational
10 speed. There's even studies done on an identical
11 turbine that have conflicting results by as much
12 as 40 percent.

13 MR. VANDEN HEUVEL: So that when you say
14 that studies have even shown to be as good as 95
15 percent efficiency, that 5 percent of the adults
16 are dying?

17 MR. AULT: I believe that's what Mr. Watts
18 testified this morning, yes.

19 MR. VANDEN HEUVEL: You said it earlier in
20 question number one or two that one of the
21 turbines even when it was running really well it
22 was 95 percent efficient, which then tells me that
23 we're going downhill from there but that was a
24 comment.

25 MR. THALER: Let me just object to that

1 last part again. I think he's -- he's not
2 testifying. I'll just move to strike that.

3 HEARING OFFICER HILTON: I'll allow that
4 motion.

5 MR. VANDEN HEUVEL: I agree. One more
6 question. BPA, Hydro-Kennebec felt that only with
7 construction of a downstream fish passage facility
8 could the goal of providing effective downstream
9 passage for adult American eel, Atlantic salmon
10 and American shad be accomplished, and they
11 proceeded to work towards that. If they feel that
12 way, what is different about FPLE and do you plan
13 on doing more?

14 MR. THALER: I'm not sure what he's reading
15 from or whether that was testimony. Can you tell
16 us what you're reading from?

17 MR. VANDEN HEUVEL: I'm reading from a
18 comment that came from the testimony of
19 Hydro-Kennebec and I can't specifically state the
20 page.

21 MR. WILEY: Well, if the question is, is
22 FPLE working towards improving fish passage at its
23 facilities, the answer is absolutely yes. FPL has
24 invested a great deal of time and resources to
25 fish passage not only on the Kennebec but

1 throughout the state. I suspect that there is no
2 other hydroelectric entity in this state that has
3 expended the time and effort that FPL has. We
4 spent over 20 million dollars worth of building
5 fish passage facilities at our facilities
6 throughout the state. We work hand in glove with
7 the fishery agencies day in and day out looking at
8 our facilities, operating in cooperation with them
9 to try to make things better to the extent that
10 they need to be better. So if that's your
11 question, the answer is absolutely yes. It just
12 so happens there is a difference between the FPLE
13 and Merinow project relative to Hydro-Kennebec.
14 One of the reasons why they put in a gate was
15 because they didn't have a gate. We have existing
16 facilities, sluice gates, deep gates, surface
17 gates to pass fish when they are migrating. They
18 happen to have to install a specific gate to allow
19 that to happen. The only other alternative they
20 had were these huge steel gates which are not
21 conducive for passing fish because you use a heck
22 of a lot more water in that circumstance to do
23 so. So if the implication is that FPL Energy has
24 not been doing what it needs to do, I strenuously
25 object to that and, indeed, the best gauge of that

1 are the agencies who have the responsibility to
2 ensure fish passage and manage for fish species
3 throughout this state, and if your question is are
4 we doing enough, I'll give you my biased answer
5 but I suspect you're better off asking the
6 agencies who are obligated to manage the species
7 as to whether or not we're doing our fair share.

8 MR. VANDEN HEUVEL: Thank you, I will do
9 that.

10 HEARING OFFICER HILTON: Are you at an end
11 point, Jeff?

12 MR. VANDEN HEUVEL: Yes, thank you.

13 HEARING OFFICER HILTON: Okay.
14 Hydro-Kennebec, Sarah.

15 MS. VERVILLE: No questions.

16 HEARING OFFICER HILTON: I guess we go to
17 the Board. Nancy Ziegler.

18 MS. ZIEGLER: I guess my question -- I
19 don't know who would answer this, maybe Mr. Ault
20 -- I asked the question of Mr. Friedman and Mr.
21 Watts if they knew anything about the migratory --
22 and I'll try to phrase this a little better -- but
23 the migratory patterns of American eel in the
24 Kennebec watershed because it appears that I
25 believe somebody had said that they may be more

1 plentiful in the Sebasticook River, at least in
2 that portion of it, and I was wondering if you
3 could comment on that.

4 MR. AULT: I believe earlier in the day
5 Exhibit 6 from Friends of Merrymeeting Bay was
6 brought up and that's Dr. Jane McCleave's paper on
7 simulation of impacts at dams, and I point to that
8 now because, interestingly enough, in his
9 discussion he makes some conclusions about that
10 very thing and, in particular, in the Kennebec
11 drainage and some of his conclusions in a nutshell
12 are that there may, in fact, be a difference in
13 the production of large females in their growth
14 rate and the age at which they migrate depending
15 on where they end up or land, if you will, in the
16 drainage, and, in particular, the reason for his
17 paper here at the beginning of it, what he
18 originally wanted to do was estimate the
19 cumulative impacts of turbine mortality and, in
20 fact, when he got into doing his research,
21 background work for the paper, he found out that
22 there's a very variable data set on turbine
23 mortality and there's a real lack of information
24 about how eels are distributed in a watershed in
25 general and what their sex ratio is.

1 MS. ZIEGLER: I'm sorry, could you say that
2 again and slow down, just that last sentence.

3 MR. AULT: I'm sorry, I get on a roll
4 here. At which part would you like me to start
5 over?

6 MS. ZIEGLER: There's a variable data set
7 and there's lack of information about --

8 MR. AULT: Okay. When he did his research
9 or his background work for developing -- in
10 effect, what he did was he developed a simulation
11 model to help predict very similar to what Mr.
12 Watts did this morning if you start with so many
13 fish in the drainage, how many end up into the
14 reproductive population at, so to speak, the end
15 of the day or at the bottom of the river; and when
16 he did his research, he found that the data set on
17 turbine mortality and he looked throughout the
18 literature, world-wide studies, was extremely
19 variable and so he had a hard time putting a
20 number on turbine mortality where he wanted to put
21 a number at each dam so that he could accumulate,
22 if you will, the total mortality as fish pass
23 downstream. The other thing he found was that
24 there is a real lack of information on how eels
25 are distributed in a watershed. There has been a

1 number of studies, particularly in recent years,
2 that indicate that there's a natural decline in
3 the abundance of eels as you move inland from the
4 ocean and in some drainages without dams there's a
5 real significant decline. He also found that
6 there was a real lack of information on the sex
7 ratio, how many males to females there are in a
8 particular drainage, and there is general
9 information that the further inland you go, the
10 more upstream you go, populations become
11 predominantly female, but all that said, the model
12 that he wanted to build, he couldn't quite build
13 it the way he wanted so he turned it into an
14 adaptive tool, if you will, to learn what's the
15 best management to do for American eel and one of
16 the things he found was that in the Kennebec
17 River, the Sebesticook drainage in particular has
18 a lot of lakes and it produces bigger fish and
19 fish with more eggs and he was speculating in his
20 paper that it was because of the existence of
21 these lakes that are relatively low in the
22 watershed that resulted in bigger females and
23 females with more eggs.

24 MS. ZIEGLER: Thank you.

25 HEARING OFFICER HILTON: Anyone else?

1 Elizabeth.

2 MS. EHRENFELD: I guess I'll start my
3 questions with Mr. Richter. You said that there's
4 going to be a study in 2007, the telemetry
5 studies, and you'll be having as many as 50 fish
6 in your sample. What's the lower limit?

7 MR. RICHTER: Well, I believe in the study
8 plan the range was 30 to 50.

9 MS. EHRENFELD: So that would be
10 significantly more than really the data set of
11 five that we've seen so far?

12 RICHTER: Exactly.

13 MS. EHRENFELD: I had another question
14 along that level that I think is for you or Mr.
15 Kulik. There was a statement made that there are
16 a number of FERC projects that have been licensed
17 and actually looking through one of the documents
18 here, it's over 1,500 FERC licensed dams in the
19 U.S., and that they all have to have studies done
20 for the mortality, and it's -- I'm trying to grasp
21 the fact that we're looking at a data set of five
22 fish and trying to get a better idea of what the
23 data would be for mortality for fish passing
24 dams.

25 MR. KULIK: Let me start with that -- of

1 the 1,500 or so FERC licensed projects, not all of
2 them are on rivers with anadromous fish passage
3 issues. The majority of them are perhaps in the
4 Midwest or other places where there aren't these
5 types of migratory populations. So the subset of
6 those that are pertinent to what we're talking
7 about here that have had a wealth of studies done
8 on them already are primarily scattered throughout
9 New England and the Mid Atlantic states and to a
10 lesser degree some of the Southeastern coastal
11 states like South Carolina and places like that.
12 So there is literature available from studies that
13 have been done there as well as also on the West
14 Coast, for example, on the Columbia River. Of
15 course, those dams are much, much larger in scale
16 and height and everything that you can think of to
17 the -- the dams that we have here in Maine are
18 tiny by comparison so although studies have been
19 done out there as well, you know, it's a different
20 system, different types of migratory fish patterns
21 there as well. I'm not sure if that answers your
22 entire question or not.

23 MS. EHRENFELD: Yeah, I'm trying to get a
24 better hold. I've heard numbers between -- the
25 lowest level being 6 percent mortality and the

1 highest being a hundred percent and trying to
2 grasp -- get a little better feeling for what's
3 going on. I understand it's highly variable but
4 that's a pretty big range.

5 MR. KULIK: It is, and it's partly because
6 of the physical variability of these sites to some
7 extent. Studies of this type have been primarily
8 going on over the last 20 years and over time some
9 of the methods have evolved and gotten more
10 sophisticated and different things have been
11 learned along the way. Recently the Department of
12 Energy, this was in the very late 1990s, embarked
13 on a program to analyze the data that has been
14 accumulated by all these independent studies that
15 have been done by all individuals in the East and
16 the West and all over the place, compiled them,
17 sorted through them, pulled out kind of the cream
18 of the crop. The objective the Department of
19 Energy was interested in for their purposes was
20 building a mathematical model of what a
21 hypothetical fish-friendly turbine would look
22 like; in other words, they sorted the study data
23 by species and fish size, all the things you were
24 asking about, and then compared them to the
25 physical characteristics of the turbines and then

1 ran a lot of statistics to say, okay, of those
2 turbines that had very high fish survival, what
3 characteristics did they have in terms of head, in
4 terms of number of blades, rotational speed, size,
5 some of the things that Mr. Watts even mentioned
6 earlier today went into that formula. The idea
7 would be that out the other end would pop a family
8 of characteristics that one could then use in an
9 engineering design to actually build a better
10 turbine so that those fish that do happen to go
11 through turbines would be at less risk, and so
12 there is a very large database that allows you to
13 look at these characteristics. The dams -- for
14 example, these dams are primarily what would be
15 considered low head sites. Most of them are 30
16 feet or lower. If you look at the range of data
17 that's in the Department of Energy database, they
18 looked at dams as high as 300 feet high and many
19 of the Western dams, of course, fall into that
20 characteristic, and they looked at Francis
21 turbines and propeller turbines and tube turbines
22 which all have different ways of passing fish
23 through the conduits. A Francis unit is, if you
24 can picture, kind of like a revolving door at a
25 bank or an airport. The passage -- the way the

1 fish would pass through that is if you're carrying
2 your luggage into the airport and the doors are
3 rotating and you fit between the doors, so if the
4 unit is running slow, it has relatively few doors,
5 it's pretty easy to pass in, but if there's a lot
6 of doors and they're closer together and spinning
7 faster, the probability of safely making it into
8 that little pocket becomes lower, and so these are
9 some of the characteristics that come out of
10 that. Fish size obviously plays into that as
11 well. Head, the amount of drop between the
12 impoundment and the tail water factors into this
13 particularly with Francis units and lower head
14 sites typically end up for engineering reasons
15 being turbines that rotate relatively slowly and
16 have wider blades characteristically to, say, a
17 site of 150-foot high head. So the probabilities
18 of a safe passage for a fish in a low head turbine
19 of that type is very much higher than it is at a
20 high head site with close clearances that's
21 rotating around. So the body of literature which
22 is based ultimately on all these various
23 independently-conducted empirical studies shows
24 that at least for anadromous fish, sites with low
25 head of those types of turbines typically you

1 would expect to have a mortality rate of give or
2 take about 10 percent.

3 MS. EHRENFELD: Okay, and then I guess that
4 leads me to my next question where I guess this
5 affects Mr. Richter's testimony, there was a
6 statement that there is no evidence of significant
7 fish kills at Lockwood, Shawmut and Weston, and
8 having been more -- my background is more
9 designing experiments and the big thing you're
10 always looking for is what is your level of
11 sensitivity so I'm trying to understand -- this is
12 a question I asked Mr. Watts as well -- how are
13 you measuring that and what is your level of
14 sensitivity? How -- what percentage of the fish
15 -- I guess what's the sensitivity of the testing?

16 MR. RICHTER: Yeah, basically we're out
17 there -- it's in my testimony -- we're out there
18 looking and wading in areas -- shallow areas that
19 we can get to safely and we're trying to collect
20 the eels that we find in those areas. We can't
21 hit all the areas in the tailrace and basically
22 the numbers that we're collecting are what we're
23 actually picking up in those areas and the numbers
24 have been low.

25 MS. EHRENFELD: Can you estimate that

1 you're collecting 10 percent of the fish that have
2 died, 1 percent, .1 percent?

3 MR. RICHTER: I think it would be really
4 tough to say that because, again, we can't look at
5 every single area of the tailrace but we are
6 looking in areas where the eels have tended to
7 congregate after they go through, but I couldn't
8 speculate on what percentage of that number that
9 we're finding is what's coming down past the
10 project.

11 MS. EHRENFELD: And, I mean, I'm also
12 trying to grasp the idea that hopefully there's
13 thousands -- at some point there will be thousands
14 of fish or at least hundreds coming through and
15 we're again looking at these five eels and trying
16 to understand if you were down there collecting
17 the eels -- and this is a question I had for Mr.
18 Watts as well -- that I'm not experienced in
19 fishery sciences but I've gone out and seen the
20 guys collecting eels on the way up. It seems as
21 though you could take a small sample of what's
22 going down the river and look at the percentage of
23 the eels that are dead or alive that come in the
24 net, and I guess that's not done, but I'm trying
25 to understand how you could get to figure out that

1 percentage a little bit easier.

2 MR. RICHTER: Sure, and that's a very good
3 question. There have been people that have used
4 nets to try to capture fish as they come through
5 the projects. The studies that we're going to do
6 in 2007 will get to that because we'll have that
7 30 to 50 fish sample, you know, we're shooting for
8 50 fish, and we're going to basically monitor
9 every single passage route at the project
10 including the turbines, the sluices, the
11 spillways, and as an eel comes through, we'll be
12 able to identify which route it came through and
13 then whether it passed successfully, and then
14 we'll be in the tailrace with watercraft and
15 walking the shoreline with the radiotelemetry
16 equipment and we'll be able to track these eels
17 down through the river and then we'll get to that
18 number that I think you're talking about, but in
19 the sample size will be that 50 and we'll be able
20 to say out of those 50, X percent went through the
21 turbine, X percent went through spill and we
22 believe X percent survived or didn't survive.

23 MR. WILEY: If I may, I think one of the
24 questions is, you know, is there a way where you
25 can actually catch all of the fish that are going

1 downstream of a project and then do your count
2 from that.

3 MS. EHRENFELD: Or even just like 10 -- you
4 know, maybe you're only taking 2 percent of the
5 water that's coming through but then you could
6 multiply it out.

7 MR. WILEY: The difficulty I think with
8 that, in effect, what Bob has done in their
9 observations is they get an idea as to where the
10 flow field is in terms of -- you know, you can see
11 where the water actually -- the channel in which
12 the water goes and, you know, that's part of what
13 their observations are intending to do when they
14 go out. Whether they wade or whether they go out
15 in boats with underwater cameras is they try to
16 take a look at that flow field to see where things
17 settle out and so forth. One of the difficulties
18 you'd have in trying to net in some of the areas
19 we're talking about here, as Doug indicated
20 earlier, there are some pretty wide areas there
21 and it's not just fish that oftentimes come down
22 the river but there's an awful lot of debris and
23 other things, and if you're talking salmon, for
24 instance, they're out migrating at high flows and
25 oftentimes -- you know, you wouldn't want to be

1 out in the river during those circumstances when
2 those particular species are migrating, but I
3 think the long and short of it is that's a very
4 difficult proposition, and I'm not aware of
5 extensive studies that have been done in that
6 manner to try to determine mortality.

7 MR. AULT: What you're talking about is
8 something that occurred through the late eighties
9 and the early nineties for many relicensings in
10 the Midwest and some here in the East. They're
11 referred to as entrainment studies, how many fish
12 are being entrained or pulled into the turbines,
13 and the general concept is exactly what you're
14 saying. To net the entire discharge of a
15 hydroelectric turbine or a portion of it, the
16 problems with netting a portion is that invariably
17 fish that are residing in the tailrace swim up
18 into the discharge of the turbine and then come
19 back and get into your net, so they essentially
20 contaminate or they bias your sample, but there
21 have been many studies done on small hydros where
22 the entire discharge of the unit has been netted
23 and they do exactly what you said. You try to
24 sort out which fish is alive and which fish is
25 dead. There are some problems inherent in that

1 because, as you can imagine, the discharge in a
2 hydroelectric turbine is pretty turbulent and
3 netting that is a difficult proposition. It has
4 been done. I did it for about 15 years. I don't
5 want to do it again but we did a lot of it and it
6 is one way to find the answer that you're talking
7 about, but the way that Mr. Richter is talking
8 about is actually, in my opinion, a little more
9 scientific, a little more less intrusive for other
10 fish that are naturally passing through the
11 turbines. He's essentially going to take a sample
12 size, put them upstream, follow their movements
13 with the radiotelemetry equipment and determine
14 how many died in terms of passage, how many went
15 over the spillway, how many went through the
16 sluice.

17 HEARING OFFICER HILTON: Nancy Anderson.

18 MS. ANDERSON: I'm trying to understand how
19 the various gates and spillways work, and if we
20 could go to Exhibit 23 in your submissions, it's
21 the Shawmut project. There's a spillway, there's
22 a surface sluice gate, there's a tainter gate and
23 a deep gate, and I don't know who's best to answer
24 it so just decide amongst yourselves. I'm
25 assuming the spillway doesn't operate all the time

1 or what percentage of time is it available for
2 fish passage at Shawmut?

3 MR. WILEY: It will vary depending upon the
4 river flows.

5 MS. ANDERSON: How high the water is?

6 MR. WILEY: There are certain projects, and
7 I'm not sure of the specifics at Shawmut, it may
8 be something in the order of 5,000, 6,000 cubic
9 feet per second that its turbines can
10 accommodate. Then there are other ways of passing
11 water through some of the gates so that typically
12 what you'll find is, as Mr. Watts had indicated,
13 you try to utilize as much of that water
14 productively to produce energy as best you can,
15 recognizing that you've got other obligations to
16 pass fish so you open up certain sluice gates,
17 whether they be the deep gates or the surface
18 gates and then you'll have water spilling over the
19 spillway, and it varies from site to site. I
20 think what you'll find at Lockwood, for
21 instance --

22 MS. ANDERSON: No, can we just talk about
23 Shawmut because I'm really trying to just get a
24 sense of one project at a time.

25 MR. WILEY: And at this project you have --

1 if you look at your map there.

2 MS. ANDERSON: Yup, that's what I've got.

3 MR. WILEY: What you have to the right is
4 the spillway and then what you have to the left
5 side of the screen is a little intake area, a
6 four-bay area right in front of the powerhouse.
7 Do you see where the diagram says surface sluice
8 gate, deep gate and tainter gate?

9 MS. ANDERSON: Yes.

10 MR. WILEY: Those are all within what they
11 call like an intake canal. So there is water that
12 is led in at the head of that intake canal that is
13 then utilizing that water to produce power. The
14 water can then go in any number of ways. It can
15 go through the turbines or it can go through any
16 of these gates to the extent they are open, and
17 those are the gates that --

18 MS. ANDERSON: That was my next question.
19 When are those open and how do you decide what's
20 open and available for fish passage?

21 MR. WILEY: Up to this point in time we've
22 been utilizing the surface gate as a means for
23 fish passage, so we've opened up that gate during
24 the periods where migration is taking place at the
25 direction of the fishery agencies to allow

1 alternative means of passage other than through
2 the turbines or, again, during the periods where
3 water is spilling over the spillway, you know,
4 there will either be -- they'll go over the
5 spillway, they'll go through the turbines or
6 they'll go through the surface gate. We do have
7 these other gates, tainter gates and deep gates,
8 that will be looked at as part of some of the
9 studies to see their effectiveness in passing fish
10 as to whether they go -- you know, they sound
11 deeper or whether they go at the surface or what
12 have you and, again, it depends on the species.
13 Most of them are migrating on the surface, that's
14 why we use surface gates as a means to open those
15 up to allow an alternative passage. Eels go up
16 and down the water column as Mr. Ault has
17 testified so they may go deeper or they may go at
18 the surface, you know, it varies, again, site by
19 site.

20 MS. ANDERSON: So you're not currently
21 using the tainter gate or the deep gate as fish
22 passage?

23 MR. WILEY: Have we, Bob?

24 MR. RICHTER: No, we haven't.

25 MR. WILEY: No.

1 MS. ANDERSON: And then I had one other
2 question. What percentage of eels do you think
3 you should be letting through to meet Class B or
4 Class -- and Class C standards?

5 MR. WILEY: You know, again, I think it
6 gets to, you know, what is significant in terms of
7 mortality, injury or mortality. That's ultimately
8 the question here, what is deemed significant,
9 and, you know, as Mr. Thaler had pointed out in
10 the testimony prior with Mr. Watts and Mr.
11 Friedman, the anti-degradation standard talks
12 about significant impairment to population. I
13 guess the way I look at that, I can't sit here and
14 tell you a specific number, is it 5 percent, 10
15 percent, 20 percent, 50 percent. What I can tell
16 you, though, is taken in the context of the
17 management for these species, you know, I can't
18 tell you again if 5 percent, 10 percent, 50
19 percent is the right number, but what I can tell
20 you is we have water quality regulations, we have
21 fishery management objectives that allow, for
22 instance, in the case of eels 50 eels to be taken
23 every day by any one of us. So you could have a
24 fishing license, Mr. Hilton could have a fishing
25 license, and you'd be allowed to take up to 50

1 eels a day.

2 MS. ANDERSON: I understand that, and
3 that's not answering my question, and that's all
4 right.

5 MR. WILEY: But my other point is you also
6 have commercial harvesting which has unlimited
7 take.

8 MS. ANDERSON: Mr. Wiley, please, it's not
9 answering my question and it's okay to just say
10 you don't have an answer.

11 MR. WILEY: Thank you.

12 MR. ANDERSON: Thank you.

13 MS. EHRENFELD: I had a quick follow-up
14 question from Nancy's. As long as we're talking
15 about the different gates, I missed the different
16 -- the surface gate, my level of engineering
17 knowledge I can figure out what that means, the
18 deep gate, I can figure out what that means. Is
19 the tainter gate in between?

20 MR. WILEY: No, it's more of a surface
21 gate. Actually, at Shawmut it's more of a -- it's
22 a surface, right?

23 MR. RICHTER: No, it is kind of in
24 between.

25 MR. WILEY: It is in between.

1 MS. EHRENFELD: And what's the difference
2 in its purpose? Is it --

3 HEARING OFFICER HILTON: There's actually a
4 sketch somewhere.

5 MR. WILEY: Yeah, there are photographs.
6 If you take a look at the screen, that's Weston.
7 Are we talking about at Shawmut?

8 MS. EHRENFELD: I'm looking for a generic
9 explanation.

10 MR. WILEY: Well, a tainter gate, it's
11 really a function of where the sill is on the dam,
12 if you will, and if you have, for instance, a
13 spillway, if this is the spillway, you could have
14 a gate that opens up at the crest of that
15 spillway. You could have others that are deeper
16 below the crest of the spillway. Those are what
17 we think of as deeper gates, if you will, and the
18 tainter gate may be a little bit of both.
19 Generally you'll have flash boards on a spillway.
20 You will have gates that are something below the
21 spillway obviously because you want to pass water
22 and in order to pass water, you've got to have
23 that differential. If you opened up a gate that's
24 on the spillway with its sills on the spillway,
25 you wouldn't be passing anything if the water is

1 at or below that point. So when water is above,
2 then you have a gate that has a sill elevation
3 down here, for instance, and that's what allows
4 the ability to pass the water. Again, it will
5 vary site by site. These projects were built 50
6 to 100 years ago so they've been around for some
7 time. When you look at these, you've got log
8 sluices, you've got surface gates, you've got
9 other things that weren't necessarily built for
10 fish passage per se, but as Mr. Kulik has stated,
11 it doesn't mean that they can't be utilized
12 effectively because, indeed, that's what typically
13 is utilized for facilities that exist and where
14 fish passage is required. There are times when
15 new facilities have to be built when you can't
16 utilize existing measures to accommodate them and
17 one of the things that was outlined in the KHDG
18 Agreement that was agreed to, and you'll notice
19 the difference between what was required at
20 Lockwood, Shawmut and Weston versus what was
21 required at Hydro-Kennebec where the agencies
22 recognized the physical structures that existed at
23 these three projects and came to the conclusion as
24 part of the settlement that, indeed, using those
25 existing measures was adequate. In the case of

1 Hydro-Kennebec, they didn't have that kind of
2 measure so if you look in the KHDG Agreement
3 there's a description basically saying new
4 diversionary structures are not required at
5 Lockwood, Weston or Shawmut, but that same
6 language does not occur for the Hydro-Kennebec
7 Project.

8 HEARING OFFICER HILTON: Mr. Wiley, I think
9 Exhibit 22 is a very good expression of the --
10 shows a photograph of the Tainter gate at the
11 Weston dam.

