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IN THE CIRCUIT COURT OF THE FIRST CIRCUIT

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STATE OF HAWAI'I

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SIERRA CLUB, )

Case No. 1CC191000019

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Plaintiff, )

7

vs. )

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BOARD OF LAND AND NATURAL )

RESOURCES, DEPARTMENT OF )

9

LAND AND NATURAL RESOURCES, )

SUZANNE CASE in her )

10

official capacity as )

Chairperson of the Board )

11

Land and Natural Resources, )

ALEXANDER AND BALDWIN, )

12

INC., EAST MAUI IRRIGATION )

COMPANY, LLC and COUNTY OF )

13

MAUI, )

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Defendants. )

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TRANSCRIPT OF WEBEX PROCEEDINGS had before the

18

Honorable Jeffrey Crabtree, Judge Presiding, on Monday,

19

August 17, 2020, for Further Jury-Waived Trial -

20

Morning Session Only.

21

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23

REPORTED BY:

24

A. HAUNANI HO, RPR, CSR 372

OFFICIAL COURT REPORTER

FIRST CIRCUIT COURT

25

STATE OF HAWAI'I

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17 LAND AND NATURAL RESOURCES

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I N D E X

<u>WITNESS</u>	<u>PAGE</u>
AYRON STRAUCH	
Direct Examination by Ms. Goldman . . . . .	6
Cross Examination by Mr. Schulmeister . . . . .	39
Cross Examination by Mr. Rowe . . . . .	64
Cross Examination by Mr. Frankel . . . . .	65
Redirect Examination by Ms. Goldman . . . . .	96
Recross Examination by Mr. Frankel . . . . .	99

E X H I B I T S

<u>DEFENDANT A&amp;B' S EXHIBIT</u>	
No. AB-164 received into evidence . . . . .	53

1 Monday, August 17, 2020, Honolulu, Hawai'i

2 9:03 a.m.

3 --oOo--

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5 THE COURT: Back on record.

6 FTR on?

7 THE BAILIFF: Yes, it is.

8 THE COURT: Please call the case.

9 THE BAILIFF: All right. The Circuit Court of  
10 the First Circuit is now in session. Calling Case  
11 No. 1 on the calendar, Civil No. 19-1-0019, Sierra Club  
12 vs. Board of Land and Natural Resources, Jury-Waived  
13 Trial.

14 Counsel, appearances please starting with  
15 plaintiffs.

16 MR. FRANKEL: Good morning, Your Honor. David  
17 Frankel here for the Sierra Club. Also joining us  
18 virtually is Marti Townsend who will be in and out  
19 because it's the first day of virtual school. And  
20 although this might be a valuable (indiscernible) for  
21 them, the first grader might -- this might be a little  
22 too high level for the first grader. So she'll be in  
23 and out. Thank you, Your Honor.

24 THE COURT: Good morning.

25 THE BAILIFF: And A&B.

1 MR. SCHULMEISTER: This is David Schulmeister  
2 and Trish Akagi for Alexander & Baldwin and East Maui  
3 Irrigation Company. Meredith Ching is listening in.

4 THE COURT: All right. Good morning. Welcome  
5 everyone.

6 THE BAILIFF: And County of Maui.

7 MR. ROWE: Good morning, Your Honor. Deputy  
8 Corporation Counsel Caleb Rowe on behalf of the County  
9 of Maui.

10 THE COURT: Good morning.

11 THE BAILIFF: The State of Hawai'i.

12 MS. GOLDMAN: Good morning, Your Honor.  
13 Miss Goldman, Mr. Wynhoff on behalf of the State. And  
14 I believe Miss Chow and Miss Chun are also listening in  
15 from their respective offices. We also have our party  
16 representative Suzanne Case.

17 THE COURT: Thank you. Welcome.

18 And let's see. We also have a few other folks  
19 listening in. We have Mr. Raboteau, Miss Summer Sylva,  
20 and Miss Li'ula Kotaki.

21 Right?

22 THE BAILIFF: Yep.

23 THE COURT: Okay.

24 All right. I see Mr. Strauch there so I'm  
25 gonna bet that his testimony is going to resume. Is

1 that the plan?

2 I see head-nodding from Ms. Goldman.

3 MS. GOLDMAN: Yes, Your Honor.

4 THE COURT: Okay. Everybody ready to go?

5 All right. Thank you.

6 Mr. Strauch, welcome back. Good morning.

7 THE WITNESS: Good morning, Your Honor.

8 THE COURT: All right. I'll remind you that  
9 you're still under oath. We don't need to swear you in  
10 again. And please continue doing what you were doing  
11 last week in terms of speaking directly and clearly and  
12 spelling the more complicated Hawaiian names as we go  
13 along. Thank you very much.

14 Ms. Goldman.

15 AYRON STRAUCH,

16 called as a witness by the State,

17 having been previously sworn was

18 examined and testified as follows:

19 DIRECT EXAMINATION (Resumed)

20 BY MS. GOLDMAN:

21 Q Dr. Strauch, how many streams would you  
22 estimate are in the State of Hawai'i?

23 A We have 376 perennial named streams that  
24 are flowing to the ocean. That doesn't include all of  
25 their respective tributaries whether they are named or

1 not named.

2 Q And how many of those 376 perennial  
3 streams are still subject to their status quo IIFS from  
4 the 1980s?

5 A About 320 of them, 324, something like  
6 that.

7 Q And has anyone -- have there been  
8 petitions filed with respect to those approximately 320  
9 streams?

10 A We have one pending petition relating to  
11 streams on the island of Moloka'i and the current  
12 petition alleging waste and instre -- you know,  
13 mismanagement of instream flow standards in West Maui.  
14 But we've addressed some of the issues in that petition  
15 already, but that's a separate issue.

16 Q Okay. I call your attention to last week  
17 when we previously spoke and we talked about your -- we  
18 talked about your personal experience at each of the  
19 streams. I just wanted to clarify a few things about  
20 that.

21 With respect to Honopou Stream, H-O-N-O-P-O-U,  
22 had you visited there before November 2018?

23 A Yes.

24 Q How about Ho'olawa? Have you visited  
25 Ho'olawa, H-O-O-L-A-W-A, before November 2018?

1           A     Yes.

2           Q     And I'd like to ask you a few more  
3 questions about Mokupapa. You previously testified  
4 that you had never visited there. Are you otherwise  
5 familiar with Mokupapa Stream?

6           A     I'm familiar in the sense that I have  
7 looked at the registration files for the stream  
8 diversions on Mokupapa and I've studied the watershed  
9 and the data that are available for Mokupapa.

10          Q     And were those studies -- withdraw that.  
11                When that experience with Mokupapa, did that  
12 begin before November of 2018?

13          A     Yes. The Commission has looked at  
14 setting instream flow standards, other important areas  
15 across the State, you know, as part of our  
16 prioritization process.

17          Q     And was Mokupapa prioritized?

18          MR. FRANKEL:   Objection, --

19          THE WITNESS:   No.

20          MR. FRANKEL:   -- Your Honor. And I think I  
21 need to explain myself without the witness present.

22          THE COURT:   All right. Mr. Strauch,  
23 Dr. Strauch, can you step outside briefly. Thank you  
24 very much.

25          THE WITNESS:   Sorry.



1 (Witness exits.)

2 MR. WYNHOFF: He knows how to do that himself?

3 MS. GOLDMAN: Yeah.

4 MR. WYNHOFF: He knows how to do that himself?

5 He doesn't --

6 MS. GOLDMAN: He walked out (indiscernible).

7 MR. WYNHOFF: Okay.

8 MR. FRANKEL: So, Your Honor, we've talked  
9 about the issue of expert testimony, disclosure of  
10 opinions and basis for opinions. And this is -- I  
11 think what the State's doing is quite creative. I have  
12 to give -- very creative. What's -- they are relying,  
13 or going to be relying, on one short throwaway sentence  
14 in the minutes of the 2018 BLNR meeting and to suggest  
15 that's an opinion. And what they have been doing and  
16 what they're doing now is attempting to provide the  
17 basis for the opinion.

18 And as you've already ruled, I mean, we've --  
19 I think generally you wait for the opinion to come out.  
20 But what's being done is backwards and what they're  
21 trying to do is provide the basis for what I don't  
22 think is an opinion, but they will argue is opinion,  
23 and that's just not appropriate.

24 These bases were not previously disclosed and  
25 they're attempting to disclose these bases now.

1 THE COURT: All right. So you're objecting to  
2 a question that hasn't really been asked yet.

3 MR. FRANKEL: Well, no, Your Honor. You see  
4 that's the difference. I have been objecting whenever  
5 opinions have been solicited, such as the one that was  
6 just asked. But also because the bases for the  
7 opinion, which they're gonna argue was al -- is already  
8 in the record, they are attempting to put on the record  
9 now bases for an opinion that was previously they are  
10 going to argue is in the minutes of the meeting.

11 And that's what -- it's sort of backwards and  
12 I think it's quite creative, but it's inappropriate.  
13 These bases were never disclosed. They're using him as  
14 expert testimony. They're gonna argue, they've already  
15 attempted to argue once, that this one sentence that  
16 was articulated in 2018 is an opinion. And now what  
17 they're trying to do is put on the table all the bases  
18 for the opinion and these were never disclosed.

19 It's basically a disclosure objection, Your  
20 Honor, rather than a strictly expert opinion being  
21 offered. I don't know if I'm being clear about that  
22 distinction.

23 THE COURT: Okay. But you're predicting where  
24 they're gonna go, is that --

25 MR. FRANKEL: Well, in terms of how they're

1 gonna use the argument, well, yeah, they already -- I  
2 don't know if you remember Miss Goldman asked him why  
3 did you testify in a certain way at the BLNR meeting.

4 And so now what she's doing, rather than  
5 asking why, she's been asking for, yes, Friday  
6 afternoon and this morning all of the bases upon which  
7 the conclusions -- yeah, that's why she's -- that's why  
8 the November 2018 question keeps being asked, because  
9 she wants to know whether he visited these places,  
10 whether he read these studies, all before November 2018  
11 when he made this one throwaway statement at the BLNR  
12 meeting and it's just not appropriate.

13 THE COURT: Understood. All right. Do you  
14 wanna be heard, Miss Goldman? I'm not inclined to  
15 sustain the objection, but I certainly got the alert  
16 from Mr. Frankel.

17 MS. GOLDMAN: Thank you, Your Honor.

18 I would just say that insofar as we are  
19 focusing on exactly, precisely what was given to the  
20 Board prior to their decision, the State would just  
21 remind the court that when Sierra Club witnesses took  
22 the stand, they said that the photographs that were  
23 taken after the dates of those opinions -- of those  
24 decisions for example.

25 Right now, what I am attempting to do with

1 Dr. Strauch is to elicit from him his personal  
2 observations and to clarify the bases for those  
3 observations due to a potential objection that was  
4 flagged by Mr. Frankel last week.

5 THE COURT: All right. Objection overruled.  
6 We'll see where this goes. Go ahead. Please continue,  
7 Miss Goldman.

8 MS. GOLDMAN: Mr. Wynhoff has stepped out to  
9 let the witness back in.

10 THE COURT: Thank you.

11 MR. WYNHOFF: I'm back.

12 THE COURT: Okay. Thank you. Please proceed.

13 MS. GOLDMAN: Okay.

14 Q Ayron, to your -- to your knowledge,  
15 Dr. Strauch, I apologize, what is the maximum elevation  
16 of Mokupapa?

17 A It is a -- give or take a few hundred  
18 feet, about 1550 feet in elevation.

19 Q Would you characterize it as a large  
20 stream?

21 A No.

22 MR. FRANKEL: Objection, Your Honor.

23 THE COURT: Basis? Just briefly not a long --

24 MR. FRANKEL: Expert, vague.

25 THE COURT: Overruled. Go ahead and answer.

1 THE WITNESS: No. Mokupapa doesn't have a  
2 large watershed area and it doesn't receive as much  
3 rainfall and the watershed does not extend into the  
4 zone of fog drip which contributes substantially to  
5 recharge. And all of these would contribute to greater  
6 stream flow. Because Mokupapa does not meet those  
7 criteria, it does not have much stream flow.

8 I have also seen photos of the flow in the  
9 stream and the size of the stream channel and they  
10 confirm that Mokupapa does not have much stream flow  
11 relative to other streams in East Maui.

12 Q (BY MS. GOLDMAN) What's the -- just very  
13 briefly, what's your understanding of the fog drip  
14 zone? You used that term, just to clarify.

15 A So the zone of fog drip occurs between  
16 2,000 and 6,000 feet in elevation on windward mountains  
17 here in Hawai'i. It's based on what we call the  
18 temperature inversion. It's the zone in the toposphere  
19 that -- where a temperature increases as you go up in  
20 elevation as opposed to typical conditions where  
21 temperature gets colder as you go up in elevation.  
22 This temperature in the inversion zone keeps the warm  
23 moist air that comes off of the ocean to a band of  
24 elevation between 2,000 and 6,000 feet. And that band  
25 of warm moist air contributes to fog drip. Fog drip,

1 again, contributes upwards of 30 percent of the  
2 recharge in the watershed.

