

SUPREME COURT OF THE UNITED STATES
No. 142, Original

STATE OF FLORIDA,)
Plaintiff,)
V.)
STATE OF GEORGIA)
Defendants.)

VOLUME III

TRANSCRIPT OF PROCEEDINGS

The above-entitled matter came on for HEARING before SPECIAL MASTER RALPH I. LANCASTER, held in the U. S. Bankruptcy Court, at 537 Congress Street, Portland, Maine, on November 3, 2016, commencing at 8:55 a.m., before Claudette G. Mason, RMR, CRR, a Notary Public in and for the State of Maine.

APPEARANCES:

For the State of Florida: PHILIP J. PERRY, ESQ.
JAMIE L. WINE, ESQ.
ABID R. QURESHI, ESQ.
STACEY van BELLEGHEM, ESQ.
FREDERICK L. ASCHAUER, ESQ.

For the State of Georgia: CRAIG S. PRIMIS, ESQ.
BARACK S. ECHOLS, ESQ.
JOSH MAHONEY, ESQ.
ZACHARY A. AVALLONE, ESQ.
CHRISTIAN REIGSTAD, ESQ.
BRITNEY A. LEWIS, ESQ.

Also Present: JOSHUA D. DUNLAP, ESQ.

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1 PROCEEDINGS
2 SPECIAL MASTER LANCASTER: Thank you.
3 Good morning, counsel.
4 MR. PRIMIS: Good morning.
5 SPECIAL MASTER LANCASTER: If you should
6 run into Judge Cary, would you thank him for
7 the day off. 60 degrees in November in
8 Maine, it's wonderful. I suggested to him
9 that he do the same thing for the next day we
10 have off.
11 Please.
12 MR. PERRY: Good morning, your Honor.
13 SPECIAL MASTER LANCASTER: Good morning.
14 MR. PERRY: I just wanted to share
15 briefly what our plans are for calling
16 witnesses in the next two days --
17 SPECIAL MASTER LANCASTER: Thank you.
18 MR. PERRY: -- to give the Court a
19 sense.
20 Dr. Allan is on the stand; but after
21 Dr. Allan, we plan to call Dr. Harold Reheis,
22 who is a former Georgia director of the
23 Environmental Protection Division. And we're
24 calling him as a hostile witness.
25 Following Mr. Reheis, we plan to call
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1 Mr. Mark Berrigan, who is also a former
2 Florida official who has been working with
3 oysters in Apalachicola Bay for nearly 30
4 years. Following that, Major Rob Beaton, who
5 is a law enforcement official with Florida's
6 Fish and Wildlife Conservation Commission.
7 And following that, probably Friday, is
8 Mr. Eric Sutton who is the assistant
9 executive director of the Florida Fish and
10 Wildlife Conservation Commission.
11 SPECIAL MASTER LANCASTER: Thank you,
12 Mr. Perry.
13 MR. PERRY: Thank you.
14 MR. PRIMIS: May I proceed, your Honor?
15 SPECIAL MASTER LANCASTER: Please.
16 CROSS-EXAMINATION
17 BY MR. PRIMIS:
18 Q. Good morning, Dr. Allan.
19 A. Good morning, Mr. Primis.
20 Q. I understand you're feeling better, and I'm glad
21 to hear that.
22 A. Thank you.
23 Q. I want to focus this morning on the issue of
24 causation.
25 SPECIAL MASTER LANCASTER: Excuse me.
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1 May I remind the witness you're still under
 2 oath.
 3 THE WITNESS: Thank you, your Honor. I
 4 understand.
 5 SPECIAL MASTER LANCASTER: Please.
 6 BY MR. PRIMIS:
 7 **Q.** Let's focus on causation. Dr. Allan, the
 8 objective of your report in this case was to
 9 determine whether harm associated with water
 10 levels could be attributed to Georgia. Correct?
 11 **A. Not entirely correct, no. My primary objective**
 12 **is to assess the impact of low flows on the**
 13 **health of the overall ecosystem and to develop**
 14 **metrics and information and arguments that would**
 15 **help us understand how low flows are harmful to**
 16 **the ecosystem.**
 17 **Secondly, in partnership with**
 18 **Dr. Hornberger's analysis, my metrics can be**
 19 **used to identify the relative importance of**
 20 **Georgia's upstream consumption to changes in the**
 21 **value of those metrics.**
 22 **Q.** Dr. Allan, is it not true that you relied on
 23 Dr. Hornberger's report to assess whether harm
 24 associated with water levels could be contributed
 25 to -- could be attributed to Georgia?

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1 **A. That's correct. The causation relies on**
 2 **Dr. Hornberger's analysis.**
 3 **Q.** Now, it simply was not the purpose of your
 4 investigation to investigate other causes. True?
 5 **A. Not entirely true, again. In my analysis, I was**
 6 **well aware that there was a dam that had caused**
 7 **down-cutting in the upper section of the river.**
 8 **I was well aware of the navigation events,**
 9 **navigation developments to the channel. And so I**
 10 **certainly considered these alternative causes. I**
 11 **was informed by other experts looking at climate.**
 12 **So I had a very clear understanding from the last**
 13 **decade of change in the system that water level**
 14 **decline was causing harm. And so I focused on**
 15 **that specific issue.**
 16 **Q.** Dr. Allan, do you still have your transcript of
 17 your deposition there?
 18 I will provide you with a copy.
 19 MR. PRIMIS: May I approach?
 20 SPECIAL MASTER LANCASTER: Please.
 21 BY MR. PRIMIS:
 22 **Q.** Dr. Allan, I would refer you to page 48, line 17
 23 of day 1 of your deposition.
 24 MR. PRIMIS: And, your Honor, do you
 25 have the deposition?

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1 It was in a separate -- it was handed up
 2 separately. I can provide you with another
 3 copy if you need it.
 4 SPECIAL MASTER LANCASTER: I don't have
 5 it.
 6 Thank you.
 7 BY MR. PRIMIS:
 8 **Q.** Page 48, line 17. Are you there, Dr. Allan?
 9 MR. PRIMIS: And I would ask Mr. Smith
 10 to queue clip 39.
 11 BY MR. PRIMIS:
 12 **Q.** And I'm going to ask if you were asked this
 13 question and gave this answer at your deposition,
 14 sir.
 15 MR. PRIMIS: Your Honor, it's page 48,
 16 line 17.
 17 SPECIAL MASTER LANCASTER: Right.
 18 **A. So on my copy --**
 19 (Whereupon the video was played.)
 20 BY MR. PRIMIS:
 21 **Q.** Were you asked that question; and did you give
 22 that answer, sir?
 23 **A. I did. And I consider that answer fully**
 24 **consistent with what I said just a few moments**
 25 **ago in court.**

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1 **Q.** Sir, you didn't think it was relevant to evaluate
 2 every conceivable cause of change. Correct?
 3 **A. Yes, that's correct.**
 4 **Q.** That would have included work that was not
 5 relevant to the questions you were asking. True?
 6 **A. I'm not sure I understand that question.**
 7 **Q.** It wasn't relevant to your investigation to
 8 assess other causes of low flows in the system.
 9 True?
 10 **A. So the purpose of my investigation was to**
 11 **understand the impact of low flows on the**
 12 **ecosystem, and that's what my investigation**
 13 **focused on.**
 14 **Q.** Dr. Allan, you did not even attempt to evaluate
 15 any causes of harm other than Georgia's
 16 consumptive water use. True?
 17 **A. I attempted to evaluate Georgia's water use in**
 18 **light of changes that I knew had occurred within**
 19 **the channel. And Dr. Hornberger's scenarios**
 20 **allowed me to address that question, which I did.**
 21 **Q.** I'm asking you a very specific question,
 22 Dr. Allan. You did not attempt to evaluate any
 23 causes of harm other than Georgia's consumptive
 24 water use. Yes or no?
 25 **A. I did not do any separate analyses of different**

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1 **causes of harm.**

2 **Q.** Your metrics don't identify any harms that you

3 would say were not primarily caused by Georgia's

4 water consumption. Correct?

5 **A.** **The nature of the question is -- is -- is**

6 **difficult to answer because it's not -- it**

7 **doesn't address what my report -- what my**

8 **analysis did. So it's just -- to me it's just a**

9 **confusing question. I'm not sure what you're**

10 **asking me.**

11 **Q.** Can I refer you to page 44, line 24 of your

12 deposition, sir.

13 **A.** **Page 44 --**

14 **Q.** 44, line 24.

15 MR. PRIMIS: And I ask Mr. Smith to

16 queue clip 36.

17 (Whereupon the video was played.)

18 BY MR. PRIMIS:

19 **Q.** Were you asked that question, and did you give

20 that answer?

21 **A.** **Yes.**

22 **Q.** Now, when it comes to harms that were caused by

23 multiple factors, Dr. Allan, your report does not

24 make any estimate of Georgia's relative

25 contribution. Correct?

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1 **A.** **My report asks the straightforward question, is**

2 **there evidence that harm can be attributed to**

3 **Georgia's consumption, to which the answer is**

4 **yes. I did not attempt to ask and answer that**

5 **question for other causes of harm.**

6 **Q.** Dr. Allan, my question is when it comes to harm

7 caused by multiple factors, your report did not

8 make any estimate of Georgia's relative

9 contribution. True?

10 **A.** **I think my answer is that -- is an accurate**

11 **answer. So I did not -- indeed, I did not**

12 **attempt to partition out and, therefore, have a**

13 **relative number for the impact of Georgia's**

14 **consumption versus another cause versus another**

15 **cause. I simply established that there was a**

16 **causal relationship between -- using Hornberger's**

17 **analysis between Georgia's consumption and**

18 **changes to the ecology of the system.**

19 **Q.** Dr. Allan, for harms caused by multiple factors,

20 your report does not estimate the relative

21 contribution of any causal factor. True?

22 **A.** **Because I focused on one factor it is not a**

23 **relative analysis. It is analysis focused on a**

24 **single factor.**

25 **Q.** And that factor is Georgia. True?

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1 **A.** **Yes.**

2 **Q.** Let's focus now on the role of the Army Corps,

3 Dr. Allan. It's true, isn't it, that you did no

4 analysis to determine whether the Corps' dam and

5 reservoir operations have any effect on river

6 floodplain inundation in the Apalachicola River?

7 **A.** **That's correct.**

8 **Q.** You do not know if the dams on the Chattahoochee

9 caused loss of natural flow variability. True?

10 **A.** **Correct.**

11 **Q.** You don't know if the dams on the Chattahoochee

12 impact the natural flow variability of water that

13 reaches Lake Seminole. Correct?

14 **A.** **Correct.**

15 **Q.** And you did not study the role of the Army Corps

16 of Engineers in controlling the flow of water in

17 the ACF Basin at all. Correct?

18 **A.** **It was not my brief to do the hydrologic**

19 **analysis. These questions should be directed to**

20 **the hydrologist on the case and not to me.**

21 **Q.** Is the answer to the question no?

22 **A.** **The answer to the question is correct.**

23 **Q.** I'm sorry. That's not clear. Is the answer to

24 my question no?

25 **A.** **No, I did not do any hydrologic analysis of the**

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1 **Army Corps operations.**

2 **Q.** You didn't do anything to rule out Corps dam and

3 reservoir operations as a potential cause for the

4 reduction in flows in the Apalachicola River.

5 Correct?

6 **A.** **That would be the analysis of the hydrologist on**

7 **the case and not mine. So, correct.**

8 **Q.** In fact, there was no effort on your part to

9 specifically understand how the Corps dam

10 operations would influence inundation of the

11 river. True?

12 **A.** **That would be the work of the hydrologist on the**

13 **case. True.**

14 **Q.** Are you saying the answer to my question is true?

15 **A.** **I did not do the hydrologic analysis. Another**

16 **expert did the hydrologic analysis.**

17 **Q.** That's not quite my question. I don't mean to

18 quibble, but I would like a clear answer to this

19 question.

20 **A.** **The whole string of questions you're asking me is**

21 **if I did a hydrologic analysis on the dams and**

22 **the Army Corps, and the answer to all of those**

23 **is, no; that was not part of my brief.**

24 **Q.** I'm going to try one last time, and then I'll

25 move on. Dr. Allan, did you make any effort to

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1 understand how the Corps operations would
 2 influence inundation of the river? Yes or no.
 3 **A. No.**
 4 **Q.** Dr. Allan, we have discussed Ms. Helen Light in
 5 this case before. Are you familiar with her?
 6 **A. I am.**
 7 **Q.** And you consulted with her on this case. True?
 8 **A. I did.**
 9 **Q.** You consider her an authority on water level
 10 decline in the Apalachicola River. Correct?
 11 **A. I do.**
 12 **Q.** If you would, sir, could you turn to tab 10 of
 13 your binder.
 14 MR. PRIMIS: And for the record, there we
 15 have GX-88, which is an article called Water
 16 Level Decline in the Apalachicola River, Florida,
 17 from 1954 to 2004, and the Effects on Floodplain
 18 Habitat.
 19 **A. I'm at tab 10.**
 20 **Q.** Okay. Do you recognize this as Ms. Light's paper
 21 on water level decline?
 22 **A. I see it. Yes.**
 23 **Q.** And you're familiar with this paper. Correct?
 24 **A. I am familiar with it.**
 25 **Q.** Now, when Ms. Light wrote this, she was with the
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1 U.S. Geological Survey. Correct?
 2 **A. That's my understanding.**
 3 **Q.** And if you look down the page a bit, you
 4 understand that this particular report was
 5 prepared in cooperation with three Florida State
 6 agencies. Right?
 7 **A. I don't know the number but, yes, in cooperation**
 8 **with Florida State agencies.**
 9 **Q.** And you agree that the State of Florida had input
 10 into this report. True?
 11 **A. I have no direct knowledge of that.**
 12 **Q.** Do you dispute the cover page?
 13 **A. No, I don't.**
 14 **Q.** Dr. Allan, can you turn to page 1 of Ms. Light's
 15 report.
 16 **A. Okay.**
 17 **Q.** At the bottom right-hand part of the page,
 18 there's a statement that says as follows: Water
 19 level decline caused by channel change is
 20 probably the most serious anthropogenic impact
 21 that has occurred so far in the Apalachicola
 22 River and floodplain.
 23 Do you see that?
 24 **A. I see that.**
 25 **Q.** And, yet, you can't say whether you agree or
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1 disagree with that statement as of the time it
 2 was written in 2006. Correct?
 3 **A. Say that one more time, please.**
 4 **Q.** You can't agree or disagree with that statement
 5 based on your analysis. Correct?
 6 **A. No. I take the paper of Helen Light as the**
 7 **authority on this.**
 8 **Q.** In fact, it's your view that this is Helen
 9 Light's statement; and you don't have an opinion
 10 on it. True?
 11 **A. I don't have an opinion on that sentence?**
 12 **Q.** Yes.
 13 **A. I have an opinion on the entire paper.**
 14 **Q.** I'm asking, it's your view that this is Helen
 15 Light's statement; and you don't have an opinion
 16 on it. True?
 17 **A. I don't recall what I would have said in my**
 18 **deposition. I'm happy to discuss that sentence**
 19 **if you want to get my thoughts on it; but to say**
 20 **I do or do not have an opinion yes or no, I can't**
 21 **recall what I said in deposition.**
 22 **I have an opinion on the quality of this**
 23 **paper, on the content of the arguments within it;**
 24 **and I can describe that if you like.**
 25 **Q.** Dr. Allan, putting aside whether Ms. Light wrote
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1 it or not, it's true that you have no opinion on
 2 whether water level decline caused by channel
 3 change is probably the most serious anthropogenic
 4 impact that has occurred so far in the
 5 Apalachicola River and floodplain. Correct?
 6 **A. I can't recall what I said in past testimony on**
 7 **this, and I -- I find the whole idea of asking a**
 8 **question of whether I have an opinion on the**
 9 **accuracy of that sentence, frankly, a bizarre**
 10 **question to try to answer.**
 11 **Q.** You find the question bizarre? That's your
 12 testimony?
 13 **A. My --**
 14 **Q.** My only question is is that your testimony?
 15 **A. To have an opinion on a single sentence is a very**
 16 **odd request. I take this sentence in context. I**
 17 **take this sentence in context of the next**
 18 **sentence of the same paragraph. And I see it as**
 19 **a more nuanced topic than simply, yes, that's the**
 20 **true word at that time.**
 21 **I do like the fact that she qualifies it as**
 22 **probably and she temporally defines it as so far.**
 23 **And so I see it as a sentence that is**
 24 **appropriately scientifically cautious, but points**
 25 **strongly to the importance of a serious**
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1 **anthropogenic input.**
 2 **So that's a much more comfortable answer for**
 3 **me than I don't have an opinion or I do have an**
 4 **opinion.**
 5 Q. Can you turn to page 62 of your deposition,
 6 line 4.
 7 MR. PRIMIS: And I would ask Mr. Smith
 8 to queue up clip 47.
 9 BY MR. PRIMIS:
 10 Q. That's page 62, line 4.
 11 (Whereupon the video was played.)
 12 A. **So not having done my own studies on this, I**
 13 **can't have an expert opinion on it.**
 14 Q. Sir, you were --
 15 A. **I would like to say I like that answer because --**
 16 Q. Sir, I would ask --
 17 A. **-- in that question you're asking for an expert**
 18 **opinion rather than whether I have an opinion. I**
 19 **think that's a critical difference. When you ask**
 20 **me if I have an expert opinion, can I testify to**
 21 **the accuracy of a study I didn't do, no; I**
 22 **cannot.**
 23 Q. Dr. Allan, my only question was were you asked
 24 that question; and did you give that answer?
 25 A. **And I did. When the question was asked with the**
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1 A. **So when you put the term entirely in your**
 2 **sentence, I -- again, I'm going to have to**
 3 **disagree because there's a body of literature**
 4 **that describes the increase in upstream**
 5 **consumption over the last decade and a half.**
 6 **It's common knowledge that agriculture has**
 7 **increased, that urban population has increased.**
 8 **And in the writings of Georgia biologists**
 9 **describing the Flint River, they specifically**
 10 **call out hydrologic changes as being responsible**
 11 **for harm to the mussels in the Lower Flint River,**
 12 **being the river that's critically important to**
 13 **the summer flows of the Apalachicola.**
 14 **So there's other information, and so I'm**
 15 **certainly aware of this other information that**
 16 **Georgia's consumption is a likely factor in**
 17 **causing change to the system. But for the**
 18 **quantitative analysis of that impact, I rely on**
 19 **Dr. Hornberger.**
 20 Q. Let me just be very clear. In this case, you
 21 rely on Dr. Hornberger's report for the causal
 22 analysis related to changes in Georgia's
 23 consumption. Correct?
 24 A. **Correct.**
 25 **And the sentence -- previous question had the**
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1 **modifier expert opinion, I gave that answer.**
 2 Q. Okay. Just so the record is clear and we're not
 3 talking over one another, Dr. Allan, it's true
 4 that you have no expert opinion on whether water
 5 level decline caused by channel change is
 6 probably the most serious anthropogenic impact
 7 that has occurred so far in the Apalachicola
 8 River and floodplain. True?
 9 A. **True.**
 10 Q. Now, your metrics look at the impact of low
 11 flows. Correct?
 12 A. **Low flows on?**
 13 Q. Your metrics are focused on the impact of low
 14 flows. True?
 15 A. **True.**
 16 Q. And your metrics do not look at the cause of low
 17 flows. Right?
 18 A. **That is correct.**
 19 Q. The cause of the low flows is determined by
 20 Dr. Hornberger's work, not by you. Correct?
 21 A. **That is correct.**
 22 Q. And just to make sure we understand who did what,
 23 you rely on Dr. Hornberger's report entirely for
 24 the causal analysis related to changes in
 25 Georgia's consumption. Right?
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1 **word entirely in it; and the second question**
 2 **didn't. And that's the distinction in my**
 3 **answers.**
 4 Q. Dr. Allan, with regard to Dr. Hornberger, at the
 5 time of your deposition and at the time you
 6 provided your expert report in this case, you
 7 hadn't read Dr. Hornberger's expert report.
 8 Correct?
 9 A. **At the time of my deposition, I had seen previous**
 10 **drafts of Dr. Hornberger's report; but I had --**
 11 **and I had -- I believe -- if my memory is**
 12 **correct, but I'm not certain of this, I believe I**
 13 **had seen a copy of Dr. Hornberger's final report**
 14 **just prior to the deposition.**
 15 Q. Dr. Allan, you read Dr. Hornberger's report the
 16 day before your deposition. True?
 17 A. **I read his final report the day before the**
 18 **deposition. True.**
 19 Q. And prior to that, had you ever read his report?
 20 A. **Prior to that, I had -- I had read parts of his**
 21 **report. I had received a copy of it. I had had**
 22 **interactions that were facilitated through**
 23 **attorneys to share back and forth information on**
 24 **the content of his report that was relative to my**
 25 **report. So I was certainly aware of the content**
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1 **of Dr. Hornberger's report that bore on my metric**
 2 **analyses.**
 3 **Q.** Dr. Allan, can I refer you to page 27 of your
 4 deposition and ask Mr. Smith to queue up clip 16.
 5 (Whereupon the video was played.)
 6 BY MR. PRIMIS:
 7 **Q.** Were you asked those questions; and did you give
 8 those answers, Dr. Allan?
 9 **A. I did.**
 10 **Q.** At the very beginning of this case when
 11 Dr. Hornberger came in, you introduced yourselves
 12 to one another. Right?
 13 **A. That's correct.**
 14 **Q.** And as of your deposition, that was the only
 15 conversation you had ever had with
 16 Dr. Hornberger. Correct?
 17 **A. No, I don't believe that's correct. And I**
 18 **believe that in my deposition I indicated that my**
 19 **memory was not entirely clear on my previous**
 20 **conversations with Dr. Hornberger; but I**
 21 **indicated that there might have been a second**
 22 **conversation. And in addition, I had**
 23 **conversations with some of doctor -- that I**
 24 **believe were some of Dr. Hornberger's associates.**
 25 **So there was a fair amount of sharing information**
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1 **back and forth.**
 2 **And at the time of my deposition I remember**
 3 **clearly the initial conversation and indicated**
 4 **that my memory was not clear on the nature of**
 5 **subsequent conversations; but certainly we -- you**
 6 **know, I have had to clarify for Dr. Hornberger's**
 7 **team exactly what my metrics were so that he**
 8 **could use them in his scenario analyses.**
 9 **Q.** Your testimony is that you spoke with members of
 10 Dr. Hornberger's team prior to filing your expert
 11 report?
 12 **A. Prior to?**
 13 **Q.** Filing your expert report.
 14 **A. Yes.**
 15 **Q.** Can you refer to page 29, line 4 of your
 16 deposition.
 17 MR. PRIMIS: And I'll ask Mr. Smith to
 18 queue up clip 17.
 19 (Whereupon the video was played.)
 20 BY MR. PRIMIS:
 21 **Q.** Were you asked those questions, and did you give
 22 those answers?
 23 **A. I gave those answers at that time. That's**
 24 **correct.**
 25 **Q.** Now, Dr. Allan, you never discussed
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1 Dr. Hornberger's report with him before
 2 submitting your expert report in this case.
 3 Correct?
 4 **A. That's correct.**
 5 **Q.** You never reviewed Dr. Hornberger's code that he
 6 used to run his model. Right?
 7 **A. I did not.**
 8 **Q.** And you never ran any of his models yourself.
 9 Right?
 10 **A. I did not.**
 11 **Q.** You never talked with Dr. Hornberger about his
 12 model. True?
 13 **A. There were discussions -- phone conversations in**
 14 **which hydrologists were on the phone; I was on**
 15 **the phone. We were describing some of our**
 16 **work-in-progress. And lawyers were present.**
 17 **I can't say with perfect memory, but -- but**
 18 **in general to your questioning, I relied on**
 19 **Dr. Hornberger's report. I did not discuss it**
 20 **with him. I took it as an expert opinion on the**
 21 **hydrology, and my work relies entirely on**
 22 **Dr. Hornberger for the scenarios in the causation**
 23 **analysis.**
 24 **Q.** Okay. Now, back to my question. You never
 25 talked to Dr. Hornberger about his model --
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1 **A. Correct.**
 2 **Q.** -- correct?
 3 And you don't make any provision in your
 4 analysis for the proposition that Dr. Hornberger
 5 might be wrong. Correct?
 6 **A. Correct.**
 7 **Q.** Okay. Let's shift gears now, Dr. Allan. In your
 8 direct testimony, you claim multiple times that
 9 without a remedy, the ecosystem in the
 10 Apalachicola River Basin will suffer irreversible
 11 harm. True?
 12 **A. Something like that, so I'll say true for now.**
 13 **If you point me to the exact sentence, it would**
 14 **be helpful.**
 15 **Q.** Did you say in paragraph 2 of your testimony that
 16 without a remedy in the near term, it is highly
 17 likely that the system will face fundamental
 18 long-term and potentially irreversible damage?
 19 **A. So thank you for reading the exact sentence**
 20 **because I -- you phrased the question to me as a**
 21 **declarative, will suffer irreparable harm. And I**
 22 **think in all my writings I'm cautious to say is**
 23 **likely to, may, is a concern. And so I do not --**
 24 **unless you can point me to a sentence where I say**
 25 **definitively will cause irreparable harm, then,**
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1 **no; I did not say that. I said, you know,**
 2 **something to the effect of the likelihood of that**
 3 **occurring.**
 4 Q. Okay. I wasn't trying to trick you. You used
 5 the term irreversible harm in your report?
 6 A. **I used that term in the report.**
 7 Q. Now, you don't use the word -- the term tipping
 8 point. Correct?
 9 In your written direct testimony in this
 10 case, you don't use the word tipping point.
 11 Right?
 12 A. **I don't remember, but if you say so.**
 13 Q. But you did use the phrase tipping point in your
 14 expert report. Right?
 15 A. **Yes, I remember that.**
 16 Q. And you said in your expert report that further
 17 depletions are certain to exceed the tipping
 18 point for key features of the river and
 19 floodplain ecosystem.
 20 Do you recall saying that?
 21 If you want, you can refer to page 35 of your
 22 expert report.
 23 A. **Whereabouts are we on page 35, please?**
 24 **Oh, I see it. Bottom of the first paragraph.**
 25 Q. So at the bottom of the first paragraph -- thank
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1 you for finding that, Dr. Allan -- do you agree
 2 that you said in your expert report that further
 3 depletions are certain to exceed the tipping
 4 point for key features of the river and
 5 floodplain ecosystem?
 6 A. **Yes, I did say that.**
 7 Q. Now, in the four years that you have been
 8 studying this region, working on this case, you
 9 have not seen any part of the system exceed what
 10 you referred to as the tipping point. Correct?
 11 A. **That's correct.**
 12 Q. You have not done an empirical analysis to find
 13 at which point flows will be so reduced that they
 14 lead to permanent harm. Correct?
 15 A. **So this is a predictive statement, not an**
 16 **observation. So you're asking me if I have**
 17 **observed something that I'm predicting is a**
 18 **likely event to happen. And the example that I**
 19 **would point to is the drawing out of the sloughs.**
 20 **Once water level falls below the point where**
 21 **water is able to enter the sloughs, they will**
 22 **change irreversibly.**
 23 **There is evidence from the work of Dr. Helen**
 24 **Light that the forest is changing in some areas,**
 25 **and it's unlikely to recover.**
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1 **So there is a basis for the statement that I**
 2 **make here, which is a statement of expectation of**
 3 **a future event.**
 4 Q. Okay. Dr. Allan, my first question did ask you
 5 whether you personally observed anything in four
 6 years; and you said, no, as relates to tipping
 7 point. Correct?
 8 A. **I have not personally observed any system pass**
 9 **the tipping point. Correct.**
 10 Q. Okay. So let's put that to the side now. And I
 11 have just asked you a different question. And I
 12 want you to answer -- I want you to listen and
 13 see if you can answer my question yes or no.
 14 Have you done an empirical analysis to find
 15 the point at which flows will be so reduced that
 16 they lead to permanent harm?
 17 A. **I have not -- I think that would be extremely**
 18 **challenging to do in any situation I can imagine.**
 19 Q. So the answer is no?
 20 A. **I have not -- I have not done so.**
 21 Q. And you cannot say how much further depletion in
 22 water levels would have to occur until you're
 23 certain that the system will pass the tipping
 24 point. Correct?
 25 A. **So here we -- let's be clear on this term tipping**
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1 **point. Tipping point is common vernacular in**
 2 **ecological studies for a system changing to an**
 3 **alternative state, and that alternative state may**
 4 **be one that's less desirable than the present**
 5 **state; and it may not be possible for the system**
 6 **to recover.**
 7 **And so there is no exact number at which -- a**
 8 **flow or anything else at which a tipping point**
 9 **would be passed. It really is more of a**
 10 **gradation. As the system becomes progressively**
 11 **more harmed, it comes to no longer resemble the**
 12 **system it was originally. And then in**
 13 **retrospect, we would say, now, we see where we**
 14 **passed the tipping point. That's the only way it**
 15 **would be possible.**
 16 **So it's a very useful conceptual framing for**
 17 **the gradation of change reaching a point where**
 18 **recovery becomes less and less probable.**
 19 Q. You can't say in any precise way when you have
 20 hit the tipping point. Right?
 21 A. **That's correct.**
 22 Q. Dr. Allan, on this issue of irreparable or
 23 irreversible harm, you know that Florida
 24 officials have been warning about that for a long
 25 time. Correct?
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1 **A. I don't have a history of warnings on that topic,**
2 **so I can't say one way or the other.**
3 **Q.** You're not aware of that?
4 You're not aware that in 2007, the Secretary
5 of the Florida Department of Environmental
6 Protection wrote a letter to the Army Corps in
7 which he predicted irreparable harm to Gulf
8 sturgeon and mussel species?
9 **A. So I am aware that there's been a long history of**
10 **dispute on water between Florida and upstream**
11 **activities. And I have seen some documents of**
12 **earlier statements from Florida, but I can't tell**
13 **you from memory whether I have seen that specific**
14 **one.**
15 **Q.** Can you turn to tab 14 of your binder.
16 **A. Tab 14.**
17 MR. PRIMIS: And I will advise the Court
18 that this is the last examination we're going
19 to do where the documents are not all
20 premarked with GX numbers for tracking. We
21 are working with the staff to facilitate
22 that, but we didn't want to change Dr. Allan's
23 binder while he had it.
24 BY MR. PRIMIS:
25 **Q.** So, Dr. Allan, do you see that this is a
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1 **A. Yes.**
2 **Q.** So let's go to the very bottom of that page, and
3 it carries over. There Mr. Sole writes, the
4 Corps' modeling shows the exceptional drought
5 operations would be in place through 2010. Do
6 you see that?
7 **A. Yes.**
8 **Q.** Effectively capping Apalachicola River flow
9 between 4150 to 5,000 cfs during that period and
10 allowing the Corps to store all basin inflow
11 above that cap.
12 Do you see that?
13 **A. I see that.**
14 **Q.** And I take it you don't have enough background in
15 Corps operations to understand that that means
16 that in a drought, the Corps would store water in
17 reservoirs to maintain a 5,000 cfs flow at the
18 state line. Correct?
19 **A. I think I understand that.**
20 **Q.** Okay. And then in the next sentence Mr. Sole
21 writes, thus exceptional drought operations would
22 result in unprecedented declines in river levels
23 and cause irreparable harm to Gulf sturgeon and
24 federally protected mussel populations.
25 Do you see that?
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1 November 8, 2007, letter from Mike Sole to the
2 U.S. Fish and Wildlife Service and the Army
3 Corps?
4 **A. I see that.**
5 **Q.** Have you seen this document before?
6 **A. I don't recall.**
7 **Q.** Can you turn to the second paragraph. And in
8 particular, let's just start, just to set the
9 table, in the second paragraph it says that the
10 State of Florida opposes the Corps' proposed
11 exceptional drought operations.
12 Do you see that?
13 **A. Yes, I see that.**
14 **Q.** And do you know what the exceptional drought
15 operations of the Corps are?
16 **A. No. As I have already testified, I have not**
17 **studied the Corps' activities.**
18 **Q.** And in the next sentence Mr. Sole wrote, if
19 implemented, the exceptional drought operations
20 would starve the Apalachicola River and Bay of
21 freshwater flows needed to keep the ecosystems,
22 species, and economy alive.
23 Do you see that?
24 **A. I see that.**
25 **Q.** And he wrote that nine years ago. Correct?
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1 **A. I see that.**
2 **Q.** And do you disagree that Florida took that
3 position nine years ago in 2007?
4 **A. I -- I really, truly have no expert opinion on**
5 **this. I have not seen this. I don't believe I**
6 **have seen this letter previously. I have not**
7 **studied Army Corps operations. I have not been**
8 **part of the discussions that took place nine**
9 **years ago focused on Army Corps operations. So I**
10 **certainly can't offer an operation on this.**
11 **Q.** Okay. And, Dr. Allan, you can offer an opinion
12 though that the Gulf sturgeon and the federally
13 protected mussel populations have not been
14 irreparably harmed in the last nine years.
15 Correct?
16 **A. Well, the Gulf sturgeon and the mussels continue**
17 **to survive; so if the meaning of irreparable in**
18 **this letter -- if we could substitute the**
19 **language would cause to go extinct, then I would**
20 **agree that it has not caused them to go extinct.**
21 **But since the language is would cause irreparable**
22 **harm, I honestly don't know whether those**
23 **populations have been harmed during that time**
24 **period by those operations or not.**
25 **I know the populations are still surviving.**
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1 **Q.** Dr. Allan, I would like to shift gears now,
 2 again, and turn to the calculations that you did
 3 for a decrease in harm under the conservative
 4 remedy you chose. Okay?
 5 **A. Okay.**
 6 **Q.** And what we have done to facilitate and
 7 streamline this is we took all of your remedy
 8 figures and condensed them onto one slide so
 9 they're on one place, and we can see them all at
 10 the same time. And I'm going to show that to you
 11 and ask you to confirm that those, in fact, are
 12 the columns called Decrease in Harm. Okay?
 13 **A. Okay.**
 14 MR. PRIMIS: Your Honor, we can put it
 15 on the screen; but I also made a
 16 demonstrative that may be easier to flip
 17 through.
 18 May I approach?
 19 SPECIAL MASTER LANCASTER: Please.
 20 MR. PRIMIS: Thank you.
 21 BY MR. PRIMIS:
 22 **Q.** Dr. Allan, the first page is simply just a
 23 collection of the 15 metrics that you did for
 24 decrease in harm. Do you recognize those from
 25 your expert report?

