IN THE CIRCUIT COURT OF THE FIRST CIRCUIT

STATE OF HAWAII

SIERRA CLUB, Plaintiff, vs. BOARD OF LAND AND NATURAL RESOURCES, DEPARTMENT OF LAND AND NATURAL RESOURCES, SUZANNE CASE in her official capacity as Chairperson of the Board of Land and Natural Resources, ALEXANDER AND BALDWIN, INC., and EAST MAUI IRRIGATION, LLC Defendants.	) CIVIL NO. 19-1-0019-01 JPC) (Environmental Court)

DEPOSITION OF GLENN HIGASHI

Taken on behalf of Plaintiff at 1001 Bishop Street, Suite 798, Honolulu, Hawaii on Tuesday, March 3, 2020 commencing at 8:31 a.m. pursuant to notice.

Reported by:
Priscilla Gonzaga, CSR #127
State of Hawaii

APPEARANCES:

For Plaintiff:

DAVID KIMO FRANKEL, ESQ.
1638-A Mikahala Way
Honolulu, Hawaii 96816

For Defendants Board of Land and Natural Resources, Department of Land and Natural Resources and Suzanne Case:

AMANDA WESTON, ESQ.
Deputy Attorney General
Department of the Attorney General
Tort Litigation Division
465 South King Street
Honolulu, Hawaii 96813

For Defendants Alexander and Baldwin, Inc. and East Maui Irrigation, LLC:

MALLORY MARTIN, ESQ.
Cades Schutte LLP
1000 Bishop Street, Suite 1200
Honolulu, Hawaii 96813

I N D E X

(Reporter's disclosure is available.)

GLENN HIGASHI,

called as a witness, having been first duly sworn, was examined and testified as follows:

EXAMINATION

BY MR. FRANKEL:

Q Can you state your name for the record?

A Glenn Higashi.

Q If my question is not clear, will you ask me to explain myself?

A Yes.

Q Do you understand that your testimony is being made under oath?

A Yes.

Q You understand that the answers you give today can be used in court, particularly if you answer differently in court than you do today?

A Yes.

Q Okay. Do you understand that you may request a review of the completed transcript of this deposition?

A Yes.

Q Would you like to review the transcript and offer corrections?

A Yes.

Q Okay. What did you do to prepare for today's deposition?

A Oh, I read over all the correspondence and everything else that had related to this case.

Q All right. Great.

Tell me -- what was your major in college?

A Zoology.

Q Where?

A University of Hawaii.

Q And do you have a master's degree?

A No.

Q Okay. So no -- no degrees after your BA -- or BS in zoology?

A No.

Q Okay. You've been an aquatic biologist at DLNR for the past 34, 35 years?

A Thirty-five years.

Q Thirty-five years.

What are your responsibilities as an aquatic biologist?

A It's to manage resources, to do field work. Basically, it's whatever is mandated by our division.

Q You spend a significant time in streams or next to streams, looking at streams?

A Yes. Yes, I do.

Q Okay. When was the last time you visited any of the streams in East Maui?

A Last time was -- I think, was last year.

Q 2019?

A Yeah.

Q Would you say summer, spring, fall?

A I would say in the -- in the fall.

Q And how much time would you say -- would you estimate you spent studying the East Maui streams in the past 35 years?

A In the past 35 years, let's see, 2008. I'd say maybe 10 to 15 years roughly.

Q And would you say you have visited all the streams in East Maui or just a portion of them?

A We visited about 15 of the streams.

Q So you're not familiar with some of the others that you didn't visit?

A We did visit it but we didn't survey them. So, you know -- I mean probably we visited them all but we didn't do any surveys in all the streams so.

Q All right. Great.

Can you tell me why the Division of Aquatic Resources believes that streams in their natural condition are important?

A Well, they're important because they provide

habitat for our native species. We have eight native species that live in the streams that provide -- well, they provide -- they were used before for food, you know. And then now I know they're not used as much for food.

There's also the part where they provide nutrients and prey for other reef fish that live in the estuaries. So they're kind of in a food chain themselves, you know. And they have a amphidromous life cycle which attach to the ocean. And they're unique because they're all endemic. They're not found anywhere else in the world.

Q And when you talk about those things, we can include in that Oopu and Opae?

A That's what I was talking about, yes.

Q Okay. And I don't know if you've said this directly but they have some cultural importance as well?

A Yes.

Q Okay. I want to present you an exhibit. We'll call this Exhibit 1. It might be a slightly different format than you're used to 'cause it's on paper but are you familiar with the Division of Aquatic Resources' website?

A Yes.

Q And does this resemble what is featured on the Division of Aquatic Resources' website?

A I think so.

Q And you don't have any reason to disagree with the description of the Division of Aquatic Resources summary about the cultural importance of streams -- of streams?

A No.

Q All right. Great.

Can you explain to -- I'm not the most sophisticated lawyer, I'm not a biologist, what a habitat unit is?