12 MR. WILEY: That would be at Weston and,
13 actually, there's another photograph --

14 MS. ANDERSON: Shawmut is 26 I think.

15 HEARING OFFICER HILTON: This is the Weston
16 dam, though.

17 MR. WILEY: You know, maybe another
18 example, Ms. Ehrenfeld, would be looking at -- I
19 think we've got a couple pictures of Lockwood, for
20 instance. If you look at Exhibit 30, and this is
21 a picture of the intake canal at Lockwood when
22 it's dewatered. We actually had to go in and do
23 some dredging. You can see quite a bit of gravel
24 that's been built up there, and so we dewatered
25 the canal and here's a depiction of the deep gates

1 and you can see these are the powerhouse intake
2 areas where you've got these racks that are in
3 front of the intakes, some of which can provide
4 some means of dissuading fish from going through
5 because you have some racks there, and if you look
6 at the next page or the next exhibit, 31, this
7 highlights again in front of unit number 7 for
8 Lockwood where you can see where the intake is,
9 you can see this surface sluice gate that is up
10 above so it's higher up above and you can actually
11 see the water stain where the normal water line
12 would be. So those are the so-called surface gate
13 kind of arrangements that you open up for those
14 fish that are migrating at the surface. We also
15 in the case of the prior exhibit have a deep gate
16 arrangement at Lockwood that would provide passage
17 to the extent they're down in the lower reaches,
18 and, again, in the case of all of our facilities,
19 as well as I believe the Hydro-Kennebec facility,
20 there are these intake racks that also are in
21 front. I mean, they were frankly originally built
22 to keep debris out of the units but you do have
23 racks that are spaced anywhere from one-and-a-half
24 inches to four inches depending upon what project
25 you're looking at for our three projects.

1 MS. EHRENFELD: Thank you.

2 HEARING OFFICER HILTON: Anyone else? Mr.
3 Wiley, is your hydropower sold as green power?

4 MR. WILEY: Yes. It depends on how one
5 defines green power. In the State of Maine it is
6 considered renewable power under the Maine RPS
7 rules.

8 HEARING OFFICER HILTON: So it gets premium
9 price?

10 MR. WILEY: Not in Maine. Everything
11 qualifies for -- the RPS in Maine is basically
12 renewable and efficient. So even someone burning
13 coal in a cogen plant is considered efficient so
14 that there is two to three times as much supply
15 available that meets the definition of Maine's RPS
16 than what the demand is so, frankly, renewable
17 power in Maine does not receive much, if any, of a
18 premium.

19 HEARING OFFICER HILTON: But you sell your
20 power out of state?

21 MR. WILEY: We do. We sell into the NEPOOL
22 pool, and there are other states that have
23 different RPS programs. For instance, in
24 Connecticut they have an RPS where they qualify
25 hydroelectric power that is run off river in less

1 than five megawatts, they have provisions for an
2 RPS in Massachusetts. The RPS only provides for
3 new renewables so that existing facilities don't
4 qualify. So in the case of Maine hydroelectric
5 facilities, there's a limited market for any
6 so-called green premium for those facilities.

7 HEARING OFFICER HILTON: Would you say
8 looking at the overall mix of power sales by FPL
9 that the fact that you have this hydropower
10 premium enhances your bottom line to some degree?

11 MR. WILEY: Well, again, we don't receive
12 much of a prime for hydropower.

13 HEARING OFFICER HILTON: How much is not
14 much of a premium?

15 MR. WILEY: It's probably, geez, one
16 there's a very limited market so there are very
17 few sales for renewables. If the price -- I'm
18 trying to think for what limited sales we've had
19 in the past, it is maybe a percent or two of what
20 the energy clearing price is but it's not much.

21 HEARING OFFICER HILTON: Al, looking at
22 your -- looking at your testimony at page 13 and
23 looking at this trigger number of 8,000, and the
24 8,000 is defined in terms of the number of fish --
25 of shad that actually enter your fish lift, and as

1 you know, the history as of last year, 2006, for
2 whatever reason there was zero shad that entered
3 the fish lift. We don't know how many fish there
4 were out there in the Taconic pool. We assume
5 that there were probably quite a few. What
6 happens if over the course of some number of years
7 for whatever skittish reason known only to shad
8 they decide not to use your lift?

9 MR. WILEY: Well, our experience has been
10 that actually lifts are the types of things that
11 shad do utilize. Now, we've had similar
12 experiences elsewhere where things like ladders,
13 they're not particularly effective. We've got
14 lifts, we've got ladders, we've got locks, we use
15 trap and truck. We've got all kinds of different
16 arrangements.

17 HEARING OFFICER HILTON: Not all of those
18 are at the Lockwood dam, are they?

19 MR. WILEY: Now, actually you're correct,
20 none of which are at the Lockwood dam other than
21 the lift. There are provisions to, again, if we
22 find that the fishway -- and that's in part what
23 we do. We do effectiveness studies after you
24 install things so we oftentimes have three years
25 of kind of efficiency studies to see how well

1 things are working. We've already made some
2 improvements in regards to the Lockwood lift as we
3 were operating it in its first season. Those are
4 ongoing things. It's not a case where you just
5 put it in and, boom, you're done. We're always
6 modifying things based upon what we learn in our
7 cooperation with the agencies. If we find that,
8 for instance, the Lockwood lift is not being
9 effective, then we would consult with the agencies
10 and we'd work through whatever the appropriate
11 modifications may very well be.

12 HEARING OFFICER HILTON: How many years are
13 we talking about this taking?

14 MR. WILEY: Well, we usually do three
15 years' worth of studies typically after we install
16 something, and, again, it may take more, it may
17 take less. It varies depending upon installation
18 but that's one of the type of thing that we do.
19 That's why the KHDG Agreement is so important is
20 that it creates the ability -- you know, we have
21 this consultation obligation and requirement that
22 we do with the appropriate agencies to determine
23 what additional measures, if any, are necessary.

24 HEARING OFFICER HILTON: So given that
25 there are zero shad that entered the fish lift in

1 2006, and let's assume that there are only a few,
2 500 or 1,000 this year, and then you say it takes
3 about maybe three years of study, consultations
4 with the agencies, so the 2010 threshold date for
5 construction of something -- having something
6 permanent in place probably is not going to be
7 met, is it?

8 MR. WILEY: No earlier than 2010 and there
9 are also other trigger mechanisms, too, by the
10 way. Shad happens to be the primary one but there
11 are also alternatives based upon the consultation
12 with the agencies. If the parties deem another
13 alternative is more appropriate, then that trigger
14 could come into play.

15 HEARING OFFICER HILTON: At the time the
16 KHDG agreement was negotiated back in 1998, the
17 2010 date was 12 years down the road.

18 MR. WILEY: Correct.

19 HEARING OFFICER HILTON: Which probably
20 seemed like a fairly relaxed schedule, would you
21 agree with that?

22 MR. WILEY: No, I believe it was an
23 appropriate schedule based upon the fact that you
24 had no fish other than what was being passed at
25 Edwards via a --

1 HEARING OFFICER HILTON: Yeah, but you knew
2 that Edwards was going to be going out the next
3 year because that was the whole premise of the
4 negotiations and the agreement, is that correct?

5 MR. WILEY: That was the driving force,
6 yes, and then there was an expectation that it
7 would take some time for that 17 miles of river
8 between Edwards dam and the Lockwood Project where
9 the fish that were coming up would start
10 saturating the habitat within that region. So the
11 timetables that were laid out in the agreement as
12 established by the fishery agencies took all of
13 that into account in terms of the expectation as
14 to when the number of fish that they deemed was
15 appropriate for escaping above Lockwood would take
16 place.

17 HEARING OFFICER HILTON: And as it turned
18 out, the shad were knocking at the door at the
19 Lockwood dam not three or four years later but
20 only one or two years later, is that correct?

21 MR. WILEY: And the degree and the number I
22 can't tell you. I don't know if Bob or for that
23 matter, if folks from DMR can tell you more
24 specifically how many fish were coming up to
25 Lockwood but, again, I think Ms. Wippelhauser or

1 someone from DMR could better answer the question
2 as to whether or not there's sufficient habitat
3 below Lockwood to sustain that population.

4 HEARING OFFICER HILTON: Well, the question
5 isn't habitat below the dam to sustain the
6 population. Isn't the question really where does
7 the population want to go and if the population is
8 knocking on the door of the Lockwood dam, wasn't
9 there some expectancy back in 1998 that given the
10 expectation about shad and how they migrate and
11 how they push their way up the river that the 2010
12 date would be a reasonable date and now we find
13 that 2010 is likely going to be passed, maybe 2012
14 or 2013 before --

15 MR. WILEY: It may well be, and, again, it
16 was a no-earlier-than date.

17 HEARING OFFICER HILTON: And that isn't
18 through the fault of the shad and their effort to
19 migrate, it's through the lack of effort -- I know
20 you don't agree with that -- but perhaps the lack
21 of effort or lack of foresight on the part of the
22 dam owners and the agencies?

23 MR. WILEY: Well, again, we can't tell shad
24 where to go. When they do show up and if you find
25 that you've got hundreds of thousands of shad

1 pooling around below Lockwood, I suspect we'll be
2 doing something about that. I don't believe that
3 is the case, though, Mr. Hilton, and, again, I
4 think that's a question better asked of the
5 agencies in terms of what their expectations are
6 in terms of the returning number of shad as to
7 whether or not it warrants applying and
8 implementing additional measures to allow their
9 migration beyond Lockwood.

10 HEARING OFFICER HILTON: Well, I'm asking
11 you because you're the arbiter of corporate policy
12 here today and I realize there's a biological
13 component to that question but there's also a
14 corporate policy and tomorrow I'll ask about
15 agency policy.

16 MR. WILEY: And I will say, Mr. Hilton, we
17 do take our stewardship seriously. I think if you
18 candidly look at the actions of FPL and CMP, its
19 predecessor, and you looked on the various rivers
20 that we exist on, we have spent, as I mentioned
21 before, 20 million dollars in building fish
22 passage facilities over the last dozen years. I'd
23 challenge you to find any entity in this state
24 that has put the kind of effort that we have in
25 providing passage, whether it be on the Saco

1 River, the Androscoggin River, the Kennebec River
2 or the Sebasticook River. We do take those
3 obligations seriously and we have been out in
4 front in terms of trying to provide passage. The
5 fact of the matter is the KHDG Agreement that was
6 ultimately signed in 1998 was done in large part
7 because of the willingness of the upstream dam
8 owners to put their money where their mouth was in
9 trying to help the restoration effort. Remember,
10 too, in 1986 the dam owner stepped forward and
11 supplied funding of 1.86 million dollars to allow
12 restoration to happen despite the fact that the
13 Edwards dam was going nowhere, despite the fact
14 that the owner of that facility was impeding
15 passage. You know, we could have, again, sat on
16 our laurels and done absolutely nothing but we did
17 step forward and try to help the restoration.
18 Now, we did have some obligations in terms of
19 passage that were in those licenses, but at the
20 end of the day, you know, building concrete and
21 steel doesn't make the fish pass. You know,
22 there's an awful lot that goes into it and the
23 trap and truck efforts, the monies that were
24 invested in the shad hatcheries, the monies that
25 were invested in the Sebasticook River drainage

1 where we actually provided funding that allowed
2 other dams to be removed or fish passage
3 facilities to be built are all part of this
4 broader, bigger picture of restoring the
5 anadromous species on the lower Kennebec.

6 HEARING OFFICER HILTON: Okay. I want to
7 talk a little bit more about money and for that
8 purpose I want to look at the KHDG Agreement, page
9 3 and 4. It's part of Exhibit 6.

10 MR. WILEY: Yes.

11 HEARING OFFICER HILTON: If you look at
12 paragraph C1 near the bottom, the C is entitled,
13 quote, failure to achieve timely approvals.

14 MR. WILEY: Correct.

15 HEARING OFFICER HILTON: There's been some
16 discussion about the repercussions if the Board
17 was to do certain things, and I want to speak to
18 you about this not in terms of legal analysis but
19 in terms of someone who was there at the table as
20 far as negotiating.

21 MR. WILEY: Yes.

22 HEARING OFFICER HILTON: Because I think
23 you were there.

24 MR. WILEY: Yes, I was.

25 HEARING OFFICER HILTON: Okay. It strikes

1 me that the -- the penalty side of these clauses
2 relates to timely approval and not to
3 after-the-fact actions by an agency or by a party
4 or by the State of Maine or by anyone, and I say
5 that because there's nothing in either the
6 indented paragraph 1 or the paragraph that follows
7 that seems to relate to anything other than the
8 timely initial approval. Can you comment on
9 that?

10 MR. WILEY: Well, actually, there were
11 certain aspects to it, one of which, and the most
12 important to many of the parties was the timely
13 removal of Edwards and the various regulatory
14 aspects to allow that to happen. From our
15 perspective, what was important to us was
16 certainty, certainty in terms of what was going to
17 be required of us in terms of committing to
18 providing funds in advance of providing actual
19 fish passage facilities. So what was important to
20 the dam owners and, frankly, to the other parties
21 was trying to get some level of certainty that
22 didn't exist as it pertained to the whole Edwards
23 fiasco, and what we were looking for was to be
24 able to establish with certainty when fish passage
25 obligations would be required of us and the types

1 of passage in the case of -- you'll notice there
2 are specific provisions for fish lifts at Lockwood
3 and fish lifts at Fort Halifax. Those were very
4 important to the fishery agencies because they
5 were the lowermost dams on those particular rivers
6 and they wanted to have the ability to -- you
7 know, one, they felt they were the more effective
8 of the passage and they wanted to have the ability
9 to sort fish, take undesirables out, do whatever
10 they felt was appropriate and the ability to then
11 trap and truck from there while this interim
12 period was going on.

13 HEARING OFFICER HILTON: So given that you
14 wanted certainty, and I can certainly understand
15 certainty, we all want certainty, what was it that
16 -- there's this mention of seven and a quarter
17 million dollars and I made reference a few minutes
18 ago with somebody in regards to the \$467,000 that
19 DMR was going to spend on eel studies, was the
20 expectancy regarding the seven and a quarter
21 million dollars that that would be it, that there
22 would be -- that you and Hydro-Kennebec would
23 never more have to spend additional dollars beyond
24 that for fish passage irrespective of what --

25 MR. WILEY: Absolutely not. As a matter of

1 fact, remember, the seven and a quarter million
2 dollars was broken up into two components. Two
3 and a half million dollars was from BIW for the
4 redevelopment project they had on the lower bay.

5 HEARING OFFICER HILTON: The mitigation,
6 yeah.

7 MR. WILEY: The 4.75 million dollars of
8 monies that was donated by the dam owners was done
9 in two lump sums and they over a period of years
10 up until 2010 at \$180,000 a year. That is the
11 monies that were simply provided to the state for
12 the restoration efforts. It doesn't include all
13 the other things that the dam owners are obligated
14 to do, namely, build fish passage, altered their
15 operations to the extent needed to allow them to
16 pass successfully, studies and other things that
17 are going on, and those are all in addition to the
18 funds that were otherwise contributed to the
19 restoration effort.

20 HEARING OFFICER HILTON: What was the
21 purpose of the limitation language as regards the
22 \$467,000 being the amount that the -- well,
23 \$427,000, excuse me, that DMR was going to pay for
24 eel study? And I'm looking now on page 6 of the
25 same document, a couple pages further on.

1 MR. WILEY: Yeah, I think Mr. Watts tried
2 to explain that, although I don't think he was
3 entirely accurate. The 4.75 million dollars that
4 the KHDG owners were contributing was separate and
5 distinct from the \$427,000 obligation that the DMR
6 committed to to fund the eel passage studies.
7 That was intended -- you'll notice there's a --
8 I'm trying to find here -- on page 7 they were
9 supposed to get a special appropriation from the
10 Legislature to help fund those studies. Now,
11 obviously to the extent that they didn't get that,
12 I mean, there is a provision here to create -- you
13 know, make the agreement null and void but,
14 candidly, there were also funds -- and there still
15 I think is something in the order of about a
16 million dollars left in that fund for the
17 restoration efforts -- to the extent that monies
18 were needed to help fund, presumably they would
19 have been able to rely on those even if they
20 didn't get the appropriation from the Legislature.

21 HEARING OFFICER HILTON: So the limit on
22 the \$427,000 was the limit of liability to DMR.
23 It wasn't some sort of a limit imposed by you
24 folks?

25 MR. WILEY: It was the expected cost to do

1 the studies. I mean, frankly, we're going ahead
2 doing the studies and paying out of our pocket
3 even though in theory one could say that the
4 obligation to do the studies that we're talking
5 about to the extent anything was beyond the three
6 years candidly should come out of DMR's pocket.
7 We're not arguing about that with DMR. We're
8 moving forward. We're trying to make this thing
9 happen as best we can and we're picking up those
10 obligations to do additional eel studies.

11 HEARING OFFICER HILTON: You probably read,
12 as I did, the story in I believe Doug's pre-filed
13 testimony regarding the Benton Falls and the fact
14 that -- I think it was the Benton Falls dam -- the
15 dam owners were encouraged to lift the deep gates
16 off the bottom and they lifted them about three
17 inches and nothing happened, and then all of a
18 sudden at five inches -- I don't think anything
19 happened there but at six inches all of a sudden
20 there was this burst of brown water that started
21 to gush out and lo' and behold the dam owners had
22 placed sand bags behind the gates to try to seal
23 them up for the winter against water leakage.
24 That's a profit motive that did that and it's
25 certainly not anything to be blamed, but

1 oftentimes you understand that the dam owners are
2 the ones who hold the knowledge, others don't.

3 MR. WILEY: I agree, yeah, I agree.

4 HEARING OFFICER HILTON: Okay. So you
5 spoke in terms of this -- I believe it was you,
6 maybe it was somebody else on your panel here --
7 spoke in terms of the study to be done with 30 to
8 50 eels and with all sorts of telemetric devices,
9 et cetera, and that you were going to follow those
10 eels down through all of the various passageways,
11 at the flumes, all the gates, whatever. How does
12 -- how does anybody assess how that particular
13 experiment and the conduct of it, because it would
14 be conducted I would imagine over just a couple of
15 days, how does one assess as to how that fits the
16 general situation? How does one assess as to
17 whether the gates open as they are during those
18 particular minutes or hours fits within some sort
19 of an operating norm?

20 MR. WILEY: I'll let Bob deal with it as
21 best he can.

22 MR. RICHTER: That's a good question. The
23 purpose of the study is to see if those --

24 HEARING OFFICER HILTON: Let me ask you
25 this first.

1 MR. RICHTER: Sure.

2 HEARING OFFICER HILTON: How many different
3 gate -- was that going to be at the Shawmut dam or
4 the Lockwood? I don't remember now.

5 MR. WILEY: The pictures we looked at?

6 HEARING OFFICER HILTON: No, the
7 experiment, the 30 to 50 eels.

8 MR. RICHTER: It's going to be at Lockwood
9 and Shawmut this year and Weston --

10 HEARING OFFICER HILTON: So you're going to
11 do 30 to 50 through Lockwood and 30 to 50 through
12 Shawmut?

13 MR. RICHTER: Yup.

14 HEARING OFFICER HILTON: Okay, and how
15 broad an array of different gate configurations do
16 you normally have during the course of a migration
17 season?

18 MR. RICHTER: Well, for instance, at
19 Lockwood right now we just have the surface gate
20 open and whatever is happening with the spillway.
21 So that would be the two routes. When we're doing
22 the eel study, we're going to evaluate that the
23 deep gates at Lockwood in conjunction with the
24 surface sluice and spill; and when we do the
25 study, we basically --

1 HEARING OFFICER HILTON: Again, if you can
2 kind of answer the question. We know sort of what
3 the parameters of the study are but how do we know
4 that the configuration of gate openings during

5 that study is somehow going to provide real world
6 information any better than the generic
7 information that we have from the last page of Mr.
8 Friedman's rebuttal testimony, the Federal
9 Register item which indicates somewhere between 25
10 and 40 percent or whatever number it is of fish
11 are killed? How are we going to differentiate
12 that from -- how can we look at that as being
13 numbers that provide some sort of comfort level,
14 statistical comfort level?

15 MR. RICHTER: We're basically with the 50
16 fish simulating a number that's going down through
17 the dam and then we'll know -- by monitoring all
18 these locations we'll know which percentage goes
19 through what and then you can get a better number
20 of how many are going through the turbines, what
21 the turbine mortality number is, how effective the
22 passage routes are, and it will be a more
23 quantifiable number and we're going to do that at
24 all the sites like we talked about and so we'll
25 have a number for each, and I guess the biggest

1 point is if we show that those gates don't work,
2 if the deep gates don't work or the surface sluice
3 doesn't work and we're having a lot of turbine
4 passage, we're going to go back to the drawing
5 board and talk with the agency people and come up
6 with a way to get those fish out safely.

7 HEARING OFFICER HILTON: Well, Mr. Richter,
8 the problem is that time is passing, you know,
9 years are going by, you know, and Doug is getting
10 more anxious and Ed is getting more anxious and
11 they come back to us with another petition three
12 years from now and say, for gosh sakes, what is
13 going on and we have to look at more disgusting
14 photos of dead eels, et cetera, and so I'm
15 wondering, there isn't -- I think you have to
16 agree with me that there is no definitive number
17 -- there is no definitive way in which you can
18 test passage through these dams. You have to take
19 a large statistical grouping of numbers and just
20 deal with them accordingly, and I'm going to look
21 at page 4992 of the Federal Register and that's
22 page 24 of the Friends -- I guess this is the
23 rebuttal, it's the last page they provided us, and
24 in that, the author, whose name I can't quite
25 remember, has generally looked at all the studies

1 and in the course of this denial of Mr. Watts'
2 petition she has said that McCleave states that he
3 has a certain model and down below it says there
4 is a typical mortality rate in the range of 25 to
5 50 percent, when one or more turbines are
6 encountered, the range of mortality increases to
7 40 to 60 percent for that watershed. Now, these
8 are statistics that she has cited and I believe we
9 should attach a name to it. It's --

10 MR. FRIEDMAN: Heather Bell.

11 HEARING OFFICER HILTON: Heather Bell. Ms.
12 Bell has attached these numbers to it and she has
13 used these numbers even in the course of denying
14 the petition. So what sort of comfort level can I
15 get -- and I know the Hydro-Kennebec I can ask
16 those folks about it, but they're talking about
17 attaching strings to five eels to see what those
18 eels do and where they go, but, again, that's sort
19 of in the context of a particular set of
20 operational parameters for that particular date,
21 time, those minutes or seconds during which it's
22 happening. What sort of comfort level can I get
23 out of these studies? Already ten years have gone
24 by since this agreement was passed -- was put into
25 place, nearly ten years. What are we getting out

1 of this? I'll let you answer a question now.

2 MR. AULT: I think I'll field that
3 question. If that's okay, Mr. Chairman?

4 HEARING OFFICER HILTON: Yes, welcome.

5 MR. AULT: You know, a big part of the
6 answer for me at least in my professional opinion
7 and, frankly, the conclusion that the Fish and
8 Wildlife Service came to is defining what is
9 significant and understanding the American eel
10 population and its reproductive habits and the
11 fact that it really is one population from Nova
12 Scotia, Labrador, all the way to North and South
13 America and then trying to partition out what the
14 impacts are in various drainages throughout its
15 range and how that affects the overall population,
16 and what the Fish and Wildlife Service is getting
17 at there is that a significant level of mortality
18 is that level at which the reproductive population
19 can't compensate for anymore; in other words, it
20 can't remain self-sustaining, and so I have to say
21 that mortality on the Kennebec is not significant
22 from that perspective just as mortality on, say,
23 the James River in the Chesapeake drainage or even
24 on the Susquehanna River is not significant from a
25 population standpoint.

1 HEARING OFFICER HILTON: Well, it's
2 significant from the standpoint of -- from that
3 standpoint, yes, but if you're an eel trying to
4 get down the river, it's pretty significant; and
5 if you're an eel within that particular range of
6 water between -- you're upstream from Shawmut and
7 you're headed for Weston and you're headed
8 downstream, it's pretty significant. The best
9 number I've heard here today is I think either 94
10 or 96 percent passage, which leaves an awful lot
11 of eels getting killed. There is pretty obviously
12 a -- clearly there are ways to make sure that eels
13 do not get killed; in other words, to increase
14 their probability to 99.9 by screening off the
15 turbines and, yet, I don't see an awful lot of
16 movement in that direction. I mean, I think there
17 are known solutions here, and, yet, in eight or
18 nine years we haven't seen a lot of movement in
19 that particular direction. Maybe you can respond
20 to that.

21 MR. AULT: Yeah, I think by and large a lot
22 of us may be under a misconception that there are
23 known fixes. I personally don't believe there are
24 known fixes for facilities of this size. We're
25 talking about smaller facilities where it's fairly

1 easy to screen intake and provide a small bypass,
2 facilities that generate less than a megawatt or
3 two megawatts. The magnitude of handling that
4 problem is something completely different than
5 handling a similar situation in a river system
6 that's passing five to seven thousand CFS and the
7 generators are producing seven to thirteen
8 megawatts. When you get bigger, you get very
9 complicated and the literature and all the studies
10 that have been done, particularly in the
11 laboratory, because there have been no empirical
12 studies to date for screening technologies for
13 American eel.

14 HEARING OFFICER HILTON: Mr. Ault, what is
15 the specific gravity of a eel? It's probably
16 pretty close to water, isn't it, a dead eel?

17 MR. AULT: Neutrally buoyant or a little
18 bit more than neutral, depending on whether the
19 bladder is inflated.

20 HEARING OFFICER HILTON: And you would
21 agree that eels migrate predominantly at night, at
22 least that's what McCleaves says?

23 MR. AULT: Absolutely.

24 HEARING OFFICER HILTON: Okay. So all
25 these eels are going down -- they're traveling in

1 whatever way they do and they are neutrally
2 buoyant so they're going to go with the water,
3 what is the likelihood that one would find an eel
4 carcass below -- if the eel was to die, let's say,
5 September 21st, the Equinox, and we know there's
6 12 hours of daylight and 12 hours of night and
7 sometime about an hour after dark this eel goes
8 down through past your dam and goes down through
9 the turbine, is killed, and it is neutrally
10 buoyant so it just flushes out and just passes on
11 with the water, what is the likelihood that 10, 12
12 hours later when the morning shift comes on and
13 the scientists are out in their boats looking for
14 the carcass that they're going to find it?