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1 **A. They look the same. I haven't compared them**
 2 **exactly, but they look the same.**
 3 **Q.** And then the second page we have highlighted
 4 some, and I'll come to that in a minute.
 5 Just to level-set and put us all on the same
 6 page here, as we put in the header of this
 7 demonstrative -- and we'll call it Allan
 8 demonstrative 1 -- your remedy scenario involves
 9 a 50 percent cut in Georgia's agricultural
 10 irrigation every year, a 50 percent reduction in
 11 evaporation from small impoundments, and 100
 12 percent elimination of interbasin transfers.
 13 Correct?
 14 **A. That is scenario 3, as I understand it, from the**
 15 **Hornberger report. Those are Dr. Hornberger's**
 16 **scenarios, and they are the ones that were used**
 17 **with my metrics to evaluate the remedy benefits**
 18 **to the ecosystem. Correct.**
 19 **Q.** Okay. Now, the way your chart works is that in
 20 the column where you have decrease in harm, the
 21 first number represents a change in the number of
 22 years in which harm occurred. Right?
 23 **A. Correct.**
 24 **Q.** And the second number in parentheses is a
 25 reduction in the number of days in which harm

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1 occurred under your metrics. Correct?
 2 **A. Correct.**
 3 **Q.** And all of these are over a 16-year period.
 4 Correct?
 5 **A. Correct.**
 6 **Q.** Okay. Now, Dr. Allan, I just want to do some
 7 simple math with you now. And I have the
 8 calculator, so I'm going to hand you this
 9 calculator and ask you to just establish one
 10 number for me. Okay?
 11 Would you trust me to do it, or would you
 12 like to punch the numbers yourself?
 13 **A. Please go ahead, Mr. Primis.**
 14 **Q.** Thank you. So 16 years at 365 days a year --
 15 I'll leave out the leap years, although now that
 16 I think of it, I probably should include them.
 17 16 times 365 is about 5,840 days. Correct?
 18 **A. That's what the math says, yes.**
 19 **Q.** Okay. And what I would like to do is just set a
 20 benchmark of 2-1/2 percent of that 16-year
 21 period. So I'm going to multiply --
 22 **A. Excuse me, Mr. Primis.**
 23 **Q.** Yes?
 24 **A. I object to that calculation because all of these**
 25 **metrics have a timing window. And those timing**

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1 **windows are not 365 days. They might be 60 days**
 2 **or they might be 90 days, and they differ with**
 3 **the metric.**
 4 **So it's not the number of days out of 365.**
 5 **It's the number of days out of the window during**
 6 **which flows are low and harm may occur. So I**
 7 **don't think it's a valid calculation.**
 8 **Q.** Okay. But I'm entitled to ask you the questions,
 9 and you can explain all that when Mr. Qureshi is
 10 up here. I'm sure he will.
 11 But for present purposes, if we look at 2-1/2
 12 percent, I multiply by .025. Correct; that's
 13 2-1/2 percent?
 14 And I get 146 days is 2-1/2 percent. Would
 15 you agree with that math?
 16 **A. I agree with the math, but not the logic.**
 17 **Q.** Okay. Now, on the second page of our chart,
 18 Allan demonstrative 1, I have highlighted all of
 19 the ones that are fewer than 146 days and change
 20 over 16 years. Do you see that?
 21 **A. I see that.**
 22 **Q.** And for the fish metrics, four of them are less
 23 than 2-1/2 percent of the 16-year time period.
 24 Correct?
 25 Yes?

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- 1 **A. Yes.**
- 2 **Q.** In fact, for the second metric with inundation of
- 3 the floodplain for 120 days, you actually show
- 4 more harm when you apply the remedy. Right?
- 5 That's the red 7?
- 6 **A. Yes, that's more -- more harm is the red 7 and**
- 7 **the red 1.**
- 8 **Q.** Okay. And the first metric, inundation for 60
- 9 days, you show a reduction over 16 years of 39
- 10 days of harm. Correct?
- 11 **A. Correct.**
- 12 **Q.** And 39 would be less than 1 percent of 5,840
- 13 days. Correct?
- 14 **A. Correct.**
- 15 **Q.** Over on the mussels, you see there are three
- 16 metrics where there's a change of less than 2-1/2
- 17 percent of the 16-year time period. Correct?
- 18 **A. Why are we using 2-1/2 percent?**
- 19 **Q.** That's just a number I chose, 2-1/2 percent.
- 20 Three of those are less than 2-1/2 percent
- 21 change. Correct?
- 22 **A. Correct.**
- 23 **Q.** And that's with a 50 percent cut in agriculture
- 24 and all the rest. True?
- 25 **A. True.**

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- 1 **Q.** Okay.
- 2 MR. PRIMIS: I'm going to ask Mr. Smith
- 3 if he can put that picture up.
- 4 BY MR. PRIMIS:
- 5 **Q.** And do you recognize this as a picture of tupelo
- 6 trees with the water reduced in a floodplain?
- 7 **A. I believe I do, yes.**
- 8 **Q.** And for the 29 -- well, first off, you didn't
- 9 study whether Army Corps dam operations caused
- 10 harm to the tupelos shown here. Right?
- 11 **A. I did not.**
- 12 **Q.** And with regard to the 29-day decrease in harm,
- 13 you can't say if that will have any impact at all
- 14 on the population of tupelo-cypress swamp trees.
- 15 Correct?
- 16 **A. It would depend on when those 29 days occurred**
- 17 **because they only have to occur once to wipe out**
- 18 **a recruitment year class. And so -- but the**
- 19 **metrics are metrics that are not corroborated**
- 20 **with observation harm on a specific date or**
- 21 **event.**
- 22 **Q.** Dr. Allan, you can't tell, based on your metrics,
- 23 whether a 29 decrease -- day decrease over 16
- 24 years will help that population of tupelo-cypress
- 25 swamp trees. Correct?

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- 1 **Q.** And then on the sturgeon, one of them is less
- 2 than 2-1/2 percent. Correct?
- 3 **A. Correct.**
- 4 **Q.** And then on the tupelo trees, all of them show
- 5 change of less than 2-1/2 percent. Right?
- 6 **A. Correct.**
- 7 **Q.** And, in fact, in the tupelo trees, they all show
- 8 a change of less than 1 percent of the 16-year
- 9 time period. Right?
- 10 **A. Correct.**
- 11 **Q.** And those 10 percent, 30 percent, 50 percent
- 12 figures for tupelos, that's the amount of
- 13 floodplain that you say would be inundated.
- 14 Correct?
- 15 **A. So there's three metrics for tupelo that are**
- 16 **based on different levels of inundation. So they**
- 17 **span the range of potentially harmful conditions,**
- 18 **yes.**
- 19 **Q.** And the maximum number of reduced days of harm to
- 20 the tupelo is 45 days over 16 years. Right?
- 21 **A. Yes.**
- 22 **Q.** Now, Mr. Perry showed a picture of tupelo trees
- 23 in a dried-out floodplain during his opening
- 24 statement. You weren't here for that; were you?
- 25 **A. I was not.**

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- 1 **A. What I can say is that -- that the change in**
- 2 **available -- water available will benefit the**
- 3 **tupelo swamp trees. Not just on the metrics, but**
- 4 **on understanding of the ecology of the system.**
- 5 **The metrics are useful as a way to put a**
- 6 **quantitative value on the extent of harm. They**
- 7 **are not the only way in which harm can be**
- 8 **observed in the system.**
- 9 **Q.** Can you answer my question yes or no whether a
- 10 29-day decrease in harm over 16 years will have
- 11 any impact at all on the population of
- 12 tupelo-cypress swamp trees in the Apalachicola?
- 13 **A. I don't know.**
- 14 MR. PRIMIS: You can take the swamp
- 15 trees down.
- 16 BY MR. PRIMIS:
- 17 **Q.** Dr. Allan, you claim in your direct testimony
- 18 that all of the species in the region are part of
- 19 the riverine food web and are affected at some
- 20 level when flows decline. True?
- 21 **A. True.**
- 22 **Q.** And your testimony mentions that there are many
- 23 species of birds and reptiles and other animals
- 24 in the Apalachicola. Correct?
- 25 **A. Correct.**

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- 1 **Q.** In this case, you haven't studied any bird
- 2 species. Correct?
- 3 **A. That's correct.**
- 4 **Q.** And you don't have evidence of any change in the
- 5 bird populations caused by Georgia's water use in
- 6 Apalachicola. True?
- 7 **A. That's true.**
- 8 **Q.** You haven't studied any amphibian species in this
- 9 case. Right?
- 10 **A. That is correct.**
- 11 **Q.** And you have no information of any change in
- 12 amphibian populations caused by Georgia's water
- 13 use. True?
- 14 **A. True.**
- 15 **Q.** You haven't studied any reptile species. True?
- 16 **A. True.**
- 17 **Q.** And you have no evidence of any change in reptile
- 18 species caused by Georgia's water use. Right?
- 19 **A. Correct.**
- 20 **Q.** And you haven't studied any mammal species.
- 21 True?
- 22 **A. True.**
- 23 **Q.** And you have no evidence of any change over any
- 24 period of time to any of the mammal species in
- 25 the Apalachicola region. Correct?

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- 1 **A. No, I wouldn't phrase it that way; and I don't**
- 2 **believe I phrased it that way in my report. I**
- 3 **think I was very clear in my report that harm**
- 4 **occurs above and below that threshold, that the**
- 5 **threshold is supported by evidence; and it is a**
- 6 **reasonable value to use for asking scenario**
- 7 **questions using Dr. Hornberger's analysis.**
- 8 **But according to the 2012 biological opinion,**
- 9 **they say harm occurs to mussels in the main**
- 10 **channel margins, the metric we're looking at, at**
- 11 **10,000, at 8,000, and at 6,000. And harm becomes**
- 12 **more severe as you approach and then pass that**
- 13 **threshold.**
- 14 **One has to also take into account the fact**
- 15 **that -- that a particular location for mussels**
- 16 **might be a little more exposed to the sun or a**
- 17 **little less exposed, might be in an area of a**
- 18 **steeper bank or a more gradual bank, might be in**
- 19 **an area where there is an easy pathway for**
- 20 **mussels to migrate and escape.**
- 21 **Q.** Doctor, can I just ask you to slow down for the
- 22 court reporter, please.
- 23 **A. Thank you.**
- 24 **It might be in a location where mussels could**
- 25 **easily escape or not so easily escape. So it's**

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- 1 **A. That's correct.**
- 2 **Q.** Okay. Dr. Allan, I want to turn now to tab 16 of
- 3 the binder. And what we have here is appendix D
- 4 to your expert report. Do you see that?
- 5 **A. I see that.**
- 6 **Q.** And we have also put it on the screen.
- 7 Now, this is the chart where you show what
- 8 all of your metrics are for giving to
- 9 Dr. Hornberger to run the hydrology. Right?
- 10 **A. That's correct.**
- 11 **Q.** And on the right-hand side, you have the criteria
- 12 that you gave to Dr. Hornberger. True?
- 13 **A. True.**
- 14 **Q.** There is a column for the flow that you need.
- 15 Right?
- 16 **A. Yes.**
- 17 **Q.** And then there is a column for the duration of
- 18 that flow?
- 19 **A. Yes.**
- 20 **Q.** And then the season in which you would like that
- 21 flow at that duration. Right?
- 22 **A. Correct.**
- 23 **Q.** And it's your expert opinion that harm occurs
- 24 anytime flows fall below that combination of
- 25 metrics. Right?

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- 1 **not a knife-edge number where exactly at 6,001**
- 2 **everything is hunky-dory, and at 5999 everything**
- 3 **turns belly up. It is a gradation. But we have**
- 4 **to pick values, just as all the other analyses**
- 5 **have to pick values, at which to do our analysis.**
- 6 **And that 6,000 value is well supported by**
- 7 **evidence of -- that's included in photographic**
- 8 **evidence that's in my report.**
- 9 **Q.** Dr. Allan, I was really just trying to make a
- 10 foundation type question. When you give your
- 11 numbers to Dr. Hornberger and he comes back and
- 12 says there is a harm day, it's because it doesn't
- 13 hit these particular metrics. Right?
- 14 **A. When Dr. Hornberger does the analysis, he has to**
- 15 **have a precise number.**
- 16 **Q.** That's all I'm asking. If, when he runs the
- 17 analysis, it doesn't hit this collection of
- 18 numbers, it says there's a harm day. Correct?
- 19 **A. Well, I -- I apologize. I understood your**
- 20 **question to ask me whether I thought that that**
- 21 **was a precise number above which no harm occurs,**
- 22 **below which harm does occur. And I want to be**
- 23 **clear that that's not the correct interpretation**
- 24 **of that number.**
- 25 **Q.** Just do we have an understanding if you gave

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1 those numbers to Hornberger, he runs them
 2 through. If the hydrology doesn't hit that
 3 collection of criteria, he reports a harm day?
 4 **A. It won't -- exactly right.**
 5 **Q.** Thank you.
 6 Now, for the different species and different
 7 assemblages you have different flow rates on this
 8 chart. Right?
 9 **A. That's correct.**
 10 **Q.** And you have different times when you need those
 11 flow rates for each of those species and
 12 assemblages. Correct?
 13 **A. Correct.**
 14 **Q.** Now, you can't say if it's possible to deliver
 15 the amounts of water at the times you specified
 16 in the particular parts of the river where
 17 they're needed. Correct?
 18 **A. Again, please?**
 19 **Q.** You can't say if it's possible to deliver the
 20 amount of water at the times you specify in the
 21 particular parts of the river where they are
 22 needed. Correct?
 23 **A. I would rely on hydrologists to come up with that**
 24 **analysis, so I cannot do it. You're correct.**
 25 **Q.** And, in fact, you don't know if there's even
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1 enough water in the basin to achieve all of these
 2 flows over the time periods that you specify.
 3 True?
 4 **A. Not part of my analysis to do that. True.**
 5 **Q.** And you didn't ask the question when you came up
 6 with these metrics, is there enough water to
 7 actually do this. Correct?
 8 **A. Not my -- not my task to do that.**
 9 **Q.** And, sir, you can't say one way or the other
 10 whether the Army Corps of Engineers would be
 11 required to provide the flows for the durations
 12 that you have specified on this chart. Correct?
 13 **A. I -- I'm not responsible for identifying the --**
 14 **where the water would come from if these numbers**
 15 **were to be selected as targets to hit in some**
 16 **eventual solution of this water conflict.**
 17 **Q.** So to answer my precise question, you can't say
 18 whether the Army Corps of Engineers would be
 19 required to deliver these flows for these
 20 durations. Correct?
 21 **A. No, I cannot.**
 22 MR. PRIMIS: No further questions, your
 23 Honor.
 24 SPECIAL MASTER LANCASTER: Thank you.
 25 MR. QURESHI: Good morning, your Honor.
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1 SPECIAL MASTER LANCASTER: Good morning.
 2 MR. QURESHI: Your Honor, with your
 3 permission, before I begin I would like to
 4 introduce my colleague Ms. Stacey van Belleghem
 5 who is assisting with the redirect examination
 6 of Dr. Allan.
 7 SPECIAL MASTER LANCASTER: Thank you.
 8 REDIRECT EXAMINATION
 9 BY MR. QURESHI:
 10 **Q.** Hello, Dr. Allan.
 11 **A. Good morning.**
 12 **Q.** Dr. Allan, I'm going to start off addressing some
 13 of the questions that Mr. Primis asked you this
 14 morning, and we'll return to some of the issues
 15 that were covered earlier this week.
 16 Let's start with the questions you received
 17 with respect to causation and whether you
 18 considered any aspects of Army Corps operations
 19 in your analysis. Sir, were the upper reaches of
 20 the Apalachicola River included in your analysis?
 21 **A. They were -- they were included in my report.**
 22 **Q.** Okay. And what did you take into account to
 23 recognize that the Army Corps operates a dam at
 24 Lake Lanier?
 25 **A. So in the upper reaches of the Apalachicola, we**
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1 **know that it's an important spawning location for**
 2 **the endangered Gulf sturgeon and location for the**
 3 **threatened purple bankclimber. We know that**
 4 **there are migratory fishes that move between the**
 5 **Apalachicola and the Flint with varying degrees**
 6 **of difficulty in getting through the dam.**
 7 **So, certainly, in my initial analysis, I was**
 8 **very interested in whether it would be feasible**
 9 **to isolate and quantify the effect of upstream**
 10 **depletions of changes in flow simply to develop**
 11 **biological metrics that would be defensible**
 12 **biological metrics to quantify the impacts of low**
 13 **flows on that section of the river. And because,**
 14 **in that section of the river, the dam operated by**
 15 **the Army Corps has resulted in significant**
 16 **lowering of the channel bed, down-cutting of the**
 17 **channel bed, and it was an extremely clear,**
 18 **confounding activity, I determined that it was**
 19 **not going to be feasible to come up with**
 20 **scientifically defensible and quantifiable**
 21 **biological metrics for harm in that section of**
 22 **the river. And so I, in that sense, recognized**
 23 **that the Army Corps operations and the dam were**
 24 **an impact and, having considered it carefully,**
 25 **determined that I could not reliably identify**
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1 any -- any quantitative mechanism to show the
 2 influence of any water depletions from upstream
 3 or any changes in water level that could be
 4 meaningfully quantified. So for that reason, my
 5 report does not include metrics for the upper
 6 section of the river.

7 Q. Thank you. You had a series of questions about
 8 your interactions with Dr. Hornberger. Can you
 9 remind us who Dr. Hornberger is.

10 A. So Dr. Hornberger is the expert witness on the --
 11 on aspects of the hydrology of the system. And I
 12 had known Dr. Hornberger by reputation, but never
 13 met him. I had read some of his -- some of his
 14 works that had an ecological aspect to them that
 15 was relevant to my own work. So I was delighted
 16 to find that Dr. Hornberger was the expert
 17 hydrologist that would be part of this -- of this
 18 case.

19 And I regret that my memory of which
 20 conversations I have had with which other people
 21 over the course of four years are imperfect. And
 22 I think that since my deposition, which caused me
 23 to think further on, well, how often had I
 24 interacted with Dr. Hornberger and in what
 25 manner, I'm now fairly confident I had a second

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1 A. So Dr. Hornberger is a highly respected
 2 hydrologist. And he will be in court, and his
 3 credentials will be put forward. But he has an
 4 excellent reputation as a leader in this field.

5 And in my initial conversations with him when
 6 I described some of the ways in which we were
 7 developing biological metrics, he clearly
 8 understood; and he was complimentary about the
 9 work that we were doing to develop what I call
 10 biological metrics and what the 2012 -- 2016
 11 biological opinion called ecohydrologic metrics,
 12 which are very much the same thing.

13 And he was -- he was appreciative of having
 14 some precise numbers because, of course, as a
 15 hydrologist, he can't produce any of those graphs
 16 or any of those tables if we say there is a mushy
 17 number between 5700 and 6500 that we think is
 18 important. I can describe why a particular
 19 number is important, but he needs a signal value
 20 to do his analysis.

21 Q. Another name that's been mentioned today and
 22 earlier in the week is Ms. Helen Light. Who is
 23 Ms. Helen Light?

24 A. So Ms. Helen Light is, as I understand it, a
 25 retired USGS scientist who, as I understand it,

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1 conversation with him; but I can't recall the
 2 substance of it. I'm now fairly confident that I
 3 had conversations with and saw PowerPoint slides
 4 prepared by some of his colleagues that were
 5 working with him in developing the hydrologic
 6 case. And then in addition, with the assistance
 7 of attorneys who were coordinating the activity
 8 between different experts, there was -- I have
 9 seen Dr. Hornberger's charts.

10 I was beginning to quantify the numbers into
 11 the tables that are in my report. And then
 12 sometime in early February, I saw a draft report.
 13 At the time I believe I looked at it in a cursory
 14 manner.

15 So there was a history of looking at
 16 Dr. Hornberger's work, but it was not hand in
 17 glove. It was really he independently developed
 18 the hydrologic scenarios. I gave him the
 19 biological metrics, and then he actually prepared
 20 the charts. And I pulled the tabular numbers
 21 from his charts.

22 Q. Let's put aside the number of times you actually
 23 spoke to him. What's your level of confidence in
 24 the work Dr. Hornberger performed for you and
 25 why?

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1 has basically spent her life studying the
 2 floodplain forest of the Apalachicola. She was
 3 very helpful to me in preparing my testimony. So
 4 I traveled on the river with her. I met with her
 5 on a number of times. And she was very helpful
 6 in being able to point me to key literature in
 7 terms of her own work to explain questions I
 8 asked so that I could summarize it in my own
 9 words.

10 I have carefully read the papers that have
 11 been discussed here; and I think they are -- I
 12 think they're very, very solid papers that need
 13 to be taken in the context of their writings.

14 Q. Okay. Let's look at one of the papers that you
 15 were shown earlier today. If you look at tab 10
 16 of your cross-examination binder --

17 MR. QURESHI: And, your Honor, that is
 18 Georgia Exhibit 88.

19 A. Excuse me just a moment.

20 Sir, is tab 10 the water level decline paper?

21 Q. Yes, sir.

22 A. Thank you.

23 Q. May I note that this is a 50-page document, so
 24 I'm not going to ask you about the entirety of
 25 it. But I do know that there was discussion

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1 about one particular sentence on the bottom of
 2 page 1, and you were asked to render your opinion
 3 on that sentence.
 4 I want to back up a little bit and ask you
 5 for your opinion about the entire document and
 6 help us place that sentence into context.
 7 **A. Help -- I'm sorry?**
 8 **Q.** Help us place that one sentence that you were
 9 asked about into context.
 10 **A. Yes. So by way of beginning, let me -- let me**
 11 **try to distinguish between, as I understand it,**
 12 **what would be an expert opinion, which might**
 13 **imply that, you know, I have done similar work; I**
 14 **have repeated the work. I have not done that.**
 15 I have an opinion as a scientist who is used
 16 to reading scholarly papers carefully. And so
 17 based on my long experience reading I don't know
 18 how many scientific papers carefully and trying
 19 to form opinions about the validity, I think this
 20 is a very solid paper; and I think Helen Light's
 21 work is very reliable.
 22 I'll take the sentence that I was asked to
 23 read by Georgia counsel that says, water level
 24 decline caused by channel change is probably --
 25 **underscore probably -- the most serious**

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1 **anthropogenic impact that has occurred so far --**
 2 **underline so far -- in the Apalachicola River and**
 3 **floodplain. And then go to the very next**
 4 **sentence of the very same paragraph which is, by**
 5 **the way, a scientific abstract. It's a very**
 6 **concise summary paragraph.**
 7 The sentence continues, this decline has been
 8 exacerbated by long-term reductions in spring and
 9 summer flow, especially during drought periods.
 10 Although no trends in total annual flow volumes
 11 were detected, long-term decreases in discharge
 12 for April, May, July, and August were apparent,
 13 and water level declines during drought
 14 conditions resulting from decreased discharge in
 15 these four months were -- underlined -- similar
 16 in magnitude to the water level declines caused
 17 by channel changes.
 18 So in effect Ms. Light is saying that the
 19 water level declines are -- are about -- due to
 20 decreased discharge are about at the same order
 21 of magnitude as those caused by channel changes.
 22 **Q.** Okay. And what is your understanding of that
 23 analysis?
 24 **A. Well, I would say that what this -- what this**
 25 **study does is it identifies two causes of the**

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1 **decline in water levels, one being the channel**
 2 **changes, which my report acknowledges have**
 3 **occurred; and the other being long-term decreases**
 4 **in discharge, which my report focuses on.**
 5 **The channel changes are 15 years in the past.**
 6 **The channel is largely stabilized. And so that**
 7 **factor, which was studied in detail by Helen**
 8 **Light, is a factor of the past. The decrease in**
 9 **discharge is something that I believe**
 10 **Dr. Hornberger convincingly argues is continuing**
 11 **today.**
 12 So we have two causes of about equal
 13 magnitude in the year 2006 or thereabouts, one of
 14 which is no longer occurring, one of which is
 15 accelerating.
 16 **Q.** And how do you know that the channel change is no
 17 longer occurring?
 18 **A. So from doctor -- so I rely on Dr. Kondolf's**
 19 **report for the argument that channel changes are**
 20 **no longer occurring. He is the expert on**
 21 **geomorphology, and I take that directly from his**
 22 **report.**
 23 **Q.** Okay. Sticking with Ms. Light's paper, if you
 24 look at page 44 and the paragraph that begins
 25 during drought conditions?

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1 **A. Yes?**
 2 **Q.** I would like you to read that and provide us with
 3 your understanding of that paragraph.
 4 **A. So at the top of page 44 the paragraph begins,**
 5 **during drought conditions -- it refers to a**
 6 **figure -- total water level declines in April,**
 7 **May, July, and August, the critical -- I'll add,**
 8 **parenthetically, the critical period for**
 9 **biological activity -- are approximately double**
 10 **the decline caused by channel change alone.**
 11 **And she goes on to use a particular example**
 12 **to demonstrate that that is the case graphically.**
 13 **Q.** And this paper was written in 2006. 10 years
 14 later what is your understanding of the
 15 phenomenon she's describing?
 16 **A. So 10 years later, we see from Dr. Kondolf's**
 17 **report evidence that the channel is stabilizing.**
 18 **We know that the navigation activities, dredging,**
 19 **have been -- ended nearly 15 years ago. And from**
 20 **Dr. Hornberger's report, we understand that water**
 21 **withdrawals are continuing to increase.**
 22 **And I have to -- if I may make one more point**
 23 **from Dr. -- from Ms. Light's report, I would like**
 24 **to read from page 47 where she talks about**
 25 **research needs at the time of her study. And**

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1 **basically what she points out is that the water**
 2 **use data were not available to her at that time**
 3 **to do as thorough a water use analysis. She**
 4 **points out that the water use was last --**
 5 **evaluation was last conducted using 1990 data.**
 6 **And in 1990, agricultural, municipal and**
 7 **industrial water use from 1970 to 1990 had shown**
 8 **an increase. She did not have available to her**
 9 **at the time of this writing the continued**
 10 **increase in water use, which is well documented**
 11 **in Dr. Hornberger's report.**
 12 **Q.** Thank you, Dr. Allan. Turning to your expert
 13 report, which is at Florida Exhibit 790, please
 14 turn to page 35.
 15 **A. Page 35 of my expert report?**
 16 **Q.** Yes, sir. And the section of this that I would
 17 like to focus on is the bottom of the first
 18 paragraph that discusses tipping points.
 19 **A. That begins incremental changes?**
 20 **Q.** No, no. Right on top of that, the section that
 21 discusses tipping points.
 22 **A. Yes. Yes.**
 23 **Q.** You were asked why you didn't perform an
 24 empirical analysis to determine when the tipping
 25 point will occur. Why didn't you do that?

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1 **A. So I didn't -- I didn't do that because to my**
 2 **knowledge -- and I'm thinking of every possible**
 3 **study I have ever read in every possible**
 4 **ecosystem context. To actually quantify a**
 5 **tipping point in advance of an event occurring is**
 6 **simply not feasible.**
 7 **So the use of the term tipping point in**
 8 **ecology is widespread. People also use terms**
 9 **like nonlinear change or threshold change. And**
 10 **the implication is that if you push a system far**
 11 **enough, that eventually it won't -- it will not**
 12 **recover.**
 13 **And a good example for the Apalachicola would**
 14 **be if -- we're not there yet; but if water levels**
 15 **are low enough so that sloughs -- some sloughs**
 16 **simply no longer receive water, they will cease**
 17 **to be sloughs. They will change irreparably.**
 18 **So you can use it as a -- sort of a verbal**
 19 **model of the kind of profound change that is**
 20 **likely to occur as systems are degraded. And we**
 21 **know from, actually, ecological theory that**
 22 **systems can change dramatically from one form to**
 23 **another.**
 24 **I guess maybe a plain-language example would**
 25 **be when you cut down a forest and plant a**

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1 **cornfield. It's not a forest anymore.**
 2 **Q.** Okay.
 3 **A. You could imagine getting that forest back, but**
 4 **it's largely an irreversible change.**
 5 **Q.** Okay. So, Dr. Allan, when you write in your
 6 expert report, quote, this ecosystem, however,
 7 has experienced significant harm from multiple
 8 causes, including Georgia's use of water, and
 9 further depletions are certain to exceed the
 10 tipping point for key features of the river and
 11 floodplain ecosystem. Do you still believe that
 12 today?
 13 **A. I still believe that today. I think that's very**
 14 **true.**
 15 **Q.** Why?
 16 **A. I think -- I think it's true because there's a**
 17 **body of evidence in addition to the metrics I**
 18 **present that make this expectation likely. And,**
 19 **really, I think one can put aside the metrics for**
 20 **a moment and just rely on common sense. A river**
 21 **that receives less and less water is being**
 22 **increasingly harmed because it's receiving less**
 23 **and less water.**
 24 **What we understand from the study of the**
 25 **ecology of rivers or any ecosystem is that**

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1 **there's a range of macrohabitats. Macrohabitats**
 2 **could be things like large sloughs, small**
 3 **sloughs, floodplain lakes, and the like. And**
 4 **within each of those there's microhabitat.**
 5 **There is a wide range of differences in the**
 6 **kind of sand or stone or substrate that's**
 7 **present, and the exposure to sun or shade or how**
 8 **the temperature changes, whether the water is**
 9 **moving quickly or moving slowly, whether there is**
 10 **a spring that's providing cool water or warm**
 11 **water. This habitat complexity is what underlies**
 12 **biological diversity. You need all of that**
 13 **habitat diversity protected and retained in order**
 14 **to have the biologically diverse system that has**
 15 **all of these different organisms with different**
 16 **ecological niches that are woven together into a**
 17 **food web such that without ever studying the**
 18 **amphibians and reptiles in the system, I can say**
 19 **that as that food web changes, other species are**
 20 **almost certain to be harmed.**
 21 **And so I would point to the -- the**
 22 **photographic evidence where you can see just a**
 23 **small decline in water and then -- water level,**
 24 **and then water is no longer flowing between**
 25 **pools. Go a little bit lower decline of water,**

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1 **and the woody substrate that animals use for**
 2 **shelter or perches becomes exposed and dries up.**
 3 **So I can make my argument without ever referring**
 4 **to a metric.**
 5 **Metrics are wonderful for the scenario**
 6 **analyses we do; but for the commonsense notion**
 7 **that less water harms the river, I think we can**
 8 **base that on our knowledge of the food web, of**
 9 **the habitats, and how they're interconnected.**
 10 **Q.** Thank you, doctor. We'll come back to that in a
 11 moment.
 12 Let's stick with the things that were covered
 13 today and flip to tab 14 of your
 14 cross-examination binder, please. This is a 2007
 15 letter from the Florida Department of
 16 Environmental Protection that you were asked to
 17 review earlier today. You -- you had never seen
 18 this letter before?
 19 **A. To the best of my recollection, I have not seen**
 20 **this letter before.**
 21 **Q.** Okay. You were directed to the second paragraph
 22 and some places on the second page, but not the
 23 first paragraph. Why don't you take a moment to
 24 read the first paragraph and tell us your
 25 understanding of that.

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1 **A. Thank you. I don't recall reading that paragraph**
 2 **previously.**
 3 **Q.** Okay. Is this paragraph consistent with your
 4 understanding of what underlied the shortage of
 5 water in the Apalachicola River during the period
 6 of study you examined?
 7 **A. Would you ask that question again, please?**
 8 **Q.** Sure. Why don't I ask it -- a slightly different
 9 question. What is your understanding of what's
 10 written in the first paragraph?
 11 **A. Looking at this first paragraph, I think for the**
 12 **first time, I see a recognition that basically**
 13 **several -- several states and their Governors are**
 14 **in this together. There's not enough water to go**
 15 **around; and there needs to be some -- some**
 16 **reasonable agreement on how to manage the water**
 17 **such that the rights of individual states are**
 18 **respected.**
 19 **Q.** Dr. Allan, you recall discussions earlier this
 20 week with Georgia's counsel on the four
 21 assemblages?
 22 **A. On the?**
 23 **Q.** Four assemblages.
 24 **A. Yes.**
 25 **Q.** Okay. Can you explain to the Court what each of

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1 those assemblages represents.
 2 **A. So there's four assemblages in the analysis. And**
 3 **I think collectively they really give a broad**
 4 **view of the ecosystem. So the mussel assemblage**
 5 **is biologically rich. Southeastern rivers are**
 6 **known to be centers of high mussel biological**
 7 **diversity. There are 26 species of mussels in**
 8 **the Apalachicola. And so my mussel metric**
 9 **addresses not just the one species, the fat**
 10 **threeridge, but uses the fat threeridge because**
 11 **of the abundant data -- or not -- abundant is**
 12 **probably an overstatement -- because of available**
 13 **data as a surrogate for the mussel assemblage.**
 14 **And these are filter feeding invertebrates**
 15 **that live in a variety of habitats in the**
 16 **margins, apparently some in the main channels, in**
 17 **the sloughs. So the mussels represent an**
 18 **important assemblage of filter feeding**
 19 **invertebrates.**
 20 **The fishes of the floodplain forest, which**
 21 **are extremely well-sampled. It's a wonderful**
 22 **data set that Florida has on the recruitment of**
 23 **young fish to the population each year are**
 24 **representative of the fish that are important,**
 25 **both for sports fishing, but also as hosts --**

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1 **some of them are host fish for the mussel larvae.**
 2 **The tupelo, there's really two species of**
 3 **tupelo, the cypress and the Carolina ash. But**
 4 **those species of swamp forest trees are**
 5 **representative of the swamp forest.**
 6 **And then the Gulf sturgeon simply needs to be**
 7 **there because it's a federally listed species.**
 8 **And so together we have -- we have a sturgeon.**
 9 **We have a large body of migratory fish, which**
 10 **happens to be also the only known host for the**
 11 **purple bankclimber. We have the swamp forest,**
 12 **which is a unique aspect of the Apalachicola**
 13 **forest. We have the fishes, and we have the**
 14 **mussels as invertebrates.**
 15 **So those four groups really do span a range**
 16 **of ecology of the system and represent four**
 17 **groups' assemblages for which there was data to**
 18 **develop robust ecological biological metrics.**
 19 **Q.** You were asked earlier in the week why you didn't
 20 perform any population studies. You didn't count
 21 the number of mussels. You didn't count the
 22 number of fish. Why didn't you do a population
 23 study, sir?
 24 **A. So I don't do a population study in part because**
 25 **population studies are extremely exhaustive to**

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1 do. So a request to have done a population study
 2 on each of the 26 species of mussels is -- is
 3 really in some ways just beyond the pale that one
 4 would want to do that.

5 My charge was to identify whether harm had
 6 occurred, not whether species were -- certain
 7 species were in jeopardy, really whether harm had
 8 occurred on the entire ecosystem. And I do that
 9 with the metrics that I used.

10 There are population data in my metrics, so
 11 the young of the year data on fish recruitment
 12 are perhaps the most standard and widely
 13 respected metric of how a fish population is
 14 doing. Whether the population is robust is going
 15 to be determined by basically how many babies it
 16 produces each year. And so the fish population
 17 metrics are the basis for my identifying flow
 18 thresholds associated with the fish.

19 In the case of the floodplain forest, the
 20 changes that are described by Helen Light are
 21 population data, biomass density per unit area,
 22 changes in the forest composition. So there's
 23 population data in both of the fishes and the
 24 floodplain forest.

25 There is not population data for the Gulf

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1 sturgeon where my metric looks at the extremely
 2 rarely collected, but extremely critical early
 3 young of the year fish where we simply identify
 4 their habitat and feeding needs.

5 And in the case of the mussels, again, my
 6 metric relies on identifying essentially
 7 mortality to individuals.

8 Q. Sir, you talked about the concept of harm. What
 9 is harm?

10 Is it dead mussels in a dried-out slough, or
 11 is it something more? What is it?

12 A. Harm certainly would include dead mussels in a
 13 dried-out slough. Harm would include a year of
 14 lower than average recruitment to a population of
 15 fish, which could occur naturally; but it would
 16 be -- I would describe it as harm if the
 17 conditions that result in low recruitment can be
 18 attributed to human activity. And I believe in
 19 this case they can.

20 So harm could be lower recruitment. Harm
 21 could be mortality of adults. Harm can be
 22 physiological stress. When mussels are trapped
 23 in a flat, small body of water in the channel
 24 margin, and the water begins to heat up and the
 25 oxygen declines, as the water heats up, those

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1 animals begin to move. If they're fortunate,
 2 there would be a way out. If they're not
 3 fortunate, there won't be a way out. Some
 4 individuals will have different physiological
 5 tolerance of stress.

6 So it's everything from physiological stress
 7 through direct mortality to loss of reproduction
 8 or reduction in reproduction. And, most
 9 definitely, it's loss of habitat.

10 Q. Okay. You were asked about your July 2012 trip
 11 to the river. Did you see lower dissolved oxygen
 12 when you were out there?