A Habitat unit is a unit that we define that an animal lives in. And it's usually ten -- ten meters square.

Q And how do you -- if you're in a stream, how do you determine what the habitat unit is?

A You basically look at the habitat itself. And by the -- whether it's a referal run or pool, you can determine what kind of habitat, what kind of animal would be in that habitat. And they don't stay just in one of those habitats. They kind of move around so you have a larger area. And then you also have other species that inhabit the same habitat.

Q Sure. Do you -- if it's -- how to say this?

If -- are there some habitat units that have much more potential to support native species than other habitat units?

A Yes.

Q So habitat units aren't necessarily equivalent?

A No.

Q Okay. So if there's a big terminal waterfall below a habitat unit, that could affect its quality, right?

A When you say a big -- you talking about a pool? Are you talking about the terminal waterfall or --

Q I'm -- okay. I'm talking about the area above the waterfall.

A Okay, okay.

Q It's a terminal waterfall. Is -- is the fact that there's a terminal waterfall, does that affect, say, the size of the habitat unit you -- you determine?

A No.

Q Okay. So a habitat unit directly above a terminal waterfall and one that's not by terminal waterfall, are going to be the same size?

A Relatively.

Q But they may have much different abundance --

A They'll have different species, definitely, yes.

Q Yeah, okay. All right.

Is more water and better connectivity in streams a good thing for native habitat restoration?

A Yes. It's always a good thing.

Q Okay. And would you agree that stream diversions and insufficient instream flows are key threats to Oopu and Opae?

A They're threats, yes.

Q Do Oopu and Opae return to the same streams from whence they came?

A No, they don't.

Q Are you familiar with the Hawaii Stream Atlas?

A Yes.

Q How is it put together?

A I was one of the authors, co-author. And basically, it was put together using our data that we collected in surveys. And it was also used with gray references of any papers that were produced in stream systems.

Q So it's not original -- there was no outside

research done to compile -- it was a compilation of other things that have been done. It wasn't --

A It was a compilation of other things that have been done. But it was also a way for us to get our data when we do surveys out to the public. Because if we don't do that, it's going to sit in shoeboxes, you know, in our division and it's not going to be, you know, shared with the public. So basically, the atlas was produced to, you know, share or share our data -- our latest data with the public and any other data that was out there.

Q Okay. Let me have this marked as Exhibit 2.

Does this look familiar from the Division of Aquatic Resources' website?

A Uh-hum.

Q And is there . . . the articles in reference as cited are ones division felt comfortable enough referring the members of the public to?

A Yes.

Q Okay. And that includes work prepared by Mike Kido? It's on page 8.

A Uh-hum.

Q Just --

A Yes.

Q Great. Thanks. All right.

How much water has the Division of Aquatic Resources determined the minimum amount of water needed to remain in East Maui streams?

A We're saying that it was 64 percent of the base flow, yeah.

Q Now, is there a significant difference in terms of what you would expect in the stream ecology between a stream with 64 percent base flow and full and complete restoration?

A I think because of the flashiness of the streams, that the streams don't always have full restoration flows. And I mean during the summer periods, you have -- you don't have as much because you don't have freshettes which also provide -- augment the stream itself.

Spraying the water is usually the basal flow. And this occurs year round and basically provides the stream with water. But it's augmented again by rain. And that's when you have periods of freshettes and these are important.

Q Sure. But I want to focus on the difference between a stream that is -- has 64 percent of base flow plus freshettes versus a stream that's not diverted at all. Is there a significant difference -- would you expect a significant

difference in stream ecology?

A I wouldn't expect that much of a difference if the diversions were, you know, allowed passage and didn't entrain.

Q Okay. Can you explain -- again, this is for unsophisticated lawyer. So -- well, explain to me how the 64 percent figure was derived. Did you understand my question?

A Uh-hum. Basically that was -- that's a basal flow that's already in the streams.

Q Well, that's medium base flows already -- so this is 64 percent of that?

A Yes.

Q So how does -- where does the -- how does the 64 percent figure get determined that that's the minimum that's needed?

A We were looking -- we were looking at flows with what was provided by USDS and CWRM. And basically, with our expertise and our knowledge, we visited a lot of streams, a lot of streams that aren't even diverted. And we've, you know, worked the habitat model and found out that habitat was provided at a 60 percent base flow --

Q And when you say habitat -- sorry?

A Enough habitat for the animals to reproduce,

to grow and everything else.

Q So can -- I don't know if you can -- can you explain methodologically, you know, how does this 64 percent figure get derived as opposed to say 70 percent, 80 percent, 50 percent? I mean can you sort of walk me through how that number came about?

A Yeah. It was based on a model and our observations of the animals in the stream. And it was calculated through graphs and everything else about what the flow was at the time that we did the surveys and then what was necessary for the animals to survive.

Q Is it fair to say that figure is limited to East Maui and not transferable to other streams across the state or do you think it's translatable to any stream?