3 Q What do you mean by recharge of the  
4 watershed?

5 A The amount of water that is input to the  
6 hydrologic units. So if you think of the watershed as  
7 a bucket, and you get rainfall that falls into the  
8 bucket, and you might have a hole in the bucket, which  
9 might represent the stream discharging water, you would  
10 also get mist. Or if you were to spray a mist bottle  
11 on the sides of the bucket, that mist would condense  
12 and collect on the bucket and flow into that pool of  
13 water that's available for ground water or stream flow.

14 Q Okay. All right. With respect to  
15 Waipi'o Stream, W-A-I-P-I-O, you testified that the  
16 last time you were there was in July. Had you been  
17 prior to July?

18 A No, I had not.

19 Q Okay. And describe the -- describe  
20 what based on your own observations were -- I withdraw  
21 that.

22 You also testified that you had been four  
23 times in total. Can you approximate when those four  
24 times would have been?

25 A So between July and August I was in East

1 Maui about four times.

2 Q Okay. Of this year?

3 A Yeah.

4 Q Okay. And based on what you observed,  
5 regarding the conditions of Waipi'o Stream, how would  
6 you characterize the flow?

7 A It's very flashy in the higher elevations  
8 -- I'll qualify flashy, meaning it responds to runoff.  
9 In the higher elevations the watershed's very narrow  
10 and therefore whenever it rains a substantial amount  
11 you get a lot of runoff. But there is -- there are no  
12 substantial tributaries so it doesn't have a lot of  
13 base flow.

14 Downstream or makai of the New Hāmākua Ditch  
15 diversion there is a large waterfall. This waterfall  
16 is dry unless you have a freshet event. Between the  
17 waterfall and the Lowrie Ditch, there are ground water  
18 gains in flow and -- but, again, no substantial  
19 tributaries.

20 Q Okay. How about Hanehoi Stream,  
21 H-A-N-E-H-O-I? Had you been there before November  
22 2018?

23 A Yes.

24 Q How about Hoalua Stream, H-O-A-L-U-A?

25 A Yes.

1 Q Had you been there?

2 Okay. Had your -- had you been to Hoalua  
3 Stream before November 2018 in your capacity at this  
4 current job?

5 A Yes.

6 Q And describe -- just based on your  
7 observations, describe Hoalua for us please.

8 A Hoalua is a watershed that stems higher  
9 into the mountain hi -- to a higher elevation than say  
10 Waipi'o. It has two -- it has one small tributary and  
11 one main stem above the Wailoa and New Hāmākua Ditches.  
12 It is heavily incised into the basalt through the main  
13 middle reach between the New Hāmākua Ditch and the  
14 Lowrie Ditch.

15 There is a major control structure on the  
16 westward side of the intake on the Lowrie Ditch such  
17 that no water -- or such that the amount of water  
18 diverted at the Lowrie Ditch could be regulated.

19 The substrate in Hoalua in the lower  
20 elevations is -- we call like jagged basalt. So it's  
21 relatively freshly broken up boulders basically.  
22 Hoalua has low reach diversity. Most of the watershed  
23 is composed -- most of the lower elevations of the  
24 watershed at least are composed of non-native species.  
25 Um --



1           Q     You used the term middle reach. I don't  
2 know if we've previously discussed what's meant by  
3 lower, middle, and upper reach. Could you take a  
4 moment please and explain that?

5           A     Okay. So the stream channel is broken  
6 into various sections depending on the distance inland  
7 and the elevation of the channel, and these sections  
8 support different types of biota.

9                     The lowest elevation reaches are more  
10 estuarine, brackish. They support a larger complement  
11 of native biota. The middle reaches support species  
12 such as 'o'opu, nākea, and 'o'opu nōpili. And then the  
13 upper and high elevation reaches support more of the  
14 better climbers such as 'ōpae kala'ole and 'o'opu  
15 alamo'o.

16           Q     We --

17           THE COURT: You need to spell those please.

18           THE WITNESS: Oh, sorry. 'O'opu is O-O-P-U.

19                     And then alamo'o is A-L-A-M-O-O.

20                     'O'opu nōpili, N-O-P-I-L-I.

21                     Nākea, N-A-K-E-A.

22           THE COURT: Thank you.

23           Q     (BY MS. GOLDMAN) Thank you.

24                     And you briefly touched on the four at Hoalua  
25 Stream. Could you just talk about that for another

1 moment?

2           A     The lowest elevations are the lower  
3 approximate quarter or 25 percent of Hoalua, give or  
4 take, is zoned agriculture in the state land use  
5 district zoning. As such, there is greater low density  
6 housing. The land cover is heavily modified. There's  
7 the introduction of a lot of non-native species.

8           Species such a hau bush and bamboo are  
9 frequently found at these elevation -- or at this zone  
10 in both Hoalua and neighboring watersheds. And these  
11 all impact things like leaf litter input, the what we  
12 call occlusion of the stream channel or the covering of  
13 the stream channel. So when water's flowing underneath  
14 the canopy, that canopy can block the sunlight. And  
15 the sunlight is what drives algal production and algae  
16 is the basis for our food resource for our aquatic  
17 ecosystem. Um --

18           Q     So --

19           A     Yeah.

20           Q     If I may just interrupt you for a moment.  
21 So things like occlusion of the stream channel, is that  
22 something that you can observe? Like you personally  
23 have observed that?

24           A     Yes.

25           Q     Okay. And have you personally observed

1 the lack of algal growth? In --

2 A Yes.

3 Q -- that -- okay. And the hau bush and  
4 bamboo?

5 A Yes.

6 Q How about, let's see, Hanawana Stream,  
7 H-A-N-A-W-A-N-A. You testified that you never visited  
8 there, but you did have knowledge of the diversion  
9 before -- well, I apologize. But you had knowledge of  
10 the diversion. Did you have knowledge, personal  
11 knowledge, of the diversion structure prior to November  
12 2018?

13 MR. FRANKEL: Objection, relevance.

14 THE COURT: Overruled.

15 THE WITNESS: So my knowledge of the diversion  
16 structures on that stream are from the historic  
17 documents, the registration files that we keep.

18 Q (BY MS. GOLDMAN) Okay. Was there  
19 verification field work done on --

20 A Yes.

21 Q -- that stream?

22 A Um --

23 Q When was that?

24 A The Commission hired a consultant to  
25 verify stream diversions in East Maui. I think it was

1 in 2010, 2011. So we have their verification records  
2 as well and their photographs.

3 Q Have you had the opportunity to review  
4 those in addition to other historical documents?

5 MR. FRANKEL: Objection, calls for hearsay.

6 THE COURT: Hold on.

7 When you say review those, you're talking  
8 about these consultant documents from 2010 to 2011?

9 MS. GOLDMAN: Yes, Your Honor, but I don't  
10 intend to ask anything further regarding them, or their  
11 content.

12 THE COURT: So you're just asking if he  
13 reviewed them. You're not asking him to tell us what's  
14 in them. All right. You may answer.

15 MS. GOLDMAN: Yes, Your Honor.

16 MR. FRANKEL: Well, then, Your Honor,  
17 irrelevant.

18 THE COURT: You may answer.

19 THE WITNESS: Yes, I have reviewed all of the  
20 consultant's work.

21 Q (BY MS. GOLDMAN) And to your knowledge,  
22 are there diversions belonging to other parties who are  
23 not EMI, A&B on Hanawana Stream?

24 A Yes.

25 Q How about on Waipi'o Stream? Are there

1 non-EMI diversions there?

2 A Yes.

3 Q And how about Mokupapa? Are there  
4 non-EMI diversions there?

5 A Yes.

6 Q Moving on to Kailua Stream, K-A-I-L-U-A.  
7 You had testified that you've been there 120 times I  
8 think you said because it's easily accessed from the  
9 road. But have you also been there for work?

10 A Yes.

11 Q Okay. And had you been there for work  
12 prior to November 2018?

13 A Yes.

14 Q Okay. Describe Kailua Stream for us,  
15 please.

16 A Kailua Stream has one main tributary. It  
17 extends fairly high up in elevation. I think to around  
18 6 or 7,000 feet in elevation. I could be off. The  
19 main tributary is named Ohanui, H -- or O-H-A-N-U-I,  
20 the spelling on some maps. Some documents refer to  
21 that stream as West Kailua.

22 The Kailua and West Kailua channels are  
23 heavily incised. They are fairly large or wide.  
24 They're also full of hau bush and other non-native  
25 vegetation. There are a number of inland waterfalls,

1 multiple inland waterfalls of substantial height, some  
2 of which have overhanging lips. There is a terminal  
3 waterfall.

4 Kailua Stream is -- has -- has three major  
5 diversions on it. It is a gaining stream. There  
6 are -- there's one -- no, there are two major  
7 diversions on West Kailua Stream.

8 I'll stop there.

9 Q Okay. So are there any -- you said that  
10 there's a terminal waterfall. Just to clarify, that's  
11 a waterfall ending in the ocean, correct?

12 A Correct.

13 Q And other waterfalls as well.

14 Are there other natural barriers -- other  
15 barriers to migration that you've observed? I mean,  
16 barriers to connectivity of that stream?

17 MR. FRANKEL: Objection, calling for expert  
18 opinion.

19 THE COURT: When you say that stream, are you  
20 talking about Kailua Stream?

21 MS. GOLDMAN: Yes, Your Honor.

22 THE COURT: So you're just asking him if there  
23 are any natural barriers to migration?

24 MS. GOLDMAN: Any other natural barriers to  
25 migration.

1 THE COURT: All right. The objection's  
2 overruled. You may answer.

3 THE WITNESS: The inland waterfalls represent  
4 natural barriers to migration, for certain species.

5 MS. GOLDMAN: Okay.

6 Q I assume that would be the non-climbers?

7 Is that --

8 A The climbers that are not the best  
9 climbers.

10 Q Okay. Nā'ili'i'ilihaele Stream.

11 N-A-I-L-I-I-L-I-H-E-L-E. And this one also you had  
12 said was easily accessed from the main road. Do you  
13 also visit it for work?

14 A Yes, I do.

15 Q Okay. And had you visited before  
16 November of 2018?

17 A Yes.

18 MR. FRANKEL: Relevance.

19 THE COURT: Overruled.

20 THE WITNESS: Yes.

21 Q (BY MS. GOLDMAN) Describe

22 Nā'ili'i'ilihaele for us, please.

23 A It's a relatively large watershed, it  
24 extends again fairly high in elevation, through the fog  
25 drip zone. There are a couple of -- I would say three

1 relatively small tributaries that are -- contribute to  
2 the main stem.

3           The main stem is diverted five times. A  
4 portion of the main stem is used for the conveyance of  
5 water from the Center Ditch to the Lowrie Ditch. There  
6 is a offstream reservoir that is fed by water diverted  
7 from this main stem. The -- much of the watershed is  
8 modified by the presence of bamboo. Bamboo has invaded  
9 much of the middle elevations and has changed the  
10 riparian zone substantially as well as the stream.

11           Nā'ili -- the -- Nā'ili'ilihaele ends in a  
12 terminal waterfall. There are a number of inland  
13 waterfalls as well.

14           Q     And how about on Nā'ili'ilihaele, what  
15 about any gaging stations? Are there any gaging  
16 stations?

17           A     The Commission on Water Resource  
18 Management has up until last year had not funded any  
19 long-term continuous gaging stations. But we in  
20 consultation with USGS on our statewide monitoring  
21 needs assessment, we added a station in -- on the main  
22 stem above the Wailoa in -- Ditch intake. This station  
23 was previously active from 1913 to 1971 I believe, or  
24 '75.

25           In terms of its location as an index station



1 and the continuity of long-term monitoring records to  
2 understand climate impacts to hydrological resources,  
3 this location was ideal. We checked off a number of  
4 boxes in our monitoring needs assessment.

5 Outside of that station that was recently  
6 funded, no, there are no other gaging stations in  
7 Nā'ili'ilihaele.

8 Q Okay. And Puehu Stream, P-U-E-H-U. You  
9 said that you had been there four times not counting  
10 seeing it from the highway. Was that for work  
11 purposes?

12 A Yes.

13 Q And were those visits, were any of them  
14 before November of 2018?

15 A Uh -- no.

16 Q Okay. When were they?

17 A Um -- over the last year and a half.

18 Q Okay. And just briefly, and it --  
19 assuring -- you know, ensuring that it's based on your  
20 personal observations only, could you please describe  
21 Puehu Stream for us?

22 A Puehu has two small tributaries. Pa  
23 Stream and Puehu Stream. Pa Stream has -- starts at  
24 about the 3,000 foot elevation, maybe 2200 feet in  
25 elevation. I can't remember off the top of my head.