13 A. No, I did not.

14 Q. What about increased temperature of the water?

15 A. I was -- I was simply becoming acquainted with
 16 the system; and I wasn't making collections. I
 17 didn't have a thermometer or an oxygen probe in
 18 my hand. I was -- I was getting essentially a
 19 lesson in geography of the river.

20 Q. Okay.

21 A. And that's what I was focused on is just
 22 understanding the geography of the system.

23 Q. Is it your testimony that there are elements of
 24 harm that are not visible to the naked eye?

25 A. You would certainly see harm if you visited a

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1 slough like Swift Slough after it dried out. And
 2 that's the evidence from the EnviroScience
 3 publication. So you can visit a location and see
 4 dead mussels.

5 I was not there at that -- at a time when I
 6 was taken to see any existing harm. So, again, I
 7 was getting a lesson in geography; and I was not
 8 at that point looking at -- looking for direct
 9 evidence of harm.

10 Q. Dr. Allan, my question is is it possible that
 11 harm is occurring even though you can't see it?

12 A. Oh, absolutely. Absolutely. If an individual
 13 is -- we did see individuals in shallow pools
 14 where it's likely the water was warming up. I --
 15 I think it's entirely possible that those mussels
 16 were experiencing physiological stress; but
 17 that's my human projection on what a mussel might
 18 be feeling at that moment.

19 MR. QURESHI: Your Honor, I'm happy to
 20 keep going. I'm also happy to take the
 21 morning break, whatever you prefer.

22 SPECIAL MASTER LANCASTER: Let's take a
 23 break.

24 MR. QURESHI: Thank you, your Honor.
 25 (Time Noted: 10:17 a.m.)

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1 (Recess Called)

2 (Time Noted: 10:30 a.m.)

3 SPECIAL MASTER LANCASTER: Counsel?

4 MR. QURESHI: Thank you, your Honor.

5 BY MR. QURESHI:

6 **Q.** Dr. Allan, do you recall testimony earlier this

7 week about your harm metrics?

8 **A. I do.**

9 **Q.** Why do you use metrics to evaluate harm?

10 **A. I use metrics to evaluate harm because they**

11 **provide an opportunity to -- to look at precise**

12 **scenarios. And that's what we do with my**

13 **metrics, what I do with the help of**

14 **Dr. Hornberger. So once those metrics have been**

15 **established based on good biological evidence,**

16 **one can ask some very straightforward questions.**

17 **Is harm greater today than it was for some chosen**

18 **16-year period than it was for some past 16-year**

19 **period? And the answer is, yes, harm is greater**

20 **today.**

21 **Than you can say for the current or most**

22 **recent 16-year period with the channel as it**

23 **exists today, is harm greater when Georgia's**

24 **consumption is included; and is harm reduced when**

25 **Georgia's consumption is excluded in a hydrologic**

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1 **scenario. And the metric including Georgia's**

2 **consumption results in a reduction in harm.**

3 **And then one can examine future scenarios.**

4 **And those future scenarios could include a**

5 **projected business-as-usual kind of growth of**

6 **Georgia's consumption and then a remedy or**

7 **reduction in Georgia's consumption. And then**

8 **with the metrics, one can, again, do a precise**

9 **comparison. Is the extent of harm less under a**

10 **remedy scenario than under a projected increase**

11 **scenario? The answer is yes.**

12 **Q.** Thank you, Dr. Allan. If you recall, you were

13 referred to page 63 of your expert report -- that

14 is Florida Exhibit 790 -- during your

15 cross-examination. I would like to focus on the

16 chart that you reviewed with Georgia's counsel.

17 And the focus on the No. 7 in red occurred during

18 your cross-examination. What was not focused on

19 is the 1 next to it. What does that 1 mean?

20 **A. That 1 means that under the remedy comparison,**

21 **there will be 1 fewer year -- years of harm than**

22 **would occur in the absence of the remedy.**

23 **Q.** Also a discussion of the 39 in the upper

24 right-hand corner of the chart?

25 **A. Okay.**

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1 **Q.** What does that number represent, sir?

2 **A. So there would be 39 fewer days of harm, but no**

3 **fewer harmful years in that comparison.**

4 **Q.** Do you recall counsel requesting that you divide

5 39 days over a 16-year period to get an average

6 of two days less of harm per year?

7 **A. I recall.**

8 **Q.** Okay. The number is actually 2.4, but that's

9 fine. We didn't have the calculator then, but

10 take my word for it; it's 2.4. I'll ask you to

11 keep that number in your head.

12 And, again, that represents the reduction in

13 the number of days fish in the floodplain forest

14 would experience harm?

15 **A. Correct.**

16 **Q.** Okay. Turn to tab 9 of your cross-examination

17 binder, sir. That's Joint Exhibit 168, please.

18 **A. Excuse me. I'm not keeping up.**

19 **Tab 9.**

20 **Q.** In particular, it's page 191 under a section

21 entitled Amount or Extent of Take Anticipated for

22 Gulf Sturgeon.

23 **A. I see that.**

24 **Q.** Okay. Before I ask you to read that paragraph,

25 what does take mean?

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1 **A. Again, please?**

2 **Q.** What does take mean?

3 **A. Oh, take means the individuals that are harmed**

4 **by -- that presumably are killed by some action.**

5 **Q.** Okay. Why don't you take a moment to read, sir,

6 the paragraph at the bottom of the page 191, and

7 focus in particular on the 2.4 days in that

8 paragraph.

9 **A. I see that now.**

10 **Q.** Okay. If you would please turn the page with me

11 and read the following paragraph and focus on the

12 very last sentence of that paragraph that states,

13 quote, exceeding the surrogate measures of the

14 levels of incidental take for the Gulf sturgeon

15 shall prompt a reinitiation of this consultation.

16 **A. I see that.**

17 **Q.** Okay. What does that mean?

18 **A. So what I see here is that the -- in the 2016**

19 **biological opinion, they are using what they call**

20 **hydroecological metrics that are very much the**

21 **same kind of metric they developed individually,**

22 **but conceptually it's the exact same idea of**

23 **developing a hydroecological metric. And they**

24 **are specifying the length of time at which that**

25 **metric can be violated to be within the**

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1 acceptable take. And they are -- they are saying
 2 that if the take is greater than that amount,
 3 then the -- it's necessary to reinitiate the
 4 consultation on the Gulf sturgeon.
 5 And what's, I think, very interesting to note
 6 is, again, some of the similarity in numbers that
 7 we see here. And so on average, 2.4 days. That
 8 same 2.4, which is derived from 12.1 days over
 9 five years. And so we see a small number of days
 10 being seen for the Gulf sturgeon. Using a
 11 surrogate measure much like my surrogate measures
 12 is -- if violated, is sufficient to prompt a
 13 reinitiation of the consultation on the Gulf
 14 sturgeon.
 15 Q. Okay, sir. And so what is it, in your
 16 understanding, that the United States Fish and
 17 Wildlife Service will do if that two days per
 18 year threshold is exceeded?
 19 A. That they will -- my understanding is that that
 20 basically requires a reinitiation of the
 21 consultation on the -- on the operating
 22 procedures for the reservoirs.
 23 Q. Let's go back to your expert report, in
 24 particular the same page we were just looking at,
 25 page 63 --

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1 A. Yes?
 2 Q. -- of FX-790. Do you have it, sir?
 3 A. I see it.
 4 Q. All right. The upper right-hand corner, the 39,
 5 Dr. Allan, what is the significance of that
 6 39-day reduction in harm?
 7 A. That 39-day reduction in harm is likely to mean
 8 that there is increased reproduction by
 9 floodplain fishes. And they have a stronger year
 10 class, and the population as a whole benefits.
 11 Q. Sir, you also had extensive discussions during
 12 cross-examination about Swift Slough. Do you
 13 remember that?
 14 A. I remember that.
 15 Q. Okay. Can you please look at the paragraph 45 of
 16 your direct testimony that's on page 34.
 17 A. Yes?
 18 Q. In particular, sir, in the second sentence you
 19 deem Swift Slough a representative small slough.
 20 What do you mean by that?
 21 A. Excuse me. I turned to the wrong page.
 22 Q. Page 34.
 23 A. So I say that Swift Slough is representative
 24 because there are literally hundreds of sloughs
 25 that have a disconnect flow level; that is, a

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1 level of flow at which water no longer enters the
 2 slough. And those disconnect levels vary over
 3 quite a wide range. But there's a number of
 4 sloughs where the disconnect level is in the
 5 roughly 5,000 to 6,000 cfs, cubic feet per
 6 second, range. And so Swift Slough is thus, in
 7 my intention of this report, a representative
 8 slough of those sloughs that are disconnected at
 9 relatively low flows, around 5700.
 10 Mary Slough is representative of sloughs that
 11 are disconnected at a somewhat larger level,
 12 around 7500.
 13 Q. Are you aware of the disconnection rates for all
 14 the sloughs that are in the Florida portion of
 15 ACF?
 16 A. I certainly don't have them in my memory. I have
 17 seen -- I have read reports that describe values
 18 for the disconnect level of different sloughs.
 19 Q. Sir, I would like to hand you a document that
 20 might refresh your recollection on the
 21 disconnection rates.
 22 MR. QURESHI: Your Honor, may I approach
 23 Dr. Allan?
 24 SPECIAL MASTER LANCASTER: Please.
 25 Thank you.

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1 BY MR. QURESHI:
 2 Q. Sir, what is this document?
 3 A. This document is entitled Aquatic Habitats in
 4 Relation to River Flow in the Apalachicola River
 5 Floodplain of Florida.
 6 Q. Have you seen this document before?
 7 A. I have.
 8 Q. Okay. Sir, who publishes this document?
 9 A. This is a publication of the U.S. Geological
 10 Survey.
 11 Q. Sir, I would ask you to refer to page 68 where
 12 the appendices begin and determine whether
 13 appendix 2 that starts on page 66 refreshes your
 14 recollection as to the range of disconnecting
 15 flows for various sloughs.
 16 A. It does. On pages 67 and 68 I see a substantial
 17 number of sloughs that are disconnected at around
 18 the 6,000 cfs, cubic feet per second, range.
 19 Q. Okay. I would like to run through a couple of
 20 these with you, sir. On page 68, what is the
 21 range of connecting flow for Shepard Slough?
 22 A. For Shepard Slough?
 23 Q. Yes, sir.
 24 A. It appears to be listed at 7,000 cfs for
 25 disconnection.

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1 Q. Maddox Slough?

2 A. **Maddox is also in the 7,000 range.**

3 Q. Magnolia Slough, on the next page?

4 A. **Also in the 7,000 cfs -- no. This is in the**

5 **8,000 cfs range.**

6 Q. I'm sorry, 8,000, you said?

7 A. **Yes. Magnolia Slough looks like it disconnects**

8 **at 8,000.**

9 Q. Okay. Let's fast forward to page 76.

10 A. **76?**

11 Q. What's the disconnecting range for Dog Slough?

12 A. **19,000 cfs.**

13 Q. And the same question with respect to Everett

14 Slough?

15 A. **Also at 19,000 cfs.**

16 Q. Now, let's go back to your testimony on page 35,

17 same paragraph, paragraph 45. And I would like

18 you to explain to the Court why you state that

19 the 5700 cfs metric you determined caused harm to

20 mussels is conservative?

21 We can highlight that sentence for you on the

22 screen.

23 A. **Well, I would say it's conservative because there**

24 **are clearly a number of sloughs that become**

25 **disconnected at values well above 5700 cfs. And**

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1 **natural estuarine reserve.**

2 **And by the way, I have visited that facility**

3 **for visitors; and it's wonderful. It's a**

4 **beautifully done facility in its recognition of**

5 **outstanding Florida water.**

6 **I support the statements that are here about**

7 **the extensive and very special nature of the**

8 **biological diversity of this system, and it's**

9 **fully consistent with my understanding of one of**

10 **the most intact river systems, not just in**

11 **Florida, but in the southeast United States.**

12 Q. Dr. Allan, I have the same question with respect

13 to the statement on page 2 under the section

14 entitled Respect the River's Ability to Heal

15 Itself.

16 A. **So I read this paragraph; and I am familiar with**

17 **this concept because I'm -- although I'm not an**

18 **expert on geomorphology, I have read a**

19 **substantial amount of the literature, including**

20 **Dr. Kondolf's writing. And this is really, one**

21 **could almost say the first principle of river**

22 **restoration is that the systems can heal**

23 **themselves. It takes time. But there is natural**

24 **fluctuations in river level and sediment**

25 **transport; and over time, as the human influence**

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1 **so for a number of these sloughs that you just**

2 **asked me about, they would be harmed at levels of**

3 **flow that are 9,000, 8,000, 7,000 cfs, literally**

4 **hundreds of sloughs. And, again, I simply**

5 **bracket the extent of harm with a choice of two**

6 **sloughs that are well known and have adequate**

7 **information.**

8 Q. Dr. Allan, can you please turn to tab 5 of the

9 cross-examination binder. And there you will

10 find a document marked Georgia Exhibit 248, which

11 you also reviewed during your cross-examination.

12 A. **This is the Kondolf document?**

13 Q. Yes, sir.

14 Turn to page 1 and review the first

15 paragraph. Then I would like you to describe

16 your understanding of that paragraph and tell the

17 Court whether you agree with the assessment in

18 paragraph 1.

19 A. **So I see that paragraph. And it is a beautiful**

20 **paragraph. It is almost poetic language that**

21 **describes just how exceptionally important the**

22 **Apalachicola River system is, where the system is**

23 **the river, the sloughs, the floodplain, and the**

24 **bay. It describes the recognition that the**

25 **system has received as a biosphere reserve, a**

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1 **of dredging fades further back into history, the**

2 **river will begin to stabilize, begin to recover.**

3 **And I have read Dr. Kondolf's expert report**

4 **in this case, and he describes that extremely**

5 **well.**

6 Q. Okay. Sir, we'll look at one more excerpt, and

7 then we'll move on to another topic. If you go

8 to page 2 -- I'm sorry, page 22, the same

9 document, there is a section entitled Factors

10 Causing Desiccation of the Apalachicola

11 Floodplain and Sloughs. And I would like you to

12 review the paragraph that begins flows from the

13 watershed. It continues on to page 23.

14 A. **I have seen the paragraph.**

15 Q. Okay. Sir, what is your understanding of what's

16 written here; and what's your reaction to it?

17 A. **So, again, I think a thoughtful and -- and**

18 **important paragraph in which Dr. Kondolf**

19 **recognizes that from the hydrologic record, that**

20 **flows have declined. He identifies the time**

21 **period of lower flows being April through August,**

22 **and he points to some of the probable causes**

23 **occurring upstream in the system. And finally,**

24 **he concludes that this problem could be equal or**

25 **an even greater threat to the long-term health of**

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1 **the floodplain. I assume that he's referring**
 2 **comparatively to the channel changes could be**
 3 **equal or greater threat. The issue of low flows**
 4 **from upstream is beyond the scope of this report.**
 5 **So it clearly points to the need for that**
 6 **analysis to be done, and it clearly was not part**
 7 **of this report at the time it was completed.**
 8 **Q.** Okay. Dr. Allan, now, let's turn to see what the
 9 United States Fish and Wildlife Service says
 10 about low flows in the Apalachicola River. I
 11 would like you to turn to tab 3 of the
 12 cross-examination binder and, in particular, page
 13 56.
 14 **A. Tab 3, page 56.**
 15 **Q.** Okay. In the section under low flow, it states,
 16 quote, extreme low flows are likely among the
 17 most stressful natural events faced by riverine
 18 biota. It goes on to say, during low flow,
 19 available habitat constricts and portions of the
 20 channel become dry. The paragraph ends with,
 21 because of the physical and biological harshness
 22 of extreme low flow conditions decreasing the
 23 magnitude, increasing the duration or increasing
 24 the interannual frequency of low flow events is
 25 likely to have detrimental effects on native
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1 riverine biota, including the listed species.
 2 Do you agree with that, Dr. Allan?
 3 **A. I agree with that paragraph. It's really an**
 4 **excellent statement. All by itself it tells the**
 5 **story that as there's less water in the system,**
 6 **the system is harmed. And it's not just the**
 7 **listed species, but the native biota that are**
 8 **harmed as well.**
 9 **Q.** All right. Let's turn --
 10 **A. That is stated very strongly.**
 11 **Q.** Let's turn to page 44 of the BiOp by the United
 12 States Fish and Wildlife Service, in particular,
 13 the section entitled Conservation
 14 Recommendations. I want you to read the first
 15 recommendation and then tell us whether that's
 16 consistent with your expertise as a river
 17 ecologist for 45 years.
 18 **A. Just the first one on --**
 19 **Q.** Yes, sir.
 20 **A. Just the first one.**
 21 **Again, it's such a clear, commonsense**
 22 **statement that finding alternatives to reduce**
 23 **overall depletions in the basin, particularly the**
 24 **Flint River, which is so important to summer**
 25 **baseline flow in the Apalachicola River, is**
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1 **desperately needed. And here, they're calling**
 2 **for some sort of planning process to identify**
 3 **those opportunities.**
 4 **Q.** And for the record, that paragraph states, quote,
 5 identify watershed planning opportunities that
 6 would assist in identifying alternatives to
 7 reduce overall depletions in the ACF Basin,
 8 particularly the Flint River, thereby increasing
 9 baseline flow to the Apalachicola River.
 10 Is that correct?
 11 **A. That's correct.**
 12 **Q.** All right. Let's now turn to the 2016 BiOp. And
 13 that's behind tab 9 of your cross-examination
 14 binder.
 15 In particular, sir, I would like you to go to
 16 page 50, the section on low flows.
 17 **A. I see it.**
 18 **Q.** Is that -- does that section look familiar to
 19 what we just read?
 20 **A. It's very, very familiar. And, again, it's an**
 21 **excellent statement of the effects of low flow,**
 22 **losing habitat, drying out of channel, animals**
 23 **are unable to escape, animals perish, exposed to**
 24 **predators, they're exposed to warm water and low**
 25 **oxygen. And mitigating those circumstances is**
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1 **just a crucial need.**
 2 **Q.** Okay. In your field of study, river ecology,
 3 sir, is there any debate about this principle?
 4 **A. There is no debate about this whatsoever.**
 5 **Q.** All right. Let's move on to page 202 that I
 6 believe contains conservation recommendations.
 7 Actually, it starts on page 201 and continues
 8 onto page 203.
 9 Sir, can you please read 8 and 9 into the
 10 record.
 11 **A. Certainly. So the section 14, Conservation**
 12 **Recommendations of the Biological Opinion,**
 13 **September 14, 2016. Item 8 says, identify and**
 14 **implement water conservation measures in the**
 15 **basin to avoid impacts to fish and wildlife**
 16 **resources by working with municipal,**
 17 **agricultural, and industrial water users to**
 18 **reduce consumptive use -- uses to develop**
 19 **additional drought response strategies.**
 20 **Item 9, assist stakeholders to plan future**
 21 **water management to minimize water consumption,**
 22 **thus minimizing detrimental effects to species.**
 23 **Q.** Are those conservation recommendations consistent
 24 with your study and experience?
 25 **A. They are absolutely consistent with my study.**
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1 **What is needed is water conservation measures**
 2 **that will avoid or minimize impacts on the**
 3 **ecosystem as a whole.**
 4 **Q.** Sir, let's look at your prefiled direct
 5 testimony, in particular, paragraph 73, page 58.
 6 I want to focus on the last sentence. It states,
 7 using a less conservative remedy scenario that
 8 results in greater flows would provide an even
 9 greater positive impact on the riverine
 10 ecosystem.
 11 Dr. Allan, what is your basis for that
 12 statement?
 13 **A.** **So I make that statement because I'm aware that**
 14 **the remedy scenario that was initially provided**
 15 **to me by Dr. Hornberger was, as I say in my**
 16 **report -- my prefiled, from a few hundred to as**
 17 **much as a thousand cubic feet per second. And**
 18 **that provides particularly strong remedy benefits**
 19 **for -- for those biological harms that I identify**
 20 **at flows in the vicinity of 6,000 or 8,000 cfs.**
 21 **As actually Georgia counsel pointed out, although**
 22 **it wasn't identified as such, for those metrics**
 23 **where the harm threshold is 12,000, 14,000,**
 24 **16,000 cfs, the harm -- the remedy is less**
 25 **impactful.**

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1 **So, clearly, the benefit of the remedy**
 2 **depends both on the size of the remedy, the**
 3 **amount of water that is found available, and on**
 4 **the threshold where we identify where the system**
 5 **is harmed.**
 6 **Because so much of the system is harmed in**
 7 **the six to 10,000 cfs range, the original remedy**
 8 **that Dr. Hornberger developed did provide**
 9 **substantial relief. It is my understanding**
 10 **through informal conversations that an even**
 11 **greater remedy might be potentially available.**
 12 **And, if so, almost certainly I would want to run**
 13 **the numbers to be confident, but it almost**
 14 **certainly would result in greater benefits. A**
 15 **greater remedy should result in greater benefits.**
 16 **Q.** Let's focus on the last half of that sentence,
 17 greater flows would provide an even greater
 18 impact on the riverine ecosystem.
 19 Is there any doubt or uncertainty in your
 20 mind, sir, about that statement?
 21 **A.** **No doubt whatsoever that more water will benefit**
 22 **the system. And I would point not only to the**
 23 **metrics to substantiate that, but to the -- the**
 24 **various cutoff flows, disconnect flows for**
 25 **sloughs -- for the many, many sloughs, and to the**

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1 **detailed microhabitat and the way in which a**
 2 **small amount of water determines whether two**
 3 **pools are connected by flowing water or become**
 4 **isolated from one another.**
 5 **Q.** Thank you, Dr. Allan.
 6 Let's move on to the final topic, and that is
 7 mussels. I would like to put up a picture that
 8 was shown to you earlier in the week. That's a
 9 2006 photograph from page 29 of Mr. Hoehn's
 10 direct testimony. And counsel for Georgia asked
 11 you whether Georgia killed the mussels. I'm
 12 going to ask you a slightly different question,
 13 and that is what is the biological or ecological
 14 phenomenon that resulted in these mussels dying?
 15 **A.** **Low flows killed those mussels.**
 16 **Q.** Okay. In the course of questioning from
 17 Georgia's counsel, you were asked about the
 18 estimates of fat threeridge that currently live
 19 in the Apalachicola River. And you expressed
 20 some doubt about those estimates in the 2016
 21 BiOp. What informs your uncertainty about the
 22 number of fat threeridge mussels in the
 23 Apalachicola?
 24 **A.** **So there's several reasons to be very concerned**
 25 **about the estimates that appear in the 2016 BiOp.**

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1 **The first is that we generally -- we being the**
 2 **field of aquatic ecology -- consider the main**
 3 **channel of a fine sediment river to be**
 4 **inhospitable to organisms that live on the bottom**
 5 **of the river. The sand is mobile. The fine**
 6 **substrate is mobile. Floods comes through.**
 7 **Things move around. So there are patches within**
 8 **the main channel often associated with, for**
 9 **example, a buried bit of -- piece of log or a**
 10 **buried piece of stump that can create a sheltered**
 11 **area. So there's certainly locations within the**
 12 **main channel where some mussels would be expected**
 13 **to live. But it's well established for a wide**
 14 **range of invertebrates that they are primarily**
 15 **affiliated with the slower water, edges, pools,**
 16 **backwaters, locations of less scouring.**
 17 **So it's surprising. It's surprising, I**
 18 **think, to everybody to have this claim which has**
 19 **been made and deserves to be investigated.**
 20 **In addition to it being unexpected that there**
 21 **should be abundant mussels in what's generally**
 22 **considered to be inhospitable habitat, the**
 23 **methodology that was used, this side-scan sonar,**
 24 **was developed to -- basically to look at big**
 25 **things, not little things on the riverbed. And I**

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1 think it was a perfectly reasonable effort to try
 2 to push the resolution of that method and see if
 3 it could be used to census mussels on the bottom
 4 of a river, which is what the Smit and Kaeser
 5 studies did. And it was obviously appropriate to
 6 go out and take actual field samples and see how
 7 many mussels were there.

8 And so I appreciate that they are trying to
 9 explore how reliable that method is by doing
 10 field sampling.

11 They then go on to extrapolate how many
 12 mussels are present from the number they
 13 collected. From memory, I think they collected
 14 about 3,000 mussels and estimated 10 to 20 times
 15 as many. It's not an unusual thing to do
 16 statistically, but it's a big extrapolation from
 17 a few thousand that have been collected to many
 18 millions that are present.

19 And it is also my understanding that
 20 subsequent resampling has not strongly
 21 corroborated the initial estimates of how many
 22 mussels are there.

23 So there's just a number of questions that I
 24 think need to be asked before those numbers can
 25 truly be relied on.

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1 And I actually compliment the 2016 biological
 2 opinion. They present those numbers, which they
 3 should. They're new information. But they
 4 present them with, I think, very suitable caution
 5 and call for further study to determine if
 6 they're correct.

7 So at this point they're -- they're
 8 surprising. They're not what would be expected
 9 based on most studies of mussels and what most
 10 mussel experts would tell you they expect. They
 11 use a methodology that's relatively untested for
 12 this purpose, and they do a considerable
 13 statistical extrapolation. So I think the
 14 biological opinion is correct to express its
 15 caution and the need for those numbers to be
 16 corroborated before they're relied upon.

17 Q. Dr. Allan, you're a professor emeritus at the
 18 University of Michigan. You have a Ph.D. in
 19 biology, 45 years as a river ecologist. What is
 20 your assessment of the future of the Apalachicola
 21 River without a remedy?

22 A. I'm very concerned about -- about this river and
 23 many rivers. As your question asked, I have
 24 basically devoted my life to the study of rivers.
 25 I have devoted a great deal of my pro bono

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1 activity to working with government agencies and
 2 local watershed councils, American River, the
 3 Nature Conservancy, all around the issue of
 4 trying to quantify, find ways to understand the
 5 flow regime, importance of the flow regime,
 6 develop metrics, try to quantify harm, try to
 7 seek remedies. And I think that worldwide we see
 8 the most treasured river systems and other kinds
 9 of ecosystems under assault from human
 10 development. It's -- it's a dilemma that
 11 requires a lot of thought and effort to come up
 12 with the best solution.

13 I'm not one who believes that we need to turn
 14 these systems back to the 18th century and remove
 15 all human influence, but I am one who believes
 16 that they are treasures to be preserved. And the
 17 Apalachicola River should be there for future
 18 generations to enjoy in as close to its historic
 19 form as we can reasonably protect it to be.

20 So I'm deeply concerned that this river is on
 21 a damaging trajectory, a harmful trajectory, that
 22 a tipping point may be not too far away and that
 23 a remedy solution as is asked for in this case
 24 would be a wonderful, positive step towards
 25 protecting this valuable ecosystem, this flora

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1 and fauna, for future generations.

2 Q. Thank you, Dr. Allan.

3 MR. QURESHI: Thank you, your Honor.

4 SPECIAL MASTER LANCASTER: Mr. Primis?

5 MR. PRIMIS: May I ask some follow-up
 6 questions, your Honor?

7 SPECIAL MASTER LANCASTER: Please.

8 MR. PRIMIS: Thank you.

9 RE-CROSS-EXAMINATION

10 BY MR. PRIMIS:

11 Q. Dr. Allan, Mr. Qureshi referred you to the
 12 Kondolf paper, tab 3. And I just have a few
 13 follow-up questions on that.
 14 I refer you to page 22.

15 A. I see page 22.

16 Q. Okay. Now, Mr. Qureshi asked you questions on
 17 page 22 about low flow. Correct?

18 A. Yes, he did.

19 Q. And I want to ask you about some of the other
 20 things that are mentioned there that you didn't
 21 cover with Mr. Qureshi. Okay?

22 A. Okay.

23 Q. So in the last part of the first paragraph in
 24 section D, it says that water inflow to some
 25 slough channels has been prevented by sand plugs

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1 at the inlets. Do you see that?

2 **A. Sorry. Please direct me to where we are?**

3 **Q.** First paragraph, section D, last sentence.

4 **A. Yes. I see it.**

5 **Q.** And he notes that some sloughs have partially

6 filled with sand, raising their level and

7 decreasing the frequency and duration of their

8 inundation. Do you see that?

9 **A. I see that.**

10 **Q.** And you don't dispute Dr. Kondolf's finding

11 there. Right?

12 **A. I do not.**

13 **Q.** In the next paragraph it says, lowered water

14 levels have been caused by two factors,

15 geomorphic channel changes resulting from

16 dredging and channel modifications for navigation

17 by the Corps.

18 Do you see that?

19 **A. I do.**

20 **Q.** And you, again, don't have any reason to dispute

21 that. Right?

22 **A. I like the entire sentence, which I don't**

23 **dispute.**

24 **Q.** I was going to come to the rest of it.

25 He does go on to say that there are decreased

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1 flows from the watershed. Right?

2 **A. Yes.**

3 **Q.** Okay. And then in the next paragraph, another

4 sentence we didn't cover, at the end it says --

5 and I'll read the whole sentence; and I'll take

6 it in two parts. At the bottom of that paragraph

7 it says, this decrease can probably be attributed

8 to less precipitation in recent decades, as well

9 as diversions from the Chattahoochee and Flint

10 Rivers, and evaporation from numerous reservoirs

11 in those basins.

12 Do you see that?

13 **A. I see that.**

14 **Q.** And you didn't address less precipitation in

15 recent decades as a potential cause of the lower

16 flows on your redirect. True?

17 **A. During the redirect?**

18 **Q.** A moment ago.

19 **A. No. There was -- no. I was not asked a question**

20 **during redirect on that.**

21 **Q.** You discussed low flows. You didn't mention less

22 precipitation in recent decades?

23 **A. Correct.**

24 **Q.** All right. And you were asked about the

25 diversions from the Chattahoochee and Flint, and

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1 I'll come to that in a moment.

2 But you weren't also asked about evaporation

3 from the numerous reservoirs. Correct?

4 **A. Correct.**

5 **Q.** And you know that the Army Corps operates those

6 reservoirs that have evaporation. Right?

7 **A. Basically correct. I'm not sure that**

8 **Dr. Kondolf's writing here specifically**

9 **identifies -- when it says numerous reservoirs,**

10 **that we can assume he means the Army Corps**

11 **reservoirs because there's all those farm ponds,**

12 **too.**

13 **Q.** You understand the five largest reservoirs in the

14 basin are owned and operated by the Army Corps.

15 Correct?

16 **A. I do. I'm only questioning whether we can**

17 **conclude that Dr. Kondolf is talking about that**

18 **in the sentence.**

19 **Q.** You also reference the Helen Light report, which

20 we have now discussed quite a bit. Correct?

21 **A. Correct.**

22 **Q.** And in your direct testimony --

23 MR. PRIMIS: And I'm going to ask

24 Mr. Smith to put up figure 3 on page 5 of

25 your direct testimony for a moment.

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1 It's figure 5 -- figure 3.

2 Just a moment, your Honor. I want to

3 get the right chart.

4 BY MR. PRIMIS:

5 **Q.** Now, do you see figure 3 on page -- it's actually

6 page 22 -- I apologize for that -- of your

7 written direct. That's a figure you used to

8 demonstrate the floodplain and the sloughs at

9 different levels of flow. Correct?

10 **A. Correct.**

11 **Q.** And you borrowed this from Ms. Light's report in

12 2006, right, this graphic?

13 **A. Correct.**

14 **Q.** And you cite to it underneath. You say, this is

15 a modified version of Helen Light's report.

16 Right?

17 **A. Right.**

18 **Q.** Now, when Mr. Qureshi was asking you questions,

19 he noted that Ms. Light had mentioned low flows

20 in her report as affecting the river and

21 floodplain. Right?

22 **A. Right.**

23 **Q.** Now, he didn't point you though to the chart that

24 you drew this from Ms. Light's report. You know

25 what that looks like. Correct?

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1 **A. I do.**
 2 **Q.** Okay. Can we go to tab 10, page 5. And it's
 3 GX-88.
 4 **A. Excuse me. Where are we, please?**
 5 **Q.** It's tab 10 in your book, and it's page 5 of
 6 Ms. Light's report.
 7 **A. I see it.**
 8 **Q.** Are you there?
 9 MR. PRIMIS: Is the Court there on the
 10 graphic, page 5?
 11 BY MR. PRIMIS:
 12 **Q.** Okay. Now, Dr. Allan, this is the -- this is the
 13 graphic that you borrowed from Ms. Light's paper
 14 and put in your direct testimony. Right?
 15 **A. That's correct.**
 16 MR. PRIMIS: Now, if we can shrink the
 17 picture a bit, Mr. Smith.
 18 BY MR. PRIMIS:
 19 **Q.** You left out a good bit of what -- of the other
 20 information that Ms. Light has on this table from
 21 your direct testimony; didn't you?
 22 **A. That's correct.**
 23 **Q.** You didn't put in the three arrows pointing down
 24 to the term that says Long-Term Water-Level
 25 Decline. Right?

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1 **A. Correct.**
 2 **Q.** And when Mr. Qureshi was questioning you, he only
 3 focused on the blue area, the reduction in amount
 4 of flow. Right?
 5 **A. Correct.**
 6 **Q.** Now, Ms. Light also notes that an increase in
 7 channel size can result in lower water surface
 8 elevation for the same discharge. Do you see
 9 that?
 10 **A. Yes.**
 11 **Q.** And that means that the deeper the channel, the
 12 more water you need to get the same amount of
 13 inundation. Correct?
 14 **A. Correct.**
 15 **Q.** And she also noted that increased bank erosion
 16 causes channel widening. Correct?
 17 **A. Yes.**
 18 **Q.** And she noted that large dams decrease sediment
 19 supply to the river. Right?
 20 **A. Yes.**
 21 **Q.** And that that lowers the riverbed elevation.
 22 Correct?
 23 **A. Correct.**
 24 **Q.** And that's all pointing down in an arrow to a
 25 box called Long-Term Water-Level Decline.

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1 Right?
 2 **A. Yes.**
 3 **Q.** And that's not in your testimony?
 4 This arrow was removed from the chart you put
 5 in your testimony. Correct?
 6 **A. So the purpose of the chart in my testimony was**
 7 **to communicate -- telling a story. And it's**
 8 **only one part of the story that I was attempting**
 9 **to tell at this portion of the presentation,**
 10 **and that is that water reaches the floodplain**
 11 **forest not by overtopping the bank, but via the**
 12 **sloughs.**
 13 **What Ms. Light has tried to do in her more**
 14 **complex diagram is tell the whole story, which is**
 15 **actually very consistent with the story in this**
 16 **paper, which is the study of Ms. Light, which is**
 17 **there is roughly equal contributions from the**
 18 **change in channel size and the change in flow to**
 19 **the water level decline.**
 20 **And so this is -- this is a more explanatory**
 21 **chart of that story that Ms. Light is telling in**
 22 **her paper. In my report I simply wanted to**
 23 **inform the readers of the report of the**
 24 **importance of sloughs as a pathway for water**
 25 **reaching the floodplain forest. That's why the**

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1 **rest of -- the chart was simplified. It's**
 2 **routine to simplify charts when you take them**
 3 **from one place to another.**
 4 **Q.** Are you finished, Dr. Allan?
 5 **A. Yes.**
 6 **Q.** Okay. My question was you didn't carry over the
 7 arrow that has these potential causes of water
 8 level decline to the chart in your testimony.
 9 Correct?
 10 **A. That's correct.**
 11 **Q.** In the next arrow pointing down to long-term
 12 water level decline it says, increase in velocity
 13 can result in lower water surface elevation for
 14 the same discharge.
 15 Do you see that?
 16 **A. I see that.**
 17 **Q.** And you have no reason to dispute that that
 18 occurs in rivers when they're straightened and
 19 the water can move through more quickly.
 20 Correct?
 21 **A. Correct.**
 22 **Q.** Now, let's come to reduction in amount of flow,
 23 which is the one thing that you did discuss on
 24 the redirect. Now, there are three boxes under
 25 Ms. Light's chart for reduction in amount of

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1 flow. Right?