15 MR. AULT: I don't think that all fish just
16 flush out. I think that fish being neutrally
17 buoyant are swept by current patterns and eddies
18 in the areas where they accumulate.

19 HEARING OFFICER HILTON: Some would, just
20 as some water does.

21 MR. AULT: Yeah. Don't get me wrong, I
22 don't think that the observations in the tailraces
23 have provided an exact count, not by any means.

24 HEARING OFFICER HILTON: Would you say that
25 it provides even a rough approximation in any

1 respect?

2 MR. AULT: I think it provides a very good
3 relative index of abundance. You know from day to
4 day --

5 HEARING OFFICER HILTON: When you say
6 relative index, relative could be 1 percent
7 relative, it could be 99 percent relative. What
8 do you mean by relative index?

9 MR. AULT: You're right.

10 HEARING OFFICER HILTON: It could be only
11 .1 percent.

12 MR. AULT: It could be or it could be 80
13 percent.

14 HEARING OFFICER HILTON: It could be, and
15 we have no idea, do we?

16 MR. AULT: Right, I agree with that.

17 HEARING OFFICER HILTON: Okay. We do know
18 from what you've just told us that eels are
19 neutrally buoyant, they travel with the water,
20 because fish live in water, right?

21 MR. AULT: Um-hum.

22 HEARING OFFICER HILTON: Mr. Ault, I think
23 it was in your testimony, it might have been your
24 rebuttal testimony, you indicated that -- and I
25 remember you speaking I believe in terms of the

1 Weston dam, I live up near Skowhegan so I'm kind
2 of familiar with it, and you spoke in terms of
3 there being a log flume and that there's all these
4 very many gates and I think there was a photograph
5 of high water and the water rushing over the --
6 over the various parts of the dam, and I was a
7 little bit curious as to whether -- I used to work
8 on log drives and pulp can take quite a bit of a
9 beating when it goes down through a log flume, and
10 I was wondering whether in the course of using
11 these log flumes as fish passage whether there has
12 been any effort to remove ledge or whatever else
13 at the bottom of the flume?

14 MR. AULT: Has there been or will there be?

15 HEARING OFFICER HILTON: Has there been.
16 Has there been up to this point. Has there been
17 any blasting or removal of ledge?

18 MR. RICHTER: No, there hasn't been.

19 HEARING OFFICER HILTON: Has a plunge pool
20 been created at all?

21 MR. RICHTER: Well, some of them have their
22 own plunge pools like the log sluice below Weston
23 does have a plunge pool, but part of the
24 evaluation would be if we did find out that a lot
25 of eels were going over a log sluice or surface

1 sluice or a tainter gate, we'd be also checking to
2 see how well they made it through that device. So
3 we would know if there were issues and if it was
4 -- like we've had situations on the Saco River
5 where we were using existing surface sluice that
6 basically went into kind of a shallow area which
7 wasn't good for passing fish so we extended the
8 surface sluice with a long flume to get it out
9 into some deeper water and that's something we
10 would do on these projects also if we found that
11 there was an issue.

12 HEARING OFFICER HILTON: When you speak in
13 terms of using -- of water just passing -- and I
14 don't know whether you can get it onto the slide
15 which may be before this one of the Weston
16 facility -- it shows the water kind of cascading
17 over at high water, and I think Mr. Ault testified
18 that that was sort of a typical situation in the
19 fall. My query is if there is -- fish being
20 neutrally buoyant and knowing that at least some
21 part of the water hits the rocks down below,
22 there's some possibility that the fish themselves
23 would hit the rocks down below, isn't that right?

24 MR. RICHTER: That's true. That could
25 happen.

1 HEARING OFFICER HILTON: It probably does
2 happen to some degree.

3 MR. RICHTER: Yeah, it depends on how much
4 water is going over, whether there's plunge pools
5 in the ledges below, whether the ledge is really
6 rugged or smooth. It's site specific.

7 HEARING OFFICER HILTON: And those dams
8 were not created at all with fish passage in
9 mind. They were created with the idea of putting
10 in a log sluice so that logs could get through but
11 nobody cared whether the logs got beat on rocks or
12 anything else. I know I never did when I was
13 working on the job.

14 MR. RICHTER: Yeah, you're probably right,
15 and that's why I had the example of the site down
16 at Bar Mills where it was a trash sluice that
17 basically dumped into a very shallow area, and we
18 had to add a flume to it to get the fish out to
19 deeper water so they would be safe after they
20 traveled through it.

21 HEARING OFFICER HILTON: I'm going to let
22 go for a little while. Nancy?

23 MS. ZIEGLER: I'd just like to follow up
24 with a couple of questions. One is you talked
25 about this boom that was added to the particular

1 dam we were just referring to, and we haven't
2 heard from Hydro-Kennebec about how their passage
3 works but in thinking about these facilities and
4 the gates that you already have at the three
5 different facilities, wouldn't you have to divert
6 the fish towards those gates in order to go
7 through them, and if they're not diverted in some
8 direction towards the gates, wouldn't you expect
9 to see a fairly significant percentage just going
10 straight through the turbines?

11 MR. RICHTER: The studies that we're going
12 to do in the next couple years will basically tell
13 us where the fish are going, and if we do find out
14 that they are going through the units like you
15 just mentioned, then, yes, you may have to put in
16 a diversionary device to guide the fish to a
17 sluice.

18 MS. ZIEGLER: But you've already seen -- at
19 least at Shawmut you've seen the eel entailed in
20 the turbines, isn't that true?

21 MR. RICHTER: Yes, that's true.

22 MS. ZIEGLER: If it's true at Shawmut in
23 particular, why wouldn't you already have some
24 sort of diversionary passage for them?

25 MR. RICHTER: Well, at Shawmut we've been

1 basically using the surface sluice to pass
2 anadromous fish and eels, and we haven't used the
3 deep gates or the tainter gates yet and that's
4 what the study this year is going to find out. So
5 it's possible that we find out that we're having
6 good passage of eels through those deep gates or
7 the tainter gates. We just haven't studied that
8 yet.

9 MS. ZIEGLER: Is there some reason why
10 having some sort of diversionary route adds cost
11 to you? I'm just not quite understanding why
12 that's a problem.

13 MR. RICHTER: Well, it does add a cost,
14 and, in fact, we added one of those diversionary
15 booms at one of our projects on the Saco River and
16 we've also screened a small turbine, the one at
17 the Fort Halifax Project and basically that was
18 all done after we did the studies. After we found
19 out that there was an issue, we would experiment
20 with different ways to try to get fish away from
21 the turbines, and, you know, in one instance we
22 put a boom in and, in fact, Hydro-Kennebec used
23 that concept for their boom and at one site we
24 found out that we had -- we had passage through
25 the turbines. We couldn't really put a boom in so

1 we ended up screening the turbines on the Fort
2 Halifax Project.

3 MS. ZIEGLER: Okay. Now, at Shawmut could
4 you put a boom in?

5 MR. RICHTER: Yes.

6 MS. ZIEGLER: Okay, and Hydro-Kennebec
7 hasn't done a study, have they?

8 MR. RICHTER: They are in the process of
9 doing studies, I believe.

10 MS. ZIEGLER: But they've already put the
11 boom in place?

12 MR. RICHTER: That's correct.

13 MS. ZIEGLER: I'm just trying to understand
14 why if it appears, you know, by your good efforts
15 on the Saco River perhaps that this sort of
16 technique works and Hydro-Kennebec has picked it
17 up, why not just try to make the optimum situation
18 already available now this year as opposed to
19 waiting until 2009?

20 MR. WILEY: Well, again, I think if you
21 look at the KHDG Agreement the way it was outlined
22 anyway, and for whatever it's worth, the
23 requirement for FPL at its project was that no new
24 diversionary devices were required. Now, setting
25 that aside, Hydro-Kennebec did not have the same

1 kind of expectations in terms of its facilities.
2 To say that we are not interested or we won't put
3 in diversionary devices is a bit of a misnomer in
4 large part. I know it's frustrating for you to
5 hear, but, you know, that's what these studies
6 were intended to do but remember, we do adapt and
7 we will modify but you need information for which
8 to do so. To simply put in a diversionary device,
9 if it makes you feel good, you know, that's great
10 but at the end of the day, whether or not it's
11 effective remains to be seen. It may be one of
12 the alternatives we look at, but we don't
13 typically go in and just throw things in for the
14 sake of throwing them in without having some
15 comfort level that they're going to be effective
16 in what they're going to do. As Bob has said, you
17 know, a lot of what you see other people doing
18 around here, whether there be punch plates or
19 these booms or whatever, a lot of that has been
20 developed from our expertise and our different
21 facilities throughout the state. So, I mean, in
22 many respects what is being utilized at some of
23 these projects are things that we have learned and
24 we adapt to over the years as we get better
25 information. I think perhaps what -- if we were

1 seeing in our minds and observing a lot of dead
2 eels or a lot of migratory fish below our
3 projects, we would be doing a heck of a lot more
4 than what we are now. We went out in 2004 after
5 the Benton Falls experience to look to see whether
6 or not we were experiencing the same thing. I
7 mean, up until that point, there was no concern on
8 our part that we were having any implication or
9 any, you know, negative effects in terms of the
10 way we were operating our facilities and the
11 diversion devices and the gates and the sluices
12 and everything else that we were providing, you
13 know, at least up to this point in time we've been
14 feeling that we're providing exactly what it that
15 we should be doing.

16 MS. ZIEGLER: Do you provide diversionary
17 devices now?

18 MR. WILEY: No, not on the Kennebec.

19 MS. ZIEGLER: Okay. You just said --

20 MR. WILEY: But we do have -- again, Fort
21 Halifax is one of the KHDG projects, and we do
22 have punch plates on Fort Halifax, and we have
23 gone in and we've even had to modify that a couple
24 of times in terms of based on the experience that
25 we've had. The people of Benton Falls are now

1 instituting something analogous to that. They're
2 experimenting and they're fixing things as they
3 see it as well. I mean, one of the issues it had
4 and we had at Fort Halifax was, you know, I think
5 it was discussed earlier by Mr. Watts or whoever,
6 was impingement on those, you know, punch plates
7 and things. So that doesn't help if you're
8 impinging the fish on that punch plate. What
9 we're trying to do is to fix things so you don't
10 have that kind of situation.

11 MS. ZIEGLER: The gates at these facilities
12 -- because we have not been on a site visit
13 unfortunately so we can't really see, at, say,
14 Shawmut where are the gates in relation to and how
15 much of the face of the dam -- how much of the
16 area do they encompass?

17 MR. WILEY: Typically what happens is the
18 U.S. Fish and Wildlife Service has certain
19 criteria for the volume of water, the percentage
20 of the flow that they want to see utilized to be
21 passed through these gates and so forth. So you
22 basically work from their criteria of a certain
23 percentage of the flow that will go through these
24 devices based upon experience and history that you
25 understand, and I think it's something in the

1 order of four or five percent of the flow that
2 will be passed through these gates through
3 downstream migration to allow fish to pass through
4 them. So there's a certain percentage that you do
5 in terms of opening up those gates. There may be
6 additional passages provided, again, depending
7 upon the river flows over the spillways and then
8 obviously you'll have opportunities through the
9 turbines. So, again, all of those kinds of things
10 are dictated in large part with the agencies and
11 the various designs and understanding in terms of
12 fish behavior and so forth that help guide us in
13 terms of setting up the right kind of parameters.

14 MR. ZIEGLER: If you don't put a screen or
15 a punch plate on the turbines and the percentage
16 of flow through the gates is only four or five
17 percent, it would just seem to indicate that you
18 would need some sort of diversionary mechanism in
19 order to guide --

20 MR. WILEY: Remember these fish are
21 typically swimming near the surface and, again,
22 depending upon the arrangements, that's where
23 they're typically attracted to that hydraulic, if
24 you will, and that's why in large part the four to
25 five percent, or whatever the right number is, is

1 kind of the guidelines from the U.S. Fish and
2 Wildlife Service to provide passage in the amount
3 of water that they're looking to utilize for that
4 passage. So, yes, I suppose you could say having
5 a diversionary device in front of every intake may
6 or may not be more effective. It doesn't
7 necessarily mean it will be, but it can be, and in
8 large part that's what Hydro-Kennebec will find
9 out based upon its studies. We're doing much the
10 same as Bob had indicated down to Bar Mills and,
11 again, it's the type of thing that if we find
12 we're having serious issues with passing fish,
13 whether it's upstream or downstream, we go and we
14 fix it.

15 MS. ZIEGLER: I have one last question.
16 The study is only going to encompass -- these
17 radiotelemetry studies, they're only going to
18 encompass Shawmut and Lockwood initially. Why not
19 Weston?

20 MR. RICHTER: This year we're going to be
21 doing the downstream eel passage study at Lockwood
22 and Shawmut. We contemplated doing Weston at the
23 same time, and after looking at all the logistics
24 and working with the agencies, we decided that
25 doing two was about the most we could do this year

1 and that's why we deferred Weston to 2008, and
2 we're also going to start off with Shawmut --
3 excuse me, Lockwood with downstream passage for
4 the other anadromous fish species of American
5 shad, Atlantic salmon kelts, salmon smolts and
6 river herring.

7 MS. ZIEGLER: Thank you.

8 HEARING OFFICER HILTON: I just have one
9 quick one. I guess this is probably for Al. You
10 mentioned that the KHDG Agreement indicated that
11 no new diversionary devices were required and, of
12 course, that agreement sets out all sorts of other
13 criteria, too. It was largely incorporated and
14 forms a basis of the FERC license. Your FERC
15 license is 30 years, 50 years?

16 MR. WILEY: Generally 30, something on that
17 order.

18 HEARING OFFICER HILTON: So is it your
19 position that that governs us for 30 years?

20 MR. WILEY: Well, again, there are --

21 HEARING OFFICER HILTON: That you would be
22 under no obligation to provide anything for 30
23 years?

24 MR. WILEY: No, no, again, that pertains to
25 the interim passage, remember, the no new

1 diversionary device. It doesn't necessarily apply
2 to permanent passage, and permanent passage, on
3 the other hand, may very well be more involved
4 than the interim passage measures. A lot of it
5 depends on whether they're deemed effective or
6 not. If they're not as effective as the agencies
7 would otherwise like, then we'll have to do a heck
8 of a lot more. Whether they turn into permanent
9 passage remains to be seen but there certainly is
10 no expectation that -- if additional permanent
11 measures are required, then they will be
12 installed.

13 HEARING OFFICER HILTON: Mr. Murch, do have

14 any questions?

15 MR. MURCH: It depends how quickly you want
16 to move along.

17 HEARING OFFICER HILTON: Well, we're
18 already kind of -- about ten minutes over.

19 MR. MURCH: Maybe just a quick follow up to
20 follow up on some of the questions from Board
21 Members Ehrenfeld and Anderson, and just to
22 illustrate the difficulty in these numbers for
23 passage effectiveness and efficiency, so I guess
24 for Brandon and Bob, let's just deal with juvenile
25 fish for the moment in my discussion. I've got a

1 hundred juvenile fish, salmon, shad, alewives,
2 take your pick, and they're moving downstream past
3 Shawmut and let's just assume some turbine
4 mortality at Shawmut so that if I put a hundred
5 fish through the turbine, I have a 20 percent
6 mortality, just to put a number out there. Now,
7 as I understand it, the overall efficiency of that
8 Shawmut dam in passing fish downstream is a
9 function of the number of fish that go through the
10 turbine and the number of fish that pass someplace
11 else. So describe in particular the differences
12 between a wet spring when these fish are migrating
13 downstream and a dry spring and how that can
14 affect all these numbers.

15 MR. KULIK: I'll take a crack at it for
16 you.

17 MR. MURCH: For a non-biologist.

18 MR. KULIK: Right. Okay, so let's do the
19 wet spring scenario first. During a wet spring,
20 let's say, the discharge in the Kennebec, let's
21 say, the month of May when salmon smolt are
22 migrating downstream, for example. It would be
23 reasonable to assume that the Kennebec was flowing
24 at a rate of about 10,000 cubic feet per second.
25 The typical capacity of the turbines at these

1 sites is in the neighborhood of about 5,000 CFS.
2 So 50 percent of the flow would be spilling over
3 the spillway and the other 50 percent would be
4 going through the powerhouse. If the fish are
5 coming down and there's a lot of flow in the
6 river, the fish are probably going to be
7 behaviorally looking for the flow fields where
8 there's accelerated flow. Some of that will
9 probably be on the spillway. The canal, as you've
10 seen in the exhibits, is off to one side. Some of
11 the fish will also detect that. So let's just say
12 50 percent of those fish go over the spillway.
13 The other 50 percent -- so out of a hundred fish,
14 50 have passed over the spillway, the survival
15 rate on those fish would be pretty high. I
16 actually brought some literature on that today if
17 anyone is interested. So let's assume a hundred
18 percent or pretty close to it for the fish going
19 over the spillway. Of the 50 percent that then go
20 through the powerhouse using your survival number,
21 20 percent of that 50 would be killed. So that
22 would mean 30, so the net effect at the site would
23 be 80 of the hundred fish would survive that
24 site.
25 MR. WILEY: And that's if you don't have

1 the gates in the intake canal open.

2 MR. KULIK: Right, right. Assuming the
3 gates were open, some of those fish would pass
4 down through that.

5 MR. MURCH: And in a different year with
6 different flow characteristics, you could get
7 different overall effectiveness either higher or
8 lower?

9 MR. KULIK: Right. In a dryer year when
10 the project isn't spilling, all the water goes
11 into the canal. There's also the attraction of
12 the open gates that would then be detectable to
13 the fish because they wouldn't be overwhelmed by
14 the overall river flow. You'd probably still have
15 a split, and the efficiency -- there's a
16 difference between efficiency and survival, which
17 are two different parts of the parameter, and I
18 think that's part of what you were getting at.
19 It's common for diversion efficiency on fishways
20 to be relatively high. The studies on the Saco
21 River show that to be about 80 percent to 90
22 percent just for diverting the fish out of the
23 canal into the designated fishway. So in that
24 case if it was 90 percent of the fish being
25 diverted by a fishway, the 10 percent remaining

1 would be the ones going through the turbine
2 experiencing some amount of turbine mortality. So
3 it could be relatively low, too.

4 MR. MURCH: All right, thank you. I hope
5 that was helpful. It does illustrate how
6 difficult some of these numbers are because as I
7 understand it you can have vastly different
8 efficiencies at a given project from year to year,
9 and it's not just turbine passing through fish you
10 have to think about -- excuse me, not just fish
11 passing through turbines that you have to think
12 about.

13 HEARING OFFICER HILTON: So we need some
14 redirect of the Florida Power and Light
15 witnesses. Mr. Thaler.

16 MR. THALER: Thank you, Mr. Chairman.
17 Again, I'll do it from here because I'm going to
18 keep my redirect very limited so that the scope of
19 recross is likewise limited and tied to the scope
20 of redirect. I just had a couple questions. This
21 could be for any of the panelists. Mr. Hilton
22 asked some questions about log drives and log
23 sluice, and I've seen some of the logs that used
24 to go through the drives, and is it generally true
25 that -- the logs that were going through the

1 sluices through some of these dams, how would
2 those compare to the size of the fish that would
3 currently be going through there?

4 MR. RICHTER: Well, as Mr. Hilton knows,
5 his boat was probably four feet long and that
6 would probably be a pretty big fish.

7 MR. THALER: But, generally speaking, the
8 fish would be smaller, correct?

9 MR. RICHTER: That's correct.

10 MR. THALER: All right. Moving along, Mr.
11 Friedman asked the question a long time ago in his
12 questioning to Mr. Richter, he had you read a
13 portion of his rebuttal that came from page 10 of
14 the KHDG Agreement. I don't know, Mr. Wiley, if
15 you have that. It was Exhibit 6 of FPL's
16 pre-filed direct.

17 MR. WILEY: I have it.

18 MR. THALER: Okay, and if you look at page
19 10, subsection 2, passage through turbines.

20 MR. WILEY: Yes.

21 MR. THALER: Mr. Friedman was quoting from
22 a portion lower down towards the bottom of the
23 page, starting at the top of subsection 2 where it
24 says licensee and the resource agencies agree that
25 fish passage by means of sluiceways and/or

1 controlled spills are the first and preferred
2 approach to interim downstream fish passage at
3 Lockwood.

4 MR. WILEY: Correct.

5 MR. THALER: Are sluiceways and/or
6 controlled spills being utilized?

7 MR. WILEY: Yes.

8 MR. THALER: At Lockwood?

9 MR. WILEY: Yes.

10 MR. THALER: And footnote 1 I think is what
11 Mr. Hilton was just referring to and, Mr. Wiley,
12 corrected by the construction of new diversionary
13 structures to achieve success is not required?

14 MR. WILEY: Correct.

15 MR. THALER: And the resource agencies
16 referenced in the KHDG Agreement that was
17 incorporated by the Department, the DEP, into
18 these water quality certificates, what resource
19 agencies -- what state agencies is that referring
20 to?

21 MR. WILEY: DMR, Maine Atlantic Salmon
22 Commission and IF&W.

23 MR. THALER: All right, and then just
24 quickly looking -- and turn back to page 8 of the
25 agreement.

1 MR. WILEY: Yes.

2 MR. THALER: Under section 4A, biological
3 assessment, I don't remember if it was Mr. Hilton
4 but I think maybe somebody else was talking about
5 shad, the 8,000 shad, as a trigger. Is it true
6 that there's a second trigger or an option for the
7 resource agencies involving the biological
8 assessment?

9 MR. WILEY: Yes, there is.

10 MR. THALER: And, last, Board Member
11 Anderson asked a question about what percentage
12 would be significant impairment to a population
13 for purposes, for example, of the anti-degradation
14 clause. Are the same resource agencies that are
15 involved in the KHDG Agreement that we're going to
16 hear from either later today or tomorrow, are
17 those agencies ones that in your experience have
18 opinions about what would be a significant
19 impairment to a fisheries or a wildlife
20 population?

21 MR. WILEY: Yes.

22 MR. THALER: I have nothing further. Thank
23 you.

24 HEARING OFFICER HILTON: Recross by --

25 MR. NICHOLAS: If you give us a minute,

1 maybe we can shorten it to virtually nothing.

2 HEARING OFFICER HILTON: Okay. Do you mind
3 if I move on to Save Our Seabasticook?

4 MR. NICHOLAS: No.

5 HEARING OFFICER HILTON: Jeff?

6 MR. VANDEN HEUVEL: Yes.

7 HEARING OFFICER HILTON: Did you want to do
8 recross? And you understand that recross has to
9 be based on the redirect.

10 MR. VANDEN HEUVEL: I pass.

11 HEARING OFFICER HILTON: Sarah, why don't I
12 move to you. Do you have any recross?

13 MS. VERVILLE: No.

14 HEARING OFFICER HILTON: What's the
15 verdict, Gents?

16 MR. NICHOLAS: No questions.

17 HEARING OFFICER HILTON: No questions. I
18 just have one clarification. I guess this is for
19 Al.

20 MR. WILEY: I shouldn't have closed that
21 binder yet.

22 HEARING OFFICER HILTON: I love asking you
23 questions, Al. Eight years now I've been asking
24 you questions.

25 MR. WILEY: Even when I'm not supposed to

1 be at the table you ask me questions.

2 HEARING OFFICER HILTON: This construction
3 of new diversionary structures, does that relate
4 to only interim or to final?

5 MR. WILEY: Interim.

6 HEARING OFFICER HILTON: Only interim?

7 MR. WILEY: Yes.

8 HEARING OFFICER HILTON: And is that with
9 respect to all three of your facilities?

10 MR. WILEY: Correct.

11 HEARING OFFICER HILTON: That's it.
12 Anything else from the Board? I guess that's it.
13 We're going to take a brief break.

14 (OFF RECORD)

15

16 HEARING OFFICER HILTON: We're at the point
17 in our proceedings where Kennebec Hydro has the
18 floor and so, Sarah Verville, I'm looking to you
19 for leadership right now. Are we going to have
20 some direct?

21 MS. VERVILLE: We have our witnesses who
22 are going to present summary testimony, Brian
23 Stetson, Lou Flagg and Kevin Bernier.

24 MS. BERTOCCI: Get closer to the mike.

25 MS. VERVILLE: Brian?

1 HEARING OFFICER HILTON: Welcome,
2 Gentlemen.

3 MR. STETSON: I was waiting for the high
4 sign. Mr. Chairman, Members of the Board, my name
5 is Brian Stetson. I'm the general manager of
6 operations for Brookfield Power. I am responsible
7 for operational decisions on Brookfield Power's
8 hydro assets on the Kennebec River and the
9 Penobscot. I have here with me today Kevin
10 Bernier who is compliance specialist and biologist
11 for Brookfield Power and later here in summary
12 testimony you'll hear from Lou Flagg who we've
13 secured to provide us advice as to the fish
14 restoration goals including the KHDG Agreement and
15 the status of those goals, and I'll explain in a
16 second why we needed Lou's help. Brookfield Power
17 respectfully asks the Board to dismiss the
18 petitions in front of you today. The petitioners
19 have provided no evidence specific to the
20 Hydro-Kennebec facility as to failure to meet any
21 of the criteria of the water quality certification
22 under state law. Hydro-Kennebec, Brookfield Power
23 has provided evidence in the form, you'll see in
24 our testimony, of the 2001, 2002 and 2003 studies
25 on mortality for downstream passage, that there's

1 no mortality at the Hydro-Kennebec facility.