1 Pa Stream is used for the conveyance of water at the  
2 Center Ditch very -- for a very short period -- short  
3 length.

4 And then Pa Stream is diverted by the --  
5 sorry, that -- I -- instead of Center Ditch, I meant  
6 Manuel Luis Ditch, and then Pa Stream is diverted by  
7 the Center Ditch as well. Um --

8 Q How about --

9 A Pu --

10 Q -- the -- oh. I apologize.

11 A No. Puehu Stream is also diverted by the  
12 Center Ditch. Puehu hydrologic -- or watershed is  
13 relatively small. It's dominated by non-native  
14 vegetation. The -- there are no structures at the  
15 Center Ditch intakes. The small stream flows directly  
16 into the ditch.

17 Q Okay. How about 'O'opuola?

18 O-O-P-U-O-L-A. You also said you'd been there about  
19 119, 120 times. Was that also for work?

20 A Yep. So 'O'opuola Center Ditch intake  
21 can be accessed from the main highway. The -- there  
22 are -- there's one named tributary for Makanali -- or  
23 named Makanali into 'O'opuola. That's M-A-K-A-N-A-L-I.  
24 Makanali. 'O'opuola has three tributaries that are  
25 minor. The -- each one is diverted by the Wailoa and

1 New Hāmākua Ditches.

2 'O'opuola main diversion is on Wailoa Ditch  
3 and captures most of the base flow available. From the  
4 Wailoa Ditch makai, so from about 1250 feet to the  
5 ocean, 'O'opuola watershed's dominated by non-native  
6 vegetation, a lot of hau bush. There are areas that  
7 have some thick stands of strawberry guava.

8 I'll leave it at that.

9 Q Okay. Ka'aiea. K-A-A-I-E-A. You said  
10 you'd been there four times for work, last time being  
11 earlier this month. Had you also visited in November  
12 of 2018?

13 A Um --

14 Q Or I apologize. Had you also visited  
15 prior to November of 2018?

16 A Um -- no. Uh -- un -- unless you're just  
17 referring to seeing something from the highway.  
18 Ka'aiea is a relatively small stream, although it's  
19 got -- the watershed extends fairly high up in  
20 elevation. It doesn't have any major tributaries at  
21 all.

22 The main intake is on Wailoa Ditch at -- above  
23 a waterfall. There are a couple of inland waterfalls  
24 at the Man -- it's diverted at the Manuel Luis Ditch  
25 and then the Center Ditch as well. The Center Ditch

1 intake is right on the highway so you can see it from  
2 the highway. But because there's relatively little  
3 water that's flowing into it, it's less of a priority  
4 for us to, um -- observe.

5 Q Okay. How about Punalu'u, P-U-N-A-L-U --  
6 L-U-U? Had you -- you testified that you've analyzed  
7 this stream in the course of your job. Had any of that  
8 taken place prior to November of 2018?

9 A So as part of my job, um -- we look at  
10 the larger sources of water that contribute to  
11 irrigation systems, and this stream does not contribute  
12 much flow. It's a relatively small watershed. It  
13 doesn't extend into that zone of fog drip. It's  
14 dominated by bamboo. It's, um -- low base flow.

15 Q Okay. Thank you.

16 Kōlea Stream, K-O-L-E-A. Had you visited  
17 before November of 2018?

18 A Yes.

19 Q And can you please describe Ke -- Kōlea  
20 Stream, including how you get there.

21 A Um -- you can get to part of the stream  
22 from the highway, but you can also drive. There are  
23 two different access roads to Kōlea.

24 The watershed is heavily dominated by bamboo.  
25 Bamboo was -- has been encroaching from the Waikamoi

1 side and it has been, um -- altering the vegetation  
2 cover. Kōleā also used to have an instream reservoir  
3 that was decommissioned by the State in 2011 and a con  
4 -- consultant removed the structure altogether.

5           There is a West Kōleā tributary to the East  
6 Kōleā or main Kōleā Stream. Kōleā extends kind of  
7 a -- not as high up and onto Haleakalā as say Kailua,  
8 but higher up than say Puehu, and therefore there's a  
9 little bit more water available for instream and  
10 offstream uses.

11           Kōleā, because the name was also part of --  
12 because the name Kōleā was part of a tributary to  
13 Punalau, which was part of the original petition, we've  
14 spent -- I have spent a -- more time studying Kōleā and  
15 Division of Aquatic Resources did a number of biota  
16 surveys in Kōleā and I've studied those results.

17           Kōleā ends at a terminal waterfall and is a  
18 gaining stream.

19           Q     Okay. Okay. How about Waikamoi? You  
20 said you had been about 120 times. Have you been there  
21 prior to November of 2018?

22           A     Yes.

23           Q     Was that for work?

24           A     Yes.

25           Q     Are there any gaging stations on

1 Waikamoi ?

2 A The Water Commission manages and -- a  
3 gaging station to monitor instream flow standards, and  
4 that responsibility lies on me to -- to do the field  
5 work for and analyze the data. There is also a Maui  
6 County funded USG -- co-funded USGS gage above the  
7 Waikamoi dam at about the 4,200 foot elevation, give or  
8 take a few hundred feet. That's above the Waikamoi  
9 Flume which is a primary drinking supply for Upcountry  
10 Maui .

11 Q Okay. Puohokamoa, P-U-O-H-O-K-A-M-O-A.  
12 You said you'd been there approximately 40 times and  
13 that you'd been there before November 2018.  
14 Was -- were those visits for work? Had you been there  
15 in the course of this job?

16 A Yes.

17 Q Okay. Hai pua'ena, H-A-I-P-U-A-E-N-A.  
18 Actually, withdraw that one.

19 Punalau, P-U-N-A-L-A-U. You briefly touched  
20 on this, but just again had you visited before November  
21 2018?

22 A Yes.

23 Q Honomanū, H-O-N-O-M-A-N-U. Is there a  
24 gaging station there?

25 A There is no -- well, right now, yes.

1 The -- in 2018 I -- the Commission on Water Resource  
2 Management added Honomanū as part of our statewide  
3 monitoring needs. I had tried to establish a  
4 monitoring station in Honomanū at a lower elevation,  
5 and the gaging station kept getting wiped out by flash  
6 -- flash flooding.

7 It was very frustrating, because you can spend  
8 a day and a half doing installation and you visit it  
9 five or six times to start developing the rating curve  
10 and site the station, and then a boulder the size of a  
11 bus moves and you have to start all over and you lose  
12 all your equipment. So this is one of the examples of  
13 a location where it is -- makes sense for us to fund a  
14 USGS gage because it saves time on my plate to address  
15 other issues.

16 Q And that USGS gage is there and active  
17 today, correct?

18 A They have a gaging station that is  
19 collecting data right now. They are not quite finished  
20 with the satellite connection, but they have been  
21 monitoring the dat -- the flows, yes.

22 Q Okay.

23 THE COURT: Miss --

24 Q (BY MS. GOLDMAN) Nua'ai lua, have you --

25 THE COURT: Miss Goldman, we've been going 50

1 minutes so we're going to take our morning break. So  
2 I'll see you at two minutes of 10:00. Okay? Ten  
3 minutes from now.

4 MS. GOLDMAN: Okay. Thank you.

5 THE COURT: All right. Thank you.

6 All right. Off record.

7 (Off record.)

8 THE COURT: We're in recess.

9 (Recess taken at 9:50 a.m.)

10 (Proceedings resumed at 9:59 a.m.)

11 THE COURT: All right. We're back on record.

12 FTR on?

13 THE BAILIFF: Yes, it is.

14 THE COURT: All right. Miss Goldman, go  
15 ahead, please.

16 MS. GOLDMAN: Thank you, Your Honor.

17 Q Dr. Strauch, have you been -- have you  
18 visited Pi'ina'au Stream, P-I-I-N-A-A-U, before  
19 November 2018?

20 A Yes.

21 Q Was that for work?

22 A Yes.

23 Q How about Palauhulu, P-A-L-A-U-H-U-L-U?

24 A Yes.

25 Q How about Waiokamilo,



1 W-A-I -O-K-A-M-I-L-O? Had you -- you testified that the  
2 diversions were discontinued before you started at  
3 CWRM, is that right?

4 A Yes.

5 Q Can you tell us just from what you know  
6 for that through your job why that was or how you know  
7 that?

8 A So Waiokamilo was originally part of the  
9 27 stream petition filed with the Commission in 2001.  
10 Following a Land Board decision in I believe 2006, East  
11 Maui Irrigation notified us that they would be  
12 discontinuing the use of those diversions, so that's  
13 why they -- (indiscernible).

14 Q Are there remaining diversion structures  
15 on Waiokamilo Stream to your knowledge?

16 A Yes. There are a couple of 'auwai,  
17 A-U-W-A-I, or ho'ouai, the intake, which start as like  
18 little concrete or boulder structures in a stream that  
19 remove water primarily for kalo production.

20 Q And have you personally been to them  
21 since you began with CWRM, so while they were  
22 discontinued?

23 A So have I -- have I been to the East Maui  
24 Irrigation diversions or the 'auwai diversions?

25 A Let's do one at the time. The EMI

1 diversions.

2 A Um -- no, I have not been to the EMI  
3 diversions on Waiokamilo.

4 Q How about 'auwai or (indiscernible)?

5 A Yes, ho'ouai.

6 Q In what ways are those non-EMI  
7 diversions?

8 A They're what we call the community  
9 sources of water, kuleana sources of water that support  
10 traditional and customary practices in the area.

11 Q Okay. Wailuānui, W-A-I-L-U-A-N-U-I. You  
12 stated that you had been there about 120 times for  
13 work. Was that prior to November 2018?

14 A Not 120 times prior to 20 -- November  
15 2018, but, yes, I had been there prior to November  
16 2018.

17 Q West Wailuāiki, W-A-I-L-U-A-I-K-I. You  
18 said -- you also said you had been there about 120  
19 times for work. Were any of those from before November  
20 2018?

21 A Yes.

22 Q And how about East Wailuāiki? Same  
23 spelling.

24 A Yes.

25 Q Okay. And have you spent time at East

1 and West Wailuāiki in the past year?

2 A Yes.

3 Q What have you been doing there?

4 A I monitor the stream resources. As well  
5 as the diversions.

6 Q Are you involved in the study of those  
7 streams?

8 I should clarify. The study we spoke about  
9 when you previously testified in consultation with DAR  
10 regarding the difference between full and H90?

11 A Yes.

12 Q And -- okay. How about Pua'aka'a,  
13 P-U-A-A-K-A-A? Have -- had you been there prior to  
14 2018?

15 A Yes.

16 Q Were you familiar with the diversions  
17 there because of your work?

18 A Yes.

19 Q Okay. Kōpiliula, K-O-P-I-L-I-U-L-A. Had  
20 you been between to the Kōpiliula intake at Ko'olau  
21 Ditch before November of 2018?

22 A Yes.

23 Q Waiohu'e Stream, W-A-I-O-H-U-E Stream.  
24 Had you been there before November 2018?

25 A Yes.

1 Q Have you been there in the past year?

2 A Yes.

3 Q Okay. I'd like to call your attention to  
4 just very briefly what was marked as Plaintiff's  
5 Exhibit 65 which has been admitted into evidence.

6 A Okay.

7 Q Okay. Do you recognize this photograph?

8 A Yes.

9 Q What is it?

10 A You're looking from the right bank at the  
11 outflow of a plunge pool in Waiohu'e with the  
12 connectivity flow pipe coming from the photographer  
13 towards the middle of the photo. The -- in the -- the  
14 stone that's been set is part of the intake from  
15 Waiohu'e to Ko'olau Ditch on the -- the lower right  
16 portion.

17 Q And based on your personal experience  
18 going there -- or when was the last time you went to  
19 this stream?

20 A Mid-July.

21 Q Was the connectivity flow pipe still  
22 there?

23 A Yes.

24 Q Okay. Even though it's not currently  
25 being used, can it be used again in the future --

1 A Yes.

2 Q -- to -- sorry, to clarify, is it usable?

3 A Yes.

4 Q And might there be any opportunity in the  
5 future to use that pipe again?

6 MR. FRANKEL: Objection, calls --

7 THE WITNESS: Yes.

8 MR. FRANKEL: -- for speculation.

9 THE COURT: Sustained.

10 Q (BY MS. GOLDMAN) That stream, is that  
11 stream one of the ones being studied?

12 A Yes.

13 Q And which is it, a full or H90  
14 restoration stream?

15 A It's a full restoration stream.

16 Q Pa'akea, P-A-A-K-E-A. You said you had  
17 been there once before November of 2018. Could you  
18 describe it just very briefly?

19 A It starts in native forest at moderate  
20 elevation and the main channel flows in relatively  
21 young lava. There is two minor diversions that also  
22 contribute flow off of springs. The main stem is  
23 diverted at the Ko'olau Ditch. There are -- the -- the  
24 stream channel's dominated by bedrock. It's a gaining  
25 stream, flows down to a terminal waterfall at the

1 ocean.