2 **A. That's right.**

3 **Q.** The first one is, I think, the one that

4 Mr. Qureshi wanted to leave the impression was

5 the cause, which is agricultural, municipal and

6 industrial water consumption, or interbasin

7 transfers. Right?

8 **A. Right.**

9 **Q.** But there are two other boxes, right, Dr. Allan?

10 **A. There are.**

11 **Q.** The next one says, increased storage and

12 evaporative losses from reservoirs or other land

13 use changes. Correct?

14 **A. Correct.**

15 **Q.** And the next one says, decrease in average

16 precipitation or increase or average temperature.

17 Correct?

18 **A. Uh-huh.**

19 **Q.** Is that yes?

20 **A. Yes.**

21 **Q.** Thank you.

22 MR. PRIMIS: Your Honor, I have no

23 further questions.

24 MR. QURESHI: Your Honor, with your

25 permission, I just have one question.

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1 SPECIAL MASTER LANCASTER: Sure.

2 REDIRECT EXAMINATION

3 BY MR. QURESHI:

4 **Q.** Dr. Allan, for my question I would like to refer

5 you to tab 9. This is the 2016 BiOp and, in

6 particular, page 50. The section I would like to

7 discuss is the section on low flows.

8 **A. Yes?**

9 **Q.** I have put it up on the screen. We have talked

10 about Dr. Kondolf's document. We have talked

11 about Dr. -- or Ms. Light's paper. Can you

12 review this paragraph and tell us whether there's

13 anything that Dr. Kondolf has written or what

14 Ms. Light has written that undermines your belief

15 in what the United States Fish and Wildlife

16 Service had to say about low flows in its 2016

17 BiOp?

18 **A. Can I take a moment to read it?**

19 **Q.** Please. If you like, you can read it into the

20 record.

21 **A. Extreme low flows are likely among the most**

22 **stressful natural events faced by riverine biota.**

23 **Cites to Cushman and Kingsolving and Bain. Low**

24 **flow constricts available habitat and portions of**

25 **the channel become dry. Aquatic animals that are**

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1 **unable to move to remain cool or burrow into the**

2 **moisture of the stream bed itself perish.**

3 **Others become concentrated in pools, where**

4 **small-bodied species are more vulnerable to**

5 **aquatic predators; and large-bodied species are**

6 **more vulnerable to terrestrial predators,**

7 **particularly birds and raccoons. During warm**

8 **months extreme low water levels are accompanied**

9 **by higher than normal water temperatures and low**

10 **dissolved oxygen levels, further stressing river**

11 **biota. Given the physical and biological**

12 **harshness of extreme low flow conditions,**

13 **decreasing the magnitude, increasing the**

14 **duration, or increasing the interannual frequency**

15 **of low flow events is likely to cause detrimental**

16 **effects on native riverine biota, including --**

17 **including the listed species.**

18 **And, no, there is nothing in the writings of**

19 **Dr. Kondolf or Ms. Light that would cause me to**

20 **doubt any of this language that's in the 2016**

21 **biological opinion.**

22 **Q.** Thank you, Dr. Allan.

23 MR. QURESHI: Thank you.

24 MR. PRIMIS: No further questions.

25 SPECIAL MASTER LANCASTER: Dr. Allan,

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1 you used the word recruitment. For those of

2 us who are not experts, would you explain

3 that word for me.

4 THE WITNESS: Yes. Recruitment is a

5 term in the ecology of populations that

6 refers to the new individuals, the babies,

7 that are born each year. So as the young

8 fish are born each year, the fish that will

9 be -- become one year old after a year's

10 time, they are the new recruits.

11 When the forest deposits seeds and the

12 seedlings pop up out of the ground, those are

13 new recruits.

14 So recruitment to a population is the --

15 is the term that describes the population's

16 addition of new individuals as a result of

17 the most recent cycle of reproduction.

18 SPECIAL MASTER LANCASTER: Thank you.

19 Are you familiar with the ACF

20 Stakeholders Sustainable Water Management

21 Plan?

22 THE WITNESS: Not in any detail. I have

23 looked at some of the stakeholders documents,

24 but, no, not in any detail, unfortunately.

25 SPECIAL MASTER LANCASTER: Thank you.

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1 Mr. Qureshi?

2 MR. QURESHI: Nothing further.

3 SPECIAL MASTER LANCASTER: Mr. Primis?

4 MR. PRIMIS: No further questions.

5 SPECIAL MASTER LANCASTER: Thank you.

6 THE WITNESS: Thank you, your Honor.

7 MR. PERRY: Your Honor?

8 SPECIAL MASTER LANCASTER: Yes,

9 Mr. Perry?

10 MR. PERRY: We're prepared to call

11 Mr. Reheis as a hostile witness at this time,

12 but I notice that it's also about 11:25.

13 We're prepared to start now or reconvene

14 after lunch. Either way.

15 SPECIAL MASTER LANCASTER: Let me ask

16 Claudette.

17 (Discussion off the record.)

18 SPECIAL MASTER LANCASTER: We'll start.

19 MR. PERRY: Yes, your Honor.

20 Georgia has filed a prefiled direct

21 examination for Mr. Reheis. So I suggest to

22 the Court that Georgia take the podium and

23 that the witness be sworn and that the

24 prefiled examination be introduced.

25 SPECIAL MASTER LANCASTER: Thank you.

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1 THE CLERK: Please raise your right

2 hand.

3 Do you solemnly swear that the testimony

4 you shall give in the cause now in hearing

5 shall be the truth, the whole truth, and

6 nothing but the truth, so help you God?

7 THE WITNESS: I do.

8 THE CLERK: Thank you. If you could be

9 seated.

10 State your full name and then spell your

11 name for the record.

12 MR. PRIMIS: Your Honor, may I clear

13 away the materials from the last witness?

14 SPECIAL MASTER LANCASTER: Sure.

15 MR. PRIMIS: Thank you.

16 I'm sorry. Has the witness been sworn?

17 THE CLERK: Yes. He just needs to state

18 and spell his name for the record.

19 DIRECT EXAMINATION

20 BY MR. PRIMIS:

21 Q. Mr. Reheis, would you state your full name for

22 the record and spell it for the court reporter.

23 A. My name is Harold Franklin Reheis, R E H E I S.

24 Q. And, Mr. Reheis, I have placed before you your

25 written direct testimony dated October 26, which

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1 was submitted to the Court.

2 A. Yes.

3 Q. And my only question for you at this point is do

4 you adopt this written direct testimony as your

5 sworn testimony in this case?

6 A. Yes, I do.

7 MR. PRIMIS: We'll tender the witness

8 for cross-examination.

9 SPECIAL MASTER LANCASTER: Thank you.

10 MR. PERRY: Your Honor, may I approach

11 to hand out the binders for this particular

12 witness?

13 SPECIAL MASTER LANCASTER: Certainly.

14 CROSS-EXAMINATION

15 BY MR. PERRY:

16 Q. Good morning, Mr. Reheis.

17 A. Good morning.

18 Q. It's nice to see you again.

19 A. Thank you.

20 You're going to have to speak louder. I'm

21 wearing my hearing aids, but you speak very

22 softly. And I have difficulty hearing you if you

23 don't speak up.

24 Q. Thank you for reminding me. And I'll try to do

25 that, sir. But if at any point you can't hear

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1 me, please remind me because --

2 A. I will.

3 Q. -- I will try.

4 Thank you. You were the director of

5 Georgia's Environmental Protection Division from

6 1991 to 2003; is that correct?

7 A. That's correct.

8 Q. Do you mind if for purposes of your time today I

9 call it EPD?

10 A. Do you mind if I what -- do I mind if you what?

11 Q. I would like to use the initials EPD --

12 A. Certainly.

13 Q. -- rather than the long name.

14 Now, sir, in your prefiled direct testimony

15 you refer to a document in paragraph 47 named the

16 Flint River Development and Conservation Plan.

17 Do you remember that, sir?

18 A. I remember the law -- the Act. You -- you said

19 something about 47?

20 What --

21 Q. That's okay, sir. So let's -- I'll just walk

22 through this so we can make sure we're on the

23 same page, if you can follow. If you can't,

24 please let me know; and I'll try to slow it down.

25 So if --

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1 MR. PRIMIS: Mr. Perry, can I just talk
 2 to you for one second?
 3 I think it might facilitate things.
 4 (Discussion off the record.)
 5 MR. PERRY: Your Honor, counsel for
 6 Georgia is wondering whether we have a
 7 particular device that the Court may have
 8 access to to assist the witness with hearing
 9 the questions. And I'm very happy to --
 10 THE WITNESS: That helps.
 11 THE CLERK: I just turned up the
 12 speaker.
 13 MR. PERRY: Okay, good. Well, we have
 14 solved that problem, I hope.
 15 BY MR. PERRY:
 16 Q. Sir, in your prefiled direct testimony which
 17 Mr. Primis was discussing with you a moment ago,
 18 in paragraph 47 on page 12 and 13 -- are you with
 19 me, sir?
 20 A. Yes.
 21 Q. There is a reference on the top of page 13 to,
 22 quote, the Flint River Basin Water Development
 23 and Conservation Plan by my successor, Director
 24 Carol Couch, in March of 2006. Do you see that,
 25 sir?

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1 A. Yes.
 2 Q. All right, sir. And that resulted, that plan,
 3 from a period of study which you referred to as
 4 the sound science study; is that correct?
 5 A. Yes.
 6 Q. Okay. Now, sir, I would like to invite your
 7 attention, please, to the tab No. 2 in the binder
 8 I have handed you. And, sir, do you see at that
 9 tab a document with that title?
 10 A. Yes.
 11 Q. And do you see on that title page a reference to
 12 Georgia EPD?
 13 A. I do.
 14 Q. Okay, sir. And your successor, Carol Couch, the
 15 director at this time in 2006?
 16 A. Yes.
 17 Q. All right, sir. I would invite your attention,
 18 if I might, to page 21 of that document at tab 2
 19 of your binder.
 20 MR. PERRY: And this document, for the
 21 Court, is Joint Exhibit 21.
 22 BY MR. PERRY:
 23 Q. Sir, do you see the heading in the middle of
 24 page 21 that says, Summary of Technical Findings?
 25 A. I do.

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1 Q. Okay, sir. If you would please turn with me to
 2 page 22, the next page. And I would invite your
 3 attention to item No. 3 on that page. Do you see
 4 that, sir?
 5 A. I do.
 6 Q. Now, I'm going to read part of that text; and
 7 I'll have a question for you, sir.
 8 I'm reading from item 3 on page 22 of Joint
 9 Exhibit 21, quote, since extensive development of
 10 irrigation in the Lower Flint River Basin,
 11 drought year low flows are reached sooner and are
 12 lower than before irrigation became widespread.
 13 Furthermore, low flow criteria established by the
 14 U.S. Fish and Wildlife Service designed to
 15 protect aquatic habitats are not met more
 16 frequently and for longer periods of time since
 17 development of irrigation. These data provide
 18 the clearest evidence that agricultural
 19 irrigation compounds the effect of climatic
 20 drought on streamflow in the basin.
 21 Do you see that text, sir?
 22 A. Yes.
 23 Q. That is a conclusion, is it not, of Georgia's
 24 Environmental Protection Division. Correct?
 25 A. Yes.

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1 Q. Okay, sir. Could you now, please, turn with me
 2 to page 51 of Joint Exhibit 21, which is tab 2 of
 3 your binder. Are you with me, sir?
 4 A. Yes.
 5 Q. All right. Do you see that -- the subheading on
 6 that page, sir, that reads Conclusions About Safe
 7 Yield?
 8 A. Yes.
 9 Q. All right. Again, I'm going to read some text;
 10 and then I will have a question.
 11 Quote, as described in sections 5 and 6 of
 12 this report, the combination of the USGS
 13 groundwater model, HSPF stream models, historical
 14 streamflow, and simulated future streamflow
 15 scenarios compared to federal instream flow
 16 guidelines demonstrated that the amount of water
 17 currently withdrawn for agricultural irrigation
 18 in drought years increases both the magnitude and
 19 duration of low flows in streams of the FRB, thus
 20 further harming endangered species and
 21 potentially limiting the amount of water
 22 available for all users.
 23 Do you see that paragraph, sir?
 24 A. I do.
 25 Q. And, sir, that is also a technical finding of the

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1 State of Georgia; is that right?

2 **A. Yes.**

3 **Q.** All right, sir. Just so we're clear, does FRB

4 refer to the Flint River Basin?

5 **A. Yes.**

6 **Q.** Now, sir, if I might invite your attention to the

7 prior page, page 50, for a moment. And, in fact,

8 just momentarily, if you could turn back one

9 prior page to page 49. Do you see that?

10 **A. Yes.**

11 **Q.** Do you see the name, or I should say heading at

12 the bottom of that page, Technical Advisory

13 Committee?

14 **A. I do.**

15 **Q.** Okay. If you could please turn to page 50 with

16 me then. And do you see the list of names on the

17 top half of page 50?

18 **A. I do.**

19 **Q.** Do you see Dr. Steve Golladay?

20 **A. Yes.**

21 **Q.** Mr. Woody Hicks?

22 **A. Yes.**

23 **Q.** And Dr. Mark Masters, among others?

24 **A. Yes.**

25 **Q.** Okay, sir. Now, sir, if I might, I would like to

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1 invite your attention to page 52 of this same

2 document, Joint Exhibit 21, at tab 2 of your

3 binder.

4 And here the subtitle is EPD Regulatory

5 Limits. Item 1 reads, all legitimate requests

6 for farm use permits must be granted in the FRB

7 once the plan is adopted.

8 Do you see that sir?

9 **A. I do.**

10 **Q.** And this plan was, indeed, adopted; wasn't it?

11 **A. That's my understanding.**

12 **Q.** Item 2 reads, the permit moratorium must be

13 lifted upon completion of the plan.

14 Do you see that, sir?

15 **A. I do.**

16 **Q.** Okay. Moving down to item 5 on page 52, it

17 reads, quote, EPD may initiate provisions of the

18 Flint River Drought Protection Act during severe

19 drought years in an effort to maintain critical

20 streamflow.

21 Do you see that, sir?

22 **A. Yes.**

23 **Q.** Okay, sir. Now, I would like to invite your

24 attention to page 55 of Georgia's 2006 plan,

25 Joint Exhibit 21, tab 2 of your binder. And

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1 there, sir, do you see the heading Stakeholder

2 Recommendations For Regulatory and Statutory

3 Reform?

4 **A. Yes.**

5 **Q.** I would invite your attention to No. 4 in those

6 stakeholder recommendations, which is on page 56,

7 please. Now, again, sir, I will read some text;

8 and then I will have a question for you about it.

9 On page 56, item 4, the text reads, quote,

10 funding for the Flint River Drought Protection

11 Act should be expanded and assured beyond its

12 current limits. Such funding is available to pay

13 higher per acre prices for suspension of

14 irrigation. This would allow the State to

15 suspend irrigation on high water use lands as

16 opposed to marginal farm land, increase the

17 likelihood of taking more land out of irrigation,

18 allow the EPD director to require nonvoluntary

19 suspension of irrigation with fewer challenges,

20 and offset the direct and indirect costs of

21 reducing irrigation.

22 Do you see that, sir?

23 **A. Yes.**

24 **Q.** Were you aware of this stakeholder recommendation

25 in 2006?

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1 **A. I believe I read the entire report in 2006, but I**

2 **have not read the entire report since then. So I**

3 **assume I read that 10 years ago.**

4 **Q.** Well, thank you, sir. Let's, if we could, turn

5 to the page that identifies the stakeholder

6 committee, which is page 48, please.

7 **A. Mine -- oh, I'm sorry. 48 in this report.**

8 **Q.** In Joint Exhibit 21, sir, which is tab 2 of your

9 binder.

10 **A. Yes. Okay.**

11 **Q.** There is a lengthy list of names at the bottom of

12 page 48 onto page 49, but there is a series of

13 bullets on page 48 describing certain types of

14 people. Do you see that, sir?

15 **A. Yes.**

16 **Q.** Do you see the item there, first bullet under

17 Stakeholder Advisory Committee for farmers and

18 agribusiness representatives?

19 **A. I do.**

20 **Q.** And then Southwest Georgia Task Force?

21 **A. Yes.**

22 **Q.** There are several others there; but at the bottom

23 it says Georgia Conservancy League of

24 Conservation Voters. Do you see that, sir?

25 **A. Yes.**

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1 **Q.** Now, I would like to invite you back to page 56
 2 of tab 2, please. Now, sir, inviting your
 3 attention to paragraph 7, if I might, the State
 4 should consider subsidies for conversion of
 5 permits from surface water to groundwater, as
 6 this may be a cost effective way to maintain
 7 adequate streamflow in some areas.
 8 Do you see that, sir?
 9 **A. I do.**
 10 **Q.** Sir, were you aware of that stakeholder
 11 recommendation in 2006?
 12 **A. I believe I was when I read this document the**
 13 **first time.**
 14 **Q.** All right, sir. Item 9, quote, the statutory
 15 requirement that EPD shall issue all new permits
 16 should be re-evaluated in order to protect
 17 existing users and the resource.
 18 Sir, were you aware of that recommendation in
 19 2006?
 20 **A. I'm sure I was since I read the document in 2006.**
 21 **Q.** Now, item 10 reads, quote, alternatives to
 22 issuing permits based on rated pump capacity
 23 should be explored, unquote. Sir, do you have
 24 any understanding of that recommendation?
 25 **A. I can read the words. I think I understand what**
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1 **it means.**
 2 **Q.** All right, sir. If you could keep that in mind,
 3 we'll come back to that issue a little bit later
 4 today.
 5 Now, if I could invite your attention to page
 6 67, please. Are you with me, sir?
 7 **A. Yes.**
 8 **Q.** Okay. Thank you. Do you see a picture of a
 9 blue-hole spring on that page?
 10 **A. I do.**
 11 **Q.** Okay. And I would invite your attention to the
 12 text in the first full paragraph on that page
 13 which reads, quote, groundwater discharges to
 14 streams directly through the stream bed or stream
 15 banks, but it may also be added in large
 16 quantities from in-channel springs.
 17 Do you see that, sir?
 18 **A. Yes.**
 19 **Q.** And then down past the beautiful photograph
 20 there, at the bottom of the page the text reads,
 21 quote, some blue-hole springs have substantial
 22 discharges on the order of tens of millions of
 23 gallons per day. For example, the flow of Radium
 24 Springs in Albany, Georgia, has been measured at
 25 49,000 gallons per minute, 70.6 mgd.
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1 Sir, have you ever been to Radium Springs?
 2 **A. I have.**
 3 **Q.** Okay. The text continues, quote, however, as a
 4 result of drought and increased withdrawals,
 5 Radium Springs went dry in 1981 for the first
 6 time in recorded history and has been going dry
 7 more frequently since then.
 8 Sir, have you ever seen Radium Springs in a
 9 dry condition?
 10 **A. I don't believe I have.**
 11 **Q.** Okay, sir. Now, sir, are you aware of the
 12 reaction from U.S. Fish and Wildlife to the
 13 proposed fish plan before Georgia finalized it?
 14 **A. No.**
 15 **Q.** Sir, if I might invite your attention to
 16 the second document -- I'm sorry, the third
 17 document in your binder at tab 3. It's Florida
 18 Exhibit 46. Do you see there, sir, a letter from
 19 the United States Department of Interior Fish and
 20 Wildlife Service to Mr. Rob McDowell?
 21 **A. Yes.**
 22 **Q.** And who is Mr. Rob McDowell?
 23 **A. He was an employee of the Georgia Environmental**
 24 **Protection Division.**
 25 **Q.** Okay.
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1 **A. He was involved in assisting with the development**
 2 **of the Flint River Water Development Conservation**
 3 **Plan.**
 4 **Q.** All right, sir. If I could invite your attention
 5 to the second page of FX-46, please, and the
 6 second paragraph in particular. I'm going to
 7 invite your attention in particular to a series
 8 of sentences that begin in the end of the fifth
 9 line. And so I'll start reading, sir. And
 10 please interrupt me if you're not with me.
 11 Quote, the agricultural use data included in
 12 the report indicated -- have I lost you, sir?
 13 **A. Which paragraph are you on?**
 14 **Q.** I'm sorry, sir. My fault. It's the second
 15 paragraph on page --
 16 **A. Second full paragraph on page 2?**
 17 **Q.** Oh, you're right. I should have clarified that.
 18 It is the first full paragraph, the second
 19 paragraph.
 20 **A. Okay.**
 21 **Q.** All right. Thank you for that question.
 22 So, sir, the text beginning at the end of the
 23 fifth line reads, quote, the agricultural use
 24 data included in the report indicate a current
 25 use, see, e.g., page 61, that has at times dried
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1 upstream reaches; yet, the strategies for
 2 management of water do not include a reduction in
 3 currently permitted withdrawals. When the
 4 concept of reasonable use doctrine is taken into
 5 account, even a casual reader comes to the
 6 conclusion that some portion of the current
 7 permits, or some portion of the volume of water
 8 currently permitted for withdrawals, is beyond
 9 the volume of water that is protective of
 10 downstream users.
 11 Do you see that, sir?
 12 **A. Yes, I see it.**
 13 **Q.** Do you recall ever seeing this letter?
 14 **A. No, I have never seen the letter before.**
 15 **Q.** Okay. Sir. So let's, if we might, sir, now
 16 focus on correspondence from the time when you
 17 were director. And I would like to invite your
 18 attention to tab 4 of your binder, which is
 19 Florida Exhibit 1. And there, sir, do you see a
 20 copy of a letter that you signed?
 21 **A. I do.**
 22 **Q.** And to whom is that letter addressed?
 23 **A. William Westermeyer.**
 24 **Q.** And you intended this letter to be accurate when
 25 you wrote it; did you not?

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1 **A. I did.**
 2 **Q.** I'm sorry, sir?
 3 **A. I did.**
 4 **Q.** Okay. And I would invite your attention, here
 5 again, to the second paragraph where you write to
 6 Mr. Westermeyer, you asked that we, 1, identify
 7 regions of our state which, in the current
 8 climate, are susceptible to a variety of water
 9 related problems.
 10 Do you see that, sir?
 11 **A. I do.**
 12 **Q.** Now, I would invite your attention a bit down the
 13 page to the next to last paragraph on that first
 14 page of the letter. And there it reads, quote,
 15 Georgia has another area of potential groundwater
 16 overdraft and that is in the southwestern corner
 17 of the state where there have been large
 18 withdrawals made in the last two decades for the
 19 irrigation of crops.
 20 Do you see that, sir?
 21 **A. I do.**
 22 **Q.** This is 1992?
 23 **A. Yes.**
 24 **Q.** All right, sir. And the southwestern corner of
 25 the state is generally the location of the Flint

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1 River Basin; is that correct?
 2 **A. It is.**
 3 **Q.** All right.
 4 **A. Southwest Georgia location is also the home of**
 5 **the Clayton and Claiborne Aquifers. And those**
 6 **were the groundwater tables that were being**
 7 **monitored by monitoring wells and that had shown**
 8 **declines over that last two decades. We did not**
 9 **see, as I recall, declines in the Floridan**
 10 **Aquifer which feeds the springs. So this was**
 11 **with regard to two deeper aquifers, the Clayton**
 12 **and the Claiborne.**
 13 **Q.** Now, the Clayton and Claiborne are both deeper
 14 than the Floridan, but their depth depends on
 15 where you are in the basin; isn't that correct?
 16 **A. Yes. That's correct.**
 17 **Q.** And so both of those aquifers interact with
 18 streams farther north in the basin. Right?
 19 **A. They have outcrop areas farther north. I don't**
 20 **know to what extent they interact with streams.**
 21 **Q.** All right. And you're aware, sir, aren't you,
 22 that there are permits granted for agricultural
 23 irrigation that draw on both the Claiborne and
 24 Clayton Aquifers in the Flint River Basin.
 25 Right?

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1 **A. Yes.**
 2 **Q.** Okay, sir. Now, I would like to invite your
 3 attention, if I might, to tab 5. And there, sir,
 4 you will find a copy of a letter. Are you with
 5 me, sir?
 6 **A. I am.**
 7 **Q.** It's Florida Exhibit 3. And my first question,
 8 sir, is is your signature on this letter?
 9 **A. Yes, it is.**
 10 **Q.** Okay. The addressee is Mr. James Butler. Do you
 11 see that, sir?
 12 **A. Yes.**
 13 **Q.** Who is Mr. Butler?
 14 **A. He was a member of the Board of Natural Resources**
 15 **at that time.**
 16 **Q.** Did you report to the Board as director?
 17 **A. Yes, I did.**
 18 **Q.** All right, sir. Now, this letter is dated
 19 June 16, 1999. Do you see that, sir?
 20 **A. I do.**
 21 **Q.** All right. And I would like to invite your
 22 attention, if I might, to the last paragraph on
 23 this first page of the letter. And, again, I'm
 24 going to read that paragraph; and then I'll have
 25 some questions.

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1 To Mr. Butler you write, quote, you asked how
 2 it came that the legislature ordered EPD to
 3 regulate agricultural wells 11 years ago, but
 4 never gave us money to do the job. First, it is
 5 not an unusual circumstance that the General
 6 Assembly would give EPD an unfunded mandate. It
 7 happens again and again. Second, for the first
 8 several years of this 11-year time period, EPD
 9 was operating under the belief that we would not
 10 run out of water for farmers anywhere in south
 11 Georgia, and given that the law is extremely
 12 lenient with regard to agricultural permitting
 13 and water use, we essentially just issued permits
 14 for any farmer who requested them. Since we had
 15 so many applications and so few staff to handle
 16 them, we made it a simple paper exercise. We had
 17 no resources to go to the field and verify what
 18 the farmer claimed in his application was so.
 19 But we also thought, incorrectly, that there --
 20 that since there was so much groundwater, it was
 21 no great problem that we were understaffed.
 22 Sir, did you write that text?
 23 **A. Yes.**
 24 **Q.** And when you wrote that text, you intended it to
 25 be accurate?

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1 **A. I did.**
 2 **Q.** Okay, sir. Now, sir, if I might ask you to turn
 3 to tab 6. And there is also an exchange of
 4 letters at tab 6. Do you see those, sir?
 5 **A. Yes.**
 6 **Q.** Now, I would like, if I might, to invite you to
 7 turn to the last letter in this packet addressed
 8 to you and Mr. Hallum. Do you see that, sir?
 9 **A. I do.**
 10 **Q.** And this is FX-2, Florida Exhibit 2.
 11 So, sir, do you see Mr. Butler's name in the
 12 signature block on that letter?
 13 **A. I do.**
 14 **Q.** And, again, Mr. Butler was a member of the Board
 15 to whom you reported?
 16 **A. That's correct.**
 17 **Q.** So Mr. Butler writes in the first paragraph of
 18 this letter, quote, either by letter or in
 19 conversation, Harold has noted the anticipated
 20 need to put some limits on farm wells in the
 21 Flint River Basin in southwest Georgia. I would
 22 like more information on that issue generally.
 23 Do you see that, sir?
 24 **A. I do.**
 25 **Q.** All right, sir. Might you turn with me, please,

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1 to the first page of the first -- of the text in
 2 the first letter in this packet at tab 6, Florida
 3 Exhibit 2. Now, sir, I will read a couple of
 4 selections here; and I will have questions about
 5 them.
 6 In the second paragraph in the letter do you
 7 see there is a sentence that begins -- about the
 8 middle that begins with the words the sections?
 9 Sir, I could describe it in a little more
 10 detail if that would be helpful; or Mr. Walton
 11 might be able to highlight it. It begins, the
 12 sections of the laws that require farmers to have
 13 permits are the weakest of all Georgia's
 14 environmental laws.
 15 Do you see that, sir?
 16 **A. I do.**
 17 **Q.** You wrote that?
 18 **A. I did.**
 19 **Q.** All right, sir. It goes on, the original bills
 20 were specifically written in a very loose manner
 21 to place the minimum amount of requirements on
 22 agricultural water users, because the wisdom at
 23 that time was that the General Assembly would not
 24 accept more than that in regulating farmers.
 25 Do you see that, sir?

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1 **A. I do.**
 2 **Q.** You wrote that as well; didn't you?
 3 **A. I did.**
 4 **Q.** All right. Now, if I might invite your attention
 5 to the next paragraph, it begins, quote, EPD was
 6 given no new money or personnel with which to
 7 operate the permit program, so we have done it on
 8 a shoestring for years. We basically have had
 9 one professional assigned to review applications
 10 and issue permits, unquote. Do you see that,
 11 sir?
 12 **A. I do.**
 13 **Q.** All right.
 14 **A. And that was correct up until about 1997. The**
 15 **first nine years of the program we didn't have a**
 16 **drought going in the state. We thought we had**
 17 **plenty of resources. Once we started seeing the**
 18 **products of the comprehensive study on the ACF,**
 19 **we recognized that we might have a problem in the**
 20 **Flint. And I started diverting other resources**
 21 **to agricultural activities in that part of the**
 22 **state.**
 23 **Q.** Yes, sir. We will cover those issues in great
 24 depth during our time today, so I appreciate
 25 your -- your point. And I will certainly get to

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1 those issues.

2 The next paragraph on this letter, Florida

3 Exhibit 2, begins, quote, it took EPD several

4 years just to issue the backlog of grandfathered

5 permits.

6 Do you see that, sir?

7 **A. I do.**

8 **Q.** Now, I want to pause for a moment and talk about

9 grandfathered permits, if we might. It's my

10 understanding -- and please correct me. We

11 talked about this in your deposition -- that a

12 grandfathered permit is basically guaranteed to

13 anybody who had filed an application before 1991;

14 and it was in fact irrigated before that date.

15 Is that correct?

16 **A. Yes.**

17 **Q.** Okay. So back to the sentence, but subsequent to

18 that, we have only rarely denied permits for

19 agricultural use anywhere in Georgia. For years

20 we thought there was plenty of water for

21 agriculture. We have now found that is no longer

22 the case in southwest Georgia from technical

23 tools that have been developed under the

24 comprehensive studies conducted jointly over the

25 last seven years by Alabama, Florida, Georgia,

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1 and the Corps of Engineers.

2 Do you see that, sir?

3 **A. I do.**

4 **Q.** All right, sir. I would like to, if I might,

5 invite your attention to the next page. But here

6 I would like to begin, if I could, on the -- at

7 the beginning of the second full paragraph,

8 quote, in southwest Georgia there are

9 approximately 3,000 wells in the Floridan Aquifer

10 which we believe can affect the flow of the Flint

11 River during bad droughts. The big springs on

12 the bottom of the Flint River from -- I'll just

13 say Albany.

14 **A. Albany is correct.**

15 **Q.** Okay -- on down to Bainbridge which supply a

16 substantial part of the base flow to the Flint

17 River in this section, are all fed by the

18 Floridan Aquifer. When thousands of irrigation

19 systems are operating during dry weather, such as

20 we have -- such as we have been having this year,

21 one can see a significant reduction in Flint

22 River flows, unquote. You wrote that, didn't

23 you, sir?

24 **A. I did.**

25 **Q.** Now, sir, if I might invite your attention to

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1 tab 7 in your binder. And there you will find

2 Florida Exhibit 15.

3 **A. Yes.**

4 **Q.** This is a -- an opinion editorial piece you

5 authored in 2002; is that correct?

6 **A. That's correct.**

7 **Q.** And, sir, I would like, if I could, to invite

8 your attention to the actual attached opinion

9 editorial and to the last page of that editorial.

10 Now, in -- probably after lunch we'll talk about

11 steps subsequent to 1999; but I would invite

12 your attention now to the sentence at the top of

13 that page, the first full sentence, which I will

14 now read. Quote, we declared a moratorium in

15 late 1999 after our ACF groundwater and surface

16 water computer models indicated that the combined

17 effect of all irrigation in the Flint River Basin

18 could dry up the Flint River above Bainbridge in

19 the summer growing season of a dry year. Thank

20 goodness the Flint did not dry up in year 2000,

21 the year of record low flows in the Flint Basin,

22 but a number of large Flint tributaries did dry

23 up that year over many miles of length.

24 Do you see that, sir?

25 **A. I do.**

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1 **Q.** And you intended that to be accurate at the time

2 you wrote it. Correct?

3 **A. Yes, I did.**

4 **Q.** All right. Now, sir --

5 MR. PERRY: Your Honor, we're about

6 noon. Shall I break?

7 I'm prepared to break, if that's

8 convenient for the Court.

9 SPECIAL MASTER LANCASTER: Can you

10 estimate about how much longer you will be

11 with this witness?

12 MR. PERRY: In excess of one hour.

13 SPECIAL MASTER LANCASTER: We'll break.

14 MR. PERRY: Thank you, your Honor.

15 SPECIAL MASTER LANCASTER: I'm told that

16 it's raining, and the rain will get worse.

17 I'm hoping that that will not dampen your

18 enthusiasm to move this matter along.

19 (Time Noted: 12:00 p.m.)

20 (Recess Called)

21 (Time Noted: 1:00 p.m.)

22 MR. PERRY: Good afternoon, your Honor.

23 SPECIAL MASTER LANCASTER: Mr. Perry.

24 BY MR. PERRY:

25 **Q.** Good afternoon, Mr. Reheis.

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1 **A. Afternoon.**
 2 MR. PERRY: May I proceed, your Honor?
 3 SPECIAL MASTER LANCASTER: Yes, please.
 4 BY MR. PERRY:
 5 **Q.** So Mr. Reheis, I believe we were about to turn to
 6 tab 8 of your binder, which is Florida Exhibit 6.
 7 Do you, sir, see a memorandum dated April 19 --
 8 pardon me, April 16, 1999, at that tab?
 9 **A. I do.**
 10 **Q.** And, sir, do you see in the from line the name
 11 Richard M. Gennings?
 12 **A. I do.**
 13 **Q.** Can you describe what Richard M. Gennings's
 14 responsibilities were within the Georgia
 15 Department of Natural Resources in 1999?
 16 **A. He was the chief of the Fisheries Management**
 17 **section of the Wildlife Resources Division of the**
 18 **Georgia Department of Natural Resources.**
 19 **Q.** Did the Wildlife Resources Division report to the
 20 Board of the Department of Natural Resources?
 21 **A. No, they did not. They reported to the**
 22 **Commissioner of Natural Resources.**
 23 **Q.** And do you see your name there, sir, in the line
 24 that says to?
 25 **A. I do.**

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1 **Q.** And then Mr. Bob Kerr is identified there as
 2 well?
 3 **A. Yes.**
 4 **Q.** Could you describe Mr. Kerr's role in the ACF
 5 Compact negotiations, please?
 6 **A. Mr. Kerr was another of the alternates to the**
 7 **Georgia Governor along with myself in the ACF**
 8 **Compact negotiations --**
 9 **Q.** And --
 10 **A. -- under Governors Miller, Barnes, and Kerr.**
 11 **Q.** I'm sorry. I didn't --
 12 **A. Excuse me. Miller, Barnes, and Perdue.**
 13 **Q.** I have to apologize twice. I interrupted you
 14 twice during that answer.
 15 **A. No problem.**
 16 **Q.** So, sir, is it fair to say that your role in that
 17 ACF Compact negotiations was, among other things,
 18 a technical advisor to Georgia?
 19 **A. Yes.**
 20 **Q.** Now, sir, this is a fairly long memorandum; but I
 21 would like to focus, if I might, on the third
 22 page of the memo under the heading Flint River
 23 Flows and Water Quality. Are you with me, sir?
 24 **A. I have it.**
 25 **Q.** Now, in particular I would like to invite your

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1 attention to the second paragraph there from
 2 Mr. Gennings which reads, quote, you are already
 3 aware of our concerns about threats for the
 4 quality of aquatic habitat in the Lower Flint.
 5 We need to protect flows for protected species
 6 and the fishery as well as cold spring refuges
 7 for the unique striped bass population. Based on
 8 the IHA analysis, annual seven-day minimum flow
 9 at Newton is about 600 cfs, about half the
 10 historical level. Such low flow predictions
 11 provide clear evidence that groundwater is
 12 overallocated in the Lower Flint Basin, unquote.
 13 Do you see that, sir?
 14 **A. I do.**
 15 **Q.** A couple questions about that text, if I might.
 16 Newton is a location in the Lower Flint Basin.
 17 Right?
 18 **A. Yes. It's downstream of Albany on the Flint**
 19 **River.**
 20 **Q.** And there is a flow gage run by the United States
 21 Geological Survey at Newton; is that correct?
 22 **A. Yes, there is.**
 23 **Q.** Now, earlier in that same sentence that mentions
 24 Newton, there is a reference to IHA analysis. Do
 25 you see that, sir?