2 Brookfield Power purchased the remaining 4
3 years of a 20-year lease of the Hydro-Kennebec
4 facility in 2005. The lease terminates -- our
5 lease terminates in 2009. We did so with the
6 clear understanding that there was a long-term
7 fisheries restoration plan in place on the
8 Kennebec River and it was done in consultation
9 with a large group of stakeholders, including the
10 state and federal agencies, Trout Unlimited,
11 America Rivers and Natural Resources Council of
12 Maine. Last year we constructed a downstream
13 passage, and I have some pictures here and those
14 are blown-up pictures of our exhibits. We haven't
15 done anything inappropriate here in terms of
16 throwing something new, and I hope later on in
17 discussion we can get into the specific design of
18 what we did, and we'll be glad to do it, but we
19 built this facility to achieve three goals, three
20 fisheries goals, and that's safe and effective
21 passage downstream at Hydro-Kennebec for eel, shad
22 and salmon, and that facility is designed to do
23 just that. We are planning and have completed
24 consultation with the state and federal agencies
25 for studies this year. The studies we will

1 perform this year have two goals, the
2 effectiveness of the passage that we put in, but
3 more importantly to us, to study the behavior,
4 though specifically of eels, but of all target
5 fish in that facility and that, again, goes
6 directly to the design of what we've installed.
7 Behavior is the key and behavior is unique from
8 one facility to another and the design of fish
9 passage is unique, thus, from one facility to the
10 other and with that, I'll turn the mike over to
11 Lou Flagg who will talk briefly about fish
12 restoration goals and the KHDG Agreement and the
13 current status.

14 MR. FLAGG: Thank you, Brian. My name is
15 Lou Flagg, and I'd just like to tell you one
16 little story. The first time I ever chaired a
17 meeting, I was with the New England Fishery
18 Management Council and I was in charge of a
19 herring committee and I was really nervous, so I
20 was going like a hundred miles an hour and I'm
21 going to try to be slower today and be more
22 respectful for the recorder. So if I get going
23 too fast, please hold me in check.

24 Mr. Chairman, Members of the Board, my name
25 is Lou Flagg. I'm a life-long resident of the

1 State of Maine and I graduated from the University
2 of Maine at Orono back in 1965 with a degree in
3 wildlife management. I retired from DMR following
4 41 years with the agency of which the majority of
5 my time, over 31 years, was spent as marine
6 scientist specializing in anadromous and
7 catadromous fish restoration and management. As
8 director of DMR Stock Enhancement Division, my
9 staff and I were extensively involved with the
10 1986 and 1998 Kennebec River fish restoration
11 agreements. I believe the petitioners' request to
12 modify the current permit for the Hydro-Kennebec
13 and the other lower mainstem Kennebec River dams
14 is without merit and should be dismissed.

15 The major water pollution abatement projects
16 in the mid 1970s have had a major positive impact
17 on the fishery resources of the Kennebec River.
18 Over the past 30 years dissolved oxygen levels in
19 the lower river and estuary have been adequate to
20 sustain fish and other aquatic life. Atlantic
21 salmon, alewives, American shad stocked above the
22 Hydro-Kennebec Project must pass through these
23 waters upon their migration back to the sea.
24 American eels ascend the Hydro-Kennebec Project
25 through a recently constructed upstream eel

1 passage. Adult silver eels immigrate downstream
2 to the sea through the Hydro-Kennebec Project
3 waters; therefore, these species are present in
4 the Hydro-Kennebec Project waters as pre- and
5 post-spawner adults and juveniles since they all
6 must migrate through the project waters to and
7 from the sea to complete their life cycles. To my
8 knowledge, there have been no reported fish kills
9 of Kennebec River American shad, alewives,
10 blueback herring, Atlantic salmon or American eels
11 due to poor water quality since October 1, 1976
12 when major state-wide water pollution abatement
13 goals were achieved.

14 The petitioners' request for immediate and
15 effective, that is, a hundred percent safe up and
16 downstream passage at the subject dams I believe
17 is inconsistent with the KHDG Agreement and the
18 fishery agencies' restoration plans. There's no
19 basis for the unilateral acceleration of the
20 schedule to provide permanent upstream and
21 downstream fish passages at these dams, upstream
22 passages at dams above Lockwood based on
23 achievement of predetermined biological triggers
24 for shad or on the biological assessment of
25 Atlantic salmon, alewife and blueback herring.

1 Phased construction of passages on the Kennebec
2 and Sebasticook Rivers was agreed to because it
3 was recognized that it takes time for anadromous
4 fish species to repopulate historical habitat.
5 Phased construction allows passages to be
6 constructed when necessary to accommodate
7 expanding fish populations. American shad numbers
8 up to the trigger numbers specified in the 1998
9 agreement can be adequately accommodated by a trap
10 and truck program. The majority of American shad
11 typically return from the sea after five to six
12 years and this species could require two to three
13 or more generations depending on the size of the
14 initial remnant stocks to bring about significant
15 returns to the area. Edwards dam removal provides
16 unrestricted access to a very large amount of shad
17 spawning and nursery habitat below the
18 Waterville/Winslow area that will take some years
19 to fully utilize. Of the total shad habitat in
20 the Kennebec River above Augusta, 24 percent of
21 that habitat occurs between Augusta and
22 Waterville. Since inception of the shad --

23 HEARING OFFICER HILTON: Mr. Flagg, you
24 need to slow down.

25 MR. FLAGG: I'm sorry, thank you.

1 HEARING OFFICER HILTON: A lot.

2 MR. FLAGG: Okay. Since inception of the
3 shad truck stocking program, trucking mortalities
4 have ranged from zero to about 43 percent
5 depending on the condition of the fish and the
6 distances to be hauled. In the past six years,
7 long distance hauling of shad, that is, from the
8 Merrimack and Connecticut Rivers, has produced
9 mortalities ranging from 5 and a half to 11
10 percent. Short hauls of American shad such as
11 moving fish upstream on the Kennebec River above
12 Lockwood should reduce mortalities to close to
13 zero. Trap and truck programs are recognized as a
14 legitimate fish passage management tool that is
15 employed extensively throughout New England.
16 Conditions have actually improved in recent years
17 for anadromous and catadromous fish in the
18 Kennebec River. The petitioners would have the
19 Board believe that the Hydro-Kennebec Project
20 along with Lockwood, Shawmut and Weston Projects
21 are endangering the American eel resource of the
22 Kennebec River. When Edwards dam was in place and
23 prior to construction of any upstream eel passages
24 enough eels were successfully ascending the
25 Kennebec and Sebasticook Rivers to support active

1 commercial weir fisheries for out migrating silver
2 eels, particularly on the upper portions of the
3 Sebasticook drainage. Recently constructed
4 upstream eel passage at Hydro-Kennebec and other
5 dams on the Kennebec and Sebasticook Rivers has
6 improved the passage of American eels in these
7 waters. The 1986 and the 1998 Kennebec River fish
8 restoration agreements have been highly successful
9 in terms of anadromous and catadromous fish
10 restoration. Removal of Edwards dam and
11 restoration of riverine habitat in the lower
12 Kennebec has provided unrestricted access for all
13 native anadromous and catadromous species to the
14 lower 18 miles of the river. Recreational
15 fisheries for striped bass, American shad and
16 alewife and a commercial fishery for alewives has
17 been established in the 18 mile river reach below
18 Waterville. Interim or permanent fish passages
19 have been completed at seven hydropower dams on
20 the lower Kennebec and Sebasticook Rivers and at
21 four non-hydro dam sites on the Sebasticook
22 River. Access of Atlantic and short-nosed
23 sturgeon to historic spawning and nursery habitat
24 above Augusta has been restored. Funding has been
25 provided to conduct studies regarding eel

1 migration at the seven hydro dams subject to the
2 agreements. These activities and successes would
3 not have been possible without the cooperative
4 efforts of nongovernmental organizations, private
5 industry, state and federal fishery agencies
6 through these cooperative agreements.

7 During negotiations involving the 1999
8 settlement agreement there was increasing concern
9 about the status of the American eel resource in
10 Maine and throughout its range. Fisheries for
11 elvers in Maine had increased substantially
12 through the 1990s. DMR, IF&W and the Maine
13 Legislature began to pass increasingly restrictive
14 regulations and laws to counter increasing fishing
15 pressure on this resource. Permanent downstream
16 eel measures were to be implemented at the KHDG
17 dams based on research to be carried out by DMR to
18 determine the most appropriate measures for
19 downstream eel passage. Immediate provision of
20 downstream eel measures was deferred pending study
21 results because eel behavior at dams was not well
22 understood. Downstream passage studies on the
23 mainstem Kennebec have been limited to date. The
24 Kennebec is a very large river system making it
25 difficult to capture, tag and track out migrating

1 adults. High water events, radiotelemetry
2 equipment calibration problems and difficulty
3 capturing silver eels for tagging have made
4 completion of these studies difficult.
5 Nevertheless, a downstream anadromous fish and eel
6 passage facility was constructed at the
7 Hydro-Kennebec Project in 2006 in consultation
8 with state and federal resource agencies.
9 Upstream eel passage has been available at the
10 Hydro-Kennebec Project as early as 2003 with
11 annual eel passage ranging from 3,000 to 7,900
12 eels. Since eels have a 7 to 30 year residency in
13 growing areas, the 2003 to 2006 eels passing
14 upstream will not out migrate as adults until 2010
15 to 2014 at the earliest. This same time lag will
16 also occur on the Seabasticook drainage. The
17 results of recently enhanced upstream passage of
18 eels should manifest itself in the form of
19 increased adult out migrants in 7 to 30 years from
20 now. Effectiveness studies of the eel and
21 anadromous fish downstream passage facility at
22 Hydro-Kennebec plan for 2007 will allow the
23 agencies and Hydro-Kennebec to determine whether
24 refinements to the facility are needed for
25 effective downstream eel migration.

1 In summary, it is my opinion that the Board
2 should not modify the water quality certifications
3 at these projects. I believe the KHDG Agreement
4 has, in summary, provided great benefits to the
5 anadromous and catadromous fish resources of the
6 Kennebec River. I believe modification of the
7 water quality certifications could have
8 potentially detrimental impacts upon the ongoing
9 cooperative efforts being pursued by all
10 signatories to the KHDG Agreement. The recent
11 finding by the Fish and Wildlife Service that
12 American eels are not threatened or endangered
13 adds further justification that modification of
14 the existing water quality certifications on the
15 KHDG dams is unnecessary and unwarranted. In
16 addition, the Atlantic States Marine Fisheries
17 Commission, a compact of the 15 Atlantic Coast
18 states from Maine to Florida developed an
19 interstate fishery management plan for the
20 American eel in the year 2000 to address
21 coast-wide management of the eel resource. Draft
22 Addendum 2 to the interstate plan is currently a
23 work in progress that will propose a number of
24 management options to facilitate an increase in
25 the number of adult American eels to immigrate to

1 the ocean to spawn. Options in that addendum
2 include commercial fishing gear and size
3 restrictions, seasonal closures, management
4 triggers based on juvenile abundance indices and
5 recommendations to protect upstream and downstream
6 migration. This ASMFC initiative is significant
7 for the American eel resource because it will
8 coordinate the efforts of the 15 Atlantic Coast
9 states from Maine to Florida. This geographic
10 area includes a major portion of the range of the
11 American eel in U.S. waters. Coordinated
12 management under the auspices of ASMFC can make
13 and should make a significant difference for
14 American eel conservation. Thank you.

15 HEARING OFFICER HILTON: Thank you, Mr.
16 Flagg.

17 MR. STETSON: That's our summary, Chairman
18 Hilton.

19 HEARING OFFICER HILTON: Kevin, did you
20 speak?

21 MR. STETSON: No, he's available to answer
22 questions. We were trying to keep to our time
23 limitations here.

24 HEARING OFFICER HILTON: Thank you, Gents.
25 Who goes next? Mr. Watts, Mr. Friedman, are you

1 or your counsel -- you're up for cross-
2 examination.

3 MR. WATTS: I have one question.

4 HEARING OFFICER HILTON: You need to pull
5 your microphone over by you or go over by it.

6 MR. WATTS: Hello, Lou.

7 MR. FLAGG: Hi, Doug.

8 MR. WATTS: Mr. Flagg taught me about the
9 river.

10 HEARING OFFICER HILTON: Did he teach you
11 well?

12 MR. WATTS: That's up to others to decide.
13 I certainly learned much of what I know about the
14 river from Mr. Flagg. I just wanted to go over
15 two things that he mentioned. First of all, and
16 just from my notes, that you stated that even when
17 Edwards dam was in place, there was sufficient
18 numbers of eels getting up river to have actual
19 commercial eel weirs on the Seabasticook. Related
20 to that, because this is -- this is something Ms.
21 Ziegler had asked as well -- your experience on
22 the Kennebec, observations of eels, how far up on
23 the mainstem?

24 MR. FLAGG: I don't have any good knowledge
25 of eels above Lockwood. I've been to the Lockwood

1 -- I've seen eels at the Lockwood site but I
2 don't recollect that I've gone up river beyond
3 that to, say, Shawmut or Weston or any of those
4 other projects.

5 MR. WATTS: But say during the time that
6 Edwards was in place, you know, prior to '99, did
7 you have anecdotal information about the presence
8 of eels on the mainstem above Waterville, that
9 they were getting above those dams?

10 MR. FLAGG: Yes, I believe I did, yes.

11 MR. WATTS: So even without the fishways
12 that have now been put in place, at least some
13 number were getting --

14 MR. FLAGG: Yes, yes.

15 MR. WATTS: Getting through the dams as
16 they existed. So essentially we've had silver
17 eels coming down river through the drainage now
18 for a long time?

19 MR. FLAGG: There are some. I guess the
20 issue is the quantities but, yes, I'm sure there
21 are some.

22 MR. WATTS: In other words, all's I'm
23 trying to establish is it's not a situation where
24 we now for the first time have eels above these
25 dams that need passage. There are some number of

1 eels --

2 MR. FLAGG: They've existed up there
3 historically for some time at some level of
4 abundance.

5 MR. WATTS: And your point further would be
6 that the installation of the new upstream eel
7 ramps is going to increase the number in the
8 future coming down?

9 MR. FLAGG: Yes, yes.

10 MR. WATTS: Okay, and, again, because
11 you're one of the people that knows this drainage
12 better than anyone, is that we had a question -- a
13 small discussion with Ms. Ziegler. I think it was
14 referring to a paper -- the paper by Mr.
15 McCleave's about any preference that eels might
16 show within the drainage, and apparently some
17 mention was made about there might be some innate
18 preference for the Sebasticook drainage rather
19 than other parts of the Kennebec. Do you have any
20 personal experience that might inform that?

21 MR. FLAGG: Well, I think there's some
22 fairly good evidence that there is a certain
23 propensity for eels to go into the Sebasticook
24 drainage versus the mainstem Kennebec. If you
25 look back on some of the recent annual reports of

1 the KHDG group, there's really some interesting
2 information that relates to upstream eel elver
3 migration. Hydro-Kennebec has had an upstream eel
4 passage in place for several years now and, of
5 course, on the Fort Halifax Project there's been
6 upstream eel passes there since 1999, and if you
7 look at the data on what's passing at those two
8 sites over time since 1999 to the present, in some
9 years at Fort Halifax close to half a million
10 elvers have passed over that dam in some years
11 ranging anywhere from 8,000 one year up to about
12 473,000. On the mainstem Kennebec at the
13 Hydro-Kennebec Project, the passage at that
14 particular site has been to date from 2003 through
15 2006, 3,000 up to 7,900. So there's a huge
16 difference in the amount of eels passing through
17 the eel passages at the mainstem Kennebec versus
18 the Seabasticook drainage. So just from that data,
19 it would -- I would conclude that that's pretty
20 good evidence that there's some major attraction
21 toward the Seabasticook drainage for a lot of those
22 juvenile eels coming in.

23 MR. WATTS: Thank you, and I'm familiar
24 with the numbers too at Fort Halifax and they are
25 high, and at Lockwood, I don't know what the count

1 is at Lockwood. With the ledges there it might be
2 more difficult to get a handle on how many are
3 there, but the only other thing following up on
4 those two questions, from the DMR's perspective,
5 from the state's perspective, all your time
6 working through the KHDG Agreements, working
7 through what's being done with eels, has DMR ever
8 established as a policy that safe and effective
9 eel passage on the mainstem is not a priority?

10 MR. FLAGG: Well, I'm not speaking for DMR.

11 MR. WATTS: Well, during your -- are you
12 aware of any policy at DMR that, well, the
13 Sebasticook is for eels, the mainstem is not
14 important for eels, therefore, it's not really
15 important that we have good fish passage for
16 eels?

17 MR. FLAGG: No, we never had that
18 discussion. We never had that discussion about
19 preference for passage efficiency between one
20 drainage versus another, no.

21 MR. WATTS: Has it been considered equal
22 then, safe passage everywhere in the drainage
23 where eels travel?

24 MR. FLAGG: Whatever -- yeah, whatever the
25 application of the fish passage criteria. It's

1 applied equally everywhere.

2 MR. WATTS: Thank you.

3 MR. NICHOLAS: I think we could shorten it
4 if you could just give us one minute. There may
5 be a little channeling going on so I apologize,
6 but we will keep it brief and we'll be able to
7 move on.

8 HEARING OFFICER HILTON: Well, you have
9 probably another 20, 25 minutes left out of your
10 35-minute allocation so you have every right to
11 take all that you want.

12 MR. NICHOLAS: We won't need it. The
13 curtain that you have up, how deep does it go?

14 MR. STETSON: It's a ten-foot deep curtain.

15 MR. NICHOLAS: How deep is the water at
16 that point?

17 MR. STETSON: The water at that point --
18 let me describe the -- if I may?

19 HEARING OFFICER HILTON: I'll just remind
20 Dave, you really need to pull that microphone
21 right up, especially if you're going to be
22 addressing your questions facing the witnesses.

23 MR. STETSON: Mr. Chairman, if I could
24 approach that picture?

25 HEARING OFFICER HILTON: I will allow you

1 to do that.

2 MR. STETSON: Thank you, and I'll speak
3 louder. The curtain is ten feet deep. This is
4 the natural river here. The entrance, what's
5 called by Dana's term the forebay, this is the
6 trash rack.

7 MS. ANDERSON: I'm missing the end of your
8 sentence. Forebay or the what?

9 MR. STETSON: I need not to jump around and
10 thank you for stopping me. This is the natural
11 river here and the inlet to a hydro dam -- to the
12 turbine is often called a forebay, and I think
13 it's on Dana's graph. The river depth, to answer
14 your question, is 20 feet as it leaves right here,
15 right under this boom as it leaves the river and
16 it progresses to 60 feet here. The boom runs
17 diagonally across ten feet deep.

18 MS. ZIEGLER: Can I ask one clarifying --

19 MS. ANDERSON: Microphone.

20 MS. ZIEGLER: So you say the forebay is the
21 whole area and the natural river bed is 20 feet
22 but then it goes to 60?

23 MR. STETSON: 60 feet at the inlet. That's
24 to reduce the velocities at the trash rack and you
25 worry about those things impinging fish on the

1 racks. That's why you would widen the area, one
2 of the reasons you would.

3 MR. NICHOLAS: I have a question for Mr.
4 Flagg. On page 5 of your testimony you refer
5 to --

6 MR. MERRILL: For the Board that's GLH 17.

7 MR. NICHOLAS: The last paragraph you say
8 the Kennebec is a very large river system making
9 it difficult to capture, tag and track out
10 migrating adult eels. High water events,
11 radiotelemetry equipment and calibration problems,
12 had difficulty capturing silver eels for tagging
13 have made completion of these studies difficult,
14 is that correct?

15 MR. FLAGG: Yes.

16 MR. NICHOLAS: That's it. Thanks. That's
17 all.

18 HEARING OFFICER HILTON: That's it. Cross
19 by FPL, Mr. Thaler.

20 MR. THALER: Yes, thank you. I'll do it
21 from here. I know the witnesses will have to turn
22 a little bit and then when you answer, you should
23 answer facing the Board because that's where
24 you've got your mike, and most of my questions
25 will be directed to Mr. Flagg so if you want to

1 give him the mike. Thank you. Mr. Flagg, you
2 mentioned in response to I think Mr. Watts'
3 questions and this was also brought up by Board
4 Member Anderson earlier about what studies have
5 found with respect to the population of eels that
6 appear to be in the Sebesticook versus the
7 Kennebec, do you remember that general
8 discussion?

9 MR. FLAGG: Yes.

10 MR. THALER: And have you seen the DMR
11 statistics that were attached as a table to the
12 State Agencies' testimony that have been filed in
13 this proceeding?

14 MR. FLAGG: I don't recall seeing that,
15 no.

16 MR. THALER: Let me just --

17 HEARING OFFICER HILTON: Do you want to
18 repeat that for me, Mr. Thaler?

19 MR. THALER: Sure. Attachment 3 to the
20 State Agency testimony, that was the testimony
21 filed at the same time as the rebuttal by DMR,
22 Atlantic Salmon Commission and IF&W, and at page 3
23 of their testimony they say that -- and it's also
24 at page 3 -- at page 3 of their testimony they
25 address the issue I think Ms. Anderson raised this

1 morning, and they say in the Kennebec Watershed
2 the number of yellow eels that migrate up the
3 Sebasticook River in a given year is 10 to 100
4 times greater than the number that migrates up the
5 mainstem Kennebec and then they have a footnote
6 and it says see attachment 3. Let me just show
7 you the attachment 3, if you haven't seen it.
8 It's from DMR. Can you just tell us again when
9 you left DMR?

10 MR. FLAGG: I left DMR in August of 2005.

11 MR. THALER: And when you were there was
12 DMR to your knowledge compiling statistics in
13 terms of eels that were found at upstream passage
14 at different projects?

15 MR. FLAGG: Yes.

16 MR. THALER: The counts in attachment 3,
17 you had responded to Mr. Watts I think by -- I
18 think with Hydro-Kennebec giving a figure of about
19 3,000 to 7,000. Was this the basis of your
20 general estimate?

21 MR. FLAGG: Yes, it was, yes.

22 MR. THALER: And the figures that are shown
23 at Fort Halifax by comparison were, similarly, the
24 ones that you were generally referring to?

25 MR. FLAGG: That is correct. I took that

1 data directly from that report. I have seen this
2 attachment.

3 MR. THALER: All right, and is that
4 attachment generally -- Mr. Watts has said you
5 know more about the Kennebec River around here
6 than anybody, are these figures generally
7 consistent with your personal knowledge of the
8 fisheries populations between the Sebecook and
9 the Kennebec when it comes to eels?

10 MR. FLAGG: Yes.

11 MR. THALER: Let me just ask you a couple
12 other questions on your rebuttal testimony. If
13 you could look at page 4 for me, you were asked a
14 question -- well, I guess maybe you talked about
15 it in your presentation, I'm not sure, but can you
16 just explain to somebody who's a layperson like
17 me, you talked about the phased construction of
18 fish passages and why that was --

19 MR. MERRILL: Jeff, I don't think the Board
20 knows where you're reading from.

21 MR. THALER: Sorry, page 4 of Mr. Flagg's
22 --

23 MS. ANDERSON: Is that a particular
24 exhibit?

25 MR. THALER: No, it's testimony.

1 MS. VERVILLE: Page 17. DLH 17.

2 MS. ANDERSON: Thank you.

3 MR. THALER: I apologize, I didn't focus on
4 the fact that it wasn't labeled Flagg. Page 4
5 just after the bullets on that page, were you --
6 you were at DMR when DMR agreed to the phased
7 construction of fish passages on these rivers,
8 correct?

9 MR. FLAGG: Yes.

10 MR. THALER: And can you explain from a
11 biological or fisheries perspective why that makes
12 any sense?

13 MR. FLAGG: Well, we were agreeable to the
14 phased construction approach because we recognized
15 that it was a legitimate issue to address the fact
16 that we needed to have some level of resource
17 returning to the river to be able to justify
18 multi-million dollar fish passages, so we felt
19 that having these levels of trigger numbers was
20 appropriate. It was negotiated. The numbers were
21 negotiated. That was part of the negotiated
22 agreement, but we felt that it was appropriate and
23 so we did agree to the phased construction
24 approach. It's been used in a lot of other areas.
25 The Connecticut River, in fact, I believe they

1 have -- although they had some time frames also in
2 there, but we felt that the use -- that having a
3 performance standard in terms of the fish
4 populations returning to the river was a
5 reasonable negotiated issue.

6 MR. THALER: Are the performance standards
7 also used on other Maine rivers such as the
8 Presumptscot?

9 MR. FLAGG: I don't believe so. On the
10 Presumptscot I don't believe there's been any --
11 there's not been any negotiated settlement there
12 anyway.

13 MR. THALER: I wasn't suggesting there had
14 been a negotiated settlement, but let me ask you
15 in terms of on the Saco, are you aware of any
16 phased restoration?

17 MR. FLAGG: Yes, and I can't remember the
18 specific details but there is. I don't recall
19 them right offhand.

20 MR. THALER: All right. If you'd look at
21 page 6 of your testimony -- actually, I'm sorry,
22 go back to page 4, I apologize. The third full
23 paragraph talks about -- it starts off about fish
24 passage effectiveness studies?

25 MR. FLAGG: Yes.

1 MR. THALER: And then you go on to talk
2 about phased construction of fishways to
3 accommodate expanding fish populations. You then
4 talk about the shad trigger numbers which Board
5 Member Hilton was asking about earlier this
6 afternoon.

7 MR. FLAGG: Yes.

8 MR. THALER: Can you again explain for the
9 Board from the resource agency perspective, I know
10 you're not DMR now but you were when the agreement
11 was negotiated, from a biology or fisheries
12 perspective what the relevance or significance was
13 of either the shad trigger or the biological
14 assessment trigger? There's two different
15 potential triggers under the agreement, is that
16 what your testimony here says?

17 MR. FLAGG: That's correct.

18 MR. THALER: Can you explain the two and
19 how from a fish perspective or river habitat
20 perspective how that would work and why DMR agreed
21 to that?