2 Q Okay.

3 A There are one main tributary, Puakea.  
4 Puakea's also a gaining stream. Yeah.

5 Q Okay. Prior to the filing of this case,  
6 did you personally think of Puakea as a stream?

7 MR. FRANKEL: Objection, relevance.

8 THE COURT: Sustained.

9 Q (BY MS. GOLDMAN) Has Puakea been studied  
10 at all, to your knowledge -- or I'll withdraw that.

11 Have you studied Puakea at all?

12 A Um -- only in the context of it being a  
13 tributary to Pa'akea.

14 Q Okay. Hanawī Stream, H-A-N-A-W-I -- oh,  
15 I forgot also. Would you please just close the exhibit  
16 that was open in front of you, if you haven't already.

17 Thank you.

18 Okay. Hanawī Stream. You'd been there about  
19 50 times. Had you been there before November 2018?

20 A Yes.

21 Q And Makapii Stream. You'd been there  
22 about 60 times. Was that prior to 2018 as well?

23 A Yes.

24 Q Prior to November 2018?

25 A Yes.

1 Q Okay. Okay. And is there anything I  
2 haven't yet asked you that you think would be important  
3 to explain your other testimony?

4 MR. FRANKEL: Objection, Your Honor, form of  
5 the question.

6 THE COURT: Sustained.

7 MR. FRANKEL: Vague. Thank you.

8 THE COURT: I'm sorry. I said sustained.  
9 Maybe you folks didn't hear me. Sorry.

10 MS. GOLDMAN: Oh. Okay. That's all from the  
11 State for Dr. Strauch at this current time.

12 THE COURT: Okay. Thank you.

13 Let's see. I think we --

14 Mr. Schulmeister, you wanna go first?

15 MR. SCHULMEISTER: Okay.

16 CROSS EXAMINATION

17 BY MR. SCHULMEISTER:

18 Q All right. Dr. Strauch, you had some  
19 testimony about your typical East Maui site visits.  
20 Just a couple questions on that. On a typical day,  
21 would that start with an early flight?

22 A Uh, certain pre-COVID, many trips I would  
23 spend the night on the island. So some days,  
24 obviously, it starts with an early morning flight to  
25 get to the island. Other days it starts with an early

1 morning wake-up and coffee on the island, so no flight  
2 involved.

3 Q And what do you usually take with you?

4 A Um -- in terms of field equipment? I  
5 bring, you know, a day's supply of food and water,  
6 emergency clothes, emergency locator beacon, sometimes  
7 a radio, field notebook, various measuring devices,  
8 equipment, various foot attire. I have three different  
9 pairs of tabs on Maui for the different conditions,  
10 such as fishing.

11 Q Your measuring equipment, do you normally  
12 carry that?

13 A Yes.

14 Q And you mentioned I think that sometimes  
15 you drive and sometimes you hike. With the measuring  
16 equipment, do you have to just physically carry that by  
17 hand when you hike?

18 A Yes.

19 Q Okay. And you mentioned snorkel surveys  
20 a number of times. So just to be clear, what exactly  
21 is a snorkel survey?

22 A So we -- I'll -- I'll describe the  
23 process from the beginning. At a location where we  
24 will do a snorkel survey, we will measure out transects  
25 at a particular reach. So those are widths across a



1 stream at known intervals. And then at a specific  
2 randomized location within that transect we will do  
3 what's considered a point quadrant snorkel survey. So  
4 we tend to wear wetsuits because the water gets really  
5 cold when you're in it for that length of time. So we  
6 put on a wetsuit, we put on a snorkel, we approach the  
7 transect and the randomized location within the  
8 transect from downstream. And as you approach it, you  
9 define the boundaries of the transect.

10 Our goal is to do a one meter transect, but  
11 nothing in nature is perfectly defined in one meter  
12 sections or areas. And so in that quadrant that we  
13 subsequently measure, we monitor for such as  
14 three-minute length of time the number of species, we  
15 estimate the number of the -- the species, we count  
16 them -- or we estimate size, we count the number, and  
17 we identify them to the species.

18 Once that length of time is up, we use a  
19 folding ruler to measure the actual boundaries and the  
20 depth and then we measure the velocity through that.  
21 So that's a typical snorkel survey.

22 We then estimate the substrate, such as  
23 boulder, gravel, bedrock, and then the habitat, riffle,  
24 run, pool, cascade, those sorts of descriptors that go  
25 with that quantitative data.

1 Q So would you have snorkel surveys on like  
2 on the same site visit as taking flow measurements?

3 A Yeah. We would typically measure flow or  
4 have a monitoring station that's monitoring flow at  
5 the -- the stream of interest.

6 Q So on a visit like this on a typical -- I  
7 mean, how many hours do you actually work in a day?

8 A So on a day that we're doing snorkel  
9 surveys, we focus -- we can only do maybe -- and,  
10 again, it depends on how many observers you have. If  
11 you have two that are leapfrogging each other, you can  
12 get maybe two reaches done in a day, and each reach has  
13 20 snorkel surveys. That's an entire day from, you  
14 know, being in the field from 8:00 a.m. to maybe 5:00  
15 p.m. Certain days, you know, depending on who's with  
16 you, your team, I can spend, you know, 14 hours a day  
17 in the field, 16 hours, depending on daylight. We're  
18 mostly limited by the amount of daylight.

19 Q And that doesn't include travel time?

20 A No.

21 Q And so if you got up in the morning and  
22 you go and you have a day like that, then you still  
23 have to fly back?

24 A Yeah, I'm usually on the -- the 9:00 p.m.  
25 flight back.

1 Q Okay. And do you get paid overtime?

2 A No.

3 Q Do you try to be conscientious and  
4 diligent when you collect data?

5 A I mean, we focus our efforts to inform  
6 the Commission as best we can. So in the sense that we  
7 don't gather field work data in locations that are not  
8 important to Commission decisions.

9 Q And do you try to be precise when you  
10 collect and record the data?

11 A Yes.

12 Q And do you double check it before you  
13 publish it?

14 A Yes.

15 Q Do you take pride in your job?

16 A I do.

17 Q Now, is it the -- is there a surface  
18 water branch at CWRM that you're a part of?

19 A The Stream Protection Management Branch  
20 addresses surface water.

21 Q Okay. And, again, is that -- could you  
22 just kinda just briefly describe how the surface water  
23 branch is staffed and where you kind of fit into the  
24 organizational chart?

25 A So we have a branch chief, and then we

1 have two sections. The Permits & Regulations Section  
2 and the Instream Use Protection Section. We have one  
3 person who deals with permits and regulations and then  
4 I am in the Instream Use Protection Section. I  
5 supervise right now two other employees. One person  
6 manages our -- our water use reporting and national  
7 hydrography data set for the State of Hawai'i.

8 THE COURT: Can you --

9 THE WITNESS: (Indiscernible) --

10 THE COURT: -- please slow down a little bit.

11 THE WITNESS: Sorry.

12 THE COURT: Okay. Thank you.

13 THE WITNESS: We have two employees that I  
14 supervise. One of them manages the national  
15 hydrography data set for the State of Hawai'i as well  
16 as our water use reporting database and then assists me  
17 with field work as needed. One employee does --  
18 follows up with water use reporting and assists with  
19 field work and does stream diversion verifications.

20 Q (BY MR. SCHULMEISTER) Okay. And is this  
21 a good team?

22 A Yes.

23 Q Now, is one of the things that you  
24 do attend Water Commission meetings and from time to  
25 time present informational presentations or Power

1 Points to Water Commission members?

2 A Yes.

3 Q And is that done -- what's the purpose  
4 for doing that?

5 A I inform the Commission on field work on  
6 efforts used to advance our development of instream  
7 flow standards, on monitoring needs, on communications.  
8 Our -- often times we collaborate with other agencies  
9 and so I will present or bring in other presentations  
10 as a collaborative effort to inform the Commission on  
11 issues that we are addressing.

12 Q Okay. And one of the other agencies I  
13 think you mentioned that you collaborate with is United  
14 States Geological Survey, USGS, is that right?

15 A Correct.

16 Q And from time to time there's a USGS  
17 representative who, you know, makes the presentation  
18 along with you or in conjunction with you, is that  
19 right?

20 A Correct.

21 Q Now, I think you also mentioned that from  
22 time to time the Water Commission collaborates with  
23 USGS on various studies, is that right?

24 A Correct.

25 Q Does that sometimes include the County of

1 Maui and Board of Water Supply as well?

2 A It does.

3 Q Could you look at Exhibit S-5?

4 THE COURT: Is that S as in Sierra 5?

5 MR. SCHULMEISTER: No, as in State 5.

6 THE WITNESS: Okay.

7 Q (BY MR. SCHULMEISTER) So --

8 THE COURT: It's already in evidence, right?

9 MR. FRANKEL: No.

10 MR. SCHULMEISTER: I'm sorry?

11 MR. FRANKEL: Well, if it is, it's for a very  
12 limited purpose, Your Honor.

13 THE COURT: Okay. Well, I'd have to go back  
14 and review my notes on that, but for whatever purpose  
15 it's in, it's in, right?

16 MR. SCHULMEISTER: Right.

17 Q Dr. Strauch, are you familiar with the  
18 study that's -- well, S-5?

19 A Yes.

20 Q And earlier in your testimony I think you  
21 gave some testimony about a study that had come up with  
22 64 percent of base flow as being the flow in Hawaiian  
23 streams that corresponds to 90 percent habitat  
24 suitability. Do you remember that?

25 A Yes. As it applies to East Maui streams.

1 Q Right. Is S-5 the study that you're  
2 referring to?

3 A Yes.

4 Q Okay. And so in that, is that study one  
5 that has been relied upon and cited to frequently over  
6 the years for precisely that point about the 64 percent  
7 base flow corresponding as a result of this study in  
8 certain East Maui streams to 90 percent habitat  
9 suitability?

10 MR. FRANKEL: Objection, form of the question,  
11 vague, passive voice, calls for speculation.

12 THE COURT: Passive voice? That's a new one.  
13 What's that?

14 MR. FRANKEL: Passive voice. Relied on.  
15 Relied on by whom?

16 THE COURT: Oh. Okay. Sustained.

17 Q (BY MR. SCHULMEISTER) Dr. Strauch, could  
18 you look at J-14, please?

19 A Okay.

20 Q All right. And turn to Bates stamp page  
21 000169.

22 A Okay.

23 Q All right. And, again, I believe you  
24 testified previously that you're familiar with J-14 as  
25 being the June 20th, 2018 Water Commission's Decision

1 and Order setting interim -- amending interim instream  
2 flow standards. Is that right?

3 A Yes.

4 Q Okay. And there's references beginning  
5 on page 000169 and continues for the next several  
6 paragraphs to studies done in 2002 and a specific  
7 reference, Gingerich, S.B. and Wolff, quote, "Effects  
8 of Surface-Water Diversions on Habitat Availability for  
9 Native Macro-Fauna, Northeast Maui," Hawai'i: U.S.  
10 Geological Survey Scientific Investigations Report  
11 2005-5213.

12 Do you see that?

13 A Yes.

14 Q Is that a reference to the same study  
15 that is Exhibit S-5?

16 A Yes.

17 Q Okay.

18 THE COURT: Mr. Schulmeister, I think --

19 Q (BY MR. SCHULMEISTER) Now --

20 THE COURT: Mr. Schulmeister, time out. I  
21 think your question referred to 2002. I'm going to  
22 assume you meant 2005. Is that fair?

23 MR. SCHULMEISTER: Actually, well, the -- I  
24 think it was -- the report is dated 2005. But if you  
25 look at the first paragraph of 562 on the page I



1 referenced, the studies were actually conducted between  
2 2002 and 2005.

3 THE COURT: Oh, I see.

4 MR. SCHULMEISTER: According to the findings.

5 THE COURT: I got it. Thank you.

6 Q (BY MR. SCHULMEISTER) Dr. Strauch, did  
7 you testify during the contested case hearing on  
8 the -- in the case that led to the Decision and Order  
9 that is J-14?

10 A Yes.

11 Q Okay. And do you remember who called you  
12 as a witness?

13 A I might be confusing like different  
14 contested case hearings officers, but the process I  
15 think it was the hearings officer that called me, but  
16 that might have been in a different contested case.  
17 So, no, I -- I could not with definitive. Sorry.

18 Q All right. Well, do you remember that  
19 Dr. Lawrence Miike was the hearings officer when you  
20 testified?

21 A Yes.

22 Q All right. And you don't recall if he's  
23 the one who actually called you to come in and testify?

24 A I think he did. It is my understanding  
25 that the hearings officer called me in the con -- in

1 multiple contested cases.

