BEFORE THE

CALIFORNIA STATE WATER RESOURCES CONTROL BOARD

Douglas and Heidi Cole and Marble Mountain Ranch	)
Stanshaw Creek in Siskiyou County	)
Public Hearing	)

REGION 5 AUDITORIUM

CENTRAL VALLEY WATER QUALITY CONTROL BOARD

11020 SUN CENTER DRIVE, SUITE 200

RANCHO CORDOVA, CA

Monday, November 13, 2017

10:00 A.M.

Volume 1

Pages 1 - 224

Reported by: Peter Petty

APPEARANCES

CALIFORNIA WATER RESOURCES CONTROL BOARD

Division of Water Rights

Board Members Present:

Steven Moore, Vice Chair (Hearing Officer)

Hearing Team Members Present:

Lily Weaver, Staff Counsel
Mara Irby, Staff Environmental Scientist
Jean McCue, Staff Engineer
Conny Mitterhofer, Senior Water Resource Control Engineer
Jane Farwell-Jensen, Staff Environmental Scientist
Michael Buckman, Hearing Unit Chief

Prosecution Team Members Present:

Kenneth Petruzzelli, Attorney III, Office of Enforcement
Heather Mapes, Attorney I

INTERESTED PARTIES

For Douglas and Heidi Cole, Marble Mountain Ranch (MMR)

Barbara A. Brenner, Partner, Churchwell White, LLP
Kerry Fuller, Attorney

For California Department of Fish & Wildlife (CDFW)

Stephen Puccini, Senior Staff Counsel
Nathan Voegeli, Staff Counsel

For California Sportfishing Protection Alliance (CSPA)

Christopher R. Shutes, FERC Projects Director

For Karuk Tribe

Drevet J. Hunt, Attorney, Lawyers for Clean Water

For Old Man River Trust

Konrad Fisher

APPEARANCES (Cont.)

INTERESTED PARTIES (Cont.)

For National Marine Fisheries Service (NMFS)

Christopher Keifer

WITNESSES:

Leonard Joseph (Joey) Howard, for Division of Water Rights Prosecution Team

Steven P. Cramer, for Douglas and Heidi Cole, Marble Mountain Ranch (MMR)

Philip Albers, Jr., for Old Man River Trust (OMRT)

Witness Panel for the Division of Water Rights Prosecution Team

Taro Murano
Skyler Anderson
Stormer Feiler

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(NO EXHIBITS WERE MARKED OR ENTERED INTO EVIDENCE)

Monday, November 13, 2017 10:01 A.M.

P R O C E E D I N G S

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HEARING OFFICER MOORE: All right. This is the time and place for the hearing to determine whether to issue an order finding waste, unreasonable use, unreasonable method of use, or unreasonable method of diversion of water and ordering corrective actions against Douglas and Heidi Cole and Marble Mountain Ranch. The Draft Order finding waste, unreasonable method of use, and unreasonable method of diversion of water and ordering corrective actions was issued by the Assistant Deputy Director for the Division of Water Rights on August 30th, 2016.

I'm Steven Moore, Vice Chair of the State Water Resources Control Board. I'll be assisted by Staff Counsel, Lily Weaver; Staff Environmental Scientist, Mara Irby; Staff Engineer, Jean McCue. And we also have other staff assisting us today. Conny Mitterhofer, Jane Farwell-Jensen, Michael Buckman, and of course our esteemed court reporter.

Evacuation procedure, you know before we get started please look around the room and identify the nearest exit. I know this is probably the best exit route to get out of the building. And in the event of a

fire alarm we're all required to evacuate this room immediately, so please take your valuables and