22 MR. FLAGG: The trigger numbers, that was a
23 negotiated number that we used which we felt was
24 reasonable to trigger passage requirements at
25 upstream dams. The other aspect was that in the

1 absence of a biological assessment trigger for
2 Atlantic salmon -- okay, a biological assessment
3 trigger for Atlantic salmon, alewife and blueback
4 herring could be a reason for requiring passage,
5 and it was basically included because we didn't
6 know, there may be some -- some circumstances that
7 would occur that might warrant the need to look at
8 upstream passage outside of a shad trigger
9 number. So it was just another option. My
10 recollection at the time was that it was also
11 something that the non-governmental organizations
12 in the KHDG Agreement were very interested in
13 having included in that document.

14 MR. THALER: Let me just try to be more
15 precise in terms of what I'm trying to understand,
16 again, from a biological perspective. Is there a
17 concern in fisheries biological about saturation
18 or over saturation of habitat, having too many
19 fish for a particular stretch?

20 MR. FLAGG: Well, one of the -- one of the
21 reasons why we picked the numbers that we did was
22 because if you look at some of the expansion rates
23 of American shad in the Merrimack River and also I
24 believe in the up reaches of the Connecticut or in
25 the Susquehanna River, once you have an initial

1 stock that's in there, every generation that
2 occurs in five-to-six-year periods, there's about
3 a five fold expansion in the resource in the next
4 generation from what it was in the previous one.
5 So those kinds of numbers did come into play when
6 we looked at these types of numbers in respect to
7 what we would anticipate would come into the river
8 five to six years later. So it's a fairly
9 substantial expansion rate for each generation of
10 fish coming back.

11 MR. THALER: How much of the -- between
12 Edwards -- where Edwards dam was and Lockwood, do
13 you know roughly how much of the Kennebec River
14 habitat is there?

15 MR. FLAGG: Yeah, there's about 24 percent
16 of the habitat and, in fact, that particular reach
17 based on studies that were done DMR determined
18 that that particular reach could produce about
19 145,000 American shad.

20 MR. THALER: And what happens with Mr.
21 Hilton's hypothetical from this morning or
22 afternoon if you've got shad that are sort of
23 accumulating below Lockwood but choose not to go
24 up in the lift or somehow you don't hit the 8,000
25 trigger but there's a lot of shad there, what was

1 DMR's perspective on that situation?

2 MR. FLAGG: I think it would be fairly easy
3 to reach the 8,000 number. Obviously if the river
4 is full of shad and they don't come into the
5 fishway, then there may very well be a problem
6 with respect to attraction flows at the fishway or
7 something that would be impeding the movement of
8 fish into the fish passages, but I don't think
9 that's a real big concern because I know that DMR
10 has been stocking large numbers of shad larvae in
11 the Kennebec River above Shawmut for a number of
12 years, and so those fish should when they return
13 utilize the fish passage and want to go back
14 upstream. Obviously there will be a certain
15 component of the run that's going to stay below
16 the dam because that's where they were produced
17 and they just don't want to move up, but once the
18 population reaches a certain level, there's going
19 to be natural expansion of those fish into the up
20 river waters. It may take some time but even with
21 fish that are produced below a dam, some component
22 of that production will want to go expand to the
23 up river areas of the drainage.

24 MR. THALER: And I just have one or two
25 other questions. If you could turn to page 6 of

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1 your testimony, and looking at the first full
2 paragraph which talks about the 7 to 30 year
3 residency in freshwater?

4 MR. FLAGG: Yes.

5 MR. THALER: Does that mean, again, from a
6 general fish-eye view or perspective that the eels
7 that might be coming down river now would have
8 migrated up past these dams anywhere from 7 to
9 many years ago?

10 MR. FLAGG: Yes, that's correct, yes.

11 MR. THALER: And that in terms of the --
12 since the time of the KHDG Agreement and the new
13 water quality certifications for these projects
14 and the different interim passage facilities and
15 other efforts that are being made, is it generally
16 true that all those efforts will increase -- will
17 assist the number of eels and anadromous fish
18 going up and downstream compared to what it was
19 anywhere from 7 to 25, 30, 40 years ago?

20 MR. FLAGG: Yes.

21 MR. THALER: I have nothing further, Mr.
22 Chairman, thank you.

23 HEARING OFFICER HILTON: Save Our

24 Sebasticook, Jeff, do you have any questions?

25 MR. VANDEN HEUVEL: Yes, but I don't have a

1 microphone.

2 MR. NICHOLAS: I'm sorry.

3 MR. VANDEN HEUVEL: Mr. Flagg, per the
4 agreement on shad, what specifically is the
5 alternative biological trigger? What does that
6 mean?

7 MR. FLAGG: An alternative biological
8 trigger, it wasn't specifically defined but it was
9 left as an open alternative mechanism by which
10 fish passage could be required outside of the shad
11 trigger number.

12 MR. VANDEN HEUVEL: So it's open. During
13 the agreement, what was the original trigger
14 number that you proposed for shad?

15 MR. FLAGG: I don't know that. I don't
16 recall that there was an alternative number.

17 MR. VANDEN HEUVEL: You stated that the
18 adult American eel needs more protection such as
19 the Atlantic States Marine Fisheries Commission
20 Interstate Fishery Management Plan is likely going
21 to recommend for upstream and downstream passage.
22 Do you know what that might be?

23 MR. FLAGG: Not at this point in time
24 because they're still working on the draft
25 addendum.

1 MR. VANDEN HEUVEL: The Hydro-Kennebec
2 reports no evidence of mortality for 2001, 2002
3 and 2003 when the new gate was not even present.
4 Does this point out a flaw in observation
5 techniques and will you do future mortality
6 observations?

7 MR. STETSON: Could I ask you what
8 specifically is the question that you're looking
9 to have answered?

10 MR. VANDEN HEUVEL: Well, you report no
11 evidence of mortality. Do you believe that
12 there's a flaw in the observation techniques?

13 MR. BERNIER: The studies in 2001, 2002 and
14 2003 were done by a previous owner. Our
15 understanding of the studies is they were done in
16 consultation with the agencies, they were done by
17 viewing the tailrace from June through November
18 two to three times a day for five days a week and
19 they were done three years, they found no evidence
20 of mortality and after 2003 there was agreement
21 that the studies could be suspended.

22 MR. VANDEN HEUVEL: Thank you. Mr.
23 Stetson, do you believe shut downs need to be 12
24 hours to be effective as part of a plan to
25 minimize mortality?

1 MR. STETSON: Brookfield Power doesn't
2 believe shut downs are necessary. It's our goal
3 through our work here at Hydro-Kennebec to provide
4 safe and effective passage without shut downs of
5 turbines and we're working with the agencies
6 towards that goal.

7 MR. VANDEN HEUVEL: Based on your 2006
8 results, how is the ten-foot deep angled boom
9 working and would you recommend it for other
10 dams?

11 MR. STETSON: In terms of the -- the
12 ten-foot height of the boom is a reflection of the
13 specific characteristics of the forebay of the dam
14 and the request of U.S. Fish and Wildlife Atlantic
15 Salmon Commission and Maine Department of Marine
16 Resources. The boom itself is a nontypical fish
17 boom. Typically as what's described to us, you
18 would have installed an open mesh, like fishnet
19 boom, with a one inch or smaller weave to it so
20 specifically the eels, the smaller of all the
21 adults species would not pass through it. Looking
22 at the characteristics of the river and the strong
23 current in the forebay, we had some real doubts
24 whether a typical boom would not only survive in
25 the forebay but achieve the most critical goal --

1 and, Mr. Chairman, if I could walk over to the
2 picture again, that would be a help.

3 HEARING OFFICER HILTON: Be my guest. Take
4 the microphone with you.

5 MR. STETSON: I'll do that as long as I
6 don't get tripped up. In terms of design, the
7 critical goal was to change the flow pattern in
8 the forebay from that of directly coming into the
9 turbines, to that of a cross current across the
10 face of the turbine -- face of the trash racks to
11 the fish passage, and it isn't that your eyes are
12 cockeyed here, that gate is not plumb as the world
13 would notice. I'm going to turn this a little bit
14 for one Board member who is straining her eyes.
15 That gate does follow the angle of the trash racks
16 and it does for the reason to get it as close to
17 the trash racks as possible to effectively attempt
18 to establish the current. The boom is the other
19 mechanism by which this cross current is
20 established, and, frankly, as we sat with the
21 three resource agencies and our own fisheries
22 consultant and there's a member of Port Clyde
23 engineering staff right there, there was a real
24 question whether a boom in here in this forebay
25 could establish this current, and I can tell you

1 now after one year of operation, yes, it can.

2 MR. VANDEN HEUVEL: Your 2007 study plan
3 seems to hinge upon hydro acoustics. Will you do
4 other studies with transmitters, cameras, netting,
5 whatever?

6 MR. STETSON: The studies this year are
7 intended to achieve two goals, one is to count
8 fish, including eels. Eels are a fish both the
9 biologists on either side of me tell the
10 engineer. So one is how many fish go down through
11 the turbine versus how many fish potentially go
12 through the downstream passage, but more
13 importantly, the second facet and the reason hydro
14 acoustics are being utilized is to study and
15 analyze the behavior of all fish species,
16 particularly the three targeted species, shad, eel
17 and Atlantic salmon, in the forebay and in and
18 around that boom by using hydro acoustics. See
19 the gentleman over there on what we call the bull
20 nose -- that terminology is not in Dana's graph --
21 but that gentleman over there is actually holding
22 a piece of pipe and there's a hydro acoustic
23 receiver on the end of it and we were actually
24 testing that day. Positioning -- by positioning
25 one over there and one in the near ground of the

1 picture, we hope to be able to see the fish coming
2 off the river, approaching the boom, being
3 intercepted by the current pattern that the boom
4 has set up and then whether or not they head right
5 for inland to the downstream passage or whether
6 they by some means circumvent the current and the
7 boom and come to the trash racks. So we could
8 have done an effectiveness study without hydro
9 acoustics at a lot less cost but the use of hydro
10 acoustics allows us to assess behavior where
11 without it we don't think we could.

12 MR. VANDEN HEUVEL: Thank you.

13 HEARING OFFICER HILTON: Anything further,
14 Jeff?

15 MR. VANDEN HEUVEL: No.

16 HEARING OFFICER HILTON: Board members

17 questions? Nancy Ziegler.

18 MS. ZIEGLER: I just want to follow up on
19 questions on your design of this diversion and
20 then you call it an inlet as opposed to a gate
21 through the dam. It's called an inlet?

22 MR. STETSON: It's an inlet and there's a
23 gate controlling it.

24 MS. ZIEGLER: And there's a gate
25 controlling it. How big is that?

1 MR. STETSON: It's four by eight. Again,
2 U.S. Fish and Wildlife policy and guidelines is
3 the elver have an inlet to effect downstream
4 passage that passes up to four percent of the full
5 turbine flow capacity, and so that gate was sized
6 in terms of square feet for four percent. In
7 terms of why it's eight feet deep, we were also
8 attempting to get as far down in the water column
9 and cover as much of the depth of the water column
10 as possible with that inlet to try to bring
11 species like eel -- shad and salmon tend to be
12 surface movers. Eels tend to use more of the
13 water column and it was our effort to try to
14 promote -- to have this design to attract eels as
15 well.

16 MS. ZIEGLER: And without doing -- having
17 done a study earlier, was it your conclusion that
18 you would need some form of boom there to divert
19 the fish towards and create the current that would
20 divert the fish towards that gate?

21 MR. STETSON: We took the advice of the
22 state and federal agencies in that regard. We met
23 with U.S. Fish and Wildlife, Department of Marine
24 Resources, Atlantic Salmon, and we discussed what
25 is the current philosophy and thought on

1 downstream passage and what was working and what
2 wasn't and where was the current design in general
3 progress, and this is an outcome of that
4 discussion. This is what the agencies told us is
5 the present design in terms of cutting edge where
6 that is, and so that's what we -- basically we
7 built what the agencies told us would most likely
8 work, in short.

9 MS. ZIEGLER: And you will now do the study
10 using this hydro acoustics technology and can you
11 explain that technology a bit more please?

12 MR. STETSON: Well, I can't but I'll let
13 this gentleman over here who can.

14 MS. ZIEGLER: Mr. Bernier.

15 MR. BERNIER: We're actually going to use
16 two types of technology. The hydro acoustics is
17 basically fish finders in the forebay. They are
18 they're called sonar cameras. There's different
19 names for them. The technology that we plan to
20 use is called Didson.

21 MS. ZIEGLER: Excuse me, I'm sorry.

22 MR. BERNIER: Didson, D-I-D-S-O-N.

23 MS. ANDERSON: Can you talk into the
24 microphone a little bit more, please?

25 MR. BERNIER: Okay.

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1 MS. ANDERSON: Thanks, that's great, much
2 better.

3 MR. BERNIER: What we will do is deploy two
4 cameras, one on each side of the forebay on each
5 side of the trash racks and on a random basis the
6 cameras will be moved up and down in the forebay
7 so that we can have equal sample time for all
8 depths in the water column to see what the fish
9 behavior is upstream of the trash racks. In the
10 fishway itself, we will be using optical cameras,
11 actual video cameras, to see what is using the
12 fishway and then we'll have some software with
13 those cameras that will allow us to process when
14 the fish pass through the fishway and give us an
15 idea of what species and the timing of when their
16 movements are and when they go through the
17 fishway. One thing Mr. Hilton said earlier that
18 is not quite correct, the tethered eel study was
19 something that we did this past fall and that was
20 just to determine what type of sonar technology
21 would be most effective. We used the tethered
22 eels with two different types of hydro acoustic
23 equipment to see which method we could best see
24 the fish with. So there would be no tethered eels
25 in 2007. 2007 would be totally the fish that are

1 naturally coming to the site, there will be no
2 handling of the fish and the equipment will allow
3 us to see what the behavior is and how many are
4 going through the fishway.

5 MS. ZIEGLER: And can you tell us the time
6 frame for the study, when will it begin and when
7 will it end?

8 MR. BERNIER: The cameras in the fishway
9 will be running season long from April through
10 December, April through December for the cameras.
11 The hydro acoustic equipment will be set up from
12 mid September to mid October and that will
13 coincide with the eel migration and also the
14 anadromous fish passage, the adults.

15 MS. ZIEGLER: Thank you.

16 HEARING OFFICER HILTON: Is that it,
17 Nancy?

18 MS. ZIEGLER: Yes, that's it. Thank you.

19 HEARING OFFICER HILTON: Elizabeth.

20 MS. EHRENFELD: The studies that you're
21 proposing to do in 2007 differ very much from
22 what's being done for the other dams and I wonder
23 if you could sort of compare and contrast these
24 two types of studies.

25 MR. STETSON: Well, I can speak to our

1 goal. Our study is designed for the specific goal
2 of evaluating the work to date which is the
3 installation of the inlet to the downstream
4 passage and the boom and determining what
5 enhancements, if any, are necessary to optimize
6 that system, and so we have a very targeted
7 purpose here which is to evaluate a system newly
8 installed and so that's why we've chosen the
9 equipment we have.

10 MS. EHRENFELD: And I don't remember from
11 reading through your documents, you have a
12 baseline of what was happening to the fish and the
13 eels previously without the boom and then you're
14 going to compare the increase in passage through
15 the fishway with the boom?

16 MR. STETSON: No, what I'll tell you --
17 that gets to what's the target. Now, I asked U.S.
18 Fish and Wildlife that question and their answer
19 is that -- and I haven't taken the time to go
20 look. As I was told, there's a written U.S. Fish
21 and Wildlife policy that nationwide that their
22 goal -- and they did stress it's a goal -- is 95
23 percent, and so what's being measured in terms of
24 the agencies is a U.S. Fish and Wildlife policy
25 and basically that's what we're looking at.

1 MS. EHRENFELD: 95 percent of --

2 MR. STETSON: Of the fish presenting
3 themselves in that forebay safely pass through the
4 tailrace, as I understand. Again, I should have
5 before this hearing gone and gotten a copy of the
6 policy and read it but I did not have the
7 opportunity to.

8 MS. EHRENFELD: So I'm still back sort of
9 to the experimental design where the other one is
10 really looking at the different -- they're taking
11 fish and seeing how many come out the other end
12 dead or alive. Yours is really seeing which
13 direction they go through the dam?

14 MR. STETSON: Ours are evaluating the
15 effectiveness of this system moving the fish to
16 the inlet and safely through the passage to the
17 dam. We have the equipment in place, we should be
18 able to determine what goes through the downstream
19 passage versus what goes through the turbine,
20 number one.

21 MS. EHRENFELD: And that's what you'll be
22 able to do with the camera, seeing what percentage
23 go in which direction?

24 MR. STETSON: Kevin spoke of the software.
25 The software on the cameras in the plunge pool

1 which is the second picture will time mark when
2 the fish pass. It will let us go back then and
3 look at the Didson hydro acoustic work data in the
4 forebay and see, all right, how did that fish come
5 into the forebay, what did it do to finally get to
6 the passage and how did it move in the forebay,
7 and so we're evaluating that. We'll also know by
8 comparing the camera versus the Didson, we'll also
9 know what didn't go through the forebay.

10 MS. EHRENFELD: Okay, and then I had
11 another fish counting question or eel counting
12 question. The data that was discussed in terms of
13 the two different rivers, just the numbers, how
14 are those numbers generated?

15 MR. FLAGG: Those numbers are actually --
16 they come from the actual passage of the fish --
17 of the eels through eel passage facility, and the
18 way they do that, these are fairly narrow inclined
19 planes that have a substance on it called Inkamat
20 which is an artificial material and you put a
21 small amount of water on that incline passage and
22 eels will be attracted. They will climb up that
23 and as they get to the top, there's usually a
24 piece of smooth metal. As soon as they go over
25 that they actually drop down into a bucket so they

1 can count -- they can actually manually count each
2 day how many eels utilize that fish passage
3 facility and they just operate that throughout the
4 length of the eel migration season and then they
5 just tally up the daily counts to get an annual
6 count of numbers of eels moving up through the
7 facility. So they are actual physical counts of
8 eels passing through those eel passageways. There
9 are no counts of fish -- now, there are eels
10 obviously getting up above the dams by other
11 routes. It doesn't count those.

12 MS. EHRENFELD: Just so I really understand
13 how this is working, they're climbing up this
14 little pathway, they go over the edge and they
15 drop into a bucket?

16 MR. FLAGG: Yup.

17 MS. EHRENFELD: Like a real bucket and then
18 somebody takes the eels out and goes 1 eel, 2
19 eels, 3 eels, 500,000 eels?

20 MR. FLAGG: It's a catch box actually with
21 water in it.

22 MS. EHRENFELD: It just seems like you'd
23 have a little turnstile or something and then
24 they'd just swim up river. It would be a lot
25 easier. Okay, thank you very much.

1 HEARING OFFICER HILTON: Nancy Anderson,
2 anything?

3 MS. ANDERSON: No.

4 HEARING OFFICER HILTON: I've got a few. I
5 guess I'll start off with Lou. One of your
6 earlier statements this afternoon was that a
7 hundred percent -- petitioners are asking for a
8 hundred percent passage, and you indicated that
9 that's unreasonable. So what would be your sense
10 about what a reasonable passage figure is if not a
11 hundred percent for all fish being able to safely
12 get down the river?

13 MR. FLAGG: For downstream passage, I think
14 that a hundred percent passage is unachievable
15 with the current technology that we have for
16 upstream and downstream passage. It's not
17 attainable. I think the problem --

18 HEARING OFFICER HILTON: The question
19 though is -- I know there's a lot of problems.

20 MR. FLAGG: Right. I'm going to get to the
21 question right now.

22 HEARING OFFICER HILTON: I hope so.

23 MR. FLAGG: It depends a lot on the -- it's
24 a site specific thing. My sense is that in terms
25 of looking at past -- analyzing study results from

1 past projects and so forth is a process where the
2 state and federal agencies get together with a
3 developer, they review all of the data that
4 relates to how the facility is performing and then
5 they make a decision whether or not there's a need
6 -- it either doesn't for that particular site
7 meet the needs of the resource or it does, and
8 they will approve what's installed and approve the
9 operational plan. So there's really been no hard
10 and fast standard established on what is the
11 appropriate upstream or downstream passage
12 efficiency number that should be applied to the
13 industry.

14 HEARING OFFICER HILTON: So it's possible a
15 hundred -- at a given facility a hundred percent
16 passage might be reasonable? I mean, I'm not
17 hearing you say that there's another number that's
18 more reasonable. A hundred percent might be
19 reasonable at certain facilities?

20 MR. FLAGG: I don't know where they get a
21 hundred percent downstream passage. I don't know
22 where the facilities are. I don't know of any.

23 HEARING OFFICER HILTON: Well, if you spend
24 enough money, you can get a hundred percent
25 efficiency, a hundred percent passage if you spent

1 enough money, million of dollars, whatever,
2 unlimited budget you get a hundred percent
3 passage, shut off the turbines, lose production,
4 but at some point you get a hundred percent
5 efficiency?

6 MR. FLAGG: For downstream passage, I don't
7 even know if you would do it then because as long
8 as the dam is there, you're going to have some
9 animals going over the spillway and there's going
10 to be mortality on the spillway. It's
11 unavoidable. So there's going to be some
12 component of unavoidable mortality that you cannot
13 -- that you cannot engineer out of the system as
14 long as the dam stays there.

15 HEARING OFFICER HILTON: We're looking at
16 it from a different perspective. We, as the
17 Members of the Board here, are sort of like
18 surrogate society, you know. So what should
19 society tolerate as a level of loss of a natural
20 resource which can be compounded as it goes from
21 dam down through dam, down through dam, down
22 through dam, four dams in this case, and actually
23 there's six or eight dams by the time you go from
24 the East outlet on Moosehead Lake down through to
25 Lockwood. So what should we tolerate?

1 MR. FLAGG: Well, I guess I would sort of
2 address that in another way. I would go to the
3 fishery resource agencies. They do have plans,
4 they have fish restoration plans, for specific
5 waters.

6 HEARING OFFICER HILTON: I think the
7 question is really a short answer, and I realize
8 that you come from 41 years with a bureaucracy,
9 and this is -- and that's one thing that this
10 Board tries to divorce itself from is being a
11 bureaucracy. I mean, we are but we have to answer
12 to a call of what is socially responsible. That's
13 one component of our finds here. We may not be
14 able to do anything with it even if we find out
15 what social responsibility calls for because these
16 folks over here on my right will short-circuit
17 that, but, nevertheless, there is a -- you with 41
18 years of experience might be able to provide us
19 with some idea as to what is a socially
20 responsible loss of fish. Two or three percent is
21 that tolerable?

22 MR. FLAGG: I'm not a sociologist. I can't
23 really answer that question in that context.

24 HEARING OFFICER HILTON: Okay.

25 MR. FLAGG: Being a fisheries biologist,

1 what I would -- in managing fishery sources,
2 obviously we manage them for sustainability. We
3 have to calculate losses from a multitude of
4 various sources of which turbine mortality is only
5 one of many.

6 HEARING OFFICER HILTON: Well, turbine
7 mortality is what we're dealing with here today.
8 We're not dealing with commercial fishing or over
9 elvering or whatever. So let's move on a little
10 bit here.

11 MS. ZIEGLER: Ernie, can I just right here
12 interject on this line of questioning only, I
13 mean, I think Mr. Bernier and Mr. Stetson were
14 saying that they designed these facilities in the
15 context of a W -- U.S. Fish and Wildlife policy of
16 95 percent safe passage, that that's a goal, 95
17 percent safe passage from the forebay to the
18 tailrace, and do you know about that and could you
19 comment on that?

20 MR. FLAGG: No, I -- that's -- I don't -- I
21 didn't know of any particular prescription like
22 that.

23 MR. STETSON: If I could, when U.S. Fish
24 and Wildlife informed me of that, the "but" that
25 goes with that is just what Lou described here.

1 The goal -- and they were clear it was a goal --
2 is something that's difficult to achieve because
3 of the very issues and concerns that Lou just
4 expressed.

5 MS. ZIEGLER: Granted but it's helpful to
6 have that goal. Do you have that in writing from
7 U.S. Fish and Wildlife?

8 MR. STETSON: No, I don't, and I was told
9 by U.S. Fish and Wildlife that it's a nationwide
10 policy, a guidance document, and I have not taken
11 the time to go and secure it. We were too busy
12 doing that.

13 MS. ZIEGLER: Thank you.

14 HEARING OFFICER HILTON: Mr. Flagg, could
15 you find that document for us?

16 MR. FLAGG: I can see if I can locate it
17 but I've never seen it. I don't have any
18 knowledge of that at all.

19 HEARING OFFICER HILTON: Mr. Bernier?
20 Someone in the last ten minutes has mentioned that
21 number and it's based on a document, and it should
22 be available through some means if you're going to
23 make reference to it.

24 MR. STETSON: We'll ask U.S. Fish and
25 Wildlife for a copy.

1 HEARING OFFICER HILTON: Okay. Mr. Flagg,
2 you said that it was difficult to capture eels and
3 in light of the fact that there are personal
4 licenses available, permits, for people to catch
5 50 per day, commercial licenses to capture
6 unlimited numbers per day, it strikes me as really
7 odd that it's difficult the capture eels. Now, I
8 realize you're looking for silver eels that are
9 pregnant and headed downstream, but still why is
10 it so difficult to capture eels for the purposes
11 of these studies?

12 MR. FLAGG: Well, because obviously you
13 want to use eels that originate from above the
14 particular site that you want to study and my
15 sense is that looking at the data on upstream
16 elver migration up the mainstem of the Kennebec,
17 it doesn't appear to me -- and the fact that
18 there's been little or no major documentation of
19 large losses of eels -- adult eels at these
20 mainstem dams suggests to me very strongly that
21 there are not very many eels upstream of the
22 Hydro-Kennebec Project. I don't believe there are
23 many fish up there, frankly. I don't believe it,
24 and when you look at what's going up the
25 Sebasticook versus what's going up the Kennebec,

1 there's a huge difference. I don't think there's
2 lots of eels up there to be caught. If you look
3 at the weirs that are operated on the Kennebec
4 River, in the Sebesticook drainage we've got 15
5 commercial eel weirs that harvest fairly
6 substantial quantities of silver eels. There are
7 no eel weirs on the Kennebec River above
8 Waterville, and there's a reason for that because
9 people don't go fish when it's not economically
10 viable for them to do so, and I believe that the
11 reason we don't see eel weirs on the mainstem or
12 the tributaries of the Kennebec River above
13 Waterville is because there aren't that many eels
14 there to be taken. I think that's the issue right
15 there, and I think that with respect to the
16 studies that are being done, probably the major
17 component that's going to be difficult to deal
18 with is getting enough eels to do the studies
19 because I don't think there are that many up
20 there.