2 Q All right. Okay. That's fine.

3 Could you look at Exhibit AB-164?

4 THE COURT: 164?

5 MR. SCHULMEISTER: Yes.

6 THE COURT: Thank you.

7 THE WITNESS: Okay.

8 Q (BY MR. SCHULMEISTER) Okay. Do you  
9 recognize this document?

10 A Yes.

11 Q What is it?

12 A It's a summary of the interim instream  
13 flow standards established prior to -- is this before  
14 or after? It must be -- prior to the 2018 decision for  
15 East Maui streams petitioned in 2001.

16 Q Did you have any role in the preparation  
17 of this document?

18 A Yes. I --

19 Q What was that?

20 A -- helped organize it.

21 Q And was that at the request of Dr. Miike,  
22 the hearings officer?

23 A I can't remember for sure.

24 Q Okay.

25 MR. SCHULMEISTER: Your Honor, I'd like to

1 just note that this is one of the documents that we've  
2 asked that this was an exhibit in the CWRM case. It  
3 was marked Exhibit H0-1, H-0 standing for hearings  
4 officer, and it's available on the Commission website.  
5 We got the petition also, so I'd like to move it into  
6 evidence at this time.

7 THE COURT: So you're saying it was an exhibit  
8 in the CWRM hearing that resulted in the 2018 D&O?

9 MR. SCHULMEISTER: Yes.

10 THE COURT: All right. And your basis for  
11 moving it into evidence is?

12 MR. SCHULMEISTER: Well, I would like to  
13 question the witness about it. He's already said that  
14 he was involved in the preparation of it. And I would  
15 like to have it in evidence so you can -- he also  
16 testified that he con -- that he testified at the  
17 hearing.

18 THE COURT: Are you introducing it for the  
19 truth of the data that's in it?

20 MR. SCHULMEISTER: I am -- well, I -- you  
21 know, I haven't gotten there yet because I haven't been  
22 allowed to question the witness about it. But at a  
23 minimum I think it should be admitted as a true and  
24 correct copy of Hearings Officer Exhibit 1 to the --  
25 Exhibit 1 in the record of the contested case hearing

1 that led to the D&O.

2 THE COURT: Okay. Mr. Frankel?

3 MR. FRANKEL: Objection, to relevance,  
4 foundation, hearsay.

5 THE COURT: Okay. But do you dispute its  
6 authenticity in the sense that it was an exhibit in the  
7 CWRM hearing?

8 MR. FRANKEL: I have no idea and I'm not gonna  
9 fight that, Your Honor.

10 THE COURT: All right. Miss Goldman?

11 MS. GOLDMAN: The State has no objection.

12 THE COURT: Mr. Rowe?

13 MR. ROWE: The County has no objection, Your  
14 Honor, and would also like to note that this exhibit is  
15 specifically referenced in the Decision and Order.

16 THE COURT: Can you give me a cite to that,  
17 please?

18 MR. ROWE: Yes, Your Honor. So J-14 is the  
19 Decision and Order. If you look at page 154, which is  
20 the Bates number, paragraph 500 is one reference to it.  
21 I'm not sure if there are more.

22 THE COURT: All right. I am looking at J-14  
23 right now and you're right, paragraph 500 references  
24 Exhibit H0-1.

25 All right. The objection is overruled. So

1 AB-164 is received.

2 (DEFENDANT'S EXHIBIT NO. AB-164 IS  
3 RECEIVED INTO EVIDENCE.)

4 MR. FRANKEL: Your Honor, is that for the  
5 truth of the matter or just --

6 THE COURT: Well, Mr. Schulmeister said he  
7 wasn't there yet so I guess not, not yet.

8 MR. SCHULMEISTER: Okay. All right.

9 Q Dr. Strauch, could you give a -- and I'll  
10 give you a minute to do it because I realize it may  
11 have been a while since you've looked at this, but  
12 could you explain what the preparation of this document  
13 was intended to depict for the hearings officer?

14 A So in prior Commission decisions, some of  
15 the IIFSs established had seasonal components to it.  
16 So there were wet season and dry season IIFSs for  
17 specific streams. And the first set of columns next to  
18 the stream name depicts that seasonal component.  
19 Although if there is no seasonal component, it says  
20 annual in parentheses under dry season.

21 So the -- these were based on Commission  
22 decisions I believe in 2008 and 2010. The restoration  
23 amounts I believe is the am -- additional amount that  
24 was to be restored given the draft -- or no, um -- let  
25 me read that.

1           MR. SCHULMEISTER: Your Honor, let me withdraw  
2 that question. I can make a more specific question if  
3 that would be helpful.

4           THE COURT: That's fine.

5           Q (BY MR. SCHULMEISTER) All right. Let's  
6 look at the column that says -- it's the next column.  
7 It says the amount EMI diverted and it has a couple of  
8 footnotes. Do you see that?

9           A Yes. Let me read the footnotes.

10          Q And I guess footnote 3 and footnote 4,  
11 and directing your attention to footnote 3. I'm sorry,  
12 footnote 4. It says the total amount EMI diverted is  
13 not the full amount diverted by the entire EMI system  
14 as the streams displayed in the table is only a subset  
15 of the streams that EMI diverts from East Maui. Do you  
16 see that?

17          A Yes.

18          Q Is that true and correct?

19          A Yes.

20          Q Okay. All right. Let's talk a little  
21 bit about the IIFS amendment process that you testified  
22 to during your direct examination. I think that you  
23 mentioned that you were involved in the IIFS amendment  
24 process at the staff level, is that right?

25          A Yes.

1           Q     How many different ways are there to  
2 potentially initiate an IIFS amendment?

3           A     We have two ways. A petitioner can file  
4 paperwork with the Commission to initiate the process  
5 or staff can initiate the process themselves.

6           Q     Okay. And I think you'd mentioned that  
7 part of your job when there's an IIFS being considered  
8 is to look at the instream values, --

9           A     Yes.

10          Q     -- is that right?

11                 What about the non-instream values? Do you  
12 also work on that?

13          A     Yes.

14          Q     And I think you'd testified quite a bit  
15 about what you'd do when evaluating instream values.  
16 Could you just, you know, briefly summarize what you do  
17 when you evaluate the non-instream values?

18          A     So we look at the use. Depending on the  
19 system, the use might vary from domestic use to  
20 commercial agriculture to drinking water supply to  
21 hydropower. So we -- we evaluate what that use is. Is  
22 it a reasonable and beneficial use based on, for  
23 example, when you evaluate the -- for agriculture, the  
24 crops being grown and the amount of irrigation proposed  
25 for those crops. We look at for drinking water supply

1 the population served, altern -- we also look at  
2 alternative resources.

3 Q Okay. And I believe you used the phrase,  
4 quote, "best available information", close quote, in  
5 one of your answers on direct examination in terms of  
6 the work you do on evaluating the instream values. Do  
7 you recall that?

8 A Yes.

9 Q Is, quote, "best available information",  
10 close quote, does that phrase have a particular meaning  
11 in your job?

12 A Yes. We can't know everything about  
13 everything, so we use -- we often times rely on  
14 historical documents to supplement what we can gather  
15 in the field. And so we -- and we rely on other  
16 agencies to provide us with information and we don't  
17 -- we don't necessarily go out and say -- ask what  
18 every single household's water needs are. We rely on  
19 the County to provide like a summary of water uses and  
20 that's what we consider best available information.

21 There might be better available information if  
22 we, you know, tried to break down the use by household  
23 and/or commercial operation or resort facility, that  
24 sort of thing. But overall best available information  
25 is what the Commission relies upon.



1 Q Does that phrase, to your knowledge does  
2 that phrase, best available information, does that  
3 appear in the Water Code?

4 A I believe it does.

5 Q Okay. And among the information that you  
6 consult, does that include plantation historical  
7 diversion records?

8 A Yes.

9 Q Plantation irrigation records?

10 A Yes.

11 Q Plantation well data?

12 A Yes.

13 Q And when you're trying to put together  
14 historical information about diversion and irrigation  
15 historically, are the plantation records frequently the  
16 best available information on this subject?

17 A Yes.

18 MR. FRANKEL: Objection, calls for  
19 speculation.

20 THE COURT: Overruled.

21 THE WITNESS: Yes.

22 Q (BY MR. SCHULMEISTER) I think in your  
23 testimony this morning you made a reference. I think  
24 there was a question about how many streams in the  
25 state have status quo IFS from 1980 or so versus how

1 many have been set. And I think in your response you  
2 referred to a Moloka'i petition that's pending and also  
3 to something that's pending in West Maui. Do you  
4 recall that?

5 A Yes.

6 Q And in West Maui you made specific  
7 reference to something that you termed a, quote, "waste  
8 complaint", close quote. Is that right?

9 A Yes.

10 Q Does the Water Commission have a  
11 procedure for receiving and disposing of what you've  
12 referred to as waste complaints?

13 A Yes.

14 Q What is that procedure?

15 A When a formal complaint is made, the --  
16 that involves surface water, the Stream Protection  
17 Management Branch evaluates it on its merits, then we  
18 issue a -- a notice of violation to the other party  
19 that's -- the complaint is against, and request a  
20 response to understand their perspective on the  
21 complaint.

22 And then that information, we might do a  
23 follow-up, field work, or, you know, analyze new --  
24 other sources of information, and then we take the  
25 complaint to the Commission to either recommend some

1 sort of fine or recommend a modification to the system  
2 such that there will be less to -- to address the  
3 complaint, the waste issue, directly. Yeah.

4 Q Is this procedure provided -- I mean, if  
5 you know, is this provided for in the Water Code?

6 A I believe it's provided in our  
7 administrative rules.

8 Q Okay. And can any member of the public  
9 make a waste complaint to the Water Commission?

10 A Yes.

11 Q Okay. And does it matter whether the  
12 alleged waste is occurring on state land or private  
13 land?

14 A No. We evaluate all water sources.

15 Q Okay. And, actually, going back to the  
16 evaluations that you do for instream values and  
17 offstream values in connection with interim instream  
18 flow standards, is one of the factors that you apply in  
19 evaluations whether it's on private land versus state  
20 owned land?

21 A No.

22 Q So like, for example, in the Nā wai 'Ehā  
23 area, N-A-W-A-I-E-H-A, of West Maui, there's interim  
24 instream flow standards that have been set and are  
25 still undergoing review at the Commission, correct?

1 A Yes.

2 Q And that's principally all on private  
3 land, right?

4 A Correct.

5 Q And, again, in West Maui there's a number  
6 of Commission initiated interim instream flow  
7 amendments that there's been publication on and some of  
8 them are set, and most of those are on private land, is  
9 that right?

10 MR. FRANKEL: Objection, Your Honor,  
11 relevance.

12 THE COURT: Hang on. Let me review the  
13 question.

14 Well, it's compound and then it kind of  
15 changed a little bit, frankly, in the middle. If you  
16 could rephrase, Mr. Schulmeister.

17 MR. SCHULMEISTER: Okay. Let me withdraw the  
18 question.

19 Q And, basically, let me just ask the  
20 question this way. When evaluating whether to amend an  
21 interim instream flow standard for any particular  
22 stream, is it even a factor in the analysis whether all  
23 or part of the stream is on privately owned land versus  
24 on state land?

25 A Only in a water use management area where

1 a water use permit is being issued where a applicant  
2 may have riparian rights as opposed to just an  
3 appurtenant right to water would land ownership ever  
4 come into factor. The instream flow standards is -- it  
5 -- it doesn't consider whether the state owns the land  
6 on it -- around the stream or not.

7 Q Okay. And just to be clear, are any of  
8 the streams in the East Maui Ditch System within a  
9 designated water management area?

10 A No.

11 Q So there are no water use permits  
12 applicable to those streams as you've just described in  
13 your previous answer, is that right?

14 A Correct.

15 Q Okay. Have you been involved at all in  
16 any of the post-Decision and Order review and  
17 evaluation of diversion modification permits in the  
18 East Maui Ditch System?

19 A Yes.

20 Q Okay. And as far as the Commission's  
21 role in reviewing and taking action on diversion  
22 modification requests, does that depend at all on  
23 whether the diversions are located on state land or  
24 private land?

25 A No.

1 Q So the juris -- the Water Commission has  
2 jurisdiction over diversions regardless of whether  
3 they're on private land or state land, is that right?

4 MR. FRANKEL: Objection, calls for legal  
5 conclusion.

6 Q (BY MR. SCHULMEISTER) To your  
7 understanding.

8 THE COURT: His understanding. Yes, go ahead.

9 THE WITNESS: Correct.

10 Q (BY MR. SCHULMEISTER) Now, you recited  
11 very impressively from memory a lot of detailed  
12 descriptions of diversions on various streams. So I'm  
13 gonna test you. I'm gonna ask you about one.

14 Are you familiar with the Puolua, Puolua is  
15 P-U-O-L-U-A I believe, Stream at the Lowrie diversion?

16 A Pu'u -- Pu'ulua?

17 Q Yes, the tributary of Hanehoi,  
18 H-A-N-E-H-O-I.

19 A Oh. Okay. Got it. Yes.

20 Q All right. So is there a diversion at  
21 that location?

22 A There -- yes.

23 Q Are you familiar with that one?

24 A Yes.

25 Q And that's one of the streams that is a

1 full restoration stream under the D&O, correct?