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1 **A. I do.**
 2 **Q.** Do you recall that the IHA analysis was a tool
 3 used by U.S. Fish and Wildlife for evaluating
 4 flow impacts?
 5 **A. No.**
 6 **Q.** All right, sir. Might I invite your attention to
 7 the item in your binder at tab 9. And this is
 8 Florida Exhibit 873.
 9 Do you see the seal of the U.S. Fish and
 10 Wildlife Service at the top part --
 11 **A. I do.**
 12 **Q.** Okay. Thank you, sir.
 13 And do you see on the from line of this fax
 14 note the name Jerry Ziewitz?
 15 **A. I do.**
 16 **Q.** And you're familiar with Mr. Ziewitz?
 17 **A. Yes.**
 18 **Q.** He was affiliated with U.S. Fish and Wildlife
 19 Service?
 20 **A. Correct.**
 21 **Q.** In the Panama City office?
 22 **A. Yes.**
 23 **Q.** Now, sir, the subject line says, quote, transfer
 24 of tools for IHA analysis of daily flow output.
 25 Do you see that?

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1 **A. I do.**
 2 **Q.** And do you see your name there appears in the to
 3 line?
 4 **A. I do.**
 5 **Q.** Okay. Now, in the text it says, quote, I am
 6 writing to invite technical staff of your
 7 choosing to meet with me so that I might transfer
 8 to you some data analysis tools that the Service
 9 has developed, end quote. Do you see that?
 10 **A. I do.**
 11 **Q.** And then there is a reference in the next
 12 sentence to indicators of hydraulic alteration.
 13 Do you see that?
 14 **A. I do.**
 15 **Q.** But you don't recall working with the IHA
 16 analysis when you were director?
 17 **A. I remember that Fish and Wildlife Service worked**
 18 **with the IHA analysis and advocated for it. I**
 19 **didn't remember what IHA stood for until I saw**
 20 **this particular letter.**
 21 **Q.** Okay. Thank you, sir.
 22 If I might invite your attention now to
 23 tab 11. And there is a document titled, quote,
 24 Reheis Statement For Southwest Georgia Summit,
 25 April 16, 1999. Sir, do you recall this

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1 document?
 2 **A. Yes.**
 3 **Q.** You created this document?
 4 **A. Yes.**
 5 **Q.** And you delivered an address to the Southwest
 6 Georgia Summit with the information presented in
 7 this document?
 8 **A. To the best of my recollection, I did.**
 9 **Q.** All right, sir. I invite your attention to the
 10 fourth paragraph that begins I do believe. Do
 11 you see that, sir?
 12 **A. That looks like the second paragraph to me, but I**
 13 **see one that says I do believe.**
 14 **Q.** Yes. That -- you're correct. It's the second
 15 large paragraph. I was counting the first two
 16 sentences as a paragraph.
 17 **A. Oh, sorry.**
 18 **Q.** So let me read that, if I might; and then I'll
 19 ask you a question or two. Quote, I do believe
 20 that the State will need to put a cap on water
 21 depletions one of these days from the Floridan
 22 Aquifer to keep water flowing in the Lower Flint
 23 in drought years, but EPD will continue to
 24 evaluate options for the best way to limit
 25 aquifer depletions, and we will not institute a

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1 moratorium at this time.
 2 Do you see that, sir?
 3 **A. I do.**
 4 **Q.** All right. And you composed it -- this
 5 particular statement?
 6 **A. Yes.**
 7 **Q.** All right. Now, sir, have you at any recent
 8 point had access to the Georgia agricultural
 9 permitting data base?
 10 **A. No.**
 11 **Q.** Are you aware of how many permits or how many
 12 acres in the Flint River Basin were issued
 13 between the date of this statement and the date
 14 in which EPD imposed a restriction on -- or a
 15 moratorium a granting new applications?
 16 **A. How many permits were issued between --**
 17 **Q.** Let me rephrase, sir.
 18 **A. -- this date and the date of --**
 19 **Q.** The moratorium.
 20 **A. -- the moratorium?**
 21 **No, I don't recall.**
 22 **Q.** Sir, are you aware that there were applications
 23 for permitted acreage exceeding 100,000 new acres
 24 received by EPD between April 16, 1999, and
 25 December of 1999?

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1 **A. I don't remember the exact number. I know we had**
 2 **a number of applications. Having applications is**
 3 **different than granting permits.**
 4 **Q.** Isn't it true, sir, that by 2000, permits for
 5 more than 100,000 more acres of agricultural
 6 irrigation in the Flint River Basin had been
 7 granted by EPD?
 8 **A. I don't recall the numbers.**
 9 **Q.** All right. Now, you did put a restricted
 10 moratorium on granting new applications in place;
 11 but that didn't occur until December or late
 12 November of 1999. Isn't that correct?
 13 **A. November 30, 1999, as I recall.**
 14 **Q.** All right. So is it not true that a large number
 15 of applicants presented new applications for
 16 irrigation permits before that moratorium took
 17 place?
 18 **A. Yes, it is true.**
 19 **Q.** And isn't it true that EPD granted many of those
 20 applications?
 21 **A. I believe EPD granted some applications out of a**
 22 **backlog of 2500 or so applications.**
 23 **Q.** Was it 881 applications, sir?
 24 **A. The number I have got in mind is 864.**
 25 **Q.** And you're not aware right now how many acres

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1 were allowed to be irrigated under those
 2 newly-granted permits. Right?
 3 **A. I am not.**
 4 **Q.** Okay. Now, sir, if I might invite your attention
 5 to the exhibit at tab 13, please. And let me ask
 6 you, as you identify this document in the binder,
 7 whether you were present when we played
 8 deposition designations of Napoleon Caldwell
 9 earlier this week?
 10 **A. I was not.**
 11 **Q.** Okay. Napoleon Caldwell worked for you when you
 12 were director; is that correct?
 13 **A. Yes, he did.**
 14 **Q.** Steve Whitlock worked for you?
 15 **A. Yes, he did.**
 16 **Q.** Can you describe Steve Whitlock's role, please?
 17 **A. He was an engineer. He did some modeling**
 18 **relative to hydrology in our water resources**
 19 **program. Some of it dealt with the ACF.**
 20 **Q.** Sir, might I -- at tab 13 -- and it's FX-4 --
 21 invite your attention to the third page of this
 22 document. Now, sir, under Consequences of Water
 23 Overuse on that page, do you see the line that
 24 reads, quote, status quo in issuing new
 25 irrigation permits will lead to an overcommitment

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1 of water resources and overuse of the resource,
 2 unquote. Do you see that, sir?
 3 **A. I see that.**
 4 **Q.** All right, sir. And then in numbered item 3 on
 5 that same page at the very bottom, if you look at
 6 that particular item, there is a semicolon in the
 7 middle of the parenthetical. And after that
 8 semicolon, the name Steve Whitlock, whom you just
 9 identified, is mentioned. Quote, from
 10 information provided by Steve Whitlock, we have
 11 already exceeded the safe upper limit of
 12 permissible acreage in the Flint?
 13 Do you see that, sir?
 14 **A. I see it.**
 15 **Q.** All right. If you could just with me now turn
 16 back to the first page of FX-4 at tab 13. Do you
 17 see the date?
 18 **A. I see a date.**
 19 **Q.** Okay. Now, sir, I believe you just testified
 20 that the moratorium wasn't granted until
 21 November 30 of this same year. Right?
 22 **A. That's correct.**
 23 **Q.** So nine months passed between the time of these
 24 talking points and the issuance of the
 25 moratorium. Correct?

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1 **A. No. That would be a little over eight months.**
 2 **Q.** That's fair. Thank you, sir.
 3 If I might invite your attention to page 7 of
 4 this document, FX-4, please. And, sir, I would
 5 like to invite your attention to some very
 6 specific text on this page. It's in bold. It's
 7 in item No. 3 on page 7 of FX-4. And it's in
 8 parentheses. And it reads, quote, Harold, we
 9 need to further discuss this bullet before we
 10 finalize the document. It could very well be
 11 that we have to say we can't issue any more
 12 permits, regardless of when the applications were
 13 submitted.
 14 Do you see that?
 15 **A. I do.**
 16 **Q.** You don't recall who wrote that in this document?
 17 **A. No, I don't. I don't recall who wrote the**
 18 **document. It's clearly a draft,**
 19 **work-in-progress. It has blanks and**
 20 **parentheticals in it. I don't remember who wrote**
 21 **it. I don't remember if it ever got finalized.**
 22 **I don't remember to what extent it was used by**
 23 **EPD.**
 24 **Q.** All right. You weren't here for the deposition
 25 designations by video of Napoleon Caldwell a few

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1 days ago?
 2 **A. That's what I said. I was not here.**
 3 **Q.** Thank you, sir.
 4 Now, if I might invite your attention to
 5 page 6 of the same document, please. And at the
 6 top there, item 3 reads, quote, if new irrigation
 7 uses are not limited effectively and soon, it
 8 will create a bigger Achilles heel than we
 9 currently have.
 10 Do you see that, sir?
 11 **A. I do.**
 12 **Q.** All right. So the next phrase is also, I think,
 13 something that I would like to ask you about.
 14 Quote, in the worst case, state government would
 15 have to buy back water rights from farmers,
 16 unquote. Do you see that?
 17 **A. I do.**
 18 **Q.** That was a concept that was under consideration
 19 throughout 1999. Correct?
 20 **A. You said that was a concept that --**
 21 **Q.** Yes, sir.
 22 **A. I don't know. I don't recall that.**
 23 **Q.** We'll get to the Flint River Drought Protection
 24 Act and the irrigation auction in a minute, but
 25 is it not fair to say that the Flint River

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1 Drought Protection Act was an effort to buy back
 2 water from its farmers?
 3 **A. No, it did not buy back water rights from**
 4 **farmers.**
 5 **Q.** It bought back rights -- it bought rights
 6 temporarily; is that fair?
 7 **A. It temporarily bought rights to get a farmer to**
 8 **not irrigate.**
 9 **Q.** All right. And you're drawing a distinction,
 10 which I appreciate, being a temporary purchase of
 11 the right to irrigate versus a permanent purchase
 12 of the right to irrigate. Is that correct?
 13 **A. Yes, I am.**
 14 **Q.** Okay. Now, just down from the text I read there
 15 is a numbered item 1. Do you see that, sir?
 16 **A. I do.**
 17 **Q.** And there is a reference to Kansas versus
 18 Colorado there; and I would like to read it, if I
 19 might. Quote, in Kansas versus Colorado, the
 20 Supreme Court found Colorado liable for violating
 21 the river water Compact because it had permitted
 22 so much groundwater use for farmers that their
 23 usage reduced the river flowage into Kansas.
 24 Colorado was forced to buy out farmers' water
 25 rights, granted through state permits, in order

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1 to comply with its state line delivery
 2 commitments in the Compact, at a cost of, blank,
 3 million. This could happen to Georgia if we
 4 cannot deliver on an allocation formula
 5 commitment due to overuse by agriculture.
 6 Do you see that, sir?
 7 **A. I see it.**
 8 **Q.** And in this context, an allocation formula was
 9 currently being negotiated under the ACF Compact.
 10 Correct?
 11 **A. You said in this context?**
 12 **Q.** Fair point.
 13 **A. That is not a context for negotiation of the**
 14 **formula.**
 15 **Q.** Fair point.
 16 **A. During that time period we were negotiating the**
 17 **formula.**
 18 **Q.** Thank you, sir. You fixed my question.
 19 Now, the next point reads, quote, presumably,
 20 if Georgia users dry up the Flint in droughts,
 21 then Florida, or federal agencies, or other
 22 Georgia shareholders, could also take the State
 23 to court and perhaps compel the buy-back of
 24 farmers' water permits.
 25 Do you see that, sir?

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1 **A. I see the words.**
 2 **Q.** You don't recall any discussion of that
 3 particular point in 1999?
 4 **A. I don't recall any specific discussions, nor do I**
 5 **know whether or not any of this was correct. I**
 6 **didn't check it out. These were the opinions of**
 7 **whomever drafted this thing. And as I said, I**
 8 **don't even know if it ever became final or if it**
 9 **was ever used.**
 10 **Q.** All right, sir. Let's focus on something you did
 11 draft then, if we might, please. And here, I'm
 12 referring to your prefiled direct testimony. And
 13 that's paragraph 51. That's the testimony that
 14 Mr. Primis handed you earlier today.
 15 Now, sir, this paragraph relates to the -- to
 16 what's identified in the third line, reverse
 17 irrigation auction. Do you see that, sir?
 18 **A. I do.**
 19 **Q.** And that's a reference to the -- what ultimately
 20 became the Flint River Drought Protection Act.
 21 Right?
 22 **A. Yes.**
 23 **Q.** And there was a voluntary auction component there
 24 and an involuntary auction component. Right?
 25 **A. If you're talking about the Flint River Drought**

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1 **Management Act, there is not in this paragraph or**
 2 **this context an involuntary component that I see.**
 3 **This is talking about a voluntary component.**
 4 **Q.** Okay, sir. We'll come back to the
 5 voluntary/involuntary component in a minute
 6 when we look at the actual Flint River Drought
 7 Protection Act. But for now, if I could invite
 8 your attention to the last sentence of
 9 paragraph 51 that you have before you, quote, but
 10 because the auction concept involved compensating
 11 farmers for ceasing to irrigate, it served to
 12 alleviate the economic hardships that would be
 13 imposed by issuance of interruptable permits and
 14 also made it much less likely that farmers would
 15 irrigate when they should not.
 16 You wrote that, sir; didn't you?
 17 **A. Yes.**
 18 **Q.** Okay. Now, sir, I would like to focus on the
 19 words when they should not, when farmers should
 20 not irrigate. And you reference here in
 21 paragraph 51 to an occasion in a dry or drought
 22 year when the Flint River Drought Protection Act
 23 would be implemented. Right?
 24 **A. Yes.**
 25 **Q.** Okay. Now, sir, if I might invite your

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1 attention to tab 15, please. Do you see J --

2 Joint Exhibit 9 there at tab 15, sir?

3 **A. Yes.**

4 **Q.** All right, sir. If I might invite your attention

5 to -- and I'll give you two indications of where

6 it is, section 12-5-546, which is on page 7 of

7 12.

8 **A. I'm there.**

9 **Q.** Sorry. I just wanted to make sure you were

10 there, sir.

11 Do you see subsection (a) on 12-5-546?

12 **A. I do.**

13 **Q.** Quote, on or before March 1 of each year the

14 division will issue a prediction as to whether

15 severe drought conditions are expected during the

16 year.

17 Sir, you agree with me, don't you, that it's

18 feasible to predict drought by March 1 of every

19 year?

20 **A. Yes. I think we believe that, which is why that**

21 **language got into the Act.**

22 **Q.** Okay, sir. Now, the second component there, (b),

23 of 12-5-546 reads, quote, if severe drought

24 conditions are predicted or otherwise declared in

25 accordance with subsection (a) of this code

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1 section, the Division will determine the total

2 number of acres of irrigated land serviced by

3 irrigation systems located within one or more of

4 the affected areas that must not be irrigated

5 that year in order to maintain the acceptable

6 Flint River streamflow.

7 Do you see that, sir?

8 **A. I do.**

9 **Q.** Now, the next sentence begins, upon such

10 determination, the Division shall conduct an

11 irrigation reduction auction whereby a permittee

12 of an irrigation system located within the

13 affected areas is given an opportunity to enter

14 into an agreement with the Division.

15 Do you see that?

16 **A. I do.**

17 **Q.** Okay, sir. Now, focusing on that word permittee,

18 could you please turn back with me to page 4 of

19 12. And do you see the definition of the term

20 permittee there?

21 **A. Yes.**

22 **Q.** And those are permits that existed and have been

23 granted before the time of the Flint River

24 Drought Protection Act. Right?

25 **A. Yes.**

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1 **Q.** So those were existing irrigation users that

2 would be subject to this auction authority.

3 Correct?

4 **A. Yes.**

5 **Q.** Now, sir, we just looked at section 12-5-546; but

6 I would like to turn with you to the involuntary

7 section, which is 12-5-547.

8 And in particular, I'll start with the line

9 that's marked 8-37. Quote, if the director

10 determines that the total number of nonirrigated

11 acres needed during a given year cannot be

12 sufficiently obtained through the irrigation

13 reduction auction held in accordance with code

14 section 12-5-546, the director is authorized to

15 issue an Order, in accordance with rules adopted

16 by the Board, requiring certain permittees not to

17 irrigate a specified number of acres of irrigated

18 land until the end of the calendar year.

19 Do you see that, sir?

20 **A. I do.**

21 **Q.** That provision has never been invoked, as far as

22 you know; isn't that right?

23 **A. It was never invoked while I was director of EPD.**

24 **Q.** Okay. That's fair, sir.

25 Now, sir, could we please turn to tab 16,

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1 which is FX-7. And do you see the document there

2 titled Water Messages?

3 **A. I do.**

4 **Q.** Allan Hallum worked for you?

5 **A. He did.**

6 **Q.** Could you describe his role, please?

7 **A. He was the chief of the water protection branch**

8 **which administered the water quality control**

9 **programs from the State of Georgia under state**

10 **law and the Clean Water Act.**

11 **Q.** All right, sir. And on the second page of the

12 document titled Water Messages, do you see your

13 name there?

14 **A. It is.**

15 **Q.** Sir, did you give an address to a group in north

16 Georgia with the message that is identified under

17 items 1 through 3 there?

18 **A. I don't recall any specific address to a group in**

19 **north Georgia with those items 1, 2, and 3. I**

20 **may have. I just don't recall.**

21 **Q.** All right. Let me walk through a few of the

22 sentences to see if this might jog your memory,

23 sir.

24 Under item 1 it reads, quote, over the past

25 two decades, substantial population growth in

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1 some regions of Georgia have been accompanied by
 2 significant increases in demands on our water
 3 resources to meet the water consumption desires
 4 of that burgeoning population. Advancements in
 5 irrigation technology during the 1970's and '80's
 6 have allowed farmers in predominantly
 7 agricultural regions of Georgia to apply larger
 8 and more timely quantities of supplemental water
 9 to their crops to increase crop yields and
 10 profits. These increases in demand for water
 11 have not been accompanied by corresponding
 12 advancements in efforts to conserve; hence, the
 13 amount of water we are collectively withdrawing
 14 and consuming has dramatically increased.
 15 Sir, you don't have any recollection of
 16 delivering that message?
 17 **A. I think it was something that I probably said**
 18 **more than once. I don't remember any specific**
 19 **time or context of when that message or this**
 20 **particular document titled Water Messages was**
 21 **delivered.**
 22 **Q.** Okay, sir. If I might invite your attention now
 23 to tab 19, which, sir, is FX-205. Now, sir, this
 24 document is titled Remarks of Governor Zell
 25 Miller at the inaugural meeting of the

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1 Apalachicola-Chattahoochee-Flint Compact
 2 Commission and the Alabama-Coosa-Tallapoosa
 3 Compact Commission. Do you see that, sir?
 4 **A. I do.**
 5 **Q.** And it's dated February 18, 1998?
 6 **A. Yes.**
 7 **Q.** Now, did you attend that inaugural meeting, sir?
 8 **A. I can't imagine that I did not attend it. So I**
 9 **don't recall, but I expect I was there.**
 10 **Q.** Now, sir, I want to focus on just a bit of text
 11 here under -- in the what's labeled Remarks of
 12 Governor Zell Miller from that date.
 13 On the first page about four paragraphs from
 14 the bottom, it talks about we fully recognize.
 15 Do you see that?
 16 **A. Yes.**
 17 **Q.** Quote, we fully recognize that Florida has a very
 18 real and significant interest in the future of
 19 the Apalachicola Bay and its surrounding
 20 environmental ecosystems, and in her other uses
 21 of water, unquote. Sir -- do you, sir, have any
 22 reason to believe that that message was not
 23 genuine at the time it was delivered?
 24 **A. No.**
 25 **Q.** All right, sir. Now, again, in the remarks of

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1 Governor Zell Miller on the second page,
 2 beginning with the second sentence it reads,
 3 quote, exercising our political will, the
 4 information and technical data developed over
 5 seven years, and the mutual respect resulting
 6 from that work, we can allocate the waters of
 7 these major river systems in a manner that is
 8 equitable and fair to all concerned, unquote.
 9 Sir, do you have any basis to believe that
 10 particular message was not genuine when delivered
 11 by Governor Zell Miller at the time?
 12 **A. No.**
 13 **Q.** Now, sir, I would like, if we might, to turn to
 14 tab 20. And let me first ask if that's your
 15 handwriting, sir?
 16 **A. It is my handwriting.**
 17 **Q.** And, sir, isn't it -- aren't these notes at --
 18 Florida Exhibit 207, tab 20, your notes from a
 19 meeting with the Department of Justice in October
 20 of 1997?
 21 **A. That's what it says.**
 22 **Q.** Okay. And, sir, do you recall that the ACF
 23 Compact passed both -- or all three state
 24 legislatures and then passed Congress in November
 25 of 1997?

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1 **A. I remember that all three state legislatures**
 2 **passed it several months prior to that. I think**
 3 **November, some date, 20, 22, was when it passed**
 4 **Congress.**
 5 **Q.** All right. Back on your notes, sir, tab 20,
 6 Florida Exhibit 207. Now, sir, was this meeting
 7 with the Department of Justice representatives in
 8 Tallahassee?
 9 **A. That's what it says.**
 10 **Q.** Okay, sir. Now, I would invite your attention
 11 down to the part of your notes that is labeled
 12 DOJ Needs to Look At the Big Picture. Do you see
 13 that, about the middle of the page?
 14 **A. I see it.**
 15 **Q.** Okay. So you have a number of bullets. They're
 16 hyphens. And I'm focusing on the fourth of
 17 those. And I'll read it, and I'll ask you a
 18 question. Quote, this isn't a 50 year old
 19 western states Compact where diversions are
 20 allowed to dry up the whole rivers. The vast
 21 majority of ACT/ACF water will stay where it is,
 22 unquote. Do you see that, sir?
 23 **A. Yes.**
 24 **Q.** That was a statement that you made to the
 25 Department of Justice during this meeting?

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1 **A. I don't recall. It's a statement that's written**
 2 **in these notes. I don't remember if I made that**
 3 **statement to DOJ or not.**
 4 MR. PERRY: Mr. Walton?
 5 BY MR. PERRY:
 6 **Q.** Sir, do you remember when we discussed this very
 7 specific set of notes during your deposition?
 8 **A. No, I don't.**
 9 **Q.** Now, I can play the clip in a moment; but I would
 10 like to identify another bullet first. So two
 11 bullets down, do you see where it says, federal
 12 commissioners can veto a bad formula so it's
 13 incumbent on the States to do it right.
 14 Do you see that, sir?
 15 **A. I do.**
 16 **Q.** That was intended to be an accurate observation
 17 at the time you took these notes. Right?
 18 **A. Yes. In fact, that language was in the Compact**
 19 **that the States had passed.**
 20 **Q.** Okay. So, sir, back up on the prior quote, this
 21 isn't a 50 year old western states Compact, I
 22 would ask if you recall during your deposition
 23 that you were under oath. Do you recall that;
 24 right?
 25 **A. Yes, I was.**

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1 **Q.** Okay, sir.
 2 MR. PERRY: Now, Mr. Walton?
 3 Your Honor, may I approach and hand the
 4 witness the transcript?
 5 SPECIAL MASTER LANCASTER: Please.
 6 MR. PRIMIS: Your Honor, I think this
 7 is -- I think this is more of a refreshing
 8 recollection situation than an impeachment
 9 situation. Mr. Perry can proceed however he
 10 wants, but I object to this.
 11 SPECIAL MASTER LANCASTER: Thank you.
 12 MR. PERRY: Your Honor, that's a fair
 13 point. I'm happy to refresh the recollection
 14 with the transcript if that's something the
 15 witness will engage in now.
 16 BY MR. PERRY:
 17 **Q.** So, sir, can I ask you, please, to turn to page
 18 221.
 19 **A. I have it.**
 20 **Q.** And if I might, I point you first to page 220.
 21 And on line 20 of that page, question. Back on
 22 the first page, which I can read pretty well,
 23 about a little farther than midway down, you
 24 write a sentence, quote, this isn't a 50 year old
 25 western states Compact where diversions are

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1 allowed to dry up whole rivers. The vast
 2 majority of the ACT/ACF water will stay where it
 3 is.
 4 Do you see that?
 5 Answer. I see that.
 6 Do you recall what you meant by that
 7 statement?
 8 Answer. Well, I think that was a point that
 9 we wanted to clarify or reassure DOJ and the
 10 other federal representatives on. There were to
 11 my understanding Compacts among the western
 12 states which completely appropriated the water of
 13 certain rivers to the point that they dried up.
 14 And I must have thought that somebody in DOJ or
 15 other federal representatives might have thought
 16 such a thing could happen in this case, and so I
 17 made the comment that that's not what this is.
 18 And the way the laws have changed in this
 19 country, you can't do that anymore.
 20 Sir, do you recall that testimony?
 21 **A. I do now.**
 22 **Q.** Okay. Thank you. Now, sir, I would like to
 23 invite your attention to the next tab, which is
 24 21. And here, sir, I'm not sure that I'm as
 25 competent as you are to read your handwriting.

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1 So, first, let me ask, can you confirm that's
 2 your handwriting, sir?
 3 **A. Yes, it is.**
 4 **Q.** All right. Would you please read to the Court
 5 the first four paragraphs of your handwritten
 6 notes on this page.
 7 **A. If we tell Corps what we really want and they**
 8 **start using it in their open EIS process, it**
 9 **becomes public early.**
 10 **Florida and Alabama might be scared off.**
 11 **Compacts may get scuttled.**
 12 **Alabama and Florida will learn sooner or**
 13 **later what we want, and won't like it. Big**
 14 **question is should they know sooner or later,**
 15 **after Compacts pass.**
 16 **One advantage of getting low end of rains**
 17 **cranked in and evaluated early is we get to see**
 18 **and influence what the impacts are, and see**
 19 **Florida and Alabama reactions to them. Depending**
 20 **on their reactions, we can anticipate what we**
 21 **need to adjust for negotiations.**
 22 **Q.** Sir, you wrote these notes before the federal
 23 Compact passed Congress. Right?
 24 **A. It appears that I did, yes, sir.**
 25 **Q.** And in that first paragraph, you read where it

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1 says Corps. That's a reference to the Army
 2 Corps. Right?
 3 **A. U.S. Army Corps of Engineers.**
 4 **Q.** And they were involved in the negotiations to
 5 some extent at least. Correct?
 6 **A. Yes.**
 7 **Q.** And your reference there to an open EIS process
 8 is a reference to the environmental impact
 9 statement process. Correct?
 10 **A. Yes.**
 11 **Q.** And that would require notice and comment from
 12 the Army Corps. Correct?
 13 **A. Yes.**
 14 **Q.** And then in the next line you write, Florida and
 15 Alabama might be scared off, Compacts may get
 16 scuttled. Did you mean by scuttle that the
 17 Compacts may never pass?
 18 **A. I don't remember what I meant at that time. But**
 19 **what I was trying to do was to think through a**
 20 **complex issue. I assume that the Compacts would**
 21 **be ratified by Congress and that we would be**
 22 **negotiating. And I was starting to think, as I**
 23 **assume that Florida and Alabama were starting to**
 24 **think, about how we would form an allocation**
 25 **agreement, an allocation formula.**

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1 **Q.** Now, sir -- I'm sorry, sir.
 2 **A. Because we didn't have very long to do it. We**
 3 **would have a year after the Congress ratified it.**
 4 **Q.** Well, so, sir, by this point in time when the
 5 Compacts were on the verge of passing Congress,
 6 Florida, and Alabama, Georgia, and the federal
 7 government had already been involved for roughly
 8 seven years in a comprehensive study of all of
 9 the consumption, agricultural, municipal,
 10 industrial, and other issues relating to the ACF
 11 Basin. Right?
 12 **A. Yes.**
 13 **Q.** All right, sir. So the next sentence that's
 14 written there reads, Florida and Alabama will
 15 learn sooner or later what we want, and won't
 16 like it. Big question is should they know sooner
 17 or later, after the Compacts pass?
 18 You wrote that; didn't you?
 19 **A. I did.**
 20 **Q.** All right, sir. So if I might invite your
 21 attention, please, to FX-212, which is at tab 22.
 22 And, sir, this is a letter signed by Douglas
 23 Barr. Do you see that?
 24 **A. Yes.**
 25 **Q.** Can you describe who Douglas Barr was, please.

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1 **A. He was the executive director of the Northwest**
 2 **Florida Water Management District.**
 3 **Q.** Was he negotiating for Florida or providing
 4 technical advice to Florida as part of the ACF
 5 Compact negotiations?
 6 **A. Yes, he was.**
 7 **Q.** And this is a letter to you. Right?
 8 **A. It is.**
 9 **Q.** From August 13, 1998?
 10 **A. That's right.**
 11 **Q.** And that is roughly nine months after the Compact
 12 passed. Right?
 13 **A. Correct.**
 14 **Q.** Okay. So I would like to invite your attention
 15 to the second paragraph and, indeed, the second
 16 sentence in that paragraph where Mr. Barr writes,
 17 quote, from our perspective, as the downstream
 18 state, however, we are concerned that over the
 19 past two to three months we have been presented
 20 with new and significantly higher demand sets for
 21 the municipal and industrial water needs for the
 22 Georgia portion of the basin and the new
 23 reservoir operating rules and procedures that
 24 have not been discussed during the course of the
 25 last six years of study.

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1 Do you see that, sir?
 2 **A. I do.**
 3 **Q.** And it's true, isn't it, that Georgia only
 4 provided those new demand sets after the federal
 5 Compact passed. Right?
 6 **A. I expect that's true. I don't remember exactly**
 7 **when we first put our M & I demands on the table,**
 8 **but most likely after the federal Compact passed.**
 9 **Q.** Now, sir, if I might invite your attention to
 10 tab 23, which is a letter from 1999 from the U.S.
 11 Fish and Wildlife Service. And, sir, might I ask
 12 you to identify the Honorable Lindsey Thomas who
 13 is the -- who is the recipient of this letter?
 14 **A. He was the person appointed by the President as**
 15 **federal commissioner for the ACT/ACF River Basin**
 16 **Commissions.**
 17 **Q.** And you were acquainted with Mr. Thomas through
 18 this process; were you not?
 19 **A. Yes.**
 20 **Q.** And, in fact, you received this letter as a
 21 technical adviser and negotiating on behalf of
 22 Georgia. Right?
 23 **A. I don't see myself shown as receiving a carbon**
 24 **copy of it. I don't know if I received it or**
 25 **not.**

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1 Q. All right, sir. On the last page, do you see the
 2 name Gail Carmody?
 3 A. I do.
 4 Q. All right. And she was with U. S Fish and
 5 Wildlife?
 6 A. Yes.
 7 Q. And you were familiar with her as well?
 8 A. Yes.
 9 Q. All right. Now, sir, if I might invite your
 10 attention -- and this is Florida Exhibit 35a at
 11 tab 23 -- to the second page under Drought
 12 Management, in there U.S. Fish and Wildlife
 13 writes, this issue is critical to the Service's
 14 interest in the ACF. Physical habitat conditions
 15 under droughts likely represent the limiting
 16 conditions for many riverine aquatic species in
 17 the basin. Flow depletions due to consumptive
 18 uses and reservoir evaporative losses may
 19 exacerbate these extreme conditions by further
 20 decreasing flow magnitude during droughts and by
 21 increasing their frequency and duration. We have
 22 recommended that the States negotiate consumptive
 23 use limits and reservoir operations as part of
 24 the allocation formula, and these limits in
 25 operations should be adjusted during drought.

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1 Do you see that, sir?
 2 A. I do.
 3 Q. Do you recall U.S. Fish and Wildlife Service
 4 asserting that position as part of the ACF
 5 Compact negotiations?
 6 A. I don't recall specifically, no. I don't.
 7 Q. Well, let's try a different letter, if we might,
 8 sir, at tab 24. And at that tab do you see a
 9 letter, again, to Mr. Lindsey Thomas, federal
 10 commissioner?
 11 A. I do.
 12 Q. And do you see the signature from -- of John, I
 13 believe it's Harkinson, Jr., regional
 14 administrator for the Environmental Protection
 15 Agency?
 16 A. It's Hankinson.
 17 Yes, I see it.
 18 Q. Thank you for that correction, sir.
 19 Now, sir, if I might, in this letter I would
 20 like to ask you if you recall receiving this one?
 21 A. I don't recall it.
 22 Q. Well, let's talk about whether you're aware of
 23 EPA Region 4's views. So let's turn to page 2 of
 24 this 1999 letter, and I invite your attention in
 25 particular to Basin Adequate Flows. And there it

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1 reads, quote -- in the middle of the page --
 2 adequate flows for the basins which preserve the
 3 biological, chemical, and physical integrity of
 4 the basins need to be established. This includes
 5 seasonal flow variations. Streamflow
 6 characteristics necessary to support the existing
 7 aquatic communities must be maintained to
 8 preserve the designated uses of the rivers in
 9 these basins. Sufficient flow must remain in
 10 each stream under all anticipated conditions to
 11 support a balanced, diverse, and indigenous
 12 population of aquatic biota. There should be no
 13 expected diminution in the population numbers of
 14 these biota due to any proposed reduction in
 15 water flow. There should be no expected
 16 reduction of the quantity or quality of sports or
 17 commercial fisheries as a reduction of flow
 18 reductions authorized by the Compacts.
 19 Do you see that, sir?
 20 A. Yes.
 21 Q. You were aware that was the position of EPA at
 22 this time?
 23 A. I -- I don't recall. I -- I don't recall seeing
 24 this letter.
 25 Q. Now, sir, let's focus on a slightly different

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1 issue. Just above what I read where it says,
 2 NPDES compliance -- National Pollutant Discharge
 3 Elimination System.
 4 Do you see where I am, sir?
 5 A. Sure.
 6 Q. And, now, there it reads, quotes, no proposal
 7 shall result in noncompliance of permitted
 8 dischargers.
 9 This is a Clean Water Act issue; is it not?
 10 A. Yes, sir.
 11 Q. Then it goes on, quote, minimum flows anticipated
 12 to result from any allocation formula must be
 13 consistent with minimal flow assumptions
 14 underlying each currently issued NPDES permit.
 15 Do you see that, sir?
 16 A. Yes.
 17 Q. Were you aware of that position by EPA?
 18 A. I wasn't aware of the position, but it doesn't
 19 surprise me in that it's simply part of their
 20 requirements under the Clean Water Act.
 21 Q. Are you familiar, sir, with the Clean Water Act
 22 NPDES related criteria for the Bainbridge Gage --
 23 A. No.
 24 Q. -- in Flint River?
 25 A. No.