21 HEARING OFFICER HILTON: You indicated that
22 trap and truck -- in your testimony that trap and
23 truck is recognized as an acceptable means of fish
24 passage, and the way trap and truck is used right
25 now for purposes of the Lockwood dam is they take

1 the salmon up to the Sandy River, which I'm happy
2 to say is up above where I live, and they truck
3 other fish other places. What about the
4 intermediate reaches of river that are bypassed?
5 How is it acceptable -- it's acceptable for all
6 the other reaches of river but what about those
7 particular reaches of river?

8 MR. FLAGG: That's a very good question.
9 As I mentioned in my testimony, some life stages
10 of those animals will pass through all those
11 reaches, the juvenile life stages coming out.
12 Obviously with salmon if you -- if you trap them
13 at Lockwood and you stock them in the Sandy River
14 above three or four more hydro dams, they're not
15 occupying the area in between. I think there's a
16 very good reason for that at this point in time
17 and that being that as was mentioned earlier, only
18 15 adult salmon came into the Lockwood fish lift
19 this year and those fish were taken up into the
20 Sandy River, and my understanding is the reason
21 they were taken to the Sandy River is that's the
22 nearest area upstream that has very substantial
23 and very good spawning and nursery habitat for
24 Atlantic salmon. The mainstem river between
25 Waterville and the Sandy River is not good --

1 particularly good salmon habitat, and right now
2 we're at the point where we have a very small
3 resource coming back, and if I were still in
4 fishery management, I would certainly be
5 advocating that those fish be put in the area
6 where we can maximize production of juveniles. I
7 wouldn't be so concerned at this stage in the game
8 of having those fish migrate through waters where
9 they're not -- if they spawn they're not going to
10 have as good a production of juveniles as if they
11 were taken around those dams and put into very
12 good habitat upstream. So I think that by doing
13 that, even though in the short term obviously
14 pre-spawning salmon are not migrating naturally
15 through those waters at this point in time with
16 the small numbers that are entering the river and
17 coming to the fishway, that that's the best use of
18 the resource to accelerate restoration of salmon
19 to the system. That's a big plus in terms of
20 celebrating restoration. It's not so good perhaps
21 in terms of the fact that the pre-spawners are
22 absent from those river reaches right now, but I
23 think that's a very good trade off in terms of
24 trying to hasten the restoration of Atlantic
25 salmon to the system.

1 HEARING OFFICER HILTON: Now, were you part
2 of -- does DMR do any enforcement? Are they an
3 enforcement agency?

4 MR. FLAGG: Oh, yes.

5 HEARING OFFICER HILTON: Okay. Were you
6 involved with any kind of enforcement processes
7 yourself in your 41 years?

8 MR. FLAGG: Not really, no.

9 HEARING OFFICER HILTON: So as I understand
10 it, your whole approach to your work was a
11 cooperative approach with the hydro owners and
12 whoever else, is that correct?

13 MR. FLAGG: Yup.

14 HEARING OFFICER HILTON: Okay. In the
15 Kennebec-Hydro Agreement, there is a provision for
16 \$10,000 -- a maximum of \$10,000 in materials for
17 eel passage upstream. That seems like a pretty
18 paltry sum on first glance. Is that because eel
19 passage is -- upstream eel passage is that easy?

20 MR. FLAGG: Yeah, we didn't have a problem
21 at all with those numbers. I think that the
22 industry was somewhat concerned about what types
23 of costs would be incurred from upstream eel
24 passages. We had some knowledge of upstream eel
25 passages that were constructed in Europe and some

1 other areas that we knew that the costs were
2 really very moderate in terms of these
3 facilities. So the \$10,000 cap really didn't have
4 a -- it really wasn't of great concern to us.

5 HEARING OFFICER HILTON: What is it that
6 would cause an eel to decide to go up this
7 upstream passage?

8 MS. VERVILLE: Mr. Hilton, may I ask a
9 question?

10 MR. HILTON: Yeah.

11 MS. VERVILLE: I'm a little confused
12 because I thought that upstream eel passage was
13 not at issue.

14 HEARING OFFICER HILTON: Okay, you're
15 exactly right but there was some -- part of this
16 was premised on Mr. Flagg's -- I'll let you be
17 aware of what I'm thinking here -- Mr. Flagg has
18 indicated -- I should say Hydro-Kennebec has said
19 there's zero eel mortality and Mr. Flagg's
20 testimony seemed to indicate that it is these eels
21 which are going upstream now which are going to
22 return in no less than seven or eight years or so
23 as if there were no eels upstream now that we need
24 to be concerned with, and maybe I should just ask
25 him that directly. Would that be your testimony,

1 Mr. Flagg?

2 MR. FLAGG: No. If I conveyed that
3 impression, I apologize because certainly I would
4 be concerned about what -- because we know there
5 are some numbers of eels that are going upstream
6 and have historically gone up there. So there is
7 some component of eels in the Kennebec River
8 upstream of those dams. My sense is that the
9 numbers are probably not very large, especially
10 looking at now that we've got eel passages on
11 there and what we're seeing going up now doesn't
12 appear to be a very large number of eels.

13 HEARING OFFICER HILTON: Were you part of
14 the negotiating of the Kennebec-Hydro Agreement?

15 MR. FLAGG: Yes.

16 HEARING OFFICER HILTON: You were right in
17 that closed room and you were doing all the back
18 and forth?

19 MR. FLAGG: I was involved.

20 HEARING OFFICER HILTON: All right. This
21 \$427,000 that was the limit, was that a limit that
22 DMR negotiated as being a maximum?

23 MR. FLAGG: Yes. We negotiated that. At
24 the time there was a very large commercial elver
25 fishery that was ongoing, and we were getting

1 revenues from the sale of elver licenses and --

2 HEARING OFFICER HILTON: Was there a pretty
3 strong spirit of cooperation among the hydro
4 owners to also invest their own dollars in eel
5 passage around the table?

6 MR. FLAGG: Yes, yup.

7 HEARING OFFICER HILTON: And what did it
8 appear to you that they were going to be
9 investing? Was there any kind of dollar figures?

10 MR. FLAGG: We never broke down those
11 numbers that I'm aware of relative to the 4.75
12 million dollars that was made available from the
13 KHDG group to do the restoration.

14 HEARING OFFICER HILTON: And what was the
15 thinking concerning what would happen if the 4.75
16 million dollars wasn't enough? What was -- was
17 there some sense among the state agencies that you
18 would try to enforce something, that you would try
19 to force the issue to make something happen? How
20 much spirit was there towards making sure that
21 there was -- that the resource was protected?

22 MR. FLAGG: Well, we felt that that amount
23 of money at that particular time was adequate to
24 do the job that we needed to do. There wasn't any
25 concern about -- and I guess my sense at the time

1 was that if, in fact, there was some unexpected
2 contingencies that we needed to deal with, we
3 could go back and talk to the KHDG group as a
4 whole and resolve how that was going to be taken
5 care of.

6 HEARING OFFICER HILTON: I want to turn to
7 you, Mr. Bernier, I think, it was either you or
8 Mr. Stetson, as regards the monitoring that was
9 done and the findings that there were zero
10 mortalities. What was the observational technique
11 by which you determined there were zero
12 mortalities?

13 MR. BERNIER: Like I said, that was the
14 previous owner. That wasn't us.

15 HEARING OFFICER HILTON: So you can't vouch
16 for how they did it or how good the results were?

17 MR. BERNIER: I've read the study. They
18 did that by visual observations.

19 HEARING OFFICER HILTON: Okay, and what
20 time of day were they making these observations?

21 MR. BERNIER: They did it two or three
22 times a day. They tried to do it first daylight
23 and at the end of the day when the fish would be
24 migrating.

25 HEARING OFFICER HILTON: And where were

1 they making the observations from?

2 MR. BERNIER: I'm not sure exactly where
3 they were making the observations.

4 HEARING OFFICER HILTON: Were they out in a
5 boat, were they standing on concrete or --

6 MR. BERNIER: My sense is that they were
7 doing it from the dam and from the shoreline but I
8 -- I wouldn't guarantee that.

9 HEARING OFFICER HILTON: So we don't know.
10 We know one observation was made first light or
11 near first light, shift change maybe?

12 MR. BERNIER: It was done two or three
13 times a day.

14 HEARING OFFICER HILTON: And it wasn't done
15 at night?

16 MR. BERNIER: No.

17 HEARING OFFICER HILTON: Is it your
18 position that, in fact, there were zero
19 mortality?

20 MR. BERNIER: No, that wouldn't be -- my
21 position would be they didn't see any mortality.
22 There was no evidence of mortality.

23 HEARING OFFICER HILTON: No evidence of
24 mortality but you aren't going to take the
25 position that there was, in fact, no mortality?

1 MR. BERNIER: I wasn't there, but I would
2 not guarantee you that there was no mortality.
3 They didn't see any.

4 HEARING OFFICER HILTON: The corporate
5 position isn't that there was no mortality?

6 MR. BERNIER: Correct.

7 HEARING OFFICER HILTON: Okay. I'm still a
8 little confused about how this diversion thing
9 works, and, Brian, when you were up there, it
10 sounds as though there's some kind of current
11 that's induced in the forebay that causes the --

12 MR. STETSON: Yeah, I think we have a
13 better view that we can show you. This one right
14 here. These exhibits are right from our rebuttal
15 testimony. This picture here shows the current
16 and that was a real surprise. There was an
17 expectation that with a standard boom you'd put in
18 -- you'd see a current on the upstream side
19 moving over here and the inlet to the downstream
20 passage is right here, it was a real surprise that
21 there was an equally strong current on the
22 downstream side of this boom, and you can see it
23 right here, and so what we -- what we achieved
24 here was certainly unexpected and to quote Ben
25 Rizzo from U.S. Fish and Wildlife who visited this

1 fall, something he had not seen before. We
2 achieved the current on the upstream side, we
3 achieved the current across the face of the trash
4 rack, which we had hoped to do across here, 90
5 degrees over across here to draw the fish that
6 might get to the trash rack, but as well we
7 achieved an equally strong -- what appears to be
8 an equally strong current flow on the back side.

9 HEARING OFFICER HILTON: Proportionately
10 how much of your water flow is through the
11 turbines as opposed to the gate?

12 MR. STETSON: U.S. Fish and Wildlife
13 guidance on that is that 4 percent of the turbine
14 flow should go through the downstream passage.

15 HEARING OFFICER HILTON: So 96 percent of
16 the current is actually into the turbines?

17 MR. STETSON: Yes, 96 percent of the total
18 flow is into the turbine.

19 HEARING OFFICER HILTON: And that is at the
20 -- that is 60 feet down I think you said?

21 MR. STETSON: Turbine intake at the trash
22 racks themselves it's 60 feet deep, and what you
23 see running through the discharge of our
24 downstream passage is about 300 cubic feet a
25 second which is roughly 4 percent of the turbine

1 flow.

2 HEARING OFFICER HILTON: And these cameras
3 that you're going to be putting on, these Didson
4 cameras, are going to be located on the trash
5 racks and they're going to be -- are they going to
6 be physically moving up and down and taking
7 sampling photos?

8 MR. STETSON: The hydro acoustics -- I'm
9 going to go back here -- the hydro acoustics, one
10 would be located here in about this area pointing
11 in some regard this way and it's going to take
12 some trial and error here as we first install
13 them; and the other one will be over here, there's
14 another concrete wall which is the other side of
15 the forebay over here and will be mounted on the
16 concrete wall near the trash racks and it will be
17 pointed over here in the general direction of the
18 inlet in the end of the boom. The camera that Mr.
19 Bernier talked about will be located either here
20 at the discharge of the plunge pool or actually --
21 here, by the way, is -- we were trying -- that's a
22 Didson hydro acoustic unit that we were using to
23 assess the study plan. I was looking for the one
24 that showed -- I guess we didn't bring it. Let me
25 look. No, I guess we didn't. We have to assess

1 quality of picture, particular in the evening, so
2 we've got to decide whether we'll put the camera
3 here working with the agencies pointed up or --
4 this is the entrance to the plunge pool or here at
5 the exit to the plunge pool pointed up because
6 it's got to -- it's got to see eels at night so
7 we've got to have the infrared, and turbulence is
8 a problem optically, so we've got a little bit of
9 trial and error to do early in the season to
10 assess where to locate the cameras.

11 HEARING OFFICER HILTON: How much head is
12 on this dam?

13 MR. STETSON: About 25 feet. It's a low
14 head dam.

15 HEARING OFFICER HILTON: But your water is
16 60 feet deep right there and it's only got a 20
17 foot fall to get to the river on the other side of
18 the dam, so is your water coming up through the
19 turbines?

20 MR. STETSON: No.

21 HEARING OFFICER HILTON: The turbines are
22 not all at the bottom then?

23 MR. STETSON: I wish I'd brought a cross
24 sectional drawing of the station but the turbine
25 -- the inlet of the turbines --

1 HEARING OFFICER HILTON: Let me tell you
2 where I'm going. I'm kind of wondering about
3 which of these cameras, if any of them, are going
4 to be able to see the fish, eels included, that
5 are on the bottom and they're headed into the
6 turbine. I mean, I can see -- you know, you want
7 to see the fish that are going through the bypass,
8 and that's fine, but once they go through the
9 bypass, I mean, we know they're relatively safe
10 and I'm kind of wondering about the ones that are
11 headed down through the turbine. Who's counting
12 them?

13 MR. STETSON: Mr. Bernier is going to
14 explain to you how the study plan has been
15 constructed to do just that.

16 MR. BERNIER: I think I mentioned this
17 before but the --

18 HEARING OFFICER HILTON: I'm pretty dense.
19 You very well could have.

20 MR. BERNIER: I didn't mean that.

21 HEARING OFFICER HILTON: I did.

22 MR. BERNIER: There's a schedule in our
23 study plan where the cameras will be deployed at
24 various depths in the water column so that the
25 whole depth of water column can be monitored.

1 We've only got two cameras so we can't monitor
2 everything at once so it's going to be done on a
3 statistical basis where the cameras will be
4 randomly deployed at various levels in the water
5 column so we'll be able to see top to bottom when
6 the fish are -- where the fish are moving.

7 HEARING OFFICER HILTON: Well, are the
8 cameras going to be traveling up and down?

9 MR. BERNIER: No.

10 HEARING OFFICER HILTON: They're going to
11 be located fixed in one location and pivoting?

12 MR. BERNIER: One location for a set period
13 of time and then for the next period of time, next
14 statistical period, they'll be moved to whatever
15 level selected in the study plan.

16 HEARING OFFICER HILTON: Over what range of
17 distance? Over the entire 60 feet?

18 MR. BERNIER: Yes, top to bottom.

19 MR. STETSON: The study plans are included
20 in our exhibit. The complete study plan is
21 Exhibit GLH 12.

22 MR. BERNIER: In GLH-12 on page 2 of the
23 study plan which is towards the back of that
24 section is the various camera depths that will be
25 used.

1 HEARING OFFICER HILTON: They have, for
2 instance, eight meters I guess, that's the depth,
3 right? That's only 24 feet.

4 MR. BERNIER: Yes. The cameras send out a
5 signal in a cone so that you're covering more than
6 just straight across.

7 HEARING OFFICER HILTON: Okay. Is this
8 camera actually going to be running all the way
9 down to what would be 20 meters from the surface
10 down to 60 feet?

11 MR. BERNIER: The last figure in GLH-12,
12 the last page is a depiction of where the camera
13 locations will be. As you can see, they will
14 cover top to bottom.

15 HEARING OFFICER HILTON: Oh, I see and I
16 take it looking at the bottom of that plan -- that
17 elevation plan at the bottom of that page that the
18 -- there's something called an existing slab
19 which is a dashed line and then down below that
20 there's another horizontal line. Is that the
21 elevation of the turbine inlet?

22 MR. STETSON: There's a -- if you look at
23 the lower right figure, you'll see on it the word
24 trash rack.

25 HEARING OFFICER HILTON: Yup.

1 MR. STETSON: That line just above it is
2 meant to depict the center line of the turbine.

3 HEARING OFFICER HILTON: I see.

4 MR. STETSON: So what you see there, and
5 this is a good representation, the bottom of the
6 inlet side of the turbine is just a few feet
7 higher than the bottom of the outlet in the
8 tailrace. That's how you get 60 feet and a 24
9 foot depth.

10 HEARING OFFICER HILTON: Okay. Anyone else
11 have any questions? Elizabeth.

12 MS. EHRENFELD: I have one more fish
13 counting question. You're using two different
14 types of measurement, one is the optical camera
15 and one is the acoustical camera. Could you give
16 like a really easy to understand overview of the
17 differences and why you're using two different
18 technologies to count what would seem to be the
19 same analyte, the same fish?

20 MR. BERNIER: The optical camera will give
21 us an actual picture of the fish so that we can
22 tell species. The Didson camera won't necessarily
23 allow us to tell which species we're looking at
24 although we should be able to tell an eel from the
25 other fish. That's the main differences. The

1 Didson hydro acoustic system is just a fish sonar
2 system. It just shows you an image and it would
3 actually show logs or debris but you can
4 differentiate fish because they'll be moving back
5 and forth and upstream whereas the log won't be,
6 whereas the optical camera is just an underwater
7 video camera that we'll hopefully be able to tell
8 species and get the timing of the passage.

9 MS. EHRENFELD: So which would be more
10 sensitive? I guess my question, again,
11 understanding a little bit of the differences, why
12 aren't you using the same type of camera in both
13 locations?

14 MR. BERNIER: I don't think the water
15 clarity is good enough in the forebay in order to
16 use a camera.

17 MS. EHRENFELD: Okay, thank you.

18 HEARING OFFICER HILTON: Nancy Ziegler.

19 MS. ZIEGLER: I'm just trying to understand
20 the relative size of the Hydro-Kennebec Project
21 versus the Lockwood, Shawmut and Weston Projects,
22 and we have the Department's specs on these
23 projects, and I don't know whether you have those
24 but can anybody just kind of answer that in more
25 general terms? Is Hydro-Kennebec a somewhat

1 smaller project or is it relatively of the same
2 size as one of the other dams?

3 MR. STETSON: Ask Dana because I don't know
4 enough about the other dams to answer that.

5 MR. MURCH: If I could take a stab at that,
6 it depends what you mean by larger.

7 MS. ZIEGLER: And I understand because I
8 was looking at -- that's why I was confused
9 because you can look at the megawatts generated,
10 you can look at the size of the impoundment.
11 There are all sorts of variables so I was just
12 kind of curious. Maybe this is not the right
13 time. I don't know.

14 MR. MURCH: Well, people tend to look at
15 head which is a measure of the height of the
16 water. So it's a measure of the height of the dam
17 in some real sense, and then also look at
18 generating capacity. I don't know if all those
19 figures are in what I presented to you but
20 generating capacity is and by a fair margin I
21 think the Hydro-Kennebec Project is the largest
22 generator. That's largely because it was brand
23 new in 1986. It was replacement of the old Scott
24 Paper project that was there previously. It has
25 large turbines.

1 MS. ZIEGLER: That's helpful, thanks, and
2 this may be for Mr. Flagg. One of our problems is
3 we did not take a site visit so -- because of the
4 timing of the hearings and it would have been
5 helpful I think in some ways if we had done a site
6 visit, but the Hydro-Kennebec Project is between
7 the Shawmut Project and the Lockwood Project?

8 MR. FLAGG: Yes.

9 MS. ZIEGLER: So if a study is being done
10 and FPLE is conducting a study that will take the
11 Shawmut -- that will hopefully track 30 to 50 eel
12 going through Shawmut and then going through
13 Lockwood, the fact that these eel that are being
14 followed would have to go over Hydro-Kennebec,
15 does that somehow skew the results of the study
16 because they're not going to be tracking mortality
17 rates over Hydro-Kennebec?

18 MR. FLAGG: I'm not exactly sure how
19 they're going to do the Lockwood versus Shawmut
20 sites. They may very well just be releasing fish
21 above Shawmut and tracking them down through and
22 then releasing fish into the Lockwood impoundment
23 and tracking them down through Lockwood. So they
24 wouldn't necessarily go through two or three
25 projects. That would be the only way you could

1 really -- without having the Hydro-Kennebec
2 Project confound the results, it would be very
3 difficult so I think they're looking at probably
4 an individual dam analysis at this point.

5 MS. ZIEGLER: Okay. I guess this is
6 something we'd have to ask them again. So 30 to
7 50 eel at each of those dam sites and through each
8 of those dams?

9 MR. FLAGG: Yes.

10 MS. ZIEGLER: Thank you.

11 HEARING OFFICER HILTON: Mr. Flagg, you've
12 conducted a lot of research yourself, right?

13 MR. FLAGG: A fair amount.

14 HEARING OFFICER HILTON: Doesn't it strike
15 you that that would be the way to see the
16 compounding effect of different dams would be to
17 follow the eels from above Shawmut, down through
18 Shawmut, then having gone to all that effort of
19 capturing those eels and surgically implanting
20 these devices, et cetera, continue to follow them
21 down through Hydro-Kennebec and then Lockwood?
22 Wouldn't that make a lot of sense?

23 MR. FLAGG: Well, it's one way to do the
24 study. Yes, certainly you could do it that way.
25 I think the -- you could do it that way.

1 HEARING OFFICER HILTON: In your experience
2 in working with DMR, how strongly did you try to
3 -- did the agencies try to address or review the
4 methodologies and approaches that hydro owners use
5 in devising experimentation?

6 MR. FLAGG: I think we were very aggressive
7 in terms of putting together -- reviewing studies
8 relative to hydro projects.

9 HEARING OFFICER HILTON: Nancy Anderson,
10 anything?

11 MS. ANDERSON: No.

12 HEARING OFFICER HILTON: Dana?

13 MR. MURCH: I'm still here. A couple of
14 questions. One is to clarify an answer, Brian,
15 that you gave to a question that Chairman Hilton
16 asked. It's true enough that when the -- and this
17 has to do with the 4 percent of turbine capacity
18 flow for the downstream passage facility, just to
19 clarify, it's true enough that when the flow in
20 the river is less than total turbine capacity, 4
21 percent of the flow will go through the downstream
22 passage facility, the remaining 96 percent of the
23 flow will go through the turbines; however,
24 whenever flow is greater than turbine capacity,
25 you'll have some flow spilling over the dam?

1 MR. STETSON: Correct.

2 MR. MURCH: So the percentages will change,
3 okay. Just so that's clear, and then a question
4 for Lou.

5 MR. STETSON: Which I'll point out to you
6 in April and most of May is the common occurrence
7 that we'll have one or two of the big gates open
8 as well as the downstream passage.

9 MR. MURCH: And, Lou, a question. You were
10 involved in the negotiations for the 1986 KHDG
11 Agreement as well as the '98?

12 MR. FLAGG: Yes.

13 MR. MURCH: In the 1986 KHDG Agreement were
14 there any provisions for eel passage?

15 MR. FLAGG: No, not that I recall.

16 MR. MURCH: Why not?

17 MR. FLAGG: No.

18 MR. MURCH: Why not?

19 MR. FLAGG: The reason for that is at that
20 particular time there was not a great deal of
21 attention that was being given to American eel at
22 that particular time and we were very, very much
23 interested in focusing on American shad and the
24 alewife and blueback herring. So that was the
25 primary focus at the time. We wanted to really

1 concentrate on those species and at that
2 particular time there were no -- eels hadn't risen
3 to the level of concern that they did at the time
4 of the 1998 agreement. There was a very large
5 emerging elver fishery in Maine, there were issues
6 of over harvest or potential over harvest or
7 people concerned about the eel resource not only
8 in Maine but also throughout the Atlantic
9 Seaboard. So we did have much greater interest in
10 doing something with eels in accordance with the
11 1998 agreement than we did with the 1986
12 agreement.

13 MR. MURCH: And the 1998 agreement was the
14 first time that eels were addressed in any kind of
15 settlement?

16 MR. FLAGG: Yes.

17 MR. MURCH: So it's fair to say that the
18 agencies' concern about eels is fairly recent?

19 MR. MURCH: Yes.

20 MR. MURCH: And do you still feel that the
21 KHDG Agreement adequately addresses eel passage on
22 the Kennebec?

23 MR. FLAGG: Yes, I believe it does.

24 MR. MURCH: I have no more questions.

25 Thank you.

1 HEARING OFFICER HILTON: Anyone else? So
2 we go to redirect.

3 MS. VERVILLE: Thank you. Before I get
4 into a couple of specific questions, this is a
5 general question for the three of you. Is there
6 anything you would like to clarify from your
7 testimony today before I ask you any specifics?

8 MR. STETSON: Wait, we have one.

9 MR. BERNIER: I would just mention one
10 thing, on the question on the 2001, 2002, 2003
11 study on how they did the study, my understanding
12 is that they -- a lot of the conclusion that there
13 was no evidence of mortality was based on lack of
14 predator activity downstream of the dam. They
15 didn't see any bird activity which you would
16 expect if there was a significant mortality
17 problem, and they did see thousands, maybe
18 millions of fish is what they said in the report.

19 MS. VERVILLE: Thank you. Mr. Bernier, the
20 resource agencies approved your 2007 effectiveness
21 study plan?

22 MR. BERNIER: Yes.

23 MS. VERVILLE: Which agencies?

24 MR. BERNIER: The DMR, IF&W, Atlantic
25 Salmon Commission, U.S. Fish and Wildlife and

1 National Marine Fishery Service.

2 MS. VERVILLE: Thank you. Mr. Stetson,
3 just a point of clarification, under the KHDG
4 Agreement Hydro-Kennebec makes contributions to a
5 Kennebec River Restoration Fund, correct?