2 A Yes.

3 Q Is there still some water going into the  
4 Lowrie Ditch at that location?

5 A I have not been to that location in maybe  
6 six months so I could only testify to -- prior to  
7 modifications to that.

8 Q Okay. Well, let me just ask you this.  
9 Do you know whether that stream goes all the way up to  
10 and is also diverted at the Wailoa Ditch?

11 A I don't believe it is, no.

12 Q Okay.

13 THE COURT: Mr. Schulmeister, we've been going  
14 50, 5-0 minutes. Can we take a break now or do you  
15 want to finish up in the area or?

16 MR. SCHULMEISTER: You know what, I am so  
17 close to being done, you know. I am so close to being  
18 done. Let me just take a quick look.

19 You know what, I don't have anything further.

20 THE COURT: All right. Thank you.

21 We'll take our recess now, for 11 minutes. So  
22 I'll see you back here at 11:00 a.m. Thank you.

23 We're in recess.

24 (Recess taken at 10:49 a.m.)

25 (Proceedings resumed at 11:01 a.m.)

1 THE COURT: Back on record.

2 FTR on?

3 THE BAILIFF: Yes, it is.

4 THE COURT: All right. Thank you.

5 Mr. Schulmeister, you're still concluded or do  
6 you have any additional questions you thought of during  
7 the break?

8 MR. SCHULMEISTER: No, I'm done for now until  
9 I hear how the rest of this goes. Thank you.

10 THE COURT: All right. Thank you.

11 All right. So let's go with Mr. Rowe next and  
12 then have Mr. Frankel.

13 MR. ROWE: Thank you, Your Honor.

14 CROSS EXAMINATION

15 BY MR. ROWE:

16 Q Dr. Strauch, have you ever taken members  
17 of the Commission on Water Resources Management on a  
18 site visit of East Maui streams?

19 A Yes.

20 Q Can you tell us a little bit about what  
21 you showed them?

22 A Depending on the specific day, locations  
23 where instream flow standards were to be established or  
24 already had been established, some representative  
25 diversion structures, the streams themselves, various



1 stream resources if easily accessible or visible.

2 Q And did you perform one of these site  
3 visits in conjunction with the 2018 Decision and Order?

4 A Yes.

5 Q And do you recall who was there?

6 A The entire list of participants?

7 MR. ROWE: I'll withdraw the question, Your  
8 Honor. I have nothing further.

9 THE COURT: All right. Mr. Frankel.

10 MR. FRANKEL: I'm chomping at the bit, Your  
11 Honor. Thank you.

12 THE COURT: Be careful what you ask for.

13 CROSS EXAMINATION

14 BY MR. FRANKEL:

15 Q Dr. Strauch, you provided a lot of  
16 detailed information about streams today and on Friday,  
17 right?

18 A Yes.

19 Q Did you provide that level of detail to  
20 the Board of Land and Natural Resources in 2019?

21 A No.

22 Q And in 2019, did you provide to the Board  
23 of Land and Natural Resources any criticisms of  
24 Dr. Parham's study which is in A&B's draft EIS?

25 A No.

1 Q Okay. And, you know, by the way, have  
2 you ever taken the Board of Land and Natural Resources  
3 members to a site visit of East Maui streams like you  
4 did with the Water Commission?

5 A No.

6 Q Okay. So I wanna ask you some questions  
7 about diversion structures on specific streams in East  
8 Maui, and I wanna start with Waiohu'e Stream,  
9 W-A-I-O-H-U-E. You've been to Waiohu'e Stream about 80  
10 times, right?

11 A Yes.

12 Q And when were you there last?

13 A Mid-July.

14 Q Okay. And you're familiar with the  
15 beautiful pond and waterfall by the Ko'olau Ditch  
16 there, right?

17 A The plunge pool?

18 Q Yes.

19 A Yes.

20 Q Okay. Let's take a quick look at it to  
21 refresh everyone's memory there. Exhibit 67. Sierra  
22 Club's Exhibit 67.

23 A Okay.

24 Q Got it there? And that's what we're  
25 talking about, that area?

1           A     That's the plunge pool you were referring  
2 to?

3           Q     Is that right? Okay.

4           A     And now, are you familiar with recommendations  
5 that the Division of Aquatic Resources made regarding  
6 the modification of diversion structures back in April  
7 2010?

8           A     In relation to this specific diversion?

9           Q     Well, let's just take it one step at a  
10 time. We'll get there. But are you familiar with the  
11 fact that they wrote a letter back in April 2010  
12 regarding structures on various streams in East Maui?

13          A     Yes.

14          Q     Is that -- okay. So let's take a look at  
15 Exhibit J-23.

16          A     Okay.

17          Q     And so you've seen this before, right?

18          A     Yep.

19          Q     And let's turn to page -- the page 11,  
20 the number's at the very bottom of the page.

21          A     Okay.

22          Q     Are you -- so, you know, back then the  
23 Division of Aquatic Resources recommended the digging  
24 of a channel to lower elevation to allow overflow water  
25 to go down the right bank. That's what they

1 recommended back then, right?

2 A Um -- that is one recommendation. They  
3 also provide a simple recommendation as described  
4 above, provide passage at waterfall pool.

5 Q Sure. You don't think that the narrative  
6 below is a description of how that diversion -- that  
7 modification would be made.

8 MS. GOLDMAN: Objection, Your Honor. This is  
9 outside of the witness's scope of personal experience.

10 THE COURT: Well --

11 MS. GOLDMAN: He's just reading something  
12 that's already been admitted into evidence.

13 THE COURT: Okay. I'm not -- I'm looking at  
14 the question in print and it's not as clear as I'd like  
15 it to be. Could you rephrase?

16 MR. FRANKEL: Sure.

17 You know what, I'm just gonna leave it at  
18 that. That's fine.

19 Q My question to you, Dr. Strauch, is the  
20 recommendation in the text below what I'll call the  
21 box, that has not taken place, has it, based on your  
22 observation? The modification of K-13 intake into  
23 Ko'olau Ditch would involve digging of a channel to  
24 lower elevation. That specific modification has not  
25 taken place, has it?

1           A     Not with the establishment of full  
2 restoration, the ditch intake has been closed, which  
3 increases the elevation of the plunge pool to the point  
4 where digging a said channel would not be necessary.

5           Q     Right. And so if we look at  
6 Exhibit J-21, J-21 now.

7           A     Okay.

8           Q     And if you turn to page 161 of this  
9 exhibit.

10          A     Okay.

11          Q     And have you seen something like this  
12 before? If not this exact chart, charts similar to  
13 this before?

14          A     Yes.

15          Q     Okay. And if we look at this chart and  
16 we look at what's going on with Waiohu'e Stream,  
17 which -- yeah, it is on page 161 towards the bottom  
18 there, Waiohu'e Stream, and this is information that  
19 was given to the Board of Land and Natural Resources  
20 before its 2019 meeting, and just as you said that  
21 sluice gate was closed, and that's what you're saying  
22 has happened. The sluice gate closed and therefore  
23 there's water that's flowing over the dam now, right?

24          A     So the control gate at the intake has  
25 been closed. The sluice gate is removed because you

1 don't need to sluice material out, so yes.

2 Q Okay. So the control gate is closed.  
3 Now, the gate that EMI installed there, that's not  
4 gonna last forever, is it?

5 A I mean, how do you -- how long do you  
6 define forever?

7 Q Well, is that -- forever's forever. Is  
8 that gate gonna last forever?

9 A I mean, again, it will last two -- two  
10 decades, yeah.

11 Q That's not my question. Is that gate  
12 gonna last forever?

13 A It's possible.

14 Q You've seen how it's constructed?

15 A Yeah.

16 Q And you're telling me you think it's  
17 gonna last forever?

18 A No, I think it's possible.

19 Q And so there's a possibility it may not  
20 last forever?

21 A Correct.

22 Q And if it doesn't last forever, the  
23 water's gonna flow into the ditch?

24 A Yeah.

25 Q Digging a channel is a more permanent

1 fix, isn't it?

2 A So I guess -- I'm gonna reph -- I'm gonna  
3 qualify my answer in saying when I say yes, water will  
4 flow into the ditch, it flows into the transmission  
5 ditch, not the Ko'olau Ditch.

6 Q That's fine. But also it's not flowing  
7 into the stream anymore (indiscernible) --

8 MS. GOLDMAN: Objection, Your Honor.  
9 Argumentative.

10 THE COURT: Overruled.

11 THE WITNESS: So can you re -- can you  
12 rephrase the question or tell me the question again?

13 Q (BY MR. FRANKEL) If that gate, for lack  
14 of a better word, were to collapse, or break, degrade,  
15 the water then would no longer be flowing directly into  
16 the stream, it would be diverted out of the stream,  
17 right?

18 A Correct.

19 Q Now, has the Board of Land and Natural  
20 Resources ordered EMI or A&B to do the modification  
21 specifically recommended by the Division of Aquatic  
22 Resources, yes or no?

23 A I don't attend every board meeting so I  
24 don't -- I can't answer that.

25 Q And so as far as you know, no such order

1 has been made as far as you know?

2 A As far as I know that the Commission has  
3 established full restoration and EMI has complied.

4 Q Okay. But I'm talking my focus here is  
5 on diversion structures. So as far as you know, as far  
6 as you know, the Board has not ordered EMI or A&B to  
7 follow the recommendation that the Division of Aquatic  
8 Resources issued back in 2010, correct?

9 A Correct.

10 Q Okay. I wanna turn to another diversion  
11 structure. And let's talk about Puohokamoa Stream.

12 MR. FRANKEL: And, Your Honor, I don't -- do  
13 we have the same court reporter as we had before? Or  
14 should I spell it all out?

15 THE COURT: No need.

16 MR. FRANKEL: Okay. Thank you, Your Honor.

17 Q Now, in 2010, the Division of Aquatic  
18 Resources remember -- sorry -- recommended  
19 incorporating v-notches into three diversions. Does  
20 that sound familiar?

21 A Yes.

22 Q And that has not taken place, right?  
23 Right?

24 A Correct.

25 Q And we know that in part by looking again



1 at Exhibit J-21, which is that sort of for lack of a  
2 better word spreadsheet that was provided to the Board  
3 of Land and Natural Resources?

4 A Correct.

5 Q Okay. Now, has the Board of Land and  
6 Natural Resources ordered EMI to do the modifications  
7 recommended by the Division of Aquatic Resources as far  
8 as you know?

9 A No.

10 Q Is there -- okay. Great. Now let's talk  
11 about Hanawā Stream. Can you just really briefly  
12 describe for the court what Big Spring is and what's  
13 kind of unique about it?

14 A So the geology of the Hanawā area which  
15 includes Hanawā watershed but also neighboring  
16 watersheds is pretty unique. There are a lot of what  
17 we call perched water bodies. Think of it as like a  
18 pancake of concrete that are -- it's sub -- subsurface.

19 And so you get a lot of rainfall in that  
20 region and this is one of the wettest parts, if not the  
21 state, the world, and a lot of that infiltrated  
22 rainfall doesn't make it to the base of the aquifer.  
23 It hits that concrete pancake, flows horizontally, and  
24 when the stream has incised or eroded away at that  
25 pancake, that -- that horizontal flow of water springs

1 as a spring into the stream channel.

2 Big Spring is one of, you might imagine, the  
3 larger springs in the area and contributes a lot of  
4 flow to the lower reaches of Hanawā Stream.

5 Q And Big Spring certainly makes Hanawā a  
6 gaining stream, correct?

7 A Correct.

8 Q Now, in 2010 the Division of Aquatic  
9 Resources recommended incorporating a v-notch on the  
10 dam wall right bank. Are you familiar with that  
11 recommendation?

12 MS. GOLDMAN: Objection, Your Honor, asked and  
13 answered.

14 THE COURT: Overruled.

15 THE WITNESS: Yes.

16 Q (BY MR. FRANKEL) So and that again, so  
17 that's in Exhibit J-23 at 12. That recommendation is  
18 there under the table there. That's a recommendation  
19 that's made. And you understand that the purpose of  
20 this was to allow for the animal passage and to reduce  
21 entrainment of larvae, right?

22 A Yes.

23 Q And given the huge volume of water from  
24 Big Spring, the key to restoration habitat in Hanawā is  
25 establishing that good connection. It's rather than

1 putting lots of water back in the stream, it's to  
2 ensure that the species can get -- move back and forth  
3 and they don't get entrained, right?