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1 **Q.** Would you be surprised to learn that Georgia has
 2 violated those criteria year after year after
 3 year since 2000?
 4 **A. Yes.**
 5 **Q.** Okay, sir. Let's, sir, if we might, take a look
 6 at tab 27, please. And there do you see a letter
 7 signed by you?
 8 **A. I do.**
 9 **Q.** Florida Exhibit 219. Is this a letter you wrote
 10 to Mr. Struhs of Florida's Department of
 11 Environmental Protection and Mr. Trey Glen of the
 12 Alabama Department of Environmental and Community
 13 Affairs?
 14 **A. Yes.**
 15 **Q.** And the purpose of this letter was to provide
 16 Alabama and Florida with your best information
 17 about the quantity of agricultural irrigation
 18 acreage in the Flint River Basin?
 19 **A. Acreage and water use in the Flint River Basin,**
 20 **yes.**
 21 **Q.** And also in the Chattahoochee River Basin?
 22 **A. That was included in the data, yes.**
 23 **Q.** All right, sir. So might I invite your attention
 24 to the ninth page of the attachment to the
 25 letter, which is titled Draft Status Report.

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1 Again, this is FX-219.
 2 And, sir, do you see a subtitle there,
 3 Summary and Conclusions?
 4 **A. Yes.**
 5 **Q.** Okay. I want to first focus on the sentences
 6 just above that, if I might. And in that
 7 paragraph just above the Summary and Conclusions,
 8 it reads, quote, for these reasons, while Georgia
 9 agrees that 8 inches per acre per year is an
 10 adequate estimate of water use in a normal
 11 rainfall year, we must assume higher numbers
 12 while planning future water use in dry years.
 13 And then another sentence a little bit later,
 14 the last sentence in that paragraph reads, quote,
 15 a safe and appropriate estimate for average
 16 irrigation during dry years in the ACF Basin in
 17 Georgia is 80 percent above the normal year
 18 number, or 14.4 inches per acre per year.
 19 Do you see that, sir?
 20 **A. Yes.**
 21 **Q.** Was it not true that inside, internally to EPD,
 22 there was a recommendation from your staff that
 23 the State of Georgia could cap irrigation use at
 24 15 inches per acre per year in the Flint River
 25 Basin?

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1 **A. I don't recall.**
 2 **Q.** Okay, sir. Now, let's look at the Summary and
 3 Conclusions section, if we might. And, there
 4 again, I would like to look at the last paragraph
 5 of that section where it reads, combining figures
 6 for map and farmer-verified acres with unmapped,
 7 but permanent acres, Georgia has determined that
 8 there are 714,739 acres of irrigated farmland in
 9 the Flint River Basin and 68,741 acres of
 10 irrigated farmland in the Chattahoochee River
 11 Basin. There are an additional 142,986 acres of
 12 farmland in the Flint River Basin awaiting
 13 irrigation permits from Georgia EPD. Thus,
 14 Georgia will require irrigation of more than
 15 920,000 acres of farmland in the Flint and
 16 Chattahoochee River basins.
 17 Do you see that, sir?
 18 **A. Yes, I see it.**
 19 **Q.** You intended that to be accurate and the best
 20 information that you could provide at the time
 21 you wrote it. Right?
 22 **A. Yes.**
 23 **Q.** Are you aware that Georgia's experts in this case
 24 are now taking the position that the number of
 25 irrigated acres is substantially less?

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1 **A. No, I'm not aware of that.**
 2 **Q.** Okay. Now, sir, in recent years you worked with
 3 an individual -- a client of yours named
 4 Mr. Pine; is that correct?
 5 **A. David Pine?**
 6 **Q.** David Pine.
 7 **A. I did.**
 8 **Q.** And the subject matter of that engagement in
 9 recent years was the proposal related to a topic
 10 called aquifer storage and recovery. Is that
 11 correct?
 12 **A. Yes.**
 13 **Q.** Can you describe for the Court what that means.
 14 **A. Aquifer storage and recovery is a way of storing**
 15 **water underground in appropriate geologic**
 16 **formations. After treating the water to make**
 17 **sure -- if it needs treatment, to make sure it is**
 18 **pure, it is pumped down into an aquifer, stored**
 19 **there until such time that it may be needed**
 20 **later, and then pumped back out for whatever that**
 21 **use was.**
 22 **Q.** And you're familiar -- let me ask you first. Do
 23 you mind if I call that ASR for now?
 24 **A. That's fine with me.**
 25 **Q.** So you're aware, aren't you, that Florida employs

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1 ASR?
 2 **A. Yes, I am.**
 3 **Q.** And many other states do as well. Correct?
 4 **A. Yes.**
 5 **Q.** And it's a way to create a reserve of water that
 6 can be called upon in a drier drought year.
 7 Correct?
 8 **A. Yes.**
 9 **Q.** So, sir, isn't it true that on behalf of
 10 Mr. Pine, that you made a proposal to the Georgia
 11 government in 2012 that ASR projects could result
 12 in the availability of 250 cfs of additional flow
 13 in dry and drought years?
 14 **A. I was thinking the number was 250 mgd.**
 15 **Q.** I'm sorry. I may be wrong. If it's mgd --
 16 **A. I don't recall right now.**
 17 **Q.** Actually, sir, I believe you are correct; and I
 18 am wrong.
 19 **A. Okay.**
 20 **Q.** Mgd for seven consecutive months for three
 21 consecutive years. Does that sound right to you?
 22 **A. I think that's what Mr. Pine thought in his rough**
 23 **calculations could be done.**
 24 **Q.** And 250 millions of gallons per day, mgd, is
 25 roughly equivalent to what, about 400 cfs?
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1 **A. In that range.**
 2 **Q.** Okay. Now, sir, if I might, I would like to
 3 invite your attention to tab 29, please. And,
 4 sir, the reason I'm going to ask you about the
 5 document at tab 29 is because in your prefiled
 6 direct in at least one sentence, you identified
 7 your conclusion that there was, quote, plenty of
 8 water in the Flint River Basin for irrigation.
 9 So tab 29 is FX-49d1. And I would invite your
 10 attention to the discussion and conclusions in
 11 that study, which is on page 27.
 12 Are you with me on page 27, sir?
 13 **A. Yes.**
 14 **Q.** Now, sir, on page 28 there's a paragraph titled
 15 Acknowledgments. And do you see there it says,
 16 quote, funding for this project was provided by
 17 the Georgia Environmental Protection Division and
 18 the J. W. Jones Ecological Center.
 19 **A. I see that.**
 20 **Q.** Okay, sir. Now, do you recall earlier today when
 21 we were looking at the list of technical advisors
 22 to the -- to Georgia's 2006 plan for the Flint
 23 River Basin, did you see the names there David
 24 Woody Hicks and Stephen Golladay?
 25 **A. Yes.**
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1 **Q.** Okay. So, sir -- and I'm sorry to move from page
 2 to page here; but if you look at the cover page
 3 of the study, FX -- Florida Exhibit 49d1, it's
 4 titled Impacts of Agricultural Pumping on
 5 Selected Streams in Southwest Georgia. It's
 6 actually the second page of the exhibit, the
 7 cover page of the study. Do you see the names
 8 there David W. Hicks and Stephen Golladay?
 9 **A. I see them.**
 10 **Q.** Now, back to page 27, if we might. And there I
 11 would invite your attention to about two-thirds
 12 of the way down the first paragraph, and the
 13 sentence begins with our analysis. And I'll read
 14 that.
 15 Quote, our analysis of climate does not
 16 suggest long-term changes or trends in annual
 17 rainfall in southwestern Georgia. While
 18 seasonality of rainfall has shifted slightly,
 19 there is no consistent change in annual total
 20 rainfall over the past 60 years. Our analysis of
 21 streamflow data show consistent and substantial
 22 declines in minimum and seasonal streamflow
 23 associated with the development and
 24 implementation of agricultural irrigation in the
 25 Flint River Drought -- sorry, FRDP area of
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1 southwestern Georgia. This has resulted in some
 2 of the lowest flows on record during recent
 3 droughts. There is no climatologic indication
 4 that recent droughts were more severe or
 5 persistent than those in the past, i.e., 1930's
 6 or 1950's. Thus, we conclude that water use is
 7 the primary factor causing record low streamflow
 8 and other alterations in regional hydrology.
 9 Do you see that, sir?
 10 **A. I do.**
 11 **Q.** Were you aware of this report when you prepared
 12 your testimony in this case?
 13 **A. No. I have never seen the report until today, as**
 14 **far as I know.**
 15 **Q.** Okay, sir. So I would invite your attention to
 16 tab 30, which is Joint Exhibit 161. And, sir, I
 17 believe this document is also a subject of your
 18 prefiled direct testimony. Is that correct?
 19 **A. Yes. I believe it is.**
 20 **Q.** And this document was issued about four months
 21 before you left Georgia EPD; is that correct?
 22 **A. That's correct.**
 23 **Q.** All right, sir. I would like to invite your
 24 attention in this document, JX-161, to page 13,
 25 please. Now, sir, in particular on that page
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1 down in the box at the bottom, there are a list
 2 of declared drought responses. Do you see those,
 3 sir?
 4 **A. Yes.**
 5 **Q.** Those are for municipal and industrial activities
 6 in Georgia. Right?
 7 **A. That's correct.**
 8 **Q.** So in years where drought is declared in a city
 9 or in a metro area, the State needs to determine
 10 which, if any, of these declared drought
 11 responses to utilize; is that right?
 12 **A. Yes.**
 13 **Q.** And in 2007, in fact, this authority was used to
 14 reduce outdoor water use; was it not?
 15 **A. I believe it was. I don't remember the time of**
 16 **year, but I think 2007 was correct. And I had**
 17 **been retired from EPD for four years when that**
 18 **happened.**
 19 **Q.** Yes, sir. And the only reason I'm asking about
 20 this is because it appears in your prefiled
 21 direct testimony.
 22 **A. Okay.**
 23 **Q.** So, sir, are you aware whether or not Georgia
 24 exercised this outdoor water use authority in
 25 2011 or 2012 to reduce the use of water in metro

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1 Atlanta or anyplace else in Georgia?
 2 **A. I don't remember for certain, but I think that it**
 3 **was.**
 4 **Q.** Do you know where?
 5 **A. I don't recall.**
 6 **Q.** Do you think it should have been, whether it was
 7 or not?
 8 **A. I said I think it may have been, but I do not**
 9 **recall.**
 10 **Q.** Okay, sir. I would invite your attention now,
 11 please, to page 17 of this same tab. And, sir,
 12 do you see section 4B, agricultural drought
 13 response?
 14 **A. Yes.**
 15 **Q.** All right, sir. It reads, quote, implement the
 16 Flint River Drought Protection Act whenever
 17 severe drought conditions are predicted in the
 18 Flint River Basin. Measure and improve the
 19 effectiveness of the protective activities called
 20 for by the Act. And then it has some brackets,
 21 with EPD, there. Do you see that?
 22 **A. I do.**
 23 **Q.** Now, sir, the Flint River Drought Protection Act
 24 to your knowledge has never been exercised since
 25 2003; isn't that correct?

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1 **A. Well, exercise of the law involves a number of**
 2 **things. A drought reduction auction is one of**
 3 **those.**
 4 **Q.** Well, let's focus on that then.
 5 **A. In 2001 and 2002 we conducted drought reduction**
 6 **auctions. Since then, I don't recall one being**
 7 **conducted. But when you say it has never been**
 8 **exercised or never been implemented -- the Act --**
 9 **the Act is there. And EPD looks at it every**
 10 **year, I believe, to determine whether or not to**
 11 **declare a drought and whatever other requirements**
 12 **there may be.**
 13 **Sometime in recent years, I think 2014, the**
 14 **Act was amended; and there are some new**
 15 **requirements on agricultural use in the Flint**
 16 **River Basin. I'm -- I assume those are being**
 17 **implemented. I don't have that information.**
 18 **Q.** So, sir, I recognize you haven't been there since
 19 2003; so my question is about dates after 2003
 20 when the document we're looking at was issued.
 21 So let me refine that and ask you a slightly
 22 different question.
 23 Do you know if in 2007 there was a severe
 24 drought?
 25 **A. If you mean there was a severe drought declared**

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1 **under the Flint River Drought Protection Act by**
 2 **the EPD director, I don't know.**
 3 **Q.** Sir, were you here yesterday when we played the
 4 video clips on that topic from former Director
 5 Turner?
 6 **A. I was not here.**
 7 **Q.** Okay. Now, sir, there's another portion of your
 8 prefiled direct testimony that deals with
 9 legislation passed in 2003 regarding flow meters
 10 on irrigation withdrawals.
 11 **A. Yes.**
 12 **Q.** All right, sir. Now, do you know what percentage
 13 of irrigation withdrawals are metered in the
 14 Lower Flint-Ochlockonee area?
 15 **A. I do not know the percentage.**
 16 **Q.** Would it surprise you to learn that it's 53
 17 percent?
 18 **A. It would. But it sounds --**
 19 **Q.** And that's because --
 20 **A. That sounds low.**
 21 **Q.** And that's because you believe it's higher?
 22 **A. That's correct.**
 23 **Q.** Okay. Now, sir, are you aware that there has
 24 been no funding provided by the State of Georgia
 25 for installation and maintenance of flow meters

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1 for some time?

2 **A. No, I'm not privy to the budget of the state; and**

3 **I don't know what it has provided for that.**

4 **Q.** Do you know Mr. Eigenberg, David Eigenberg?

5 **A. I do know a David Eisenberg.**

6 **Q.** My fault. Eisenberg.

7 Would that individual have responsibility for

8 flow meters and related issues?

9 **A. I think he did at one time. I don't know if he**

10 **still does.**

11 **Q.** Now, sir, in your testimony at page 34 or so --

12 31, pardon me -- you write that some of your

13 former memoranda or statements in writing may

14 have, quote, overstated the risks. Now, you

15 never expressed this concern to me during our

16 deposition; did you?

17 MR. PRIMIS: Your Honor, I --

18 **A. Where are you now?**

19 SPECIAL MASTER LANCASTER: Excuse me.

20 MR. PRIMIS: I object to the question.

21 He was asked whether he expressed something

22 at his deposition, which is an improper

23 question.

24 MR. PERRY: All right. I'll withdraw

25 it, your Honor, and ask a different question.

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1 SPECIAL MASTER LANCASTER: Thank you.

2 BY MR. PERRY:

3 **Q.** Now, sir, you haven't seen a document today that

4 you wrote that you believe was inaccurate when

5 you wrote it. Right?

6 **A. I thought that any document I was doing was**

7 **accurate. There are qualifiers to that. And I**

8 **think what I expressed and you just read is a**

9 **qualifier that at times, although I intended to**

10 **be truthful about everything, I may have**

11 **overstated the risks. And drying up the Flint**

12 **River is one of those overstatements that I made**

13 **a number of times.**

14 **Thank goodness the Flint River has never**

15 **dried up and thank goodness our concerns about**

16 **the model being not accurate in that regard were**

17 **correct.**

18 **It was not accurate. The Flint River hasn't**

19 **dried up. But I did say that again and again**

20 **because that was something that came out of the**

21 **model.**

22 **Q.** Now --

23 **A. So while it was truthful that it came out of the**

24 **model, it was an overstatement based on the --**

25 **the rudimentary nature of the model and the lack**

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1 **of good data that was in the original model runs.**

2 **Q.** Now, you're referring to the United States

3 Geological Survey model that you said --

4 **A. Yes.**

5 **Q.** Okay. So, sir, you remember about two hours ago,

6 maybe two and a half hours ago we talked about

7 your OpEd. Right?

8 **A. About what? The OpEd?**

9 **Q.** The OpEd, yes, sir.

10 And there I think you told me not long ago

11 and in your deposition, too, that although the

12 Flint River itself hasn't yet dried up, many

13 major Flint tributaries have over miles of

14 length.

15 That was a true statement; wasn't it?

16 **A. I believe that was true.**

17 **Q.** Okay.

18 **A. It's also true that the Flint River didn't dry**

19 **up.**

20 **Q.** Sir, what was the lowest year in the history of

21 flow -- measured flows for the Flint River at the

22 Bainbridge Gage?

23 **A. I do not know.**

24 **Q.** Okay. What was the lowest year in the history of

25 flows for the Flint River at the Newton Gage?

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1 **A. I do not know.**

2 **Q.** Do you know the lowest year in the history of the

3 Spring Creek Gage at Iron City?

4 **A. I do not know.**

5 **Q.** Did the Spring Creek Gage at Iron City ever reach

6 zero while you were director?

7 **A. It may have, but I don't know.**

8 **Q.** Okay. Are you aware of any time in history prior

9 to the last 15 years when the Spring Creek Gage

10 was zero for a month at a time?

11 **A. I don't know.**

12 **Q.** Okay. Thank you, sir.

13 MR. PERRY: Your Honor, we're about

14 2:20. And I would invite Georgia to suggest

15 a break. But if that's appropriate, I can

16 suggest it, too.

17 MR. PRIMIS: I think a break for the

18 court reporter and myself would actually be

19 good for five or 10 minutes, your Honor, if

20 we may.

21 SPECIAL MASTER LANCASTER: Okay. All

22 right.

23 MR. PRIMIS: 10 minutes?

24 SPECIAL MASTER LANCASTER: 10 minutes.

25 MR. PRIMIS: Thank you.

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1 (Time Noted: 2:16 p.m.)
 2 (Recess Called)
 3 (Time Noted: 2:30 p.m.)
 4 SPECIAL MASTER LANCASTER: Mr. Primis?
 5 MR. PRIMIS: Good afternoon, your Honor.
 6 Thank you.
 7 Before I start with Mr. Reheis, I did
 8 want to note for the record that I'm joined
 9 by my colleague, Mr. Christian Reigstad, who
 10 has helped with Mr. Reheis's testimony.
 11 SPECIAL MASTER LANCASTER: Welcome.
 12 REDIRECT EXAMINATION
 13 BY MR. PRIMIS:
 14 Q. Mr. Reheis, I think you said on your direct
 15 examination or Mr. Perry's cross-examination that
 16 you were the director of EPD from July of '91 to
 17 July of 2003. Is that true?
 18 A. Yes, it is.
 19 Q. Does that mean that you were head of EPD during
 20 all or most of the comprehensive study and the
 21 related Compact negotiations?
 22 A. Yes.
 23 Q. Now, there has been testimony before you arrived
 24 about the comprehensive study?
 25 A. Excuse me.

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1 Q. Yes?
 2 A. I was not director of EPD during the last few
 3 months of the -- or last, I guess, two months or
 4 one month of the Compact negotiations. I retired
 5 in July of '03. The Compact dissolved in late
 6 August of '03.
 7 Q. Okay. Thank you.
 8 A. I was advising Governor Perdue pro bono after I
 9 retired.
 10 Q. Okay. So for the last month of that period, did
 11 you stay involved in the Compact process?
 12 A. Yes, I did.
 13 Q. Now, Mr. Reheis, the Special Master has asked
 14 some of the other witnesses about the
 15 comprehensive study and the Compact negotiations;
 16 and I want to cover that with you since you were
 17 there for at least the whole comprehensive study.
 18 Can you explain what that is.
 19 A. Well, the comprehensive study was a study
 20 undertaken by Georgia, Alabama, and Florida in
 21 the ACF, and by Georgia, Alabama in the ACT,
 22 along with the Corps of Engineers in both of
 23 them. And it was done by agreement and called a
 24 Memorandum of Agreement that was signed by the
 25 three states and the Department of the Army in

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1 1992.
 2 The agreement was that we would study all of
 3 the uses of the water resources in those basins
 4 and get a good definition and model of the water
 5 resources to the extent that that could be done
 6 and study ways to manage the water to meet the
 7 needs in the three states to the best of our
 8 ability and to try to come up with a long-term
 9 plan for working together in the management of
 10 those waters.
 11 Q. Mr. Reheis, let me just pause you there. Can you
 12 tell us what was the time frame for the
 13 comprehensive study?
 14 A. When we signed the Memorandum of Agreement in
 15 '92, we assumed we would get it done in three
 16 years. That turned out to be an optimistic
 17 assumption. And I think in -- after some five
 18 years, sometime in 2007, we still weren't really
 19 completely there. But I think we decided that we
 20 had done enough, and we could start negotiating
 21 the formula.
 22 Q. Mr. Reheis, would you tell the Court what your
 23 role was in the comprehensive study?
 24 A. I was the State of Georgia's lead technical
 25 person. I was also a state lead policy person,

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1 who initially was Joe Tanner; and then that
 2 became Robert Kirk.
 3 Q. What was your role as lead technical
 4 representative?
 5 A. To work with my counterparts in Florida and
 6 Alabama and the Corps of Engineers to develop
 7 scopes of work. The Corps of Engineers was going
 8 to contract out with different entities to do
 9 various pieces of the work of the comprehensive
 10 study. Some of it was private consultants. Some
 11 of it was other government agencies like the U.S.
 12 Geological Survey.
 13 So we developed the scopes of work, and then
 14 we were to review the work that came in as a
 15 result of those contracts. And we were also to
 16 provide information that would be useful to the
 17 contractors as they developed the various
 18 products.
 19 Q. Mr. Reheis, was agricultural water use one aspect
 20 of the comprehensive study?
 21 A. As I recollect it was, yes.
 22 Q. And what kind of technical work was done
 23 regarding agricultural water use in the
 24 comprehensive study?
 25 A. I do not remember how or who got the handle on

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1 acres irrigated. It may have been the U.S.
 2 Department of Agriculture that was contracted to
 3 do that, but the U.S. Geological Survey did the
 4 thing that I think that was most important to the
 5 three states. And that was put together a
 6 groundwater model of the Floridan Aquifer in
 7 southwest Georgia, southeast Alabama, and north
 8 part of Florida, and the ACF basis.

9 Q. What was the USGS model intended to do?
 10 A. It was intended to determine the -- or to predict
 11 how groundwater would react to different inputs
 12 of water use. And most of the water use was by
 13 agriculture in southwest Georgia. Some was by
 14 Florida. Some was by Alabama. But to be able to
 15 predict the extent to which water use could
 16 affect stream flows in the surface streams of
 17 southwest Georgia.

18 Q. Mr. Reheis, what, if anything, did the results of
 19 that USGS study show with respect to the effect
 20 of pumping for agriculture on the Flint River?
 21 A. I don't remember exactly how the USGS study
 22 showed impacts on the Flint River. But what we
 23 ended up doing or the Corps of Engineers ended up
 24 doing, working with the U.S. Geological Survey,
 25 was to be able to interface the U.S. Geological

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1 Survey model with the hydrologic model of the
 2 streams and rivers that they had produced. And
 3 by doing so, we were able to predict when and how
 4 much water might be decreased in the surface
 5 streams as a result of use in the Floridan
 6 Aquifer.

7 Q. When did that -- when did those results come to
 8 your attention, the ones where you interfaced the
 9 USGS model with the Army Corps model?
 10 A. I don't remember an exact time, but I'm pretty
 11 sure it was in 1997. I don't remember if it was
 12 early, middle, or late '97.

13 I think the U.S. Geological Survey by itself
 14 on groundwater was in '96.

15 Q. Now, Mr. Reheis, you were EPD director in Georgia
 16 when these results came in. Correct?
 17 A. Yes, I was.

18 Q. Okay. So what was EPD's reaction to the findings
 19 of this modeling?
 20 A. EPD was concerned because we -- we saw that
 21 impacts on the Flint River were predicted. Some
 22 of those impacts looked pretty severe. We didn't
 23 believe, as the model said, that occasionally on
 24 single days here and there you would see zero
 25 streamflow in the Flint River. Nature doesn't

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1 work that way. And that was an aberration of the
 2 modeling. But it was -- it was something that
 3 was in the modeling. You couldn't deny that it
 4 was there.

5 And so we -- we began determining what we
 6 needed to do to have higher confidence in that
 7 model. There were several things that we needed
 8 to do. We needed to --

9 Q. So let me pause you there just so we have a
 10 question. What did EPD determine to do under
 11 your leadership in response to these modeling
 12 results that you found concerning?
 13 A. To determine as accurately as we could the actual
 14 number of irrigated acres in the lower ACF Basin
 15 and Georgia, to determine as accurately as we
 16 could how much water the farmers were using and
 17 on -- on what schedule.

18 The USGS model had them using the same amount
 19 year-round, as I recall. We know that they use
 20 virtually 90 percent or more of their water from
 21 April to September. It wasn't modeled that way.

22 We also knew that -- that USGS was budget
 23 limited in putting together the model. And by
 24 providing some additional money to them, they
 25 could probably make improvements to it. So I

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1 went about getting money into my budget from the
 2 General Assembly to do what we call a sound
 3 science study, which was to contract with the
 4 University of Georgia and others to put in water
 5 meters on a statistical sampling of farms so that
 6 we could get a good idea of how much water was
 7 actually being used, and then also contract with
 8 the University of Georgia and others to help us
 9 ground-truth the acreage that was actually being
 10 irrigated.

11 Q. What does ground-truth mean?
 12 A. Go out, meet with the farmers, show them maps
 13 of -- aerial photographs and so on of their
 14 region, identify exactly which fields were
 15 theirs, which were being irrigated, and which --
 16 and what were their water sources.

17 Q. Mr. Reheis, did you undertake any educational
 18 efforts on conservation at this time?
 19 A. We did, but mostly it was done by University of
 20 Georgia, the Cooperative Extension Service, and
 21 USDA. They were interested in helping, and they
 22 did that.

23 Q. What did they do?
 24 A. They were able to bring to the farmers' attention
 25 throughout southwest Georgia ways to use less

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1 water, how to change out the earlier, less
 2 efficient center pivot irrigation systems, the
 3 nozzles, the way they delivered water to the
 4 field, to lower pressure methods that would not
 5 lose as much water to evaporation, and various
 6 other techniques.

7 Q. Mr. Reheis, did you do anything to slow the
 8 growth of agricultural permitting in the region
 9 while you did your sound science study?

10 A. Yes, I did. I had a lot of meetings with farmers
 11 and opinion leaders in southwest Georgia and with
 12 legislators and so on to educate people to the
 13 fact that we needed to do things differently than
 14 what we had been doing regarding agriculture
 15 permitting. And that led to my imposing a permit
 16 moratorium on November 30 of 1999. That
 17 moratorium stayed in place for more than six
 18 years until my successor, Dr. Couch, could
 19 complete the Flint River Water Development and
 20 Conservation Plan. Our laws allowed the director
 21 of EPD to suspend the permitting during the
 22 pendency of the plan, so that's what I did.

23 Q. Mr. Perry pointed out that you had approved some
 24 permits before that that were pending before the
 25 moratorium went into place. Do you recall that?

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1 A. Yes, I do.

2 Q. Can you explain to the Court why you did that.

3 A. There were about 2500 applications for irrigation
 4 that came in in '98 and '99 -- 1998 and 1999 to
 5 EPD for the -- for southwest Georgia. We took a
 6 hard look at them.

7 And farmers were -- were drilling wells and
 8 installing irrigation systems because the drought
 9 was bad. And they needed to try to get some
 10 relief from that. A number of those farmers
 11 actually drilled a well and installed a system.
 12 Our number at the time there was 864 of them.
 13 The rest of them had not drilled wells or were
 14 outside of the area of concern.

15 So I thought long and hard about whether to
 16 issue that backlog of permits, decided that based
 17 on a variety of circumstances -- one, farmers had
 18 a great deal of difficulty in getting crop loans
 19 from banks and other lenders if they didn't have
 20 an irrigation permit. The commodity prices
 21 were -- were low; and diesel pricers were high.
 22 And it was just a hard time for farmers to stay
 23 above water. And -- that wasn't said quite
 24 right. Keep their heads above water, not go
 25 underwater in debt.

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1 And a number of the farmers had followed the
 2 normal EPD procedure, which was to get a letter
 3 of concurrence, then drill a well, then get the
 4 permit, because the permit had to contain
 5 specific information on the well that was -- that
 6 was drilled, the size, the depth, what aquifer it
 7 was in, and so on.

8 So a number of them had been going through
 9 the process legally anyway. And so all in all, I
 10 decided that we would -- we would issue that
 11 number of permits, 864.

12 That decision also was made after the
 13 legislature in the 2000 session of the General
 14 Assembly passed the Flint River Drought
 15 Protection Act. And my belief was that by
 16 passage of that Act, we could mitigate the
 17 impacts of those additional acres that -- for
 18 which I was considering issuing permits.

19 Q. Mr. Reheis, were you one of the people who pushed
 20 for passage of the Flint River Drought Protection
 21 Act?

22 A. Yes.

23 Q. Mr. Reheis, you testified about some concerns you
 24 had over the agricultural water use data that was
 25 being used in the comprehensive study. Correct?

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1 A. Yes.

2 Q. Okay. There is a document in your binder at that
 3 tab 11. It's Exhibit FX-5.

4 A. I have it.

5 Q. And --

6 A. Is this the June 16, 1999, letter to --

7 Q. Oh, no, I'm sorry.

8 A. I'm sorry.

9 Q. No. This is tab --

10 A. I'm sorry. I was tab 5, not FX-5. Excuse me.

11 Q. Tab 11, FX-5.

12 A. All right. Okay. I have it.

13 Q. Now, Mr. Perry asked you about the second
 14 paragraph, fourth paragraph, whichever --
 15 whichever you want to call it, but it was the one
 16 that says, I do believe the State will need to
 17 put a cap on water depletions.

18 Do you remember that?

19 A. He was right. That's the fourth paragraph.

20 Q. Okay. We have an agreement it was the fourth
 21 paragraph.

22 MR. PERRY: Thank you, sir.

23 BY MR. PRIMIS:

24 Q. Mr. Reheis, I want to ask you; on the -- midway
 25 down on the second page of this document, there's

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1 a statement that says, we have to deal with
 2 several uncertainties. And then there are
 3 bullets below that. Do you see that?
 4 **A. Yes, I do.**
 5 **Q.** I would like to walk through those uncertainties
 6 described in your bullets of this document.
 7 **A. Yes.**
 8 **Q.** The first one says, how many acres are actually
 9 irrigated?
 10 Why was that an uncertainty in April of 1999?
 11 **A. Well, we had never had enough staff to go out**
 12 **and -- and visit every site. And so we didn't**
 13 **know if the number of acres that -- to be**
 14 **irrigated that were claimed in the applications**
 15 **were actually the number that ended up being**
 16 **irrigated. So there was -- there was certainly a**
 17 **lot of doubt about that.**
 18 **In some cases people got irrigation permits**
 19 **and never installed an irrigation system. And we**
 20 **wouldn't have known without going to the field**
 21 **whether or not they had even installed one.**
 22 **So --**
 23 **Q.** Was that an important input into the USGS model?
 24 **A. Absolutely.**
 25 **Q.** The second one says, how much water is actually

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1 used in an average year and in a dry year?
 2 Was that an uncertainty at the time?
 3 **A. It certainly was.**
 4 **Q.** And how did that affect the modeling?
 5 **A. It affected it greatly. If you -- if you don't**
 6 **know how much water farmers are using, you're not**
 7 **going to predict correctly what the impacts will**
 8 **be on the aquifer and on the surface streams.**
 9 **And the amount of water used varies from dry year**
 10 **to wet year. It varies from season to season.**
 11 **And it varies from crop to crop. So we needed to**
 12 **get good estimates of that.**
 13 **And the University system and the folks we**
 14 **contracted with were able to give us good**
 15 **estimates by going out and installing meters and**
 16 **reading those meters on an appropriate**
 17 **statistical sampling of farms over three or four**
 18 **years.**
 19 **Q.** Mr. Reheis, the third uncertainty references, how
 20 good is our computer model of groundwater and its
 21 effect on surface water streams in dry years?
 22 What was the uncertainty there at this time
 23 in 1999?
 24 **A. Well, the uncertainty was the first two bullets,**
 25 **how many acres were irrigated and how much water**

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1 **was actually being used by farmers.**
 2 **In addition to that, as I mentioned earlier,**
 3 **the USGS model was -- was the best thing we had;**
 4 **but it was rudimentary. It could have been made**
 5 **better. And we didn't know how well it**
 6 **calibrated to real life systems -- situations.**
 7 **So we were able to get funding and contract**
 8 **with the U.S. Geological Survey to do -- to**
 9 **install, I think, more groundwater monitoring**
 10 **wells, to read those more frequently, to input**
 11 **the better data that was gathered by our Ag**
 12 **experts that we contracted with, and then to use**
 13 **all that to check the calibration of the model**
 14 **and make sure it matched real life conditions as**
 15 **well as it possibly could.**
 16 **So all those needed to be done, and we got**
 17 **them done.**
 18 **Q.** Mr. Reheis, I was just going to ask you on that
 19 last point about you got them done. As EPD
 20 director in 1999, did you feel that you had
 21 addressed the uncertainties you identified in
 22 this document?
 23 **A. Yes.**
 24 **Q.** And on the first page when Mr. Perry asked you
 25 about the line that says, I do believe the State

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1 will need to put a cap on water depletions one of
 2 these days, do you recall that?
 3 **A. Yes.**
 4 **Q.** And did you in fact do that?
 5 **A. Yes, we did. We did that by imposing the**
 6 **moratorium on agricultural permits in the Flint**
 7 **Basin beginning in 19 -- November 30, 1999.**
 8 **Q.** Now, Mr. Reheis, the -- I want to shift gears now
 9 and talk about another -- another item from the
 10 early part of this case, which is the discussions
 11 in the ACF Compact.
 12 **A. Yes.**
 13 **Q.** And you're familiar with that. Right?
 14 **A. Yes, I am.**
 15 **Q.** And can you tell the Court what the ACF Compact
 16 negotiations were.
 17 **A. The Compact negotiations were negotiations among**
 18 **the three states and the federal agencies**
 19 **starting after Congress ratified the Compact. So**
 20 **they began in early 1998. And we didn't have an**
 21 **allocation formula agreed to by the three states**
 22 **when we were -- each state was passing the -- or**
 23 **thinking about passing the Compact legislation.**
 24 **So the legislation said that once the Compact**
 25 **language is ratified, the States have to develop**

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1 an allocation formula. And it gave them until
 2 December 31, 1998, to get that done. The
 3 language was that the Compacts would dissolve if
 4 that was not done; but it could -- the date could
 5 be extended by agreement among the States.
 6 So there were -- it turned out to be a more
 7 difficult thing than we had originally thought it
 8 would. There were several extensions to the
 9 Compact. But during that time, the States and
 10 the federal agencies were in numerous discussions
 11 with each other and numerous meetings. And all
 12 of them did their own analyses as to what they
 13 would like to see.

14 Q. Mr. Reheis, let me pause there. What was your
 15 specific role personally in the Compact
 16 negotiations?

17 A. I led the technical team for Georgia, and I was
 18 one of -- one of two alternates for our
 19 Governors.

20 Q. And, Mr. Reheis, did the Compact negotiations go
 21 from 1998 to 2003?

22 A. Yes, they did.

23 Q. And I just want to make sure we understand the
 24 time frame. You had the comprehensive study from
 25 the early '90's until, I think you said, about

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1 1997?

2 A. Yes.

3 Q. And then the Compact picked up in '98 and moved
 4 forward to 2003?

5 A. That's correct.

6 Q. Now, you said that you were doing this sound
 7 science study beginning in 1998. Correct?

8 A. Yes.

9 Q. So was it going on at the same time?

10 A. Yes.

11 Q. Were the other Compact parties aware that you
 12 were conducting the sound science study in
 13 Georgia?

14 A. Yes.

15 Q. Now, Mr. Struhs was here a few days ago in the
 16 same seat you're in. And he testified that
 17 during the ACF Compact negotiations, the new data
 18 and inputs that you proposed departed from
 19 long-established understandings reached during
 20 the comprehensive study. But you were there. Do
 21 you agree with that statement?