6 MR. STETSON: Yes, we do. We make an
7 annual payment.

8 MS. VERVILLE: Now, are those contributions
9 -- the expenses that you incur for constructing
10 fish passage and performing effectiveness studies,
11 does that -- how do you pay for that? Does that
12 come out of the contributions to the restoration
13 fund or are they separate?

14 MR. STETSON: The contributions to the
15 restoration fund, which I think I just signed the
16 check last week, it was a little over \$53,000,
17 this year's payment and 160 since our ownership in
18 2005 are above and beyond any costs such as the
19 cost to participate in this hearing.

20 MS. VERVILLE: And how about the cost of
21 construction of your fish passage facility?

22 MR. STETSON: That is in addition that's
23 out of pocket.

24 MS. VERVILLE: In addition?

25 MR. STETSON: Yes.

1 MS. VERVILLE: And the effectiveness
2 studies?

3 MR. STETSON: That is out of pocket as
4 well. We estimate the effectiveness study will be
5 around \$80,000. A large part of that is because
6 of the technology we use.

7 MS. ZIEGLER: I'm sorry, could you say that
8 again? I didn't hear that.

9 MR. STETSON: The cost of the effectiveness
10 study, out-of-pocket cost, if we don't discount
11 internal time which would be significant, internal
12 to the company, will be \$80,000 and a great deal
13 of that is driven by our use of the hydro acoustic
14 technology. It's very expensive equipment to
15 rent.

16 MS. VERVILLE: And, Mr. Stetson, my
17 understanding is that, and according to your
18 pre-filed direct testimony, the effectiveness
19 study could result in further studies, is that
20 correct?

21 MR. STETSON: It could result in further
22 studies and/or further enhancements and we've made
23 a commitment to make necessary enhancements if the
24 effectiveness study warrants it and it's reflected
25 in our order approving our downstream passage as

1 issued by the Maine DEP.

2 MS. VERVILLE: And just one last question
3 for Mr. Flagg. Mr. Hilton expressed some concern
4 with regard to social responsibility as a board,
5 and my question to you is is there a healthy,
6 thriving anadromous and catadromous fishery on the
7 Kennebec River in the vicinity of these projects?

8 MR. FLAGG: Yes, there is.

9 MS. VERVILLE: Thank you. No further
10 questions.

11 HEARING OFFICER HILTON: Any recross?

12 MR. NICHOLAS: I have a couple. Mr. Flagg,
13 when -- this is with respect to the negotiation
14 for the 8,000 shad trigger.

15 MS. VERVILLE: Excuse me, I want to clarify
16 that recross is limited to -- I believe it is
17 limited to what I have redirected on.

18 MR. NICHOLAS: I have one question. This
19 goes to the --

20 MS. VERVILLE: I'm sorry, I don't believe
21 that I asked a trigger question -- a question
22 about trigger numbers.

23 HEARING OFFICER HILTON: I think she's
24 right.

25 MR. NICHOLAS: It goes to the health of the

1 river and how they arrived at the 8,000 shad
2 number which goes to the health of the fishery
3 which was the very last question because he said
4 there was a healthy fishery and it all goes back
5 to how do you determine that from the trigger
6 numbers, and so I have a question on -- I have one
7 question on the trigger number. I think that's
8 relevant.

9 HEARING OFFICER HILTON: I'll allow it.

10 MR. NICHOLAS: With respect to the 8,000
11 trigger number for shad, am I correct that DMR's
12 number that it originally gave the dam owners as
13 an appropriate shad trigger was 500?

14 MR. FLAGG: That could be, yes.

15 MR. NICHOLAS: Thank you.

16 HEARING OFFICER HILTON: Any other cross?
17 Mr. Watts?

18 MR. WATTS: Just in relation to what Ms.
19 Verville just asked Lou about, the overall
20 assessment of the health of the anadromous
21 fisheries in the Kennebec, I'd like to recross on
22 that. Mr. Flagg, do you believe an adult
23 population of 15 Atlantic salmon in the Kennebec
24 is a healthy population?

25 MR. FLAGG: Fifteen Atlantic salmon in the

1 Kennebec River a healthy population? No, I
2 wouldn't say it was a -- it certainly isn't up to
3 the point where it's utilizing all the habitat
4 that's available in the river.

5 MR. WATTS: Thank you.

6 MR. NICHOLAS: We might have one more.

7 MR. MERRILL: That's all the questions.

8 HEARING OFFICER HILTON: Jeff from Save Our
9 Sebasticook, any questions?

10 MR. VANDEN HEUVEL: No questions.

11 HEARING OFFICER HILTON: FPL? Jeff, you
12 need to sit a little bit closer here so we can see
13 you.

14 MR. THALER: That's usually not a problem.
15 I just have one question. Mr. Flagg, following up
16 on what Mr. Nicholas just asked you, do you recall
17 the number 500 that he mentioned as the old
18 trigger was based with Edwards in place?

19 MR. FLAGG: Yes, that's correct. I believe
20 that's right.

21 MR. THALER: I have nothing further. Thank
22 you.

23 HEARING OFFICER HILTON: Just to clarify,
24 Mr. Flagg, that 500 figure was at Edwards or at
25 Lockwood?

1 MR. FLAGG: I think it was 500 at Edwards.
2 It would have had to have been 500 at Edwards.

3 MR. THALER: My question had been -- can I
4 just clarify? Was it at Lockwood with Edwards in
5 place or do you not recall?

6 MR. FLAGG: I really don't recall for
7 sure. I do recall the number 500 now and that was
8 a starting point from our perspective at the time
9 and we negotiated that number.

10 MR. THALER: With Edwards in place at that
11 point?

12 MR. FLAGG: Yes, that's correct.

13 MR. THALER: Thank you. That's all.

14 HEARING OFFICER HILTON: That actually
15 poses questions, but I think I'm going to let it
16 go. It looks like we're in pretty good shape
17 time-wise. I think we are done for the
18 afternoon. So we're going to reconvene at 6:30,
19 some of us will, for the public hearing and we'll
20 be looking forward to hearing from the resource
21 agencies tomorrow morning.

22 (HEARING RECESSED AT 5:25 P.M.)

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EVENING SESSION

MARCH 15, 2007

HEARING OFFICER HILTON: Good evening. I now call to order this session of the Board of Environmental Protection's hearing on the Maine Hydropower Permits and Water Quality Certifications for the following four dams located on the Kennebec River: the Lockwood and Hydro-Kennebec Projects, both located in Waterville and Winslow; the Shawmut Project located in Fairfield, Benton and Clinton; and the Weston Project located in Skowhegan, Norridgewock, Starks and Madison.

My name is Ernie Hilton. I'm a member of the Board of Environmental Protection, and I'm the presiding officer for this hearing. Members of the Board here this evening are Nancy Anderson from Cumberland, Dick Gould -- I should say Nancy is an attorney from Cumberland, Dick Gould who is a code enforcement officer and former legislator from Greenville; Don Guimond who is the town manager for Fort Kent and a farmer up there; Nancy Ziegler who is an attorney from South Portland; Elizabeth Ehrenfeld who is a microbiologist and instructor at Southern Maine Community College

1 from Falmouth; also here are Dana Murch, the DEP
2 staffer, hydropower staffer; Terry Hanson who is
3 the Board's administrative assistant; Carol Blasi
4 to my immediate right resides at the Attorney
5 General's office; and Cynthia Bertocci is the
6 Board executive analyst. I am a hard scrabble
7 farmer from Starks. Our court reporter is Joanne
8 Alley of Alley and Morrisette in Augusta.

9 This hearing is being held by the Board
10 pursuant to the Maine Administrative Procedures
11 Act and Chapter 20 of the Department of Protection
12 rules. Notice of the hearing was published in the
13 Kennebec Journal and Waterville Morning Sentinel
14 on Monday, February 12th, 2007 and Wednesday,
15 March 7th, 2007. Notice was also sent to the
16 parties and all of those specifically requesting
17 notification. Additionally, press releases and
18 public service announcements were distributed to
19 regional media outlets on February 23rd, 2007.
20 This public hearing was scheduled in response to
21 petitions filed by Douglas Watts and Friends of
22 Merrymeeting Bay. The petitioners requested that
23 the Board modify the permits and certifications
24 for the Lockwood, Hydro-Kennebec, Shawmut and
25 Weston dams to require immediate upstream and

1 downstream passage for American eel, American
2 shad, blueback herring, alewife and Atlantic
3 salmon.

4 The Board heard testimony earlier today from
5 Mr. Watts, Friends of Merrymeeting Bay and the dam
6 owners, FPL Energy Maine, Merimil Limited
7 Partnership and Hydro-Kennebec Limited
8 Partnership. The purpose of this evening's
9 session is to receive testimony from the general
10 public and other interested groups on eel and fish
11 passage measures at each of the dams and whether
12 the Board should exercise its discretion to modify
13 the permits and water quality certifications for
14 the dams. This hearing is being recorded and
15 transcribed, as I indicated, by Alley and
16 Morrisette.

17 All witnesses at this hearing will be sworn.
18 There are sign-up sheets located on the witness
19 table which is immediately in front of me for any
20 member of the public who plans to offer testimony
21 to the Board. If you want to speak this evening
22 and have not yet signed up, please do so now. If
23 you do not want to testify this evening, the
24 record in this matter will remain open to receive
25 your written comments until tomorrow, March 16th

1 at five p.m. Written comments should be hand
2 delivered or sent to the Department of
3 Environmental Protection, attention Dana Murch, 17
4 Statehouse Station, Augusta, Maine 04333-0017.

5 You may also e-mail comments to
6 Dana.P.Murch@maine.gov by the deadline.

7 I will call upon those who have signed up to
8 testify. When your name is called, you should
9 come to the podium and clearly identify yourself
10 by name, place of residence and affiliation, if
11 any, before beginning your testimony. Please
12 remember to focus your comments on the issues
13 related to upstream and downstream fish passage
14 and downstream eel passage at those four dams, the
15 Lockwood, Hydro-Kennebec, Shawmut and Weston
16 dams. These are the only issues before the Board
17 for consideration at this time.

18 Now, at this time I would ask that all
19 persons planning to testify this evening stand and
20 raise your right-hand and if you would do so right
21 now. Do you affirm that you will tell the truth
22 and the whole truth before us today?

23 (Witnesses respond in the affirmative.)

24 HEARING OFFICER HILTON: Thank you very
25 much. I have a list of three people in front of

1 me. The first person on that list is Dave Wilby.

2 Welcome, Dave.

3 MR. WILBY: Thank you, Mr. Chairman. I'm
4 glad I hustled over this afternoon to get on the
5 list early because I wouldn't want to wait behind
6 dozens of people.

7 Thank you, Mr. Chairman and Members of the
8 BEP. Again, I'm Dave Wilby, a resident of the
9 town of Brunswick. I'm executive director of the
10 Independent Energy Producers of Maine, an
11 association that is located here in Augusta. We
12 represent most of the renewable power generators
13 in the State of Maine, including many hydro owners
14 and hydro facilities, within our organization.
15 You have focused a lot -- on a lot of detailed
16 issues today from my sense of what I've heard in
17 the few minutes I was here earlier so I'm going to
18 try to take a step back and try to provide a
19 little bit of context in relation to hydropower's
20 role in Maine and how hydro is dealt with
21 specifically in Maine law. I started to make a
22 long list of the benefits hydro brings to Maine
23 but when I looked at the state law and, in
24 particular, Maine Waterway Development
25 Conservation Act, I realized it said it better

1 than I ever could, and, furthermore, Maine
2 statutes have a lot more authority than I have.
3 So I thought I would share with you, because to me
4 it's a very critical section of state law and
5 provides a lot of guidance I think for all policy
6 makers being an important statutory provision, and
7 this comes from again the MWDCA which is Title 38
8 and I'm specifically going to read from Section
9 631, just so you have the citation. The
10 Legislature finds and declares that the surface
11 waters of the state constitute a valuable,
12 indigenous and renewable energy resource and that
13 hydropower development utilizing these waters is
14 unique in its benefits and impacts to the natural
15 environment and makes a significant contribution
16 to the general welfare of the citizens of this
17 state for the following reasons: A, hydropower is
18 the state's only economically feasible large-scale
19 energy resource which does not rely on a
20 combustion of a fuel; thereby avoiding air
21 pollution, solid waste disposal problems and
22 hazards to human health from emissions wastes and
23 by-products. Hydropower can be developed at many
24 sites with minimal environmental impacts
25 especially at sites with existing dams or where

1 current-type turbines can be used; B, like all
2 energy generating facilities, hydro powers can
3 have adverse impacts. In contrast with other
4 energy sources, they may also have positive
5 environmental impacts -- excuse me -- effects.
6 For example, hydropower dams can control floods
7 and augment downstream flow to improve fish and
8 wildlife habitats, water quality and recreational
9 opportunities; C, hydropower is presently the
10 state's most significant indigenous resource that
11 can be used to free our citizens from their
12 extreme dependence on foreign oil for peaking
13 power. The Legislature declares that hydropower
14 justifies singular treatment.

15 I'll conclude the reading from that section
16 there. This is not typical language in state
17 statute, at least in the energy area. No such
18 language exists I believe for natural gas or for
19 biomass or even for wind. There are days in my
20 business that I wish there were some language like
21 that in support of wind or biomass or something
22 else but, indeed, hydropower gets singular
23 treatment in state statute. One example I think
24 of that and perhaps the most important example in
25 my mind is that hydropower is a designated use

1 under Maine's river classification system. That
2 means it has equal standing under law -- and I
3 think you're probably aware of this -- with a long
4 list of other priorities such as recreation,
5 drinking water, navigation and habitat for fish
6 and other wildlife.

7 Why is hydro treated this way? The MWDCA
8 which I just read lists a lot of those reasons.
9 It's affordable, avoids air pollution, solid waste
10 disposal, it increases the reliability of our
11 electric grid, helps keep the lights on. It can
12 help control flooding and promote recreational
13 opportunities and frees us from our dependence on
14 fossil fuels. We don't fight wars over hydropower
15 with the possible exception of maybe the Aroostook
16 war. And, in fact, and I thought this was
17 important to share with you. Maine State
18 Government currently today buys a hundred percent
19 renewable power to keep the lights on for state
20 government, the DEP and the Statehouse and every
21 place else. This power is hydropower from
22 Rumford, a facility owned by Brookfield, and much
23 the power we all use, at least those of us in this
24 room that are residential customers in CMP
25 territory that take standard offer, now, that's

1 the largest customer class in the state of Maine
2 in terms of number of customers, and a real large
3 chunk of that comes from hydropower.

4 Finally, I just want to share a little bit
5 of my experience in my role in seeing various
6 regulatory agencies and various policy makers
7 within Maine State Government. I bounce between
8 the environmental world, the Natural Resources
9 Committee, LURC, the BEP, DEP, those sort of
10 forums, and the energy policy makers here in the
11 state, the Utilities Committee in the Legislature,
12 the Public Utilities Committee and so on and so
13 forth. There is a massive disconnect in this
14 state -- and probably throughout this country but
15 for the purposes here today it's the state that
16 counts -- a massive disconnect between
17 environmental policy and energy policy. The
18 energy policy makers are working monthly, if not
19 daily, and, in fact, I was with them most of the
20 afternoon and why I wasn't able to be here for
21 more, to increase renewables and to increase our
22 diversity of our energy supply here in Maine and
23 in the region for the purposes of lowering costs,
24 an increasing liability and, yes, improving our
25 environments; and when I go there I often get

1 asked about what's going on with wind permitting,
2 with hydropower processes, with biomass issues.
3 Frankly, the energy policy makers are perplexed
4 and in many respects don't understand what they
5 perceive as a hostility to renewable power.
6 People say, well, we love renewable power but we
7 just don't like this one. Well, as you go around
8 the state, there's always somebody who has
9 problems with every "this one." I would invite
10 anybody who's interested to join me in some of my
11 travels before the Utilities Committee or other
12 places to talk about some of these issues and some
13 of this disconnect because I think it's important,
14 particularly as we head toward the Regional
15 Greenhouse Gas Initiative process and the rule
16 that's going before the Legislature shortly, and I
17 think this Board is probably very familiar with
18 that so I won't go into a great amount of detail,
19 but how but through renewable resources are we
20 going to address our energy needs in a constrained
21 regulatory atmosphere. I mean, that's the
22 purpose. It's to promote non-emitting sources
23 like hydropower.

24 I'm going to just close and I appreciate the
25 Board's patience with me, but I'm going to close

1 with some comments -- some historical comments
2 from a governor, and then I'll tell you at the end
3 who he is. The governor said that, and I'll read
4 this directly, this is from a speech that he
5 believed that Maine, quote, should build dams and
6 hold back the water that now goes to waste so that
7 the people located on the rivers may derive the
8 benefit from that water as they need it. Water
9 power, as you all know, is not of any particular
10 value undeveloped. We want to have water powers
11 in Maine on which we can rely, and if we can get a
12 certain flowage from a certain lake for 365 days
13 in the year, then that water power becomes a value
14 and the only way that we can do this is to control
15 the source in such a manner that the tremendous
16 head obtained in spring and autumn may be held in
17 reserve and distributed evenly as needed through
18 other seasons of the year. I do not know what the
19 future holds in store for the State of Maine in
20 the water power question. Well, I don't know what
21 it holds either, but that's what Governor Baxter,
22 perhaps the state's foremost conservationist said
23 in a speech in June of 1921. So I just wanted to
24 close with those comments and, again, I appreciate
25 the Board's patience. Thank you very much.

1 HEARING OFFICER HILTON: Thank you. Any

2 questions of Mr. Wilby? Thank you, Dave. We
3 appreciate your comments. We have Kathleen McGee
4 I believe. Welcome, Kathleen.

5 MS. MCGEE: You provided water but no
6 glass.

7 HEARING OFFICER HILTON: Excuse me?

8 MS. MCGEE: You provided water but no
9 glass.

10 MR. HILTON: Oh.

11 MR. MURCH: We can take care of that.

12 MS. MCGEE: I'm so short, even sitting down
13 I have to change things here. My name is Kathleen
14 McGee. I'm the former director of the Maine
15 Toxics Action Coalition and have worked on issues
16 on the rivers here in Maine for a long time. I'm
17 also one of the petitioners on the salmon listing
18 that is now before the Federal Government.

19 HEARING OFFICER HILTON: You're a --

20 MS. MCGEE: A petitioner on the salmon
21 listing that is now before the Federal
22 Government. Well, I thank you very much, Mr.
23 Hilton and Members, I know you've had a very long
24 day. I've heard a lot today as have you and some
25 of it has moved me to tears and some of it

1 certainly needs to be addressed, but I also would
2 just like to share with you some of my feelings on
3 where we are in this process.

4 First, I know we've learned a lot about eels
5 and anadromous and diadromous fish since 1921.
6 I'm not sure Percival Baxter would feel the same
7 way now as he did in 1921 knowing what we know
8 now. If I ate artery clogging foods and if I
9 didn't exercise and I didn't take care of myself
10 and I ended up with arteriolosclerosis, I would
11 have to do something about that and what would be
12 the cost to my family and my friends, my employer,
13 my health insurance company? Well, clearly I
14 would have to eat better, I'd have to be aware,
15 I'd have to pay attention but if I didn't, if I
16 didn't take those incremental steps, I'd probably
17 end up with a bypass or angioplasty or something
18 much more dramatic and that's what I think we're
19 looking at here now with the eel and anadromous
20 fish issue before you. We've been living at the
21 edges of providing what's necessary for healthy
22 rivers here in Maine and we've done a lot but
23 we've also learned a lot, and they are the life
24 blood, the rivers, of our environment, the very
25 arteries of our environment and I don't think that

1 analogy can be unstated. We can't remove living
2 organisms from the river anymore than we can
3 remove platelets or red and white blood cells or
4 mitochondria from ourselves and be healthy. We
5 can't remove those things from our rivers and
6 expect them to continue to be healthy, and if dams
7 remain blocking our rivers, and I expect they
8 will, I'm a big proponent of renewable energy, I'm
9 a big proponent of genuine renewable energy and I
10 think that we have to be careful about how we do
11 that and site these things where they need to be
12 sited, whether it's wind power or otherwise, and I
13 think we can do that in very wise ways as we learn
14 more.

15 I don't know how we've become as cavalier as
16 we have about the earth. We can be less cavalier
17 about our own bodies, but clearly we have and
18 because these rivers belong to you and to me, it
19 doesn't belong to the profit margin of the
20 corporations that have been before you today.
21 They belong to all of us, and while I'm also a big
22 fan of profit margins, especially my own, I would
23 argue that there's a point where there's a tipping
24 point where we have to look at the overall good,
25 and that the capital investments that these folks

1 put into dams don't necessarily outweigh the harm
2 that they can do to us.

3 We are asking here for a simple solution. We
4 can have hydroelectricity and we can have eels and
5 we can have Atlantic salmon and we can provide a
6 healthy environment. We're not asking for an
7 either/or. If you continue to deny access to
8 these habitats of these different species, that
9 fix is not going to be so simple as just dietary
10 change. It's going to take more and it's going to
11 be much more dramatic. It's very possible I think
12 that the, frankly, very profit-rich companies that
13 are here today and I'd like to say that the --
14 both of these, FPL and Brookfield, are both
15 billion dollar companies and their CEO -- FPL's
16 CEO made 13 million dollars last year. I'd like
17 to keep into context what the cost of providing
18 passage could be. We heard some numbers. I think
19 we heard 320,000 for the boom at Hydro-Kennebec
20 and 80,000 for some studies. Keep that in the
21 context of what the real profit is with these
22 companies and I think we have to do that. It's
23 possible that these companies will also -- they
24 could possibly spend more litigating this than it
25 could cost to provide some very simple and basic

1 steps to remediate the problems that we have. I
2 don't think we need a contingent of scientists, I
3 don't think we need a bevy of legal precedent and
4 a room full of expensive suits. I think we need
5 some just common sense here. Eels are being
6 slaughtered needlessly, the beginning of the end
7 of the species. We cannot afford to study these
8 species to death. If we're not compelled by
9 absolute sheer terror of losing these species,
10 then we can be more crass. We can say what's the
11 cost of losing Atlantic salmon over the last
12 hundred years, you take those fish and you
13 multiply them by the poundage and you multiply that
14 by \$10 or \$15 a pound and it's a phenomenal --
15 it's crass but a phenomenally large number. The
16 eels provide fodder for striped bass and for our
17 fisheries here and for the tourism industry, and
18 also, frankly, for the Maine brand. We are
19 considered to be a pristine and eco friendly state
20 and I think that we need to behave as such. The
21 eels are a staple of the food chain as are some
22 other fish. If we love fish, we love eels. If we
23 love anglers, we should love eels. If we love
24 Atlantic salmon and Atlantic salmon fishing and
25 what that tourist money brings to our state, we

1 should love eels and the other fish that we want
2 to provide passage for. I think that we also have
3 to consider the cost to the future and what that's
4 going to cost our kids if we don't do this now and
5 that card gets played and I'm sorry to play it but
6 I have kids and I'm concerned that if we don't
7 take the steps now that we're talking about which,
8 frankly, are going to only become more expensive
9 and only become more dramatic if we don't provide
10 them soon, we're going to pass that cost on and on
11 and on to our kids.

12 Lastly, I want to kind of leave you with
13 this. I have children. I would not allow my
14 five-year-old daughter to walk through a ten-foot
15 tall fan blade. I wouldn't allow my kids to put
16 their hands into a fan blade. My five-year-old
17 daughter when she was five years old was about the
18 size of an eel and it just would never occur to
19 any of us to allow a being that we care about to
20 go through that kind of scenario where they would
21 actually go through that and be chopped up.

22 Last year, this last summer, I was actually
23 walking my dog over by Shawmut and just anecdotal,
24 we ran into a woman there and we asked if she had
25 seen any eels by the side of the water there and

1 she said no, she hadn't, this was back in August
2 of this last year. She said, though, that,
3 granted, it's a friend of a friend, had actually
4 brought loads of debris up from the Lockwood dam
5 that when apparently they cleaned out their trash
6 racks just choke full of eels, just a huge amount
7 of eels, and when we were there they had long
8 since been buried by other debris that had been
9 there and she was sure of it, and I just want to
10 say, and I think that's the tip of the iceberg,
11 just because we don't see them in the tailraces
12 doesn't mean that they're not there and it doesn't
13 mean that they're not dead. So I would like to
14 ask you, please, to consider this petition. Thank
15 you for taking the time to consider this petition
16 and I hope that you will find in the affirmative
17 for making sure that we have safe and effective up
18 and downstream passage for these species.

19 HEARING OFFICER HILTON: Thank you,

20 Kathleen. Any questions for Kathleen at all?
21 Thank you very much. Our next speaker is Pipper
22 Stanley. Welcome.

23 MS. STANLEY: My name is Pippa Stanley.
24 I'm 15 years old, I live in Richmond, Maine, and
25 I'm here to ask you to do your job as the Board of

1 Environmental Protection and protect these fish in
2 the rivers and ensure the safety of the eels as
3 well as the America shad, blueback herrings,
4 alewives, Atlantic salmon that are swimming up and
5 down the streams to spawn in case of the fish
6 going upstream and in the case of the eels
7 swimming downwards toward the Sargasso Sea.

8 The Federal Clean Water Act and the Maine
9 Board of Environmental Protection goal is to
10 emphasize physical, chemical and biological
11 integrity of our waters. This isn't happening
12 when eels are getting chopped up in turbines, this
13 isn't happening when fish are injured and hindered
14 going up fish ladders. We can have hydroelectric
15 -- clean hydroelectric energy and we can have
16 eels. I think the hydroelectric companies have
17 enough money they can afford to alter these dams
18 to make them safe for the fish and the eels. The
19 fish and eels are part of the river, they're part
20 of the ecosystem of the river, they're part of the
21 web of biodiversity in the river. Those are the
22 things that make the river what it is which is a
23 very special and unique and beautiful place.
24 Those animals in the river have been here long
25 before humans came. The eels and the fish were

1 something that nourished Native Americans and
2 nourished the first settlers. They're part of the
3 culture and part of the history of the river as
4 well as being a biological, I would say, necessity
5 in the river and its survival.