A I think it's translatable to any stream.

Q I see. Okay.

Any particular assumptions that were made with that model to help -- you know, all models are underlying assumptions --

A Yeah.

Q So what are some of the assumptions in that?

A Let's see. A lot of the assumptions were . . . I got to think about this. Okay. The

assumptions were that basically, the stream would be -- we were looking at undiverted streams, of course, you know. And we're looking at flows, measuring flows and animals' behavior and activity within -- within a undiverted stream. And this is kind of assuming that this is what's necessary even on a diverted stream in the sense that, you know, these animals are reproducing, they're growing and they're migrating in this other stream with 64 percent versus, you know, a diverted stream. So we felt that for minimal purposes, that was the sufficient amount for them to actually reproduce, grow and develop.

Q I have to say I don't understand. Because if you're looking at an undiverted stream, it's not at 64 percent medium base flow. It's -- you know, it's --

A Yeah, but you're comparing it -- you're comparing it with a diverted stream so there's going to be a comparison of course.

Q Sure.

A You know.

Q So how do you -- how do you find out whether -- so are you -- you're saying that a stream that's diverted so that there's only 64 percent of

base flow, you're going to find as many fish or -- I'm sorry, native aquatic species as you would one that's undiverted as long as -- one of the assumptions, as long as the diversion structures themselves don't impede migration?

A True.

Q Is there any -- but so is that what you're saying though, those two are equivalent in terms of species?

A It also depends on habitat, whether there's habitat available for the animals. 'Cause if there's no habitat, even though you have a, let's say, a hundred percent flowing stream, if there's no habitat, there's not going to be any animals.

Q Yeah. Good.

A So, you know.

Q Any other assumptions or caveats that helped you, you know, in coming up with a 64 percent figure?

A Can I look at my --

Q I have no problem with that.

A Okay. One of the other things that we actually did was we compared the data and tested the model with real live data.

Q Yeah.

A So, you know, there's a tweaking of the

model.

Q Yeah.

A And verification.

Q Okay. So, you know -- I'll let you keep looking at that if you need to.

A Okay.

Q All right. So I don't know if you know this but the Water Commission has ordered the full restoration of West Wailua Iki and 64 percent of East Wailua Iki. And so based on what you've said, is it your expectation or hypothesis or that in a year, two years, five years, ten years, you really will see no difference in the stream ecology between those two streams? Is that a fair description of the hypothesis you would have?

A Well, if you're going to restore a hundred percent flow, of course -- of course that stream supposedly should be better. If it's not, then there's something else going on in the stream.

Q Okay. So when you say it should be better, how much better would you expect the hundred percent free flowing stream versus a stream that would have a 64 percent base flow?

A That would be a natural stream without -- without any diversion.

Q Okay. How much more -- can you quantify the difference in terms of how much better the stream ecology or now many more species or how much more abundance there would be?

A It would depend on the stream 'cause not all streams are alike. So, you know, whatever habitat is there and available, if you put in more water, those habitats will be utilized by the animals coming upstream again.

Q So, for example, a comparable West Wailua Iki and East Wailua Iki which are pretty close to each other --

A Uh-hum.

Q -- would you expect a significant difference in the stream ecology between the fully restored West Wailua Iki and the 64 percent base flow East Wailua Iki?

A No.

Q Okay? You wouldn't -- so you think it might be better but not significantly better?

A Well, the thing is you have to look at the individual stream. And East Wailua Iki is blocked by cobble berm which prevents the migration of animals upstream. Only when you have big freshettes, nothing breaks open, do you have recruitment. And

also you have the animals, you know, reproducing and sending out the progeny. But because it's continuously blocked most of the time, it's -- it's hard to say, you know, that they're going to be exactly -- they're going to be exactly alike. Of course if you have an open stream, the fish can migrate up any time, but usually during the wet seasons.

Q Okay. So like -- let's not compare those two streams then. But, in general, is there a significant difference in the stream ecology between a stream that is -- has 64 percent of its base flow plus some freshettes versus one that's fully restored?

A I think it would be -- you know, I think they'd be pretty -- pretty much equivalent. I mean it's hard to quantify it exactly. I mean, you know. I mean you'd have to go there and you'd have to actually map the stream, find out the habitat and then determine from that, you know, what's going on.

Q Okay. What about is there a significant difference in habitat quality in a stream with 64 percent base flow and one that just has 20 percent base flow?

A Oh, yeah, they're substantial.

Q Can you be more -- can you describe how it would --

A Well, you don't have enough water in the stream for animals to actually grow, to reproduce, you know, to spawn. So I mean it's not enough water that, you know, the animals can live their normal life. You may be able to sustain the animals but it's not necessarily getting to, you know, their full functional cycles of productivity and whatnot.

Q And I think there's some reference in some of your correspondence. But it's not a linear relationship, 20 percent --

A Yes, it's not. It's not. You think it would be but it's not.