4 A Correct. But a v-notch is not the only  
5 way to achieve connectivity.

6 Q Now, the v-notch has not been put in the  
7 dam wall, correct?

8 A Correct.

9 Q BLNR has not ordered a v-notch be  
10 installed, correct?

11 A Correct. The Commission has jurisdiction  
12 over structures in the stream channel.

13 MR. FRANKEL: Well, move to strike, Your  
14 Honor, nonresponsive.

15 THE COURT: Sustained.

16 Q (BY MR. FRANKEL) So instead of a  
17 v-notch, what's happened so far is a sluice gate has  
18 been altered, is that right?

19 A When you say -- what do you mean by  
20 altered?

21 Q Well, let's take a look at Exhibit J-21,  
22 again, that sort of spreadsheet at page I think it's  
23 161. Yeah.

24 And maybe I shouldn't -- you're right, the  
25 word shouldn't be altered, it's been adjusted. Do you

1 see on page 161 of Exhibit J-21 it talks about Hanawā  
2 Stream and it talks about adjustments to the sluice  
3 gate in yellow?

4 A Yeah.

5 Q Do you see that?

6 A Yes.

7 Q And that's your understanding as well,  
8 right, the sluice gate has been adjusted?

9 A Yes.

10 Q Now, that sluice gate will not last  
11 forever, will it?

12 A No.

13 Q Okay. I wanna switch gears from  
14 structures to stream flow. Now, you're familiar with  
15 the status quo standard you testified, right?

16 A Yes.

17 Q The standard was whatever was flowing on  
18 June 15th, 1988.

19 A Yes.

20 Q And that was based on existing water  
21 diversion?

22 A Yes.

23 Q And that is the standard for 13 streams  
24 in East Maui, right?

25 A Uh -- are you referring to the main stem

1 of 13 hydrologic units, yes.

2 Q And that standard was not based on the  
3 biological value of those streams, right?

4 A No.

5 Q Or the ecological value?

6 A No.

7 Q And it was not based on the recreational  
8 value of those streams?

9 A I don't think so.

10 Q And so the 1988 standard did little more  
11 than ratify the existing diversion.

12 A I don't know what you mean by ratify.

13 Q All right. Let's move on.

14 So and this might -- I hope this is not gonna  
15 be tedious. I want to try to summarize some of the  
16 information that Miss Goldman walked you through.

17 I wanna ask you about the restoration status  
18 of the streams in East Maui. Just the streams, not the  
19 tributaries. I just wanna focus on the streams as you  
20 defined them. So in 2018 the Water Commission ordered  
21 full restoration of nine streams, is that right?

22 A I believe so.

23 Q And of those full restoration streams,  
24 Waiokamilo ends in a terminal waterfall, is that right?

25 A Yes.

1 Q Okay.

2 A I mean, there are -- there are other  
3 streams that end in terminal waterfalls in East Maui.

4 Q Right. But we're just talking about the  
5 full restoration streams and one of them ends in a  
6 terminal waterfall, right?

7 A Yes.

8 Q Now, the Water Commission required that  
9 64 percent of the base flow remain in five streams, is  
10 that right?

11 A Yes. And I don't have the numbers  
12 memorized. I mean, I can count 'em off, but, yes.  
13 I'll go with yes.

14 Q Well, would it help if I listed them off  
15 for you or are you comfortable --

16 A I'm fine. No, I'm fine with five.  
17 That's fine.

18 Q Okay. And of those 64 percent base flow  
19 streams, Waikamoi ends in a terminal waterfall, right?

20 A Yes.

21 Q And there are approximately five native  
22 species that can get up over a terminal waterfall,  
23 right?

24 A Um -- there are two fish, um -- one  
25 shrimp, and one mollusk that are the best climbers that

1 would be able to inhabit a habitat above waterfalls.

2 So I would say four.

3 Q All right. And, again, going through  
4 this list, this gets a little confusing, but the Water  
5 Commission allowed all but 20 percent of the flow of  
6 seven or eight streams to be diverted in connectivity  
7 streams. Does that sound right?

8 A Twenty percent of the median base flow,  
9 yes.

10 Q And that's for seven or eight streams?

11 A I'd have to count them on the list.

12 Sorry.

13 Q Okay. All right.

14 Now, let's switch gears. We're making good  
15 progress. Switching from the amount of water that's  
16 flowing in these streams, you don't know how the water  
17 taken from East Maui is actually used or has been used  
18 in 2019 or 2020, do you?

19 A Um -- the actual application of the water  
20 to a specific use? No, we don't get that information.  
21 We only are -- are only -- the diverter is only  
22 responsible to report the amount diverted to us.

23 Q Thank you.

24 Again switching gears, you described invasive  
25 species like bamboo and strawberry guava near streams

1 when Miss Goldman was asking you questions earlier.  
2 Now, was that within the revocable permit area or  
3 outside the revocable permit area?

4 A Depends on the watershed.

5 Q Okay. So sometimes some of those  
6 conditions you were describing are in the revocable  
7 permit area and sometimes it's outside the revocable  
8 permit area?

9 A When you say revocable permit area, do  
10 you mean state owned property?

11 Q Yes.

12 A Yes.

13 Q Okay. And have you ever seen in all your  
14 time spent in the East Maui watershed, have you ever  
15 seen folks from East Maui Irrigation working to  
16 eliminate, get rid of invasive species in the  
17 watershed?

18 A Uh, only in areas that are along acc --  
19 accessible, you know, roads and trails and that sort of  
20 thing, not as a general maintenance of the watershed.

21 Q In other words, to make sure the road or  
22 trail is clear, not to get rid of the species?

23 A Correct.

24 Q Okay. Now, you visited Waipi'o Stream  
25 for the first time this year, right?



1 A Yes.

2 Q July and August?

3 Out loud?

4 A Yes.

5 Q Thank you.

6 Were diversions taking water from the stream  
7 at that time?

8 A Um -- not at the New Hāmākua Ditch. And  
9 at the, um -- at the Ha'ikū Ditch the sluice gate was  
10 open, but at the Lowrie Ditch I wasn't able to get to  
11 the -- all the intake so I can't say so.

12 Q And is New Hāmākua the highest diversion  
13 on that particular stream?

14 A Yes.

15 Q And so Wailoa doesn't go --

16 A Wailoa does not take any water. It's --  
17 the stream is too small and ephemeral and there's --  
18 there was no design of an intake for the Wailoa Ditch.

19 Q Okay. Now, before you testified on  
20 Friday you'd seen some of the photographs the Sierra  
21 Club's using in this trial, right?

22 A Yes.

23 Q And were you given the individual  
24 photographs or did you get an email that was forwarded  
25 to the attorneys back on March 12th?

1 A I don't remember. Um --

2 Q Was it in email form or was it a single  
3 photo? In other words, was the email with lots of  
4 photos or just individual photos?

5 A Just individual photos.

6 Q Okay. And when were you given those  
7 photos?

8 A I don't know.

9 Q Well, were you given them in -- I don't  
10 need the exact date. Were you given them in March,  
11 April, May, June?

12 A No, more recently.

13 Q So probably not. So July maybe?

14 A Yeah, that would sound about right.

15 Q Okay. So you followed up on those  
16 photographs specifically because of this trial?

17 A Not really. Um -- I do field work as  
18 part of a routine, you know, work, and so no, none of  
19 my -- none of my field work was specific to this trial.  
20 It was just, um -- when we had a ban on interisland  
21 travel starting in mid-March, I had to cancel maybe 14  
22 trips to Maui, and so I tried to fit in as much as  
23 possible in June, July, and August.

24 Q But you were not given these photographs  
25 until July, right?

1           A     Right.

2           Q     Okay.  And by the way, have you looked at  
3 the plaintiff's or the Sierra Club's trial memoranda  
4 that was filed in this case?

5           A     I don't think so.

6           Q     Okay.  All right.  So I wanna talk to you  
7 about trash or treasure.  If you could take a look at  
8 Exhibit AB-63.

9           A     Okay.

10          Q     And if you could take, you know, a minute  
11 to just sort of scroll through those photographs.

12          A     Oh, there's more than one?  Okay.

13          Q     Okay.

14          Q     Have you ever seen debris like this in  
15 the area encompassed by the revocable permits in East  
16 Maui?

17          A     To some of the old rail structure I have  
18 seen, um -- not those -- do you want me to be specific?  
19 Um, I -- some of the old wrought iron stuff definitely.

20          Q     And when you say you've seen it before,  
21 would you say your observations were relatively recent  
22 or you saw them a long --

23          MS. GOLDMAN:  Objection.

24          Q     (BY MR. FRANKEL)  -- time ago --

25          THE COURT:  Let him finish the --

1 MS. GOLDMAN: (Indiscernible).

2 THE COURT: Let him finish the question,  
3 please.

4 All right. Dr. Strauch, we're about to have a  
5 question and then an objection, so please don't answer  
6 the question right away. Thank you.

7 Q (BY MR. FRANKEL) So when you say you've  
8 seen these things or things like this in the revocable  
9 permit area, my question were those observations made  
10 relatively recently or in 2018 or in 2017? Can you  
11 give us some sort of ballpark when you would have seen,  
12 when you did see materials like this within the  
13 revocable permit area?

14 THE COURT: Okay. Miss Goldman.

15 MS. GOLDMAN: Objection, Your Honor, over  
16 broad, compound.

17 THE COURT: Overruled. It's general, but we  
18 gotta start somewhere. Go ahead.

19 THE WITNESS: Yeah. For 2018 I've seen some  
20 wrought iron in the state owned portion of the  
21 watersheds.

22 Q (BY MR. FRANKEL) And maybe if you could,  
23 when you say wrought iron, maybe it might help the  
24 record if looking at Exhibit AB-63 you could tell us  
25 which photograph sort of most is similar or resembles

1 what you mean by wrought iron? Which page?

2 A Um, the -- I think it's 9, page 9 or  
3 photograph 9, the -- like you can -- old railroad rails  
4 which were used to transport material from tunnels, and  
5 then were often incorporated into stream diversions.

6 Q All right. And, you know, you've  
7 described just the impressive amount of work you do,  
8 and so I'm not attempting to denigrate you whatsoever.  
9 But I wanted to know, did you ever ask anyone at EMI to  
10 remove the debris that you'd seen, that looked like the  
11 photo, that sort of resembled some of the stuff in page  
12 9 of Exhibit AB-63?

13 A No, because they are often incorporated  
14 into structures built for stream diversions, so I just  
15 figured they were material in -- waiting to be used.

16 Q And in fact, Dr. Strauch, have you seen  
17 disconnected PVC pipes hanging from any of the  
18 waterfalls in the revocable permit area?

19 A Um -- when you say disconnected, are  
20 you -- were they -- are you implying that they were  
21 connected together and then they were just separated  
22 out? Or just like a PVC pipe that doesn't flow --  
23 isn't connected to the ditch itself?

24 Q Well, you know that for some of these  
25 streams EMI had in focusing to restore the amount of

1 water flowing in these streams, they've had to  
2 disconnect certain pipes to ensure the amount of water  
3 remains in the flow. Does that make sense?

4 They've disconnected pipes that were diverting  
5 water before, and they disconnected them so they  
6 can't divert the water anymore.

7 A Disconnected them from like from the  
8 spring source?

9 Q No. I -- well, who knows where the  
10 disconnection is, but they're hanging in midair. Have  
11 you seen a pipe hanging, a PVC pipe hanging in midair  
12 above or within a waterfall?

13 A Can you give a photo of an example?

14 Q I cannot. But maybe if you thought of  
15 Waiokamilo Stream, can you think of any plastic pipes  
16 that are hanging along the waterfall there?

17 A So Waiokamilo is the one watershed that I  
18 didn't have to visit any of the diversions from or that  
19 I had --

20 Q All right.

21 A So I'm not familiar with those, sorry.

22 Q All right. Have you seen any PVC pipes  
23 that are sort of in midair anywhere in the East Maui  
24 watershed that do not appear to have any function?

25 A No.

1 Q Okay. When you went in on your visits in  
2 July and August 2000 -- this year, did you see anything  
3 that could be characterized in the way you characterize  
4 things as trash, debris, or garbage?

5 MS. GOLDMAN: Objection, Your Honor, vague as  
6 to the location of where he would have seen something  
7 of that nature.

8 THE COURT: Well, we'll see if he answers yes  
9 and then we'll see if we get into the details.  
10 Overruled.

11 THE WITNESS: Yeah, I've seen what I would  
12 consider debris or garbage in the stream.

13 Q (BY MR. FRANKEL) And that's within the  
14 revocable permit area?

15 A Not usually. Um -- I mean, my experience  
16 has largely been in the agricultural zoned areas, like  
17 the lower say 25 percent of each of the watersheds,  
18 other than the -- the small watersheds. That's where a  
19 lot of the trash gets, um -- collect -- or gets  
20 transported by runoff, you know, from the neighboring,  
21 um -- regions and get stuck.

22 Q I understand. My preface to my question  
23 was your recent visit in July and August 3rd. So my  
24 question is about those visits. And I don't know if  
25 that's one, two visits, or four visits, but in this

1 very recent timeframe, within the last month or so,  
2 have you seen debris, trash, garbage within the  
3 revocable permit area, again, within this time period?