6 I have grown up near the river. I've seen
7 the river nearly every day and every season. It's
8 been a really special place for me. It's been a
9 beautiful place. I've gone out and spent quiet
10 afternoons on the river in a boat and I would like
11 to be able to bring my children back to the river
12 when I have children and my grandchildren maybe
13 and their grandchildren and show them the river
14 and tell them about the eels that live there
15 because I think it's an amazing story, these
16 animals that swim all the way to the Sargasso Sea
17 and then the elvers come back up by some instinct
18 and find the river. I think it's an amazing
19 story. It's something that's always amazed me and
20 been really special for me and I love the river,
21 and so this river doesn't belong to any of us. It
22 doesn't belong to the State of Maine. It belongs
23 to all the generations that are going to come and
24 that are going to have this river and going to
25 have to live on this river. So I would just like

1 to urge you to protect the river and make sure it
2 stays clean. Thank you.

3 HEARING OFFICER HILTON: Thank you,

4 Pipper. Any questions of Pipper? Thank you very
5 much. Nick Bennett, it's your turn, and he is the
6 last one on the list here at least for right now
7 unless there's somebody else who has shown up.
8 Nick, I don't think you've been sworn yet.

9 MR. BENNETT: No, I was late. I
10 apologize.

11 HEARING OFFICER HILTON: Do you affirm that
12 you will tell the truth and nothing but the truth?

13 MR. BENNETT: Yes, I do.

14 HEARING OFFICER HILTON: Welcome, Nick.

15 MR. BENNETT: Thank you. Mr. Chairman,
16 Members of the Board of Environmental Protection,
17 my name is Nick Bennett. I'm the staff scientist
18 for the Natural Resources Council of Maine, I
19 reside in Hallowell. I am testifying on behalf of
20 the Kennebec Coalition which I refer to in my
21 testimony as the Coalition which is comprised of
22 American rivers, the Atlantic Salmon Federation,
23 the Natural Resources Council of Maine, Trout
24 Unlimited and the Kennebec Valley Chapter of Trout
25 Unlimited.

1 The Coalition is one of the signatories to
2 the 1998 Kennebec-Hydro Developers Group Agreement
3 sometimes known as the KHDG Agreement, along with
4 the Department of Marine Resources, the Department
5 of Inland Fisheries and Wildlife, the State
6 Planning Office, the U.S. Fish and Wildlife
7 Service and a number of dam owners on the Kennebec
8 River and the Sebasticook River. The Coalition
9 strongly supports the KHDG Agreement. The 1998
10 KHDG Agreement was part of the lower Kennebec
11 River Comprehensive Hydropower Settlement Accord.
12 This accord resulted in the removal of the Edwards
13 dam which has been an unparalleled success in
14 Maine fisheries restoration. The KHDG dam owners
15 agreed to provide 4.75 million dollars to the
16 State of Maine for fisheries restoration,
17 including some funds for the removal of the
18 Edwards dam. It's safe to say that the Edwards
19 dam removal would not have happened without the
20 1998 KHDG Agreement or that at least it would not
21 have happened without many years of litigation.

22 The 1998 KHDG Agreement also provided a path
23 forward for fish passage at dams throughout the
24 lower Kennebec River and the Sebasticook River and
25 under the agreement fish lifts have been built at

1 the Lockwood, Burnham and Benton Falls dams.
2 These are very significant accomplishments that
3 would not have occurred without the agreement.
4 The 1998 KHDG Agreement is a compromise. It
5 allowed the dam owners delays in fish passage
6 construction based on the construction of fish
7 passage at downstream dams and put biological
8 triggers in place. These biological triggers
9 include the requirement that 8,000 shad utilize
10 the Lockwood fish lift before permanent upstream
11 fish passage is installed at the upstream
12 Hydro-Kennebec dam. We understand that the
13 petitioners object to these triggers but the
14 triggers were part of the compromise that allowed
15 us to avoid litigation and to receive funding for
16 the Edwards dam removal.

17 Implementation of the 1998 KHDG Agreement has
18 not always been smooth. The owners of the Benton
19 Falls and Burnham dams did not install their fish
20 lifts on time and the Coalition, the State of
21 Maine and the Federal Energy Regulatory Commission
22 all had to weigh in to make them install these
23 lifts. The KHDG Agreement, however, provided the
24 framework in which to do this and the issues were
25 resolved. Construction of a fish lift, another

1 example of things that have taken too long, at the
2 Fort Halifax dam has also been delayed by years of
3 litigation; however, the Coalition, we, are
4 confident that this issue will also be resolved
5 within the framework of the KHDG Agreement. It is
6 also true that the required eels passage studies
7 have taken too long to complete for the Lockwood,
8 Shawmut, Weston and Hydro-Kennebec dams, and we
9 understand the petitioners' frustration with this;
10 however, DEP has issued compliance orders
11 governing both up and downstream eel passage at
12 these four dams and we are optimistic that this
13 will resolve these issues. The KHDG Agreement has
14 not been perfect but the Coalition believes that
15 the Kennebec River would be much worse off without
16 it and there would be no framework to resolve all
17 of the above issues at all.

18 We would also like to point out that we do
19 not agree with all of the points the dam owners
20 have made in their testimony on these issues. For
21 example, we question Florida Power and Light's
22 assertion that the State of Maine cannot enforce
23 the conditions of a 401 Certificate after it has
24 been incorporated into a FERC license. We don't
25 think that there is legal evidence yet to support

1 that conclusion. That is untested. FPL also
2 asserts that there are no reopener conditions in
3 any of its licenses at KHDG dams but we disagree.
4 The KHDG Agreement clearly contains a reopener
5 clause on the biological trigger -- on biological
6 triggers -- sorry, that's a typo -- and foresees
7 the possible renegotiation of biological triggers
8 based on alewives or salmon rather than shad. All
9 of the triggers at the Kennebec dams are currently
10 based on shad numbers. FPL also asserts that it
11 simply has to add a flume to the existing interim
12 fish lift at Lockwood to complete the construction
13 of upstream fish passage there. We do not believe
14 there is sufficient evidence that this relatively
15 minor addition will be adequate to address
16 permanent upstream fish passage requirements. We
17 also think it is likely that additional permanent
18 downstream facilities will need to be constructed
19 for both eels and anadromous fish in the future
20 and that passage through turbines in the existing
21 bypass gates at FPL's facilities may not prove
22 adequate as permanent measures. FPL seems to
23 imply that these interim measures will be adequate
24 as permanent, but we believe, and we believe this
25 very strongly, that the KHDG Agreement provides a

1 framework to resolve these potential disputes.

2 In conclusion, we believe that the Board
3 should not reopen the 401 Certificates for any of
4 these dams in question and should dismiss the
5 petitions of Friends of Merrymeeting Bay and Mr.
6 Watts. We do not want the KHDG Agreement to fall
7 apart and we fear that this would be the result of
8 the Board opening up the 401 Certificates;
9 however, we do believe the Board has a role here
10 and that the Board and the Department should
11 remain vigilant and watch to ensure the
12 implementation of the agreement and that's
13 something we are going to do as well.

14 Thank you for the opportunity to testify on
15 this issue and I'd be happy to take any
16 questions.

17 HEARING OFFICER HILTON: Any questions of
18 Nick Bennett? Dana.

19 MR. MURCH: Nick, just to follow up on your
20 last paragraph, I'll read the sentence that I'm
21 interested in, we do not want the KHDG Agreement
22 to fall apart and we fear that this is what would
23 be the result of the Board opening up the 401
24 Certificates. What do you see as the consequences
25 of the KHDG -- of the Board requiring something

1 above and beyond the KHDG Agreement? What do you
2 see the implications for the KHDG Agreement and
3 what do you see as implications beyond that
4 agreement?

5 MR. BENNETT: Well, I'm not certain about
6 all of these things and this is very untested
7 legal area to the extent that I even understand
8 these legal issues and I want to make it clear
9 that I'm not a lawyer, but my fear is that that
10 will set off a fight between FERC and the state
11 over this because there are FERC licenses that are
12 established and if you open up the 401
13 Certificates, it's going to mean opening up the
14 FERC licenses and if you open up the FERC
15 licenses, the dam owners are going to fight that.
16 The dam owners are going to say it's a violation
17 of the agreement. This seems to me that it is
18 likely to end up in a serious morass, and, you
19 know, we strongly feel that this agreement has
20 been a good thing. Again, it's not been perfect
21 and it's been tough to enforce some of the
22 provisions of the agreement but so far we have
23 succeeded, and the agreement has laid out a
24 framework to get fish passage into this river
25 system that didn't exist before, and, you know,

1 we'd rather have that than nothing which is what
2 we're afraid the result of the petitions would
3 be.

4 MR. MURCH: And has NRCM signed other
5 agreements on hydropower projects?

6 MR. BENNETT: We are involved in the
7 Penobscot Project. We were a signatory -- I'm not
8 sure whether we were a signatory to the -- yeah,
9 we were a signatory. The Kennebec Coalition was a
10 signatory to the comprehensive Edwards Accord.
11 Those are the two that I'm familiar with, but I
12 know that other members of the Kennebec Coalition
13 have been involved in many hydro relicensing
14 projects and settlement agreements, particularly
15 Trout Unlimited. That's a big piece of their
16 work, and certainly opening up these agreements
17 which take many years to negotiate and voiding
18 them is not going to encourage people to do
19 settlement agreements and that's a problem because
20 they have been a successful way of solving things,
21 both in Maine and nationwide.

22 HEARING OFFICER HILTON: Nick, I guess the
23 thrust of my question here is going to be so the
24 KHDG Agreement falls apart, so what, and within
25 the framework of that, why wouldn't the state be

1 able to just set water quality certifications for
2 each of those individual dams rather than those
3 dams as a group and say, look, you know, the water
4 quality certification says you have to have fish
5 in the water and it has to be able to have safe
6 passage? I mean, what's wrong with that?

7 MR. BENNETT: Well, I think the dam owners
8 would certainly fight that and that would take
9 years to resolve, and I also think FERC would step
10 in and you'd get a battle over who's got
11 jurisdiction. FERC would step in and say you
12 can't do this, we've got 50-year licenses issues,
13 and the KHDG Agreement is incorporated word for
14 word into these licenses. The State of Maine, you
15 know, that's not acceptable, and I don't know how
16 that would end up resolved in the courts but I
17 know it would end up being resolved in the
18 courts. I mean, it would be a long battle. So
19 immediate fish passage would not be the result of
20 that. What would be the result of that is a big
21 legal morass.

22 HEARING OFFICER HILTON: I had another
23 question kind of fleeting in and out of my head
24 here, and, unfortunately, it's fledged out and not
25 in right now.

1 MS. ZIEGLER: Could I while you're
2 thinking, why do you presume that FERC would be
3 opposed to a recommendation from the Board to
4 reopen?

5 MR. BENNETT: Well, I think that's -- a
6 recommendation from the Board to reopen the
7 certificates, I think FERC would be opposed -- I'm
8 not sure that -- I'm not sure I understand what a
9 recommendation to reopen the certificate or what's
10 the difference between that and reopening the
11 certificates. So you're saying that the Board
12 wouldn't actually reopen the certificates, they'd
13 just recommend that FERC do it?

14 MS. ZIEGLER: Well, we could just make a
15 recommendation, and I guess the issue here is you
16 keep saying that the agreement is working, and I
17 see in some instances that it is working but in
18 other instances there seems to have been, for lack
19 of a better term, a lot of delay in terms of
20 studies that needed to be done.

21 MR. BENNETT: Yeah.

22 MS. ZIEGLER: And also at this time there's
23 some resistance to implementing measures for fish
24 passage at some of these downstream -- at some of
25 these projects because they say they need more

1 studies and that may be legitimate but I'm just
2 saying it's been a long time.

3 MR. BENNETT: It's been a long time. It's
4 very frustrating, but, again, I would go back to,
5 you know, this agreement was part of what got us
6 Edwards dam removed, it's part of what's got us
7 fish passage at Benton and Burnham, it got us, you
8 know, very good fish lifts at those two dams,
9 another, you know, serious investment at the
10 Lockwood dam, and I don't think there are going to
11 be many hydropower companies who want to get into
12 settlement agreements like this if we say, well,
13 you know, right now things don't look good and so
14 we're just going to abrogate the agreement, we're
15 going to do something outside of the agreement. I
16 agree with you --

17 MS. ZIEGLER: I also want to say you keep
18 talking about that the whole agreement is
19 abrogated and that's why I'm actually confused.
20 Enlighten me here. I'm not so certain that we
21 would be doing that.

22 MR. BENNETT: Well, I think that's the
23 decision the Board has to make, but I think if you
24 reopen the certificates and require things that
25 are different from what the agreement says, which,

1 again, the agreement is incorporated word for word
2 into the federal licenses, you, A, will bring up a
3 jurisdictional issue with FERC, and if I were the
4 dam owners, I would say, look, we signed this
5 agreement with the state, we signed this agreement
6 with the Feds, it gave us these conditions,
7 including the biological triggers that people are
8 protesting, and we're not -- we're not -- we're
9 not going to put in fish passage because we're --
10 there's a recommendation to. We agreed to this,
11 and we'll fight it, you know, we have a good case
12 in court to fight it. I really don't -- I can't
13 speak for the dam owners. I don't know what they
14 will do but I think that what we have in the KHDG
15 Agreement is a map for fish passage installation
16 in the Kennebec Watershed, we have tested that
17 agreement in two cases where dam owners have been
18 resistant to putting in the fish lift and we won
19 on both of those cases because of the existence of
20 the agreement. That's Benton and Burnham. They
21 didn't want to put in fish lifts, they were late
22 but we forced them under the terms of the
23 agreement to put in a fish lift. That's the whole
24 point of the agreement.

25 MS. ZIEGLER: Okay. So this is what I'm

1 not understanding then. You say you won by going
2 to court I gather?

3 MR. BENNETT: No, we didn't have to go to
4 court.

5 MS. ZIEGLER: You didn't have to go to
6 court because they went in compliance with the
7 agreement.

8 MR. BENNETT: Correct.

9 MS. ZIEGLER: But what's the difference
10 here if these studies were supposed to be
11 completed in 2002 and permanent passage was
12 supposed to be in by June 2002?

13 MR. BENNETT: Excuse me, permanent?

14 MS. ZIEGLER: Fish passage was supposed to
15 be implemented.

16 HEARING OFFICER HILTON: Interim.

17 MS. ZIEGLER: Excuse me, interim fish
18 passage -- I can't say fish passage -- was
19 supposed to be in place by June of 2002, what's
20 the difference?

21 MR. BENNETT: Well, I think first of all
22 that, you know, there is, again, blame to go
23 around on the eel passage studies, but if you sit
24 down with DMR and say to DMR, you know, where are
25 we supposed to put in -- you know, you should put

1 in downstream fish passage, DMR will tell you,
2 well, where? The studies haven't been done.
3 Whose fault is it that the studies haven't been
4 done? It's partly DMR's fault, it's partly the
5 dam owners' fault, but I think people realize that
6 it's a problem. DEP has issued compliance
7 orders. I would have rathered them issue it
8 sooner but the compliance orders are issued, and I
9 think the reason that those compliance orders are
10 having a -- what's the word -- palliative effect
11 is because of the existence of the agreement
12 because the agreement provides leverage and I
13 think if you take the agreement apart, you will
14 actually provide leverage for an argument not to
15 put in fish passage because you will provide an
16 argument that the state is not a trustworthy
17 partner, does not live up to its contractual
18 agreements which it freely entered into, and, you
19 know, you'll get a big mess out of that. That's
20 our worry. In our opinion, the agreement is not
21 working perfectly but the agreement was designed
22 with the idea in mind that it wasn't going to work
23 perfectly, that we were going to have to enforce
24 parts of the agreement. That's why the agreement
25 is a contract. It's enforceable as a contract in

1 a court of law. As I said, that leverage has
2 allowed us to push people into putting in fish
3 passage where they didn't want to without going to
4 court and that saved us money, that saved the
5 state money. We're confident we're going to get
6 fish passage at Fort Halifax under the agreement.
7 Yes, we've had a very vocal citizens group that's
8 held up the process for a long time. Is that
9 frustrating? It's hugely frustrating, but without
10 that agreement, we'd have nothing.

11 HEARING OFFICER HILTON: Are you saying
12 that you would be able to enforce that agreement
13 independently of the FERC license or any sort of
14 certifications --

15 MR. BENNETT: The agreement is not --

16 HEARING OFFICER HILTON: Are you saying
17 that you'd be able to enforce that agreement
18 independently as a contract between the parties to
19 it?

20 MR. BENNETT: Yes.

21 HEARING OFFICER HILTON: Go straight to
22 Superior Court?

23 MR. BENNETT: We haven't tested that but
24 the designers of the agreement -- well, us, the
25 Natural resources Council and the Kennebec

1 Coalition, put that clause into the agreement,
2 correct, that it was enforceable in Superior Court
3 as a contract between the parties.

4 HEARING OFFICER HILTON: Were you there at
5 the table?

6 MR. BENNETT: I was not.

7 HEARING OFFICER HILTON: Is it your opinion
8 that we are on track with the agreement?

9 MR. BENNETT: It's my opinion that we are
10 on track in some places. We got Edwards dam
11 removed, we got fish passage put in at Benton and
12 Burnham, we got fish passage put in at Lockwood
13 and those are all parts that have been on track.
14 The eel studies haven't been done on time. Those
15 were parts that fell off track. The fish passage
16 at Fort Halifax has fallen off track because of
17 the litigation but the litigation is over the
18 agreement, right, and we've won every case.
19 The --

20 HEARING OFFICER HILTON: The litigation
21 regarding Fort Halifax is over the agreement?

22 MR. BENNETT: Correct. In other words,
23 the Save Our Seabasticook group has sued -- the
24 only lawsuit that's out there, they sued -- first
25 they sued everybody, they sued the state, they

1 sued the Governor. That went through the state
2 court process once. Then they appealed the
3 Board's decision essentially to uphold the
4 requirements of the agreement but their argument
5 is that the KHDG Agreement is illegal.
6 Fundamentally that's their argument, and so, you
7 know, that now has been heard by the Law Court.
8 We anticipate a decision on that in a matter of
9 weeks, maybe months, but it's not a long time
10 away, and the agreement was litigated also in
11 Federal Court and they lost in the D.C. Circuit.
12 So this agreement hasn't been popular with a lot
13 of people, but so far, as I said, it's resulted in
14 very significant investments, it's resulted -- in
15 part it has helped result in the removal of the
16 Edwards dam and it's not our opinion that we
17 should toss it because it's gotten hung up in a
18 few places.

19 HEARING OFFICER HILTON: So you don't feel
20 that -- I mean, its value certainly in the first
21 few years was significant. Edwards dam was
22 massively significant.

23 MR. BENNETT: Right.

24 HEARING OFFICER HILTON: You don't feel
25 that its value is attenuating over time?

1 MR. BENNETT: No.

2 HEARING OFFICER HILTON: And so how do we
3 -- you cautioned us to remain vigilant. How do
4 we remain vigilant? How do we as a Board remain
5 vigilant?

6 MR. BENNETT: Well, I think that, for
7 example, I would -- those compliance orders on the
8 eel passage study could have been issued earlier
9 and had the Board said to the Department issue
10 those compliance orders on the eel studies, you
11 know, that might have been helpful. There may be
12 ways that you can weigh in on those things. You
13 may be able to get periodic updates from the
14 Department and weigh in on those.

15 MS. ZIEGLER: Can I actually ask a question
16 about that? That was my question which you're now
17 sort of going towards and maybe you don't have a
18 definitive answer, but what is our ability as a
19 Board to review or, as you said, weigh in on
20 compliance orders such as the compliance order
21 that has been issued here?

22 MR. BENNETT: You certainly have the
23 ability as a Board to tell the Department what to
24 do, right, or to at least make very strong
25 recommendations.

1 MS. ZIEGLER: Well, I'm not so certain.
2 This is enforcement. I'm assuming it's under the
3 enforcement arm -- or it's not. The compliance
4 order is not, yeah, so my question stands. What
5 is our ability to do this?

6 MR. BENNETT: Well, I guess I was making
7 the assumption that you could, for example, tell
8 the Department to issue a compliance order like
9 that but maybe I'm wrong about that, and I'll fall
10 back on the defense that I'm not a lawyer.

11 HEARING OFFICER HILTON: Very good,
12 thanks. Any other questions from anybody?

13 MS. ANDERSON: I had one. I've been
14 struggling with the water classification standards
15 and the eel mortality that's happened below some
16 of the dams, and I'm wondering what your take is
17 on the Class B, it's supposed to be unimpaired,
18 and what degree of mortality fits the unimpaired
19 definition?

20 MR. BENNETT: Yeah, I don't know the
21 answer to that question. I mean, certainly fish
22 kills have been viewed by the state as a violation
23 of water quality standards, but those are cases
24 where the fish kills have been documented. You
25 know, that was true at Benton Falls. They had big

1 fish kills. That was true at American Tissue on
2 the Cobbossee. Those fish kills were very well
3 documented and the state enforced.

4 MS. ANDERSON: Thanks.

5 MS. ZIEGLER: One more question about the
6 compliance order. You've raised the concern that
7 if there's too much pressure by way of a reopener
8 of the water quality certification and I wonder,
9 in fact, with the compliance order itself, that
10 the agreement will fall apart and that it will
11 lead to litigation, and I guess that is my
12 question. So now there's this compliance order.
13 Why are you comfortable with the compliance
14 order?

15 MR. BENNETT: Well, it worked at Benton and
16 Burnham. That was the path that succeeded in
17 getting -- there was also a FERC order issued.
18 There was a FERC order issued that followed -- I
19 believe I'm correct, Dana -- the DEP compliance
20 orders to build the fish lifts there.

21 MS. ZIEGLER: So FERC and the state do work
22 together. They're not -- I mean, I guess that's
23 why I was sort of confused by your testimony
24 earlier.

25 MR. BENNETT: Yeah, I think there's a

1 tension that may or may not be there at different
2 times. Some of this has happened awhile back and
3 it's a little bit hazy in my memory, but my
4 recollection is that there were orders that were
5 -- there were letters containing orders about
6 fish lift saying Benton and Burnham, you're not in
7 compliance with the Kennebec Hydro Developers
8 Group Agreement because you haven't built your
9 fish lifts, we order you to submit these plans and
10 then very similar orders appeared from FERC after
11 that. So I think the state and FERC work together
12 on the areas that they agree on. I think FERC has
13 tension with a lot of states over the issue of
14 where is the state and FERC's jurisdiction
15 actually defined, you know, where is the
16 preemption. I mean, there certainly is the issue
17 of federal preemption out there, and I am in no
18 way, shape or form an expert on that or any other
19 legal matter for that matter, but, again, we
20 worked through with the Department, with FERC, we
21 wrote letters both to the Department and FERC
22 telling them that, you know, we need to see the
23 fish lift built at Benton and Burnham, and we laid
24 out the case and we have fish lifts at Benton and
25 Burnham. We have a fish lift at Lockwood. Those

1 are all things that happened under the agreement.
2 Those are very significant and it's my personal
3 opinion that without the agreement we wouldn't
4 have had those. We'd still be in litigation over
5 those things.

6 HEARING OFFICER HILTON: Dick Gould.

7 MR. GOULD: So what you're saying is that
8 the compliance order -- excuse me -- the first
9 time I've talked today. I guess that's why I need
10 to clear the throat. What you're saying is the
11 compliance order has teeth because it's addressing
12 a violation of your agreement?

13 MR. BENNETT: Yeah, I think that's right.
14 I think it is addressing a violation of the
15 agreement and we'll see how much teeth it has.
16 Again, it had teeth in the cases of Benton and
17 Burnham and the dam owners have issued plans to
18 comply with those orders, and I think the
19 agreement has worked so far. You know, if these
20 studies don't get done, you know, then we have to
21 look at what to do, but I'm not sure -- you know,
22 I think again the agreement provides a framework
23 for that which is to go to FERC, and that's
24 probably what we would do as a first step, but I
25 haven't thought that through.

1 MR. GOULD: Thank you.

2 HEARING OFFICER HILTON: Yes, Elizabeth.

3 MS. EHRENFELD: I have a question about the
4 eel studies that you're talking about having been
5 delayed, and we've heard two very different types
6 of studies that are being proposed for the
7 Hydro-Kennebec versus the other three dams and I
8 wondered if you had looked at those and could give
9 us some opinion as a biologist on the differences
10 between them, the pros and cons?

11 MR. BENNETT: Well, I think the eel is a
12 mysterious creature, and it's all right if we have
13 different kinds of studies because we don't know
14 which one is going to work best. I think the
15 information needs to be gathered where these fish
16 are going, where are they going through the dam,
17 where is the best place to put permanent fish
18 passage. I don't know which kind of study is
19 going to be the best way to do that. They've been
20 trying to do the radiotelemetry. That seems to me
21 like that's probably the gold standard is the
22 radiotelemetry and for a variety of reasons that
23 hasn't happened. It's unfortunate and it needs to
24 happen.

25 MS. EHRENFELD: Thank you.

1 MR. BENNETT: But I think time will tell
2 which of those studies is better or maybe they're
3 all adequate or none of them is, but the studies
4 need to be done in order to answer that question.

5 MR. EHRENFELD: Okay, thank you.

6 HEARING OFFICER HILTON: Anybody else?
7 Seeing none, thank you very much, Nick.

8 MR. BENNETT: Thank you.

9 HEARING OFFICER HILTON: We appreciate your
10 attendance. Is there anyone else who would like
11 to testify here tonight? We need all the
12 information we can get. Seeing none, I guess we
13 have to declare the hearing closed until tomorrow
14 morning at 9:00.

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16 (HEARING RECESSED UNTIL 9:00 A.M., MARCH 16, 2007)

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