Q Okay. Now, is there a significant difference in habitat quality in a stream with 20 percent base flow and one with no base flow where all the base flow can be taken and diverted?

A Well, then you have a dry streambed, yeah. So you don't have any animals.

Q Does the removal of more than half the water from a -- from a fresh stream in East Maui harm native aquatic species?

A Yeah, I would say it would probably would affect the flow, affect the animals' livelihood.

Q And certainly taking all the base flow would have an adverse effect on native species?

A Well, you would have dry streambed, yeah.

Q Would you say if you take all the water from a stream, 60 percent of the time, that it would have profound ecological consequence?

A Depends on when that 60 percent of the time was.

Q Well, it's base flow.

A Yeah.

Q So there's still going to be freshettes that come down. So doesn't really depend -- 'cause base flow can be taken -- okay, let me rephrase it.

You take all the base flow --

A Uh-hum.

Q -- plus some of the freshettes so that the stream below the diversion, there's essentially no water flowing below the diversion 60 percent of the year. Is that going to have profound ecological consequences on the ecology of the stream?

A It may. But I've seen intermittent streams on other islands that actually have a full complement of animals above where the water goes into the ground. So basically, you have a dry streambed from one section of the stream all the way down to the

ocean. Now, those streams still maintain themselves with a population that they have whenever there is freshettes.

Q Yeah.

A So again, you know, there -- they're intermittent. Their basal flow goes underground and comes out by the ocean. So there's no surface water for the animals to get above.

Q Sure. So recognizing that there are intermittent streams and there are -- can be healthy, would you agree that, in general, maintaining the mauka makai lifeline to ensure a healthy -- is necessary to ensure healthy populations of native stream flora and fauna?

A Yes.

Q Okay. Why don't we give you this. I guess this is number 3.

Do you recognize this as coming from the Division of Aquatic Resources' website?

A Uh-hum.

Q All right. All right. Great. Let's move on from that.

In October 2019, so just a few months ago, do you know what information the Board of Land and Natural Resources had regarding whether there was

enough water flowing into each stream in East Maui to ensure that populations of native aquatic organisms within had not been adversely affected?

A They usually set the standards so I assume that they would know, yeah.

Q But you don't know that for a fact? You just assume it?

A (Moves head up and down.)

Q Do you know does the Division of Aquatic Resource -- I know that the Division of Aquatic Resource provides information to the Water Commission.

A Yes.

Q But does the Division of Aquatic Resources provide information directly to the Board when it comes to the re-issuance of the revocable permits for the 33,000 acres of land in East Maui?

A We don't issue anything directly to the Board. It goes through Water Commission staff.

Q Okay. Does the Water Commission follow all the Division of Aquatic Resources' recommendations?

A I think they follow -- yeah, most of them that we've given them.

Q Well . . . let's . . . this number 4? Mark this as number 4. How helpful is that?

Are you familiar with these comments?

A No, I never saw them before.

Q Okay. Do you know if the Water Commission followed recommendations that are in this?

A I don't know.

Q Okay. Would an increase in the amount of water being diverted out of East Maui than has been occurring for the past three years or so, would an increase adversely affect native aquatic species?

A I think it would.

Q Okay. And would increasing the amount of water diverted out of East Maui and has been current for the past threes years or so adversely affect native stream habitat?

A You wouldn't have stream habitat if they did that.

Q Well, I didn't say how much they're going to increase.

A Yeah, okay. But, yeah, it would affect the habitat.

Q Okay. And how about ecosystem health?

A Yes.

Q Okay. I'll spend a few minutes talking about the streams that the Water Commission ordered to be restored. Of those ten streams that the Water

Commission ordered to be fully restored, are there still diversion structures remaining on any of them that interfere or harm native aquatic species?

A There probably are.

Q But do you know where? Can you identify any one?

A No, no. I don't know exactly where.

Q So why do you say they probably are?

A 'Cause they haven't -- they haven't taken out any of the diversions yet. They haven't done anything with diversions.

Q When did the Division of Aquatic Resources last check on the status of the diversions in those ten streams?

A You'd probably have to ask Skippy.

Q Okay. Do you know if that was done before the Board made a decision in October 2019 regarding the revocable permits?

A No.

Q Okay. So you don't know whether the fully restored streams have been fully restored?

A They said they were restored. And we can only go on what they tell us, you know. I mean if they say they're restored, we don't have any way of checking unless you look at the gauges.

Q So . . .

A I mean supposedly they closed the ditches and the diversions that the water continues downstream now so. I mean that's -- that's how they restore.

Q But there's still -- you believe there's still diversion structures that may interfere or harm native aquatic species in those streams?

A I think so. I think they're probably -- yeah, diversion structures are probably still in the stream. I mean they're not going to be taken out that easily.

Q Uh-hum. Do you know if DLNR has monitored those ten streams ordered to be restored by the Water Commission to determine if native stream life can effectively migrate and reproduce where the dam structures or other diversion structures in place?