4 A Uh, yes.

5 Q And where was that?

6 A That was in Nā'ili'i Ilihaele.

7 Q And what did you see there?

8 A I saw an old, um -- iron pipe that had --  
9 may have been used as a -- to convey water or to convey  
10 a control line between the Wailoa and New Hāmākua  
11 Ditches on the side of the road, the access road.

12 Q Did you see any other garbage, debris,  
13 trash, anything like that within again this last month  
14 or so within the revocable permit area?

15 A I'd have to really think about it.  
16 Um -- yeah. Um -- between the New Hāmākua Ditch intake  
17 and the Old Hāmākua Ditch intake on Ho'olo --  
18 Ho'olawanui there was a piece of what I estimate or  
19 guess to be a part of the diversion structure that had  
20 been damaged.

21 Q And I know you have a lot to do. But  
22 have you asked anyone from EMI to remove these two  
23 things that you observed fairly recently? Have you had  
24 the time to do that?

25 A I notified them of the former, but not



1 the latter. I hadn't had time to follow that.

2 Q Okay. And so when did you let them know  
3 about the former? When would that have been?

4 A A couple weeks ago. I don't -- I don't  
5 remember the specific date.

6 Q Right kind of before trial started?

7 A I would say end of July.

8 Q Okay. All right.

9 So let's take a look at Exhibit 56, Sierra  
10 Club's Exhibit 56.

11 A Okay. Is it the Water Use Report?

12 Q I'm sorry. Not the -- Sierra Club's,  
13 not the -- it's a photograph you'll recognize.

14 A Okay.

15 Q So this pipe diverts water from a spring  
16 to the stream and then into the EMI ditch, right?

17 A Correct.

18 Q And you don't know where the water from  
19 the spring would flow if not for this pipe. Precisely.

20 A Well, sometimes spring flow didn't ever  
21 have a precise direction, and it was very -- you know,  
22 depending on the contours of the -- the landscape, you  
23 know, it could spread out.

24 Q Sure, and it could -- it may flow over  
25 the waterfall there, the Ho'olawanui Waterfall you

1 described, without having to go over the lip itself.  
2 It could go in there where there is no lip.

3 A So the spring is upstream of the main  
4 Wailoa intake and it would -- based on the channel and  
5 the riparian area, it would most likely flow directly  
6 into the stream itself. So I -- you know, there is  
7 basalt along the right bank that -- bedrock that would  
8 confine it to the current channel. I doubt it would  
9 flow anywhere other than where the current flow is.

10 Q So then this pipe may not be necessary to  
11 convey the water to this part of the stream?

12 A So these sorts of diversions were -- more  
13 directly conveyed the water. So they were placed at  
14 the start of a spring. So you wouldn't lose water to  
15 -- in a diffused flow or to evaporation. It would  
16 transport it -- transport it directly from the spring  
17 to the stream.

18 Q And so water that might be used by plants  
19 or whatever in the area is completely captured so it  
20 can be taken up to Central Maui, right?

21 A So that riparian area is dominated by  
22 non-native species, so, yes, they would have used  
23 water, but they're doing well already.

24 Q To your knowledge has the Board of Land  
25 and Natural Resources -- I take it back. Have you ever

1 discussed or shown this pipe to the Board of Land and  
2 Natural Resources?

3 A No.

4 Q And to your knowledge has the Board of  
5 Land and Natural Resources ever determined that this  
6 pipe does not mar natural beauty?

7 A No.

8 Q Okay. Let's turn to Exhibit 57.

9 A Okay.

10 Q So you were given this photograph by your  
11 attorney within the last -- sometime in July, right?

12 A Yeah.

13 Q Were you able to see it on your recent  
14 visit?

15 A Yep.

16 Q And would you agree that it's  
17 disconnected?

18 A Yes.

19 Q Did you ask EMI to remove it?

20 A No. That would not be appropriate. The  
21 Water Commission would have to judge that that ir --  
22 diversion would be not needed, and so there would be an  
23 abandonment process that would have to take place.

24 Q Okay. Let's look at Exhibit 58.

25 A Okay.

1 Q You remember talking about this  
2 photograph earlier, right?

3 A Yep.

4 Q You called this a stilling well.

5 A The structure on the left-hand side, yes.

6 Q And, actually, to take a step back. So  
7 when you are -- to get to this area, do you drive up  
8 Lupi Road, is that right?

9 A Yes.

10 Q And just before you get to this area  
11 there's basically a bridge over the stream, right?

12 You have to drive over?

13 A There are multiple bridges across  
14 multiple streams in the area, yes.

15 Q But to get to this particular area, right  
16 in this area there's a bridge nearby, right?

17 A I mean, I would assume so, yes.

18 Q Well, when you descend from that  
19 elevation down into the stream bed. Right?

20 A I mean, are you telling me what I did?

21 Q Well, what does one do to get to  
22 this -- where the photograph is? One would have to  
23 descend from the roadway down into the stream bed,  
24 right?

25 A I mean, I didn't take the photograph so I

1 don't know how.

2 Q Well, you did testify that you went to  
3 this area just a few weeks ago.

4 A To this area, not to where this  
5 photograph was taken.

6 Q Oh. So you didn't see this pho -- you  
7 did not go to this specific area on your recent visit?

8 A When you say area, can you define area  
9 then?

10 Q Did you actually see the area depicted in  
11 this photograph or not?

12 A No.

13 Q Oh. Okay. Then -- okay. I did not  
14 understand that. Okay.

15 So do you -- there is a big tunnel that is  
16 above and a few, maybe a hundred feet above where this  
17 area is depicted, isn't there?

18 A So when you say big tunnel, do you mean  
19 the tunnel that is transporting the Wailoa Ditch or?

20 Q It's a tunnel that's empty that you could  
21 walk in. It may lead to the Wailoa Ditch. That I  
22 don't know. But I'm asking you whether there's a big  
23 tunnel up there that's dry, that you've ever seen?

24 A So there are multiple access tunnels,  
25 yes.

1 Q And is there one in the area of the  
2 stilling well?

3 A Yes. I mean, that's what we're looking  
4 at.

5 Q Well, that's interesting.

6 All right. Have you seen this stilling well  
7 in operation?

8 A No.

9 Q So you don't know that it's still in use,  
10 do you?

11 A I don't think it is because the actual  
12 gage house is missing.

13 Q Huh. So that pipe that's in this photo  
14 that leads to the stilling well is going to a stilling  
15 well that you believe is no longer in use?

16 A Correct.

17 Q Okay. So that pipe is not in use?

18 A Correct.

19 Q And this is -- how far away would you say  
20 this is from where water is flowing from the stream  
21 that you have seen?

22 A I would -- so I would guess that it's  
23 probably a few hundred feet.

24 Q Okay. Now let's go look at Exhibit 61.

25 A Okay.

1 Q You've been to Hoalua Stream about 120  
2 times, right?

3 A Yeah.

4 Q And you've seen this pipe?

5 A Yep. But not 120 times.

6 Q That's fair. Have you presented a  
7 photograph of this pipe to the Board of Land and  
8 Natural Resources?

9 A No.

10 Q To your knowledge has the BLNR ever  
11 determined that this pipe does not mar natural beauty?

12 A No.

13 Q Okay. Let's take a look at Exhibit 65.

14 A Okay.

15 Q This pipe used to serve a purpose, right?

16 A Yes.

17 Q But it no longer does?

18 A Not at this very moment, correct.

19 Q And you have not asked EMI to remove it,  
20 correct?

21 A We have not, no.

22 MR. FRANKEL: Thank you.

23 I have no further questions, Your Honor.

24 THE COURT: All right. Thank you.

25 Let's see, back to you, Miss Goldman. Let me

1 ask. It's quarter of. What's your guesstimate on how  
2 much more time?

3 MS. GOLDMAN: Just a few questions, Your  
4 Honor. Hopefully not more than ten minutes.

5 THE COURT. Okay. Hang on. Let's go off  
6 record for a second.

7 (Off record.)

8 THE COURT: All right. We'll continue.

9 Thank you. Go ahead.

10 Back on record.

11 MS. GOLDMAN: Thank you, Your Honor.

12 REDIRECT EXAMINATION

13 BY MS. GOLDMAN:

14 Q Dr. Strauch, just a couple things. To  
15 your knowledge, who has jurisdiction over the diversion  
16 structures in a stream?

17 MR. FRANKEL: Objection, relevance, calls for  
18 legal conclusion, lacks foundation.

19 THE COURT: I'll allow it as to his  
20 understanding, but this might be the fifth time the  
21 court's been told about this.

22 THE WITNESS: The Commission on Water Resource  
23 Management issues permits for stream diversion works  
24 and stream alteration permits.

25 MS. GOLDMAN: Okay.



1           Q     You also mentioned that there are more  
2 ways to ensure connectivity than by inputting a v-notch  
3 into a diversion structure. Could you give an example  
4 please of one of the other ways?

5           MR. FRANKEL:   Objection, calling for expert  
6 testimony.

7           MS. GOLDMAN:   Your Honor, it's directly  
8 responsive to a line of questioning clearly opened by  
9 plaintiff.

10          THE COURT:   Overruled.

11          THE WITNESS:   So a wedded path can be provided  
12 for across the dam face which a -- a flow of water  
13 would provide that connectivity for recruitment or  
14 migration upstream of native indigenous species. The  
15 wedded pathway is achieved in a number of situations in  
16 East Maui by prior modifications to the diversions in  
17 certain locations.

18          Q     (BY MS. GOLDMAN)   Okay. And just  
19 quickly, drawing your attention back to the exhibit you  
20 looked at previously, it was AB-63. Could you bring  
21 that up again, please?

22          A     Okay.

23          Q     Okay. Could you just flip through so we  
24 know you've seen all of the photographs, please.

25          A     Okay.

1 Q Okay. And from what you can tell from  
2 the photos, are these materials still littering any  
3 stream bank?

4 A No, I don't see any streams in -- in  
5 these photos.

6 Q And finally, AB-58, please.

7 A Okay.

8 Q Although this stilling well is not  
9 currently in operation, to your knowledge is there  
10 anything that would prevent it from becoming operable  
11 again one day?

12 A I guess, um -- AB-58 is -- I'm looking at  
13 --

14 Q Oh, I apologize. Plaintiff's 58. Thank  
15 you for clarifying.

16 A So the stilling well would need to be  
17 cleaned out or ensured that there was no debris inside  
18 it and then a new gage house could be put on top of it.  
19 And then with the existing pipe, the -- if it was  
20 continuous with the ditch, then it could still be  
21 operated.

22 MS. GOLDMAN: Thank you, Your Honor. That's  
23 all from the State for this witness at this time.

24 THE COURT: Thank you.

25 Thank you. Mr. Schulmeister?

1 MR. SCHULMEISTER: I have no questions.

2 THE COURT: Mr. Rowe?

3 MR. ROWE: I have no further questions, Your  
4 Honor.

5 THE COURT: Mr. Frankel?

6 MR. FRANKEL: Just one quick question, Your  
7 Honor.

8 RECROSS EXAMINATION

9 BY MR. FRANKEL:

10 Q Dr. Strauch, have you seen where the end  
11 of this pipe is? Or both ends have you seen where they  
12 end?

13 A One ends in the stilling well. I have  
14 not been into that tunnel specifically, no.

15 MR. FRANKEL: Okay. No further questions.

16 THE COURT: Miss Goldman?

17 Sorry. I think you were muted. I didn't hear  
18 anything.

19 MS. GOLDMAN: Oh. Nothing further from the  
20 State. Thank you.

21 THE COURT: Mr. Schulmeister?

22 MR. SCHULMEISTER: No further questions.

23 THE COURT: Thank you.

24 Mr. Rowe?

25 MR. ROWE: No further questions, Your Honor.

1 THE COURT: I think that's it.

2 All right. Dr. Strauch, thank you for your  
3 participation these last couple of days. Your  
4 testimony is concluded and you are free to go.

5 THE WITNESS: Thank you, Your Honor.

6 THE COURT: All right. Let's go off record  
7 and talk about our lunch break.

8 (Off record.)

9 THE COURT: All right. 1:00 o'clock. See you  
10 all then.

11 MR. FRANKEL: Thank you, Your Honor.

12 (Recess taken at 11:53 a.m.)

13 --oOo--

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STATE OF HAWAI'I )  
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CITY AND COUNTY OF HONOLULU )

I, A. HAUNANI HO, RPR, CSR 372, Official Court Reporter, First Circuit Court, State of Hawai'i, certify that the foregoing pages comprise a full, true, and correct transcription of the proceedings had in the above-entitled cause, transcribed by me to the best of my ability.

Dated this 17th day of August, 2020.

OFFICIAL COURT REPORTER

/s/ A. Haunani Ho  
A. HAUNANI HO, RPR, CSR 372