22 A. No, I don't.

23 Q. Why not?

24 A. Well, I don't know what long-standing
 25 understandings reached meant to him. There would

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1 have been a component on agricultural water use
 2 and one on municipal-industrial water use that
 3 came out of the study; but they would have --
 4 they would have been done by the independent
 5 consultants on whatever information they had. I
 6 don't remember how far they looked into the
 7 future or if they just -- they just added up all
 8 the current water users by each of the states.

9 But -- and looking at the nature of the
 10 interstate water Compacts, I was certainly aware
 11 that Compacts can be expected to last for
 12 decades. Certainly that's what the ones out west
 13 have done. And I assumed that the ACF Compact,
 14 assuming we could reach agreement on the -- on an
 15 allocation formula, would also last for decades.

16 And I wanted to make sure that Georgia's
 17 expected growth in population and irrigation
 18 would be reasonably accommodated by whatever
 19 formula was ultimately agreed to. And so I
 20 made -- with our staff, we made predictions of
 21 municipal and industrial water use. And we made
 22 predictions of agricultural needs in the Lower
 23 Flint. I think that was that 920,000 acres or so
 24 that was in the April 2003 letter to Struhs
 25 and --

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1 Q. Mr. Reheis --

2 A. Those were our prerogatives. We were trying to
 3 negotiate good conditions and terms for the State
 4 of Georgia. That was our offer that we put on
 5 the table.

6 Q. Mr. Reheis, were you aware of anything in the
 7 Compact that spoke to whether the parties were
 8 bound by the data from the comprehensive study?

9 A. Absolutely.

10 Q. What -- I'm going to ask you, if I can -- I just
 11 want to ask you to refer to the document. It's
 12 at tab 18 of your binder.

13 A. Yes.

14 Q. It's FX-209.

15 A. I have it.

16 Q. And it is the ACF Compact. Do you recognize
 17 that?

18 A. Yes, it is.

19 Q. I would like to refer you to Article 7,
 20 subpart (e), which is on the backside of the
 21 third page.

22 A. I have it.

23 Q. Let's wait for the Special Master --

24 MR. PRIMIS: Are you there?

25 Okay.

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1 BY MR. PRIMIS:

2 **Q.** Now, what does -- and we'll put it on the screen.

3 What does Article 7, section (e) say?

4 **A.** **It says, this Compact shall not commit any state**

5 **to agree to any data generated by any study or**

6 **commit any state to any allocation formula not**

7 **acceptable to such state.**

8 **Q.** And when you were negotiating with Florida, what

9 did you understand that provision to mean with

10 regard to Georgia's use of information it

11 developed in the sound science study?

12 **A.** **I wanted to put the best information on the table**

13 **that we could. I felt like our work after the**

14 **sound science study was much more reliable than**

15 **what came out of the comprehensive study. So we**

16 **rejected what was in the comprehensive study and**

17 **put what we determined to be the best available**

18 **numbers on the table.**

19 **Apparently Florida didn't like them.**

20 **Q.** Do you believe that it -- as Mr. Struhs said, it

21 was bad faith negotiations for Georgia to propose

22 updated data?

23 **A.** **Absolutely not. We put a -- we put the first**

24 **straw man out on the table in the summer of 1998.**

25 **We were trying to get the process going since we**

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1 BY MR. PRIMIS:

2 **Q.** Now, who created these guidelines?

3 You said Fish and Wildlife and EPA?

4 **A.** **Yes.**

5 **Q.** Do you have an understanding of the purpose of

6 these guidelines?

7 **A.** **Yes.**

8 **Q.** What is it?

9 **A.** **They wanted to notify the -- the federal**

10 **commissioner, Mr. Thomas. And I believe they**

11 **also sent this to the three states that their**

12 **agencies had collaborated and come up with a**

13 **methodology that was intended to be used for**

14 **evaluation of allocation proposals relative to**

15 **the U.S. Fish and Wildlife Service's authorities**

16 **under the Endangered Species Act and EPA's**

17 **authorities under the Clean Water Act.**

18 **Q.** And are you reading that from the cover letter?

19 **A.** **I am.**

20 **Q.** And that's your understanding what they were for?

21 **A.** **Yes. It was for evaluation. It wasn't an**

22 **absolute by any means.**

23 **And, in fact, they went on to say that if**

24 **anything -- any formula departs significantly**

25 **from the baseline shown in this methodology, then**

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1 **only had a year in which to come up with an**

2 **allocation formula. So we developed something.**

3 **We were the first ones to put an offer out. And**

4 **that was just part of negotiation.**

5 **We -- we expected to get comments from**

6 **Alabama and Florida; and we did. And we**

7 **negotiated back and forth beginning in summer of**

8 **'98 until late summer of '03 when the Compact**

9 **dissolved.**

10 **Q.** Mr. Reheis, Mr. Struhs also talked about some EPA

11 and Fish and Wildlife guidelines that came up

12 during the Compact negotiations. Are you

13 familiar with that document?

14 **A.** **Yes.**

15 **Q.** Can I refer you to tab 25 of your binder.

16 MR. PRIMIS: That's the wrong tab. Right?

17 BY MR. PRIMIS:

18 **Q.** I believe that's the wrong tab. Let me check.

19 **A.** **You might be looking for 26.**

20 **Q.** Thank you, sir. It's 26. And are these the

21 October 25, 1999, EPA guidelines?

22 **A.** **Yeah. EPA and U.S. Fish and Wildlife Service,**

23 **yes.**

24 MR. PRIMIS: And for the record, it's

25 FX-599.

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1 **those -- that formula -- allocation formula would**

2 **simply need more detailed evaluation.**

3 **Q.** Mr. Reheis, how were these guidelines, in fact,

4 used during the Compact negotiations?

5 **A.** **I don't know how they might have been used by the**

6 **federal agencies. I think Florida and Alabama --**

7 **excuse me, Georgia and Alabama were aware of them**

8 **being there; but we didn't try to design**

9 **allocation formulas for the purpose of fitting**

10 **these things. We tried to look at big issues**

11 **that we thought were appropriate for each of the**

12 **states, tried to hit or exceed minimums that we**

13 **knew were important to the States; but we didn't**

14 **try in Georgia to design an allocation formula**

15 **around this document.**

16 **Q.** Mr. Reheis --

17 **A.** **We --**

18 **Q.** -- did the parties to the Compact agree that

19 these guidelines would be binding on the

20 negotiations?

21 **A.** **Under no circumstances did we agree to anything**

22 **like that.**

23 **Q.** Do you know if these guidelines ever became

24 officially promulgated regulations of any federal

25 agency?

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1 **A. I do not know that. I -- I would have assumed**
 2 **that there would be a very large public process**
 3 **through the federal register and so on and -- if**
 4 **there had been. And I'm not aware of any of that**
 5 **ever happening.**
 6 **Q.** Mr. Reheis --
 7 **A. I don't think this has ever been used anywhere**
 8 **else in America.**
 9 **Q.** I'm sorry, sir. I cut you off. What did you
 10 say?
 11 **A. I said I don't know if this has been used**
 12 **anywhere else in America.**
 13 **Q.** Thank you, sir.
 14 Now, I want to talk about a few of the
 15 documents that Mr. Perry walked through with you.
 16 Can you turn to tab 6 in the book. It's FX-2.
 17 **A. Yes, sir.**
 18 **Q.** There is a letter that you wrote to James Butler
 19 on June 1, '99. And Mr. Butler was a member of
 20 the Board of Natural Resources. Correct?
 21 **A. Correct.**
 22 **Q.** Why did you write this letter to Mr. Butler?
 23 **A. Because he had written a letter to me on May 18**
 24 **asking me some questions.**
 25 **Q.** And what were you responding to?

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1 **A. Yes.**
 2 **Q.** Why did you write that?
 3 **A. At the time that I wrote it, it was correct. I**
 4 **administered all of Georgia's environmental laws.**
 5 **I had read all of Georgia's environmental laws**
 6 **cover to cover more than once. And I knew what**
 7 **the requirements were. And in that particular**
 8 **instance at that time, it was the weakest of our**
 9 **environmental laws.**
 10 **Q.** Let me --
 11 **A. That is no longer the case.**
 12 **Q.** I was going to say, let me pause you there. Did
 13 Georgia do anything to improve them?
 14 **A. Oh, yes.**
 15 **Q.** What did you do?
 16 **A. Well, we -- there were several things done in**
 17 **the -- the sound science study itself didn't**
 18 **improve the law; but it improved our**
 19 **understanding of the -- how farmers use water and**
 20 **how much. But that led us to Flint River Drought**
 21 **Protection Act. And that was a change in the law**
 22 **that was very significant. Following that, it**
 23 **led us to the -- and that -- the Flint River**
 24 **Drought Protection Act was in 2000. Then it led**
 25 **us to the Agriculture Metering Act which was**

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1 **A. He wanted information about water use and**
 2 **agricultural water use in specific in southwest**
 3 **Georgia and the Flint River Basin. And so I**
 4 **attempted to educate him and my entire Board of**
 5 **Natural Resources on those issues because I**
 6 **wanted to make sure they understood the**
 7 **importance of the issues; and I was also going to**
 8 **need their support and understanding for strong**
 9 **action that I anticipated needing to take later**
 10 **on that year, which was putting a moratorium on**
 11 **permit issuance.**
 12 **Q.** I just want to make sure it's clear. Did you say
 13 you were trying to garner support for something?
 14 **A. Yes.**
 15 **Q.** What was that?
 16 **A. The support and understanding for the fact that I**
 17 **was going to have to take a difficult action**
 18 **later on that year, which was the moratorium on**
 19 **Ag permitting.**
 20 **Q.** Now, on page 1 of this letter, Mr. Perry directed
 21 you to a section in the middle of the first
 22 paragraph that starts, the sections of the laws
 23 that require farmers to have permits are the
 24 weakest of all of Georgia's environmental laws.
 25 Do you remember that?

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1 **passed in 2003 by the General Assembly. And that**
 2 **required all existing irrigation systems in the**
 3 **state to be metered and all new systems that got**
 4 **permitted to be metered at the time that the --**
 5 **that they got permitted.**
 6 **The existing ones were to be metered over a**
 7 **period of six years, and there was a program laid**
 8 **out for the General Assembly to fund that.**
 9 **In addition to that, there was -- there were**
 10 **amendments to the Flint River Drought Protection**
 11 **Act, I think in 2014, that further tightened up**
 12 **requirements in the -- for agricultural water use**
 13 **in the Flint River.**
 14 **Q.** Mr. Reheis, let me pause you there and just ask
 15 you one more question about this document. On
 16 the first page it says in the third paragraph, if
 17 you're there, EPD was given no new money or
 18 personnel with which to operate the permit
 19 program. Do you see that?
 20 **A. Yes.**
 21 **Q.** And was that a concern of yours at the time?
 22 **A. It was. We were scrambling to try to get more**
 23 **money and more people into that area for staffing**
 24 **that we knew we needed. And we had also raised**
 25 **some money through the General Assembly to begin**

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1 **the sound science study.**
 2 **Q.** Did you get additional money for more personnel?
 3 **A. Yes, we did. In fact, over the next several**
 4 **years, I guess through 2003, we got something in**
 5 **excess of \$4 million for the sound science study**
 6 **and for personnel. And EPD has gotten more than**
 7 **that since and operates a program out of Tifton,**
 8 **Georgia, for Ag permitting. I think they have**
 9 **eight or 10 people assigned to it.**
 10 **Q.** Mr. Reheis, I want to shift gears now and ask you
 11 just a few questions about the case filed in
 12 Washington, D.C., by Southeastern Federal Power
 13 customers against the Army Corps, which we have
 14 already heard some testimony about. So I don't
 15 intend to cover it in detail, but I do want to
 16 just quickly ask you a few questions.
 17 Are you aware that Georgia moved to intervene
 18 in that case?
 19 **A. Yes.**
 20 **Q.** And are you also aware that Georgia participated
 21 in a mediation?
 22 **A. Yes, I am.**
 23 **Q.** Did you ever hear whether there were any
 24 guidelines or restrictions put on the parties to
 25 that mediation?
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1 **A. The mediator required the parties to the**
 2 **mediation to -- to not discuss it outside of**
 3 **those parties.**
 4 **Q.** And, Mr. Reheis --
 5 **A. And hold the proceedings in confidence.**
 6 **Q.** Mr. Reheis, are you -- do you have any
 7 understanding of whether Georgia's participation
 8 in moving to intervene in the D.C. case was a
 9 secret to Florida?
 10 **A. No, it was not. We notified Florida and Alabama**
 11 **both that we intended to intervene. And they had**
 12 **the same opportunity to intervene that we had.**
 13 **Q.** Now, Mr. Reheis, I want to talk a bit more about
 14 the ACF Compact and how those negotiations ended.
 15 Mr. Struhs was left with the distinct impression
 16 that Georgia's bad faith caused those
 17 negotiations to end. Is that your recollection?
 18 **A. No. Georgia never operated in bad faith on the**
 19 **Compact negotiations at any time. And Georgia --**
 20 **none of Georgia's actions were -- resulted in the**
 21 **Compact dissolving. The Compact dissolved**
 22 **because Florida walked away from it.**
 23 **In July of --**
 24 **Q.** Hang on. Let me pause you there.
 25 **A. Sorry.**
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1 **Q.** I want to walk you through this. Before I do
 2 that, do you have a sense of what kind of
 3 investment Georgia made in trying to make that
 4 Compact negotiation work?
 5 **A. Do you start with -- with a comprehensive study?**
 6 **Q.** Sure.
 7 **A. Money put into the comprehensive study and into**
 8 **the Compact negotiations was easily more than**
 9 **\$10 million on Georgia's part. And we invested**
 10 **tens of thousands of work hours over a 12,**
 11 **13-year period in the comprehensive study and the**
 12 **negotiations for the Compact.**
 13 **Q.** Mr. Reheis, you indicated that it was your view
 14 that Florida walked away from the Compact. And I
 15 want to ask you why you have that view.
 16 **A. In July of 2003 the -- there was a Compact**
 17 **meeting. All three governors were there,**
 18 **Governor Riley for Alabama, Governor Bush for**
 19 **Florida, Governor Perdue for Georgia. And I**
 20 **think all of their alternates were there. And**
 21 **there was a discussion and a conclusion that we**
 22 **had a number of agreements in principle for how**
 23 **to develop and finalize an allocation formula.**
 24 **Again, that was some date in July.**
 25 **Georgia was pretty optimistic after we had**
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1 **gotten to those agreements in principle, and I**
 2 **assume Alabama was. But about a month later, we**
 3 **received a surprise from Florida. Sometime late**
 4 **in the evening of August 26, 2003, Florida**
 5 **conveyed an allocation formula document to**
 6 **Georgia and Alabama and said, this is it, and**
 7 **represented it as a take it or leave it document.**
 8 **The Compact was due to end if not extended on**
 9 **August 31 of 2003. And --**
 10 **Q.** Mr. Reheis, what was Georgia's reaction to that?
 11 **A. Well, our reaction was that there were several**
 12 **things in the Compact that were the formula --**
 13 **the draft formula that Florida gave us that we**
 14 **had never seen or considered before, never heard**
 15 **before. And we were glad to continue**
 16 **negotiations and discuss those and try to get to**
 17 **agreement with Florida and Alabama, but it was**
 18 **clearly going to take more time.**
 19 **So our governor, Governor Perdue, along with**
 20 **Governor Riley, who had a similar reaction, said,**
 21 **well, there's things here we can't ever -- we**
 22 **haven't ever discussed. We can't agree to this**
 23 **like it is, but we're glad to keep talking.**
 24 **And both Perdue and Riley sent, to my**
 25 **recollection, a signed extension agreement to**
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1 **Governor Bush in Florida. And -- and that**
 2 **was probably on the 30th or -- of August or the**
 3 **31st.**
 4 **And on August 31, I got a call from one of**
 5 **Governor Perdue's top staff people who was**
 6 **involved in all of this, too. And he said, we**
 7 **just heard from -- from Governor Bush; and he's**
 8 **not going to sign the extension.**
 9 **So the -- without any discussion as to**
 10 **extending, without any discussion as to -- that**
 11 **Florida was interested in continuing to work with**
 12 **Alabama and Florida, they quit. And that**
 13 **dissolved the Compact.**
 14 **Q.** Mr. Reheis, I want to show you a document that we
 15 marked as GX-50.
 16 MR. PRIMIS: It's not in the book; so
 17 I'm just going to hand it up, if that's okay,
 18 your Honor.
 19 BY MR. PRIMIS:
 20 **Q.** Mr. Reheis, this is a letter from Governor Riley
 21 of Alabama to Governor Bush on August 30, 2003.
 22 And I want to ask you a few questions about what
 23 Governor Riley said here.
 24 The first sentence says, I have received and
 25 reviewed your letter and draft proposal dated

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1 August 26. As you know, the dispute over these
 2 issues began over 13 years ago. On July 22,
 3 2003, we executed a Memorandum of Understanding
 4 that represented significant and historic
 5 progress in these negotiations.
 6 Is that your recollection of what happened?
 7 **A. Yes.**
 8 **Q.** And then in the next sentence Governor Riley
 9 says, the document you transmitted to me discards
 10 much of that progress and sets the negotiations
 11 back.
 12 Do you see that?
 13 **A. Yes.**
 14 **Q.** Was that consistent with your experience in
 15 August of 2003?
 16 **A. Yes, it is.**
 17 **Q.** And in the next sentence Governor Riley states,
 18 for this reason and because no reliable modeling
 19 analysis has been completed on which we can be
 20 sure that all of the states' interests will be
 21 protected, I cannot agree to sign the agreement
 22 you transmitted to me.
 23 Do you see that?
 24 **A. Yes.**
 25 **Q.** Was that Georgia's position as well?

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1 **A. Absolutely.**
 2 **Q.** And then Governor Riley says, instead, I
 3 encourage you to renew and continue the good
 4 faith discussions from the document on which we
 5 have already agreed.
 6 Do you see that?
 7 **A. Yes.**
 8 **Q.** Was that Georgia's position as well?
 9 **A. Yes.**
 10 **Q.** In the next paragraph Governor Riley writes in
 11 the second line down, we do, however, stand ready
 12 to work with you to take advantage of this
 13 wonderful opportunity to resolve our differences
 14 in a negotiated manner.
 15 Do you see that?
 16 **A. Yes.**
 17 **Q.** And did you -- do you recall Alabama
 18 communicating that to Florida?
 19 **A. I don't remember when I saw this letter for the**
 20 **first time, but certainly they committed --**
 21 **Alabama communicated that to them here.**
 22 **Q.** Did Georgia communicate a similar message to
 23 Florida?
 24 **A. I don't remember whether it was done in writing**
 25 **or if it was done by Governors or Governor staffs**

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1 **over the phone. But I'm very confident that it**
 2 **happened at least over the phone.**
 3 **Q.** What was Georgia's message back to Florida here
 4 in late August of 2003?
 5 **A. Let's extend the Compact so that we can get to**
 6 **agreement. We don't have time to analyze your**
 7 **August 26 proposal fully, and we need time to**
 8 **discuss it. We're glad to continue working.**
 9 **Q.** Mr. Reheis, based on your participation in the
 10 comprehensive study and the ACF Compact
 11 negotiations, who do you believe is responsible
 12 for the termination of the ACF Compact
 13 negotiations?
 14 **A. State of Florida.**
 15 MR. PRIMIS: No further questions, your
 16 Honor.
 17 SPECIAL MASTER LANCASTER: Thank you,
 18 Mr. Primis.
 19 Mr. Perry?
 20 RE-CROSS-EXAMINATION
 21 BY MR. PERRY:
 22 **Q.** Sir, I would like to cover a few issues, if I
 23 might, that Mr. Primis asked you about.
 24 First, I would invite your attention to tab
 25 26 in your binder, please.

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1 **A. Yes.**
 2 **Q.** And, sir, do you see there a letter to the
 3 Honorable Lindsey Thomas from U.S. EPA and U.S.
 4 Fish and Wildlife?
 5 **A. I do.**
 6 **Q.** That's the letter that Mr. Primis asked you
 7 about. Right?
 8 **A. Yes.**
 9 **Q.** Can I invite your attention to the second
 10 paragraph of the letter. And in particular, the
 11 last sentence of that second paragraph which
 12 reads, quote, we believe that the guidelines may
 13 serve purposes beyond an evaluation of allocation
 14 proposals because they represent a determination
 15 of flow regime features that are necessary for
 16 maintaining the present structure of the riverine
 17 ecosystems, unquote. Do you see that, sir?
 18 **A. I do.**
 19 **Q.** And we talked a little bit earlier about how the
 20 federal agencies had a role in the Compact.
 21 Right?
 22 **A. Yes.**
 23 **Q.** All right, sir. So I would also invite your
 24 attention to the first line of the first
 25 paragraph of the letter which reads, quote, in
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1 response to your memorandum of October 14, 1999,
 2 we -- this is EPA and U.S. Fish and Wildlife --
 3 are providing the enclosed final version of the
 4 instream flow guidelines for the ACT and ACF
 5 Basins' interstate water allocation formula,
 6 unquote. Do you see that, sir?
 7 **A. Yes.**
 8 **Q.** And you know, don't you, that the commissioner,
 9 Mr. Thomas, had to review any allocation
 10 agreement among the States. Right?
 11 **A. Yes.**
 12 **Q.** Okay. Now, sir, if I could invite your attention
 13 to paragraph -- to tab 2 in your book, please,
 14 and in particular, to page 22. And, sir, this is
 15 Joint Exhibit 21, what we were calling the 2006
 16 plan titled Flint River Basin Regional Water
 17 Development and Conservation Plan. Are you with
 18 me?
 19 **A. Page 22.**
 20 **Q.** All right. Thank you, sir.
 21 Now, Mr. Primis asked you a few questions
 22 about your sound science study. Do you recall
 23 that?
 24 **A. Yes.**
 25 **Q.** And that culminated in this particular document
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1 issued by the State of Georgia. Correct?
 2 **A. That's my understanding.**
 3 **Q.** All right. So, again, let me, if I could, focus
 4 on page 22 and item 3 where it reads in the third
 5 sentence of that item, these data provide the
 6 clearest evidence that agricultural irrigation
 7 compounds the effect of climatic drought on
 8 streamflow in the basin.
 9 Do you see that, sir?
 10 **A. Yes.**
 11 **Q.** You're not testifying that's incorrect here; are
 12 you?
 13 **A. No.**
 14 **Q.** All right. Now, can you turn, please, to tab 3
 15 in your binder. And, sir, I think -- I believe
 16 you testified earlier that you worked from time
 17 to time with Ms. Carmody at Fish and Wildlife
 18 while you were director?
 19 **A. Yes. On ACT and ACF business.**
 20 **Q.** Okay. Did -- do you remember any discussion
 21 about safe yield in the Flint River Basin with
 22 Ms. Carmody or anybody else from U.S. Fish and
 23 Wildlife?
 24 **A. I don't remember any specific discussions. That**
 25 **term was used more than once in probably a**
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1 **variety of contexts over a period of years.**
 2 **Q.** Yes, sir. So tab 3 is Florida Exhibit 46. It's
 3 a letter from U.S. Fish and Wildlife from 2006,
 4 and it relates to the sound science study which
 5 culminated into the -- into tab 2.
 6 So I would invite your attention to page 3 of
 7 tab 3, Exhibit -- Florida Exhibit 46, where U.S.
 8 Fish and Wildlife writes under Conclusions About
 9 Safe Yield, the conclusions do not reflect the
 10 information presented in other parts of the draft
 11 plan that clearly indicate that some reaches of
 12 the Flint River Basin have already been allocated
 13 beyond safe yield. Current permits must be
 14 re-evaluated if reasonable use and sustainable
 15 flows are to be achieved.
 16 Do you see that, sir?
 17 **A. I see that.**
 18 **Q.** Now, sustainability is something that you from
 19 time to time wrote about when you were director.
 20 Right?
 21 **A. Yes.**
 22 **Q.** And are you familiar with the Flint River --
 23 excuse me. The Flint-Ochlockonee Regional Water
 24 Council sustainability standards issued in 2011
 25 and embraced and adopted by EPD?
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1 **A. I read -- I read that council's report; but I**
 2 **don't remember their -- did you say**
 3 **sustainability standards?**
 4 **Q.** Yes.
 5 **A. Okay. I don't -- I don't remember anything**
 6 **specific about that.**
 7 **Q.** All right. Sir, could you turn with me, please,
 8 to tab 13. Now, sir, in 1999 your staff included
 9 Mr. Nolton Johnson; is that right?
 10 **A. It did.**
 11 **Q.** Mr. Napoleon Caldwell?
 12 **A. Yes.**
 13 **Q.** Mr. David Hawkins?
 14 **A. Yes.**
 15 **Q.** Rob McDowell?
 16 **A. Yes.**
 17 **Q.** And Mr. Steve Whitlock. Right?
 18 **A. Yes.**
 19 **Q.** Did any of those individuals advise you in 1999
 20 or thereabout that there was, quote, a water grab
 21 in process or in progress in the Flint River
 22 Basin by farmers who were interested in
 23 irrigating?
 24 **A. They may have.**
 25 **Q.** And what, if any, steps did you take to address
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1 that water grab, if that was in process?
 2 **A. Well, we already had a hold on issuing permits**
 3 **since mid-1998. We were receiving, but not**
 4 **acting upon, Ag permit requests. And then in**
 5 **November -- on November 30, 1999, I issued a**
 6 **moratorium on issuance of Ag permits that stayed**
 7 **in place for over six years.**
 8 **Q.** Isn't it true, sir, that during that 1999-2000
 9 time period you also issued or approved 864
 10 permits for more than 100,000 more acres?
 11 **A. I don't remember how many acres, but I do agree**
 12 **with the 864 permits.**
 13 **Q.** And, sir, did that -- did that group of permits
 14 increase the amount of irrigated acreage or
 15 permitted irrigated acreage by 20, 30 percent?
 16 **A. I have no idea what the percent was.**
 17 **Q.** Okay.
 18 **A. I don't remember.**
 19 **Q.** Okay, sir. Now, I believe you testified when
 20 Mr. Primis was questioning you that the State of
 21 Georgia during the ACF Compact negotiations
 22 rejected -- I wrote it down; I think you said
 23 rejected the joint comprehensive study that had
 24 been ongoing between all the parties, Florida,
 25 Alabama, Georgia, and the federal government,
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1 since 1992. Is that correct?
 2 **A. I don't think so. I think what I said was we**
 3 **rejected the numbers for agricultural water use**
 4 **and municipal and industrial water use that were**
 5 **for Georgia in the comprehensive study.**
 6 **Q.** All right, sir. So --
 7 **A. And because we thought we had better information**
 8 **and because I wanted to look into the future**
 9 **rather than simply looking at the current**
 10 **present.**
 11 **Q.** Well, sir, I would invite your attention back to
 12 tab 19, please, which is the statement by then
 13 Governor Zell Miller on the inaugural session of
 14 the ACF Compact. Are you with me, sir?
 15 **A. Yes.**
 16 **Q.** Now, back to the second page of that document,
 17 which is Florida Exhibit 205, Governor Miller's
 18 statement there in the second sentence begins,
 19 exercising our political will, the information
 20 and technical data developed over seven years,
 21 the mutual respect resulting from that work, we
 22 can allocate the waters of these major river
 23 systems in a manner that is equitable and fair to
 24 all concerned.
 25 Do you see that, sir?
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1 **A. Yes.**
 2 **Q.** That technical data to which the Governor refers
 3 is the comprehensive study data; isn't it?
 4 **A. Yes, it is.**
 5 **Q.** Okay, sir. I would like to discuss for a moment
 6 EPD's Ag permitting unit which you referred to a
 7 little bit earlier. You said Tifton. Right?
 8 **A. It's currently located in Tifton, as I**
 9 **understand, yes.**
 10 **Q.** Now, sir, isn't it true that the State of Georgia
 11 has roughly 20,000 agricultural permits that have
 12 been entered and issued to farmers for
 13 agricultural irrigation?
 14 **A. I do not know.**
 15 **Q.** Okay. And isn't it also true, sir, that there
 16 are two to three people in the agricultural
 17 permitting unit for EPD that have responsibility
 18 for oversight of all those permits?
 19 **A. My understanding was they have a staff of eight**
 20 **or 10. So I don't know if it's true or not.**
 21 **Q.** And of those eight or 10, do you know how many
 22 actually focus on oversight of agricultural
 23 permitting and --
 24 **A. I do not.**
 25 **Q.** I'm sorry, sir -- and in particular whether
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1 irrigators are complying with their permits?
 2 **A. I do not.**
 3 **Q.** All right, sir. Are you familiar with variable
 4 rate irrigation?
 5 **A. No.**
 6 **Q.** How about irrigation scheduling?
 7 **A. No.**
 8 **Q.** Are you familiar with the extent to which Georgia
 9 has used its mobile lab program to improve the
 10 efficiency of irrigation units?
 11 **A. No.**
 12 **Q.** All right. All right, sir. We'll come back to
 13 that with Georgia's witnesses on those topics.
 14 Sir, you spoke for a little while about the
 15 ACF Compact. And it was intended to be a
 16 one-year Compact in 1998; is that correct?
 17 **A. No, it wasn't intended to be a one-year Compact.**
 18 **It was -- it gave the states and the federal**
 19 **review one year in which to develop an allocation**
 20 **formula. And then it would dissolve unless the**
 21 **States agreed to extend it. So they extended it.**
 22 **My assumption, as I said, was that it would last**
 23 **for decades.**
 24 **Q.** It would last for decades if an allocation
 25 formula had been arrived at. Correct?

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1 **A. Yes. Correct.**
 2 **Q.** Now, it was an agreement to agree on an
 3 allocation formula among the parties; is that
 4 right?
 5 **A. I think that's essentially correct.**
 6 **Q.** Okay. And it was extended year after year after
 7 year between 1998 and 2003. Correct?
 8 **A. That's correct.**
 9 **Q.** All right. And at that same time, Georgia had
 10 decided not to accept the technical data from the
 11 comprehensive study on M & I and Ag use. Right?
 12 **A. On M and I and Ag use for ourselves, yes. That's**
 13 **correct.**
 14 **Q.** All right. And you testified for a bit of time
 15 about -- I think it was GX-50, which Mr. Primis
 16 held up. And that, in addition, spoke of a
 17 Memorandum of Understanding. Is that right?
 18 MR. PERRY: Mr. Walton, could you highlight
 19 that section of the GX-50 which is on the screen.
 20 It's in the first paragraph.
 21 BY MR. PERRY:
 22 **Q.** Now, you know, don't you, that that Memorandum of
 23 Understanding had no allocation formula in it;
 24 did it?
 25 **A. No, it didn't.**

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1 **Q.** It was just another agreement to agree; wasn't
 2 it?
 3 **A. I suppose you could characterize it that way.**
 4 **Q.** All right, sir. As you sit here, do you recall
 5 whether or not after the time frame you discussed
 6 in connection with GX-50, Governor Bush sent
 7 another letter offering to continue to negotiate?
 8 **A. No.**
 9 **Q.** You don't remember that?
 10 **A. No.**
 11 **Q.** Okay. Now, you mentioned the USGS study earlier,
 12 too. And you noted that what you decided to do
 13 following the issuance of the USGS study was
 14 invoke the sound science program. Right?
 15 Sound science?
 16 **A. Yes. That's one of the things we decided to do.**
 17 **Q.** Okay, sir. But the USGS study resulted in 1996
 18 in a conclusion that agricultural use in the
 19 Flint River Basin was having an effect and,
 20 indeed, substantially a profound effect on the
 21 Apalachicola River. Right?
 22 **A. I don't recall that it said that.**
 23 **Q.** All right, sir. Can you turn to tab 31 with me,
 24 please. And I invite your attention to page 68,
 25 please.

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1 There we go.
 2 So you can see page 68 on your screen --
 3 **A. Yes.**
 4 **Q.** -- or if it's easier, it's at tab 31.
 5 In the second paragraph there about three
 6 sentences up USGS writes, thus stream aquifer
 7 flow declines upstream of the Apalachicola will
 8 reduce flows entering Lake Seminole and
 9 subsequently cause reductions in the flow of the
 10 Apalachicola River.
 11 Do you see that, sir?
 12 **A. Hang on just a moment, please.**
 13 **Yes. I see it.**
 14 **Q.** Okay, sir. Now, I would like to invite your
 15 attention back to tab 3, please. Sir, this is
 16 one letter from U.S. Fish and Wildlife. Are you
 17 privy to letters that U.S. Fish and Wildlife
 18 wrote about its concerns in 2008 or 2011?
 19 **A. I am not, nor have I ever seen this one before**
 20 **this afternoon.**
 21 **Q.** Now, you haven't read Director Turner's
 22 deposition; have you?
 23 **A. No. I have not.**
 24 **Q.** He's -- he was director until earlier this year;
 25 is that correct?

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<p>739</p> <p>1 A. Correct. 2 Q. All right. So -- and you weren't here to witness 3 his videotaped deposition designations; were you? 4 A. I did not. 5 Q. Okay. And you, likewise, were not here for 6 Mr. Struhs's testimony about the ACF Compact; 7 were you? 8 A. I was not. 9 Q. Okay. Thank you very much for your time today. 10 SPECIAL MASTER LANCASTER: Mr. Primis? 11 MR. PRIMIS: Georgia has no further 12 questions. 13 SPECIAL MASTER LANCASTER: Mr. Reheis -- 14 THE WITNESS: Yes, sir? 15 SPECIAL MASTER LANCASTER: -- at this 16 stage I am the most inexperienced and 17 unqualified person to ask you any questions 18 in the room. At this stage. But -- 19 THE WITNESS: I'll bet you're not. 20 SPECIAL MASTER LANCASTER: -- how many 21 permits subject to the November 30, 1999, 22 moratorium were later granted? 23 THE WITNESS: I know that I issued 864 24 permits. I know that there was a number on 25 the order of 2500 permit applications that we</p> <p style="text-align: center;">THE REPORTING GROUP Mason & Lockhart</p>	<p>741</p> <p>1 question, sir. I do not know how many total 2 of those permits were issued, only -- only 3 the 864 that I did. 4 SPECIAL MASTER LANCASTER: So you're not 5 able to tell me how many were not granted 6 either? 7 THE WITNESS: How many were -- 8 SPECIAL MASTER LANCASTER: Were not. 9 THE WITNESS: Were not, no, sir. I -- I 10 cannot tell you that. I don't know. 11 SPECIAL MASTER LANCASTER: How much -- 12 how much discretion did the director of the 13 EPD have in declaring a drought? 14 THE WITNESS: I guess there was probably 15 a reasonable amount of discretion because the 16 rules -- not rules, the guidelines that we 17 developed while I was director we thought 18 were reasonable at the time. And they dealt 19 with streamflow levels, groundwater levels, 20 long-term weather projections by the state 21 climatologist and by the U.S. Weather 22 Service, and what the trends looked like over 23 six months prior in these streamflow -- at 24 the streamflow gages and groundwater 25 monitoring stations.</p> <p style="text-align: center;">THE REPORTING GROUP Mason & Lockhart</p>
<p>740</p> <p>1 had in-house up until November 30, 1999. Of 2 those I issued 864. All the rest were either 3 not -- there were some of those that were out 4 of the Flint River Basin. There's 5 counties -- several counties have part in the 6 Flint, part in another basin. So some of 7 those were outside the area. Some were 8 inside the area. 9 They were all held, along with any other 10 applications that came into EPD, for the next 11 six years. So I don't know how many permits 12 might have been issued after the 864 that I 13 issued. 14 Once Director Turner -- excuse me, 15 Director Couch and her staff completed the 16 Flint River Water Development Conservation 17 Plan, permitting did open back up with some 18 restrictions. There were areas that were 19 considered to be very sensitive in which 20 there was little or no permitting and other 21 areas where the work of the sound science 22 study, the Water Development Conservation 23 Plan, showed that permits could be issued 24 without -- without concern. 25 So I don't know the answer to your</p> <p style="text-align: center;">THE REPORTING GROUP Mason & Lockhart</p>	<p>742</p> <p>1 So there was a combination of things 2 that my staff developed in 2001 that we used. 3 Whether that combination of factors was kept 4 the same or changed by -- by my successors, I 5 don't know. But certainly they had the 6 discretion to make changes if they wanted to 7 do so. 8 SPECIAL MASTER LANCASTER: Thank you. 9 Was Georgia's irrigation water use 10 during your tenure sustainable? 11 THE WITNESS: If you are talking about 12 just the Flint River Basin, or are you 13 talking about the entire state, sir? 14 SPECIAL MASTER LANCASTER: The entire 15 state. 16 THE WITNESS: The entire state. I think 17 in the majority of the state, our irrigation 18 use was sustainable. 19 SPECIAL MASTER LANCASTER: How about the 20 Flint River Basin? 21 THE WITNESS: In the Flint River, there 22 were certainly questions. We had those 23 questions ourselves, and we were trying to 24 get them answered. 25 And the concern over the fact that it</p> <p style="text-align: center;">THE REPORTING GROUP Mason & Lockhart</p>

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1 might not be sustainable certainly is why I
 2 put a moratorium on issuing permits and put
 3 resources into gathering better information
 4 and coming up with that plan.
 5 SPECIAL MASTER LANCASTER: Has Georgia
 6 ever taken steps permanently to reduce
 7 irrigation acreage?
 8 THE WITNESS: I don't know of any steps
 9 that have been taken to permanently reduce
 10 irrigation acres. I know that a -- an
 11 amendment that was passed by our state
 12 legislature in -- in the spring of 2014 to
 13 the Flint River Drought Protection Act put
 14 certain requirements on irrigation systems in
 15 the Flint River Basin. And those
 16 requirements dealt with the efficiency of
 17 getting water from -- from the pump to the
 18 roots of the plant. And they required that
 19 by a certain year -- and I don't know the
 20 year; I don't know if it was 2020 or a year
 21 sooner than that -- that every irrigation
 22 system in the Flint Basin had to achieve at
 23 least a -- I think the number was 80 percent
 24 efficiency. That didn't limit acres, but it
 25 mandated efficiency.