A Monitor in the sense that regular -- regularly going up there and looking?

Q You know what, let me take that back. How about have they ever inspected -- so less continuous. But have they inspected the ten streams that have been ordered to be fully restored to determine if native stream life can effectively migrate and reproduce with the diversion structures that are

there now?

A You'd have to ask Skippy.

Q Okay. Are you familiar with Waiohue Stream?

A Waiohue, yeah.

Q You know how there's that beautiful pool right above the ditch? You know what I'm talking about?

A (Moves head up and down.)

Q So what I'm asking you when was the last time you were there?

A Well, again, probably last October.

Q Okay. So you're familiar that they basically elevated or blocked the gate where the water used to go to the ditch. And so now it goes back to where it used to naturally flow?

A (Moves head up and down.)

Q If that gate were to collapse in 5 years or 10 years or 50 years, the water would be diverted back into the Koolau Ditch, right?

A Probably.

Q So do you think -- would you describe the restoration there as permanent if given the nature of that gate there?

A I wouldn't say it was permanent.

Q Yeah.

A Our recommendation for that -- that pool over there was to notch, take out the right side of the concrete wall.

Q Right as you're looking upstream?

A Yeah.

Q Uh-huh.

A So we take out the right side so you'd have a natural stream flow.

Q Is that -- did the Water Commission adopt that recommendation?

A I don't think they did. I know the companies had tried to -- HC&S had tried to put on a water -- a hose which was suggested by us that, you know, maybe the animals can get up over there through -- through the water that was trickling over the wall.

Q Yeah.

A But I think -- yeah. You want a more definite -- definite fix, you would have to take out that right side of the wall.

Q Okay. Do you -- have you made that recommendation?

A That recommendation was made on the report cards that we had given to the Water Commission a while back. And I think -- yeah, I think it's in

the -- right here, Waiohue. Talking about the release but okay, maybe not this section. But I know it was mentioned before that they needed to -- and it might have been in one of the letters that they needed to take out the right side.

Q And again, that went to Water Commission, to the Board of Land and Natural Resources, that letter?

A Yes, yes.

Q Okay. Great.

Okay. I want to talk about some specific streams. And I want to talk first about Puohokamoa Stream. You know what stream I'm talking about?

A Okay.

MR. FRANKEL: And for the court reporter, I'll spell it, P-u-o-h-o-k-a-m-o-a.

Q (By Mr. Frankel) Now, in 2010, the Division of Aquatic Resources ranked Puohokamoa Stream as the third highest priority stream for restoration. Does that sound right?

A Okay.

Q Why don't I give you this. We'll make this --

A Well, it was -- it was -- yeah, it was basically the third, the third in the group of that communications with the Water Commission Members.

Q Right. Let me -- I think it be easier for the other attorneys if I hand this out. So let's make this Exhibit 5. And . . . I just to make sure -- can you look at Exhibit 5 that's there and see if that's the same thing -- is that the same thing you're looking at or are you looking at the prior -- the report that --

A I was looking at a prior.

Q Okay.

A Yeah.

Q So I recognize that things changed around. But by April 2010, the Division of Aquatic Resources had recommended restoration work to Puohokamoa has the priority rank 3, is that right? If we look at --

A Yeah, yeah.

Q Okay. Now, despite the Division of Aquatic Resources recommendation, the Water Commission only restored 20 percent of the base flow to the stream, right?

A Uh-hum.

Q That's a yes?

A Yes.

Q And you folks felt it would be relatively easy to allow water to pass through the Manuel Luis Ditch, right? If you look at . . . the page -- were

you looking at -- yeah, yeah, yeah.

A Yeah, this one.

Q And you -- is that -- well, why don't you take a minute to read through that.

So you got -- well, let me take a step back. You helped -- you did some of the field work and some of the investigative work that created the report that led to this letter and recommendations, correct?

A Uh-hum.

Q And the division believed that it would be relatively easy to allow water to pass through the Manuel Luis Ditch, is that right?

A Yes.

Q And do you know -- I don't know if this is what -- if you know this or not. But do you know if the Manuel Luis Ditch provides water to the county or is that more the Koolau and the Wailoa Ditches?

A We don't know who the ditches provide water to.

Q Okay. Okay. Now, did -- do you know did the Board of Land and Natural Resources require any modification of any diversion structures on Puohokamoa Stream?

A Not that I know of.

MS. WESTON: Do you mean CWRM?

MR. FRANKEL: No, I meant the Board. We've already established they're 20 percent by CWRM. But I'm asking about the Board. But thank you, Amanda.

Q (By Mr. Frankel) So what is the impact on native species of only restoring 20 percent of the median base flow to Puohokamoa Stream?

A Well, it would be a lot better if they could provide more. But then again, you have the issues of the diversion themselves, you know, so --

Q You'd want both addressed to deal --

A They would have to be similarly addressed, yes, yes.

Q Great.

I want to switch to another stream, Haipuaena, H-a okina i-p-u-a okina e-n-a, Haipuaena.

Now, in the same letter going -- it's -- the Division of Aquatic Resources ranked Haipuaena as the sixth highest priority stream for restoration, is that right?

A Yes.

Q But the Water Commission only restored 20 percent of the base flow to the stream, right?

A Yes.

Q And DLNR did not require any modification of any of the diversion structures on Haipuaena Stream,

did it?

A No, it didn't.

Q So what's the impact of allowing the stream -- allowing the diversion structures to remain in place and not restoring more of the base flow to the stream?

A Well, probably it impacted it because as you can see, there was no water below the diversion.

Q Although if they ordered -- if the Water Commission ordered 20 percent of the base flow to be restored, that's still below what the Division of Aquatic Resources recommended, right?

A It was below what we recommended but it might provide connectivity. So that's another thing that, you know, we look at.

Q Sure. But as you've answered earlier, there's a significant difference between 64 percent base flow and 20 percent base flow?

A Yes.

Q Okay. Hanawi Stream, let me ask you about that.

A Sure.

Q Is -- I don't know how to begin this one in --

A It is --

Q Oh, yeah. Is Hanawi Stream worthy of restoration?

A Yes. More so, not on the necessary flow because it has a spring on the lower section of the stream which provides a lot of the basal flow. And I think one of the issues more is entrainment and the diversion itself of how the animals can get past it.

Q And that's the Koolau Ditch number 4, is that right?

A I think so.

Q Okay. K-4?

A K-4.

Q And okay. Has the Division of Aquatic Resources brought this issue to the attention of the Board of Land and Natural Resources?

A We brought it to the Water Commission. And the landowner had actually put another pipe on the -- on the diversion wall to see if the animals could come above and move upstream into the area above the diversion and actually crawl up the diversion.

Q So let's back up for a second. You referred to the landowner?

A Yes.

Q Do you know if this land is owned by the state and allow -- is it part of the land that EMI

and A&B --

A Okay. EMI and A&B that actually leasing the land, right? So basically they're the ones that tried to help, provide, you know, some means so the animals get past.

Q Did they do -- did they follow your recommendations that's in this letter?

A As far as notching it, no.

Q Have you gone to check to see on whether the work that they did is sufficient to provide passage?

A It would have -- we'd have to monitor it and we didn't -- we don't have any means of monitoring it.

Q Okay. Would it be unreasonable for the Division of Aquatic Resources to ask the Board, not the Water Commission but ask the Board of Land and Natural Resources to ask for this alteration of the diversion structure?

A I think it would be reasonable.

Q Okay. Next question. Next stream is Kolea Stream which is not in that -- is not in this letter --

A Okay.

Q -- I believe. Are you familiar with Kolea Stream?

A Somewhat.

Q You know what, let's -- let me give you this.

MR. FRANKEL: What is this, 6 now?

MS. WESTON: Yeah.

Q (By Mr. Frankel) You're one of the authors of this report, right?

A Yes.

Q And does this look like a true and correct copy of your -- of the report?

A Yes, it is.

Q Okay. So there is -- well, let me ask you this. Well, no, I'll back up.

Page 6 of the report, the discussion, the very bottom there. Let me read that last paragraph to you. It says "Kolea Stream is one of the smaller streams, but nonetheless has a large potential -- sorry, has a large amount of potential habitat in the middle and upper reach for Lentipes concolor and a moderate amount of" -- boy, I'm not going to be able -- maybe you can help me.

A Awaous guamensis, Atyoida bisculcata and Neritina granosa.

Q Can you now translate those into Hawaiian words? What are these species?

A Okay. Those are Nakea --
Q Oopunakea?
A Yeah. The Alamoo -- the first one is Alamoo and the other one is the Opae and the other one is Hihiwai.
Q Great. It goes on to say "Restoration of the flow to increase animal passage between diversions would greatly improve the productivity of the stream and increase the availability of potential habitat to native species."
A Uh-hum.
Q Do you have any reason to disagree with this paragraph that --
A No.
Q Do you know if the Division of Aquatic Resources ever gave a copy of this report to the Board of Land and Natural Resources?
A We gave it to the Water Commission.
Q But not to the Board?
A No.
Q Okay. Okay. Switching to the -- I don't know how you pronounce the HSHEP model. Is that -- is there a better way of naming --
A HSHEP model.
Q Okay. That model looked at 16 streams,

right?

A Yeah.

Q Those 16 streams were chosen by the Water Commission, not the Division of Aquatic Resources, right?

A We had a meeting with them and we agreed on the selection of streams.

Q So you agree those are the 16 that you were going to look at?

A Yeah. And this wasn't with just us. It was also with Bishop Museum and A&B, you know. So it was a lot of other folks that were involved in the meeting to determine which streams we're going to look at. It wasn't just something that we and CWRM decided.