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1 The old center pivot systems that were
 2 originally installed, say, in the 1970's,
 3 they were high pressure; and they had kickers
 4 up on top of the pivot arm, like a Rain Bird
 5 sprinkler. And they threw water 40, 50, 60
 6 feet out. You had a lot of evaporation from
 7 those. They were probably 60 percent
 8 efficient. But by changing that equipment
 9 out on the same center pivot rig, you could
 10 improve that efficiency to about 80 percent.
 11 And so the literature mandated that in
 12 the Flint River Basin. Again, that's not a
 13 limit on acreage; but it is a move toward
 14 better water conservation.
 15 SPECIAL MASTER LANCASTER: Are you
 16 familiar with the ACF Stakeholders
 17 Sustainable Water Management Plan?
 18 THE WITNESS: I know that it has been
 19 prepared. I know a lot of people spent a lot
 20 of time working on that, sir. But I have not
 21 read the plan myself.
 22 SPECIAL MASTER LANCASTER: Do you
 23 believe that Georgia's irrigation puts
 24 Florida's ecology at risk?
 25 THE WITNESS: No, sir, I don't.

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1 SPECIAL MASTER LANCASTER: Counsel?
 2 MR. PRIMIS: I have no further
 3 questions, your Honor.
 4 MR. PERRY: No further questions, your
 5 Honor.
 6 SPECIAL MASTER LANCASTER: One last
 7 question, Mr. Reheis.
 8 THE WITNESS: Yes, sir?
 9 SPECIAL MASTER LANCASTER: Would you
 10 turn to Exhibit 20, please.
 11 THE WITNESS: Yes, sir?
 12 SPECIAL MASTER LANCASTER: Those are, as
 13 I understand it, your notes?
 14 THE WITNESS: Yes.
 15 SPECIAL MASTER LANCASTER: Would you
 16 turn to page 2 and read into the record the
 17 entries on January 17, January 23, and
 18 January 30.
 19 THE WITNESS: January 17, 1997, letter,
 20 Lancaster to Governors. Unhappy with some
 21 language 8 -- section 8(a)(4). I assume that
 22 that is a letter from somebody in the federal
 23 government -- I don't know which Lancaster
 24 that is; that's not you -- to the Governors
 25 saying we don't like some of the language in

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1 your draft.
 2 And this -- this would have been the
 3 draft Compact language that the States were
 4 getting ready to adopt.
 5 I think -- I think Lancaster may have
 6 been -- maybe he was the Secretary of the
 7 Army. Maybe he was the Assistant Secretary
 8 of the Army, somebody like that, at that
 9 time.
 10 And so there had been negotiations on
 11 Compact language among the States. Some
 12 language had been developed. He said, I got
 13 a problem with that one.
 14 Okay. I'm sorry. You wanted me to read
 15 more?
 16 I shouldn't have done all that
 17 explaining.
 18 SPECIAL MASTER LANCASTER: The January
 19 23?
 20 THE WITNESS: January 23, 1997, a letter
 21 from Miller -- that would have been Governor
 22 Miller -- to Lancaster --
 23 SPECIAL MASTER LANCASTER: And January
 24 30?
 25 THE WITNESS: -- federal commissioner,

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1 can bring others.
 2 And then January 30, 1997, a letter from
 3 Childs to Lancaster -- that would have been
 4 Governor Childs of Florida -- federal
 5 commissioner, can bring others.
 6 SPECIAL MASTER LANCASTER: And January
 7 30?
 8 THE WITNESS: Yes, same thing. Letter
 9 Governor Childs to Lancaster, federal
 10 commissioner, can bring others.
 11 SPECIAL MASTER LANCASTER: You don't
 12 know who the Lancaster was?
 13 THE WITNESS: No, sir. I -- to the best
 14 of my ability I think it was somebody with
 15 the Department of the Army.
 16 SPECIAL MASTER LANCASTER: But so far as
 17 you know --
 18 THE WITNESS: It was not you.
 19 SPECIAL MASTER LANCASTER: -- it was not
 20 me?
 21 THE WITNESS: Not Ralph Lancaster.
 22 SPECIAL MASTER LANCASTER: Other
 23 questions, counsel?
 24 THE WITNESS: I think you're completely
 25 innocent on my notes here.

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1 SPECIAL MASTER LANCASTER: Thank you.
 2 You may step down.
 3 MR. PERRY: Nothing.
 4 MR. PRIMIS: Nothing further.
 5 SPECIAL MASTER LANCASTER: Okay.
 6 MR. PERRY: Your Honor, in about two or
 7 three minutes we're prepared to call
 8 Mr. Berrigan.
 9 SPECIAL MASTER LANCASTER: Thank you.
 10 THE CLERK: Please raise your right
 11 hand.
 12 Do you solemnly swear that the testimony
 13 you shall give in the cause now in hearing
 14 shall be the truth, the whole truth, and
 15 nothing but the truth, so help you God?
 16 THE WITNESS: I do.
 17 THE CLERK: Thank you. If you could
 18 please be seated.
 19 Just pull yourself up to the microphone,
 20 state your full name for the record please.
 21 THE WITNESS: My name is Mark Berrigan,
 22 M A R K , B E R R I G A N .
 23 MS. WINE: Your Honor, the State of
 24 Florida would like to introduce Mr. Mark
 25 Berrigan, who is an oyster biologist. He

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1 worked for the State of Florida for 30 years,
 2 and he had responsibility for monitoring and
 3 managing the oyster resources of Apalachicola
 4 Bay.
 5 Your Honor, may I approach the witness
 6 to provide him with his testimony?
 7 SPECIAL MASTER LANCASTER: Please.
 8 DIRECT EXAMINATION.
 9 BY MS. WINE:
 10 Q. Mr. Berrigan, I provided you with a copy of the
 11 prefiled direct testimony that you submitted in
 12 this case. Do you recognize it?
 13 A. Yes, I do.
 14 Q. And do you adopt all of the statements in there?
 15 A. I do.
 16 Q. Thank you, sir.
 17 MR. ECHOLS: Good afternoon, your Honor.
 18 Barack Echols from Kirkland & Ellis on behalf
 19 of the State of Georgia.
 20 SPECIAL MASTER LANCASTER: Good
 21 afternoon.
 22 MR. ECHOLS: Thank you.
 23 CROSS-EXAMINATION
 24 BY MR. ECHOLS:
 25 Q. Good afternoon, Mr. Berrigan. It's good to see

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1 you again.
 2 A. Good afternoon.
 3 MR. ECHOLS: If you might indulge me, your
 4 Honor, with me at counsel table I have two of my
 5 colleagues who have assisted in this process. I
 6 have Mr. Josh Mahoney and Ms. Britney Lewis.
 7 MS. LEWIS: Good afternoon, your Honor.
 8 SPECIAL MASTER LANCASTER: Good
 9 afternoon.
 10 MR. ECHOLS: As has been our practice,
 11 judge, if I could, please, I have a binder of
 12 a number of exhibits that we intend to use
 13 with Mr. Berrigan for purposes of cross, if I
 14 can bring that to Mr. Berrigan and to
 15 yourself.
 16 SPECIAL MASTER LANCASTER: Please.
 17 MR. ECHOLS: May I proceed, your Honor?
 18 SPECIAL MASTER LANCASTER: Please.
 19 BY MR. ECHOLS:
 20 Q. Good afternoon again, Mr. Berrigan.
 21 A. Good afternoon.
 22 Q. Now, Mr. Berrigan you were, as Ms. Wine stated,
 23 employed by the State of Florida for more than 30
 24 years; is that correct?
 25 A. That's correct.

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1 **Q.** And during your entire career, you served as an
 2 oyster biologist for the state?
 3 **A. Among other things, yes.**
 4 **Q.** Among other things. One of the other things that
 5 was part of your responsibility was to conduct
 6 annual oyster resource surveys?
 7 **A. That's correct.**
 8 **Q.** And those ended up being documented in reports --
 9 official reports of the State of Florida called
 10 Oyster Resource Assessment Reports; is that
 11 correct?
 12 **A. Yes.**
 13 **Q.** And is it also accurate, sir, that you were
 14 actively engaged in all aspects involved in these
 15 reports, the data collection, the analysis, and
 16 the reporting for these?
 17 **A. That's correct.**
 18 **Q.** And you supervised the survey program for more
 19 than 30 years. Right?
 20 **A. That's correct.**
 21 **Q.** And, in fact, I think in your direct testimony
 22 you said that you're not aware of anyone else who
 23 has had more personal involvement with the
 24 state's oyster resource assessments than
 25 yourself?

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1 **A. That's my opinion.**
 2 **Q.** Now, I want to make sure, because they're very
 3 important reports for the Court to understand,
 4 that we go through exactly how they're put
 5 together and are used. We'll do that in some
 6 detail. But in the big picture sense, these
 7 reports are used to assess the status generally
 8 of the oyster population in the bay?
 9 **A. They are used to assess the population, yes, and**
 10 **to use that assessment as a predictive index for**
 11 **harvesting, landing, those type of parameters.**
 12 **Q.** And the department that you were in is the
 13 Florida Department of Aquaculture and Consumer
 14 Services -- Agriculture and Consumer Services?
 15 **A. Agriculture and Consumer Services.**
 16 MR. ECHOLS: And for your Honor's
 17 purposes, sometimes this is referred to as --
 18 BY MR. ECHOLS:
 19 **Q.** If this is okay with you, Mr. Berrigan.
 20 MR. ECHOLS: -- FDACS or as DACS.
 21 BY MR. ECHOLS:
 22 **Q.** Is that the way it's been referred to?
 23 **A. Fine with me.**
 24 SPECIAL MASTER LANCASTER: Would you
 25 move the microphone.

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1 THE WITNESS: Closer?
 2 SPECIAL MASTER LANCASTER: Yes, please.
 3 Thank you.
 4 BY MR. ECHOLS:
 5 **Q.** So as part of your DACS responsibilities, you
 6 would do these oyster resource assessment
 7 reports. And then that information would be
 8 provided to another department, the Florida Fish
 9 and Wildlife Commission; is that correct?
 10 **A. Yes.**
 11 **Q.** And it's the Florida Fish and Wildlife
 12 Commission, oftentimes referred to as FWC,
 13 they're the ones that made the determinations
 14 about when the bay would be open to harvesting or
 15 when it would be closed to harvesting, at least
 16 with respect to being based on the population
 17 assessment?
 18 **A. The population assessment was used to extend the**
 19 **number of harvesting days during the winter**
 20 **harvesting season. That meant that if a certain**
 21 **number was reached in our population index, then**
 22 **harvesting would be allowed on two additional**
 23 **days after November 15, I think, for that winter**
 24 **harvesting season. And that's the only time that**
 25 **that data would be used to set harvesting**

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1 **seasons.**
 2 **Q.** I might have asked that poorly, but the resource
 3 assessment reports were a resource management
 4 tool that FWC used in assessing the harvesting
 5 periods and limits for the oyster fishery.
 6 Correct?
 7 **A. No, I don't think that that is correct. I don't**
 8 **think that they used those in determining their**
 9 **bag limits, size limits, or seasons.**
 10 **Q.** Well, let me phrase it differently. The resource
 11 assessments are used to determine if the oyster
 12 reach in Apalachicola Bay are capable of
 13 sustaining commercial harvest. Would you agree
 14 with that?
 15 **A. That's correct.**
 16 **Q.** And they are a resource management tool; you
 17 would agree with that?
 18 **A. They could be used as a resource management tool.**
 19 **Q.** And as you said, they -- the information was
 20 utilized to make management decisions for the
 21 fishery. Is that accurate?
 22 **A. In the case that I described, that's the only**
 23 **management decision that I can think of where it**
 24 **is used. And that was codified in the oyster**
 25 **fisheries rule by FWC.**

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1 **Q.** I just want to make sure that this is clear for
 2 the Court. You're saying that the only resource
 3 management purpose for which your reports are
 4 used was to extend harvesting days; they weren't
 5 used for anything else?
 6 **A. Let me -- let me be clear. FWC is responsible**
 7 **for fisheries management. That's one type of**
 8 **management. Those -- that index was used to**
 9 **extend the number of harvesting days during the**
 10 **winter harvesting season as codified in their**
 11 **oyster rule. Other management decisions could be**
 12 **based on these data based on, let's say, relative**
 13 **parameters over a period of time.**
 14 **The one management issue that we often used**
 15 **this data for was to determine when populations**
 16 **were low to such an extent that it might require**
 17 **additional actions as far as management was**
 18 **concerned. And those would be used to verify or**
 19 **confirm that there had been some type of**
 20 **depletion event and to try and use those numbers**
 21 **to request additional money to deal with that.**
 22 **Q.** Just so it's clear for the Court, now, there was
 23 as oyster fishery collapse in 2012 to 2013.
 24 Correct?
 25 **A. There was an ongoing oyster depletion event that**

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1 **Q.** And you took that responsibility very seriously?
 2 **A. Yes, I did.**
 3 **Q.** You wouldn't make things up, put inaccurate
 4 information in there?
 5 **A. That's correct.**
 6 **Q.** And you knew that these were official state
 7 documents that were going to be part of the
 8 state's records for all time immemorial?
 9 **A. I knew that they would be reports that would be**
 10 **part of the public record.**
 11 **Q.** You didn't think that they were important
 12 reports?
 13 **A. I thought that they were important in certain**
 14 **ways. They weren't all as important as this one**
 15 **turned out to be. And I certainly, when I wrote**
 16 **this one, did not feel that it was significantly**
 17 **different than reports that I had previously**
 18 **done.**
 19 **Q.** Okay. Well, I think it's important then that we
 20 just go for that. We want to make clear for the
 21 Court exactly what you put in this report, the
 22 information that the Governor sent to the
 23 Department of Commerce.
 24 MR. ECHOLS: Can we have Joint Exhibit
 25 77, please.

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1 **extended from 2010 through my tenure into 2013.**
 2 **Q.** That's correct. And the Governor of the State of
 3 Florida wrote to the federal government
 4 Department of Commerce requesting a federal
 5 fishery disaster declaration. You're aware of
 6 that?
 7 **A. I'm aware of that.**
 8 **Q.** And you're aware also, are you not, that one of
 9 the bases for that request was the August 2012
 10 oyster resource assessment report that you wrote?
 11 **A. That's correct.**
 12 **Q.** And that report was used as one of the pieces of
 13 information that the Governor provided to the
 14 Department of Commerce to explain why they said
 15 Florida needed assistance for the fishery
 16 collapse?
 17 **A. That's correct.**
 18 **Q.** Now, these reports -- and I'm going to put this
 19 up because this is a very, very important
 20 document for this case, this request by the
 21 Governor attaching your report that went to
 22 commerce. When you did these DACS oyster
 23 resource assessment reports, you intended for
 24 them to be accurate, didn't you, sir?
 25 **A. As accurate as we could get them, sir.**

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1 BY MR. ECHOLS:
 2 **Q.** And that's tab 1 in your binder there,
 3 Mr. Berrigan.
 4 MR. ECHOLS: And, your Honor, you have
 5 got it right behind tab 1.
 6 **A. I see it.**
 7 **Q.** And if you would, sir, take a look, if you
 8 could. And could you identify, please, that
 9 this is a September 6, 2012, letter from Governor
 10 Rick Scott, the Governor of Florida, to the
 11 acting secretary of the Department of Commerce,
 12 Ms. Rebecca Blank?
 13 **A. Yes, I have seen that.**
 14 **Q.** And you have seen this document before?
 15 You recognize that?
 16 **A. Yes.**
 17 MR. ECHOLS: And let's look, if we
 18 could, please, Mr. Smith at the first
 19 paragraph of that letter.
 20 Is that the first one?
 21 Actually, if we could go up one.
 22 BY MR. ECHOLS:
 23 **Q.** So you see, sir, in the first paragraph of this
 24 letter the Governor is writing to the acting
 25 Secretary of Commerce and says, on behalf of

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1 Florida's oyster industry, I respectfully request
 2 that you declare a commercial fishery failure due
 3 to a fishery resource disaster for Florida's
 4 oyster harvesting areas in the Gulf of Mexico,
 5 particularly those in Apalachicola Bay.
 6 Do you see that?
 7 **A. Yes, I do.**
 8 **Q.** And you do understand that that is what was
 9 taking place in September of 2012, the request
 10 for the fishery disaster declaration?
 11 **A. Yes, I do.**
 12 MR. ECHOLS: If we could go one
 13 paragraph down, please, Mr. Smith.
 14 BY MR. ECHOLS:
 15 **Q.** The Governor continues, the State of Florida has
 16 experienced an unprecedented decline in the
 17 abundance of oysters within our coastal
 18 estuaries, a direct consequence of which has been
 19 a significant loss of income to commercial oyster
 20 fishermen and oyster processors in rural coastal
 21 communities.
 22 Now, it is accurate, is it not, sir, that
 23 there was, indeed, a decline in the abundance of
 24 oysters in the estuaries; and that was
 25 information you collected in the process of your

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1 oyster resource assessments?
 2 **A. Yes, there was a definite decline.**
 3 **Q.** And, in fact, the next sentence specifically
 4 points to the oyster resource assessments that
 5 you did, recent oyster resource assessments
 6 indicate that the outlook for the 2012-2013
 7 harvesting season is poor and unlikely to sustain
 8 commercial harvesting levels.
 9 Correct?
 10 **A. That's correct.**
 11 **Q.** And that's what we were talking about earlier,
 12 that your reports and resource assessments were
 13 in part to be used by Florida Fish and Wildlife
 14 to determine whether the oyster resource could
 15 sustain commercial harvesting levels. That's
 16 accurate; right?
 17 **A. That's accurate, but that's not exactly the way**
 18 **the first question was posed either. The first**
 19 **question was posed was -- did FWC base their**
 20 **fisheries management on these; and there's only**
 21 **one instance where they based their fisheries**
 22 **management on this data. I --**
 23 **Q.** FWC -- go ahead. I'm sorry. I didn't mean to
 24 interrupt you.
 25 FWC generally has the authority to limit days

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1 for harvesting. Correct?
 2 **A. That's correct. That's one of their**
 3 **responsibilities.**
 4 **Q.** And FWC generally as well has the authority to
 5 limit the number of bags or bushels of oysters
 6 that are harvested. Correct?
 7 **A. That's also one of their responsibilities.**
 8 **Q.** Right. And those are -- that's the FWC side of
 9 the responsibility, separate and apart from yours
 10 and DACS?
 11 **A. That's the fishery side; that's correct.**
 12 **Q.** You would call that fishery management?
 13 **A. Yes.**
 14 **Q.** And similarly, on the enforcement of laws
 15 regulating how many oysters or what size oysters
 16 can be harvested, that's an FWC responsibility?
 17 **A. Yes.**
 18 **Q.** That's not DACS; that's FWC?
 19 **A. That's correct.**
 20 **Q.** And just to orient ourselves on this, the very
 21 next sentence you will see that the Governor
 22 writes, I enclose a letter and report from
 23 Florida's Department of Agriculture and Consumer
 24 Services, FDACS -- that's the agency that you
 25 work for. Correct?

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1 **A. That's correct.**
 2 **Q.** -- assessing the current impacts.
 3 And if you would, I'm just going to ask you
 4 to identify, because we're going to be going
 5 through these documents for quite some time, that
 6 if you flip a page in, you will see the attached
 7 letter. There is a letter that is from
 8 Commissioner Putnam of the Department of
 9 Agriculture and Consumer Services. Do you see
 10 that?
 11 **A. Yes.**
 12 **Q.** And, again, that's a document that you're
 13 familiar with?
 14 You have seen that before?
 15 **A. Yes.**
 16 **Q.** And if you turn in another page there -- I
 17 believe it's page 5 of this exhibit -- would you
 18 please let the Court know if this is the August
 19 2012 oyster resource assessment report that you
 20 drafted. Is that right?
 21 **A. That's correct.**
 22 **Q.** All right. Let's look back to the front to the
 23 Governor's letter. Now, if we can go to the
 24 bottom of the Governor's letter there, according
 25 to the report, if you see here -- I guess it's

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1 the second to last paragraph on the first page.
 2 It says, according to the report, observations
 3 and sampling of oyster populations on the primary
 4 oyster producing reefs in Apalachicola Bay during
 5 July 2012 indicated that oyster populations were
 6 in poor condition.
 7 Do you see that, sir?
 8 **A. Yes, I do.**
 9 **Q.** And, again, according to the report -- that's
 10 your report. Right?
 11 **A. Uh-huh.**
 12 **Q.** And the report did include that under primary
 13 oyster -- there are different reefs in
 14 Apalachicola Bay. Correct?
 15 **A. That's correct.**
 16 **Q.** And there are certain ones that, as you described
 17 or as the Governor describes here, are primary
 18 oyster-producing reefs. Can you tell the Court
 19 what the names of some of the primary
 20 oyster-producing reefs are?
 21 **A. Those would be Cat Point Bar and East Hole Bar in**
 22 **St. George Sound. They would be -- include the**
 23 **St. Vincent Bar and Dry Bar complex in western**
 24 **Apalachicola Bay. Those are the -- those are the**
 25 **primary ones.**

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1 **Q.** I figure we can do it now because we'll be
 2 hearing about these bars --
 3 **A. Yes.**
 4 **Q.** -- a lot over the next probably three or four
 5 months and years.
 6 But then it goes on below there to say, we
 7 believe that a combination of factors has led to
 8 the recent decline in oyster populations.
 9 And that was what your report stated.
 10 Correct?
 11 **A. Yes. I -- the report stated that there were a**
 12 **combination of factors. It also identified the**
 13 **primary factors and those factors that also**
 14 **contributed to the depletion.**
 15 **Q.** And one of those factors, to be fair --
 16 MR. ECHOLS: If we could go down one
 17 more paragraph, Mr. Smith. This carries onto
 18 the next page.
 19 BY MR. ECHOLS
 20 **Q.** Also, it is the case, is it not, that at this
 21 point in time, there was a serious drought taking
 22 place in the southeastern United States?
 23 **A. That's -- that's correct.**
 24 **Q.** And, in fact, the Governor put that in his
 25 letter, drought conditions have been experienced

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1 in the basin there. And one of the things that
 2 happens in a drought, as it happened here and as
 3 happened in the past, is that there's reduced
 4 freshwater input into Apalachicola Bay from the
 5 river. Right?
 6 **A. Yes.**
 7 **Q.** And, in fact, there's drought operations that the
 8 Corps enters into where it manages to a 5,000 cfs
 9 level. Right?
 10 **A. I'm not sure what the correlation between the**
 11 **river levels and the drought are.**
 12 **Q.** All right. And in any event, the lower
 13 freshwater during a drought, it does contribute
 14 at times to higher salinity levels in different
 15 places; and that can have an adverse impact on
 16 oyster populations. Right?
 17 **A. That's correct.**
 18 **Q.** And that's some of what you were seeing at this
 19 time; during a drought, there was some adverse
 20 impact on the oyster populations from the higher
 21 salinity?
 22 **A. I believe that the report is pretty clear in**
 23 **establishing that high salinities was the primary**
 24 **factor that was adversely affecting the oyster**
 25 **populations throughout the bay.**

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1 **Q.** Okay. We're going to go into great detail
 2 through that report.
 3 You have written other reports previously
 4 during drought explaining that high salinity can
 5 negatively affect oyster populations?
 6 **A. It's a pretty well-understood condition that it**
 7 **adversely affects oyster populations.**
 8 **Q.** It's happened before; and it's not -- it
 9 wasn't -- it wasn't a surprise to you?
 10 **A. No, it was not a surprise. We can recognize high**
 11 **salinity conditions fairly readily.**
 12 **Q.** Let me ask you about the next paragraph in the
 13 Governor's letter, if I could, please.
 14 And some of these terms, because this is the
 15 first time we're getting into the whole oyster
 16 resource and harvesting world, I'm going to ask
 17 your help to explain what these things mean to
 18 the Court, if you could, please.
 19 **A. Okay.**
 20 **Q.** So we have in the first sentence here, harvesting
 21 pressures and practices were altered to increase
 22 fishing effort, as measured in reported trips,
 23 due to the closure of oyster harvesting in
 24 contiguous states during 2010.
 25 Do you see that?

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- 1 **A. I do.**
- 2 **Q.** Now, it's correct, is it not, that in 2010 part
- 3 of what this is related to is the fact that in
- 4 April 2010 you had the EPD water -- Horizon Oil
- 5 spill. Right?
- 6 **A. That's correct.**
- 7 **Q.** And there was a concern at the time along the
- 8 Gulf in multiple states that some of that oil
- 9 might reach the shores and, you know, harm the
- 10 wildlife. Right?
- 11 **A. That's correct.**
- 12 **Q.** Now, let's go and explain, if you would, please,
- 13 sir, some of these terms here. Harvesting
- 14 pressures and practices, could you tell the Court
- 15 what does that mean?
- 16 **A. Harvesting pressures would represent the number**
- 17 **of fishermen that were harvesting at that time.**
- 18 **Q.** And how about practices?
- 19 **A. Practices could relate to how oysters are**
- 20 **harvested, when they're harvested, how many are**
- 21 **harvested, that type of thing.**
- 22 **Q.** And what the Governor has in his letter here was
- 23 that these were altered, that they were changed
- 24 to increase fishing efforts. Do you see that?
- 25 **A. Yes, I do.**

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- 1 **Q.** And that's the increased fishing effort?
- 2 **A. Yes. There were -- there were changes in**
- 3 **management to allow additional harvesting to**
- 4 **harvest a crop that would otherwise or was**
- 5 **potentially at risk of loss.**
- 6 **Q.** It did turn out, right, the oil never got to
- 7 Apalachicola Bay. Correct?
- 8 **A. Fortunately, it did not.**
- 9 **Q.** Right. And as of 2012 now when the Governor is
- 10 writing this letter, it's been pretty clear for a
- 11 year or more that the oil didn't get to
- 12 Apalachicola Bay?
- 13 **A. That's correct.**
- 14 **Q.** If you would, please, explain the next part. It
- 15 says that the fishing effort increased as
- 16 measured in reported trips.
- 17 You know, what is trip? What does that mean?
- 18 **A. As part of the overall management of the oysters**
- 19 **and other fisheries, FWC has a reporting system**
- 20 **where the number of trips that are taken are**
- 21 **reported.**
- 22 **Q.** And a trip, that's the oyster fisherman actually
- 23 gets in their boat -- do they get a trip ticket
- 24 or something and go out on the water, harvest,
- 25 and come back?

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- 1 **Q.** Could you explain to the Court what does that
- 2 mean, to increase fishing effort?
- 3 **A. There was a period of time there in 2010**
- 4 **following the Deepwater Horizon event where most**
- 5 **of the coastal waters in the Gulf of Mexico were**
- 6 **at risk. It was impossible to really forecast**
- 7 **what that risk would be. So there were measures**
- 8 **taken that would allow harvesting to take place**
- 9 **to harvest those oysters that were a marketable**
- 10 **size.**
- 11 **Q.** And to put it a little differently, there was an
- 12 extension or an addition of the number of days
- 13 when harvesting could take place; is that
- 14 correct?
- 15 **A. There were days added.**
- 16 **Q.** And then there were also -- some of the oyster
- 17 bars that may have been closed generally under
- 18 the season rules were opened to allow them to be
- 19 harvested as well?
- 20 **A. Yes. There was some variation in the normal**
- 21 **summer and winter harvesting seasons.**
- 22 **Q.** So we had more days of harvesting that were being
- 23 permitted on more bars than typical during this
- 24 period of time?
- 25 **A. Yes. That's correct.**

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- 1 **A. They do complete trip tickets to -- what am I**
- 2 **trying to say -- to account for their harvest.**
- 3 **Q.** And what the Governor's letter is saying is
- 4 during this period of time there were more trips
- 5 being taken, more fishermen taking their boats
- 6 out to harvest?
- 7 **A. That would -- that would make sense.**
- 8 **Q.** Let's go down to the next sentence, if we could,
- 9 please. It says, this led to overharvesting of
- 10 illegal and sub-legal oysters, further damaging
- 11 an already stressed population.
- 12 Could you explain to the Court what is
- 13 overharvesting?
- 14 **A. The term overharvesting is applied in the -- to a**
- 15 **number of situations. In my opinion, the term**
- 16 **overharvesting is not what actually occurs. What**
- 17 **actually occurs is intensive harvesting.**
- 18 **We have a resource there that can be**
- 19 **harvested. And that resource is there for**
- 20 **harvesting. So typically it's an annual crop.**
- 21 **It is harvested down to a level where it becomes**
- 22 **almost inefficient to harvest year after year**
- 23 **after year. This is a renewable resource. It's**
- 24 **a -- essentially an annual crop that is**
- 25 **harvesting -- is harvested.**

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1 **So that's one way of looking at the**
 2 **overharvesting or exploitation thing.**
 3 **The other issue that's involved is intensive**
 4 **harvesting, which was -- is what occurs when the**
 5 **fishing fleet is compressed into harvesting from**
 6 **very isolated situations, which is what he's**
 7 **really talking about in this letter.**
 8 **Q.** Maybe I'm misunderstanding it because the
 9 overharvesting, or we can call it intensive
 10 harvesting, he goes on to say, it's
 11 overharvesting of illegal and sub-legal oysters.
 12 Right?
 13 **A. Yes. Okay.**
 14 **Q.** So those are oysters that are not lawfully able
 15 to be harvested under the Florida Fish and
 16 Wildlife rules. Right?
 17 **A. That's -- that's basically correct. There is the**
 18 **harvesting of sub-legal oysters. It is a**
 19 **practice that is very common. It's not an**
 20 **uncommon practice. And the use of saying this**
 21 **is -- is -- it is legitimate; but it's not a real**
 22 **management concern.**
 23 **Q.** But he doesn't say that it's not a concern; he
 24 actually says that it is further damaging an
 25 already-stressed population. That sounds like a

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1 concern?
 2 **A. The -- the real issue there is the**
 3 **already-stressed population. Under normal**
 4 **circumstances if the population is not stressed,**
 5 **the harvesting of both legal and sublegal oysters**
 6 **is not a biological or a fisheries issue. It's**
 7 **one of -- it's a regulatory issue.**
 8 **The key here is that these populations**
 9 **throughout the bay were extremely stressed and**
 10 **that harvesting had been moved or displaced from,**
 11 **let's say -- I'll just throw a figure out here,**
 12 **4,000 acres down to probably less than 500 acres.**
 13 **Under those circumstances, the term**
 14 **overharvesting is applicable because you are**
 15 **going to harvest everything that's there. But**
 16 **that's from a -- from a resource management**
 17 **standpoint, that can happen every year.**
 18 **Q.** Just to level-set the Court, legal oysters in
 19 Apalachicola Bay are supposed to be 3 inches in
 20 size?
 21 **A. That's correct.**
 22 **Q.** Or 75, 76 millimeters?
 23 It's illegal, say, except for some
 24 tolerances, if oysters are stuck together and the
 25 like -- it's generally illegal to harvest oysters

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1 under 3 inches in size?
 2 **A. That's -- that's the code.**
 3 **Q.** All right. And what you're testifying to is that
 4 even though it's illegal for the harvest of these
 5 sub-legal oysters, these small oysters to be
 6 taking place, that's not a fishery management
 7 issue?
 8 **A. It is a fisheries management issue.**
 9 **Q.** It is. That should not be permitted?
 10 It's against the law. Right?
 11 **A. That's correct. It's a regulatory thing. Yes.**
 12 **Q.** Okay. Let's jump back, if we could, please,
 13 to -- let's go back to the oyster assessment
 14 report itself, which is --
 15 MR. ECHOLS: I think it's on 5, Mr. Smith.
 16 BY MR. ECHOLS:
 17 **Q.** Okay. If you could identify this, again, sir.
 18 This is your August 2012 report. Correct?
 19 **A. Yes, sir.**
 20 MR. ECHOLS: And if you would go down,
 21 Mr. Smith, to the second paragraph there.
 22 Actually, go down to the other one below
 23 that, the -- under the introduction.
 24 SPECIAL MASTER LANCASTER: Counsel,
 25 excuse me. Would this be a convenient time

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1 for us to take our recess?
 2 MR. ECHOLS: Oh, certainly, your Honor.
 3 That's perfectly fine, since we're starting a
 4 new document anyway.
 5 SPECIAL MASTER LANCASTER: Thank you.
 6 You may step down.
 7 THE WITNESS: Pardon me?
 8 SPECIAL MASTER LANCASTER: You may step
 9 down.
 10 We'll see you in the morning.
 11 (Time Noted: 4:25 p.m.)
 12 (Proceeding adjourned to Friday,
 13 November 4, 2016, at 9:00 a.m.)
 14 (End of day)
 15 - - - - -
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CERTIFICATE

I, Claudette G. Mason, a Notary Public
in and for the State of Maine, hereby certify
that the foregoing pages are a correct
transcript of my stenographic notes of the
Proceedings.

I further certify that I am a
disinterested person in the event or outcome
of the above-named cause of action.

IN WITNESS WHEREOF, I subscribe my hand
this 25th day of November, 2016.

/s/ Claudette G. Mason
Claudette G. Mason, RMR, CRR
Court Reporter

My Commission Expires
June 9, 2019.

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\$	12,000 [1] - 591:23	1970 [1] - 563:7	661:14, 661:18, 662:3, 662:5, 664:21, 732:15, 745:10	2019 [1] - 775:17
\$10 [1] - 721:9	12-5-546 [5] - 655:6, 655:11, 655:23, 657:5, 657:14	1970's [2] - 659:5, 744:2	20,000 [1] - 734:11	202 [1] - 590:5
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