Q Uh-hum. And so those are the ones that you folks collectively determined were the most important ones to look at?

A 'Cause they would give the biggest bang for the buck in return of water.

Q Okay. Was a survey completed on each of those 16 streams?

A I believe it was, yes.

Q Including Haipuaena?

A I think so. Maybe it wasn't on Haipuaena.

I know we did 15 streams.

Q Right. So why would Haipuaena be excluded?

A I don't know.

Q Okay.

A I mean you're talking 12 years ago.

Q That's fair. That's fair.

A That's a while back.

Q Yeah. All right. I'll talk about structures now.

A Uh-hum.

Q What kind of harm can diversion structures themselves cause?

A They can act as barriers to the migration of native species. They can also entrain.

Q And for the non-biologist, entrained means the same thing basically as capture?

A Capture, yes.

Q Okay. Those are probably -- are there other problems that diversion structures cause to stream ecology or species or those the only two?

A Those are two that we kind of look at besides the diversion of water, yes.

Q Sure. Sure.

Now, has anyone -- have you or anyone at Division of Aquatic Resources or DLNR systematically

examine, analyzed and evaluated all the diversion structures on public land in East Maui?

A No.

Q Okay. Are diversion structures in East Maui stream still causing problems for native species?

A I think they are.

Q Okay. Have you had a chance to re-look at Polhemus' report that's in the draft EIS for the lease of East Maui lands? We talked about it a little bit last time. Have you looked at that more carefully?

A His report.

Q Uh-hum. It's . . . he uses the model --

A Yeah.

Q -- to look at -- to evaluate the impact of -- or compare full restoration, more diversion, just following the Water Commission's recommendations, et cetera. Do you -- have you looked at that recently?

A A little bit.

Q Okay. So there's 13 streams that are not affected by the Water Commission's order. Okay? And that would include Kolea Stream. And he concludes that -- that the existing diversions reduce habitat units on those streams from 588,000 square meters to

88,386 square matters, a reduction of 85 percent. Knowing what you do about some or all the streams, is the reduction of 85 percent, is that going to have a significant ecological impact?

A Yes.

Q Okay. Last set of -- my last topic. We might be done in an hour.

MS. WESTON: Could we take a short bathroom break?

MR. FRANKEL: I mean if you really want -- I just take -- well, I might have follow-up. That's fine.

MS. WESTON: It's been an hour.

MR. FRANKEL: Okay, that's fine.

MS. WESTON: Thank you.

MR. FRANKEL: Sure. Off the record.

(Recessed at 9:32 a.m.)

(Reconvened at 9:39 a.m.)

Q (By Mr. Frankel) I have a last question or set of questions for you.

A Uh-hum.

Q Tough one.

Can you describe the pressure that was put on the Division of Aquatic Resources when Laura Thielen was Chair and Linda Lingle was Governor and

the issue of stream restoration was pretty hot. Do you recall that? Dan Polhemus was in charge.

A Yes.

Q Describe to me that pressure.

A Well, there was pressure definitely and to the point where the Chair, Laura Thielen, actually came and talked to us about what our findings were.

Q Be more descriptive and specific.

A Well, in the sense she was trying to understand what were we saying so that, you know, she could provide, you know, get our backs, right? I mean if she doesn't understand what we're talking about and she cannot convey it to the commissioners that, you know, she needs to -- she needs to understand exactly what we're talking about.

Q Sure. Now, did she put pressure on you folks to change your recommendations?

A No, I don't think so. I don't think she did. I think one of the things was it was a misunderstanding of how Dan saw stuff versus how we saw stuff was probably one of the issues.

Q So was the staff being more protective of streams than Dan was or was it vice versa?

A I'm not sure the exact but, yeah, it was kind of a -- just a misunderstanding of what the

different values meant. So he didn't fully understand what we were talking about.

Q He didn't -- when you're using the model, he didn't really have a good grasp --

A Yeah, yeah. He didn't have a good grasp of what we were trying to say when we set those -- those comments about, you know, recommendations and whatnot.

Q So other than clearing up misunderstandings, was there actual pressure? What -- when you said there's pressure, what was the nature of the pressure? What was trying to be -- other than clearing up misunderstanding?

A Can I be candid?

Q Yeah.

A Well, she wanted to get rid of Dan Polhemus. That was it.

Q Why?

A She wasn't -- she didn't like him.

Q Yeah. Okay. Setting aside any personality differences, was there -- was she unhappy about the advocacy or recommendations or scientific analysis being provided by the Division of Aquatic Resources?

A No. I think it's just a personal issue.

Q Okay. So other than the -- yeah, we all

understand that people clash. People have different personalities. Other than that, was there any other pressure, political pressure, put on the Division of Aquatic Resources?

A I -- I -- there may have been. I don't know. I was just a staff member. So I'm not high up into the organization where, you know, I'm in administration. And I don't hear a lot of the stuff that goes on. So if there was pressure, then it was probably fielded by the administrators as well as the program managers.

Q Did you get the impression that Laura Thielen or any of the Water Commission wanted to mute the information or recommendations coming out?

A No, no. I think they were sincere in what they were trying to do to understand what we were suggesting.

MR. FRANKEL: Okay. Thank you. I have no further questions. Either of you?

MS. WESTON: No questions.

MS. MARTIN: No questions.

MR. FRANKEL: Okay, thank you.

(Concluded at 9:43 a.m.)

--oo0oo--

WITNESS' CERTIFICATE

I, GLENN HIGASHI, certify that I have read the foregoing typewritten pages 1 to 44, inclusive, and corrections, if any, were noted by me, and the same is now a true and correct transcript of my testimony.

Dated: This ___ day of_____, 2020.

_____

GLENN HIGASHI

Signed before me

this _____ day of _____, 2020.

_____

Sierra Club vs. BLNR, et al.
Civil No. 19-1-0019-01 JPC
Deposition of Glenn Higashi
taken March 3, 2020

C E R T I F I C A T E

STATE OF HAWAII)
) SS:
CITY AND COUNTY OF HONOLULU)

I, PRISCILLA GONZAGA, Certified Shorthand Reporter, do hereby certify:

That on March 3, 2020, appeared before me GLENN HIGASHI, the witness whose deposition is contained herein; that prior to being examined he was by me duly sworn:

That the deposition was taken down by me in machine shorthand and was thereafter reduced to typewriting; that the foregoing represents, to the best of my ability, a true and correct transcript of the proceedings had in the foregoing matter.

That pursuant to Rule 30(e) of the Hawaii Rules of Civil Procedure, a request for an opportunity to review and make changes to this transcript:

__x__ Was made by the deponent or a party (and/or their attorney) prior to the completion of the deposition.

_____ Was **not** made by the deponent or a party and/or their attorney) prior to the completion of the deposition.

_____ Was waived.

I further certify that I am not an attorney for any of the parties hereto, nor in any way concerned with the cause.

Dated: This ____ day of March 2020 in Honolulu, Hawaii.

_____
Priscilla Gonzaga, CSR # 127

WITNESS CORRECTION SHEET

CASE: SIERRA CLUB VS. BOARD OF LAND AND NATURAL RESOURCES; CIVIL NO. 19-1-0019-01 JPC

DEPOSITION OF GLENN HIGASHI,TAKEN ON 3-3-20.

PAGE	LINE	CORRECTION	REASON

(If additional space is needed, attach a blank sheet)

Signature of Deponent: _____ Date: _____

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☒ Please be advised that the deponent signed and/or made corrections to the deposition within 30 days of notification.

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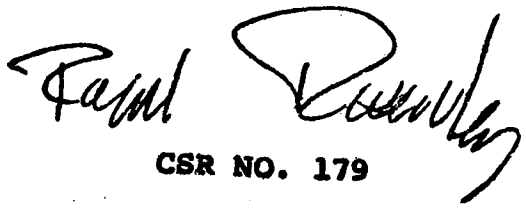

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Sierra Club vs BLNR, Department of Land and Natural Resources

CIVIL NO. 19-1-0019-01 JPC (Environmental Court)
Glenn Higashi Deposition 031820 Edits

Page	Line	Edits/Comments
5	21	Manage, protect and restore the state's aquatic resources and ecosystems
8	15	linear meters
12	16	Spring water contributes to the basal flow of the stream
13	10	64% of basal flow required in the stream to sustain spp biological functions (growth, reproduction, etc.)
13	18	USGS not USDS
13	23	64% not 60
13	25	Enough habitat and flow
14	7-8	It was based on an HEP model and over 91,000 animal observations in streams statewide
14	22	The model assumes that habitat quality and quantity are related to the number of animals using a habitat over the long term.
36	23	Kolea Stream is small and steep with a terminal waterfall and as a result has little suitable habitat predicted for the non-climbing animals (ʻoʻopu ʻakupa, ʻoʻopu naniha, ʻōpae ʻoehaʻa). Although middle and upper reaches has suitable habitat predicted for the climbing animals (ʻoʻopu ʻalamʻoo, ʻoʻopu nōpili, hihiwai, ʻōpae kala'ole) from a ranking perspective, Kōlea Stream did not rank highly for the amount of potential suitable habitat for any species in comparison with the other 16 streams in the analysis.

WITNESS' CERTIFICATE

I, GLENN HIGASHI, certify that I have read the foregoing typewritten pages 1 to 44, inclusive, and corrections, if any, were noted by me, and the same is now a true and correct transcript of my testimony.

Dated: This ___ day of Apr 20, 2020, 2020.

Glenn Higashi

GLENN HIGASHI AW

Signed before me

this _____ day of _____, 2020.

_____

Sierra Club vs. BLNR, et al.
Civil No. 19-1-0019-01 JPC
Deposition of Glenn Higashi
taken March 3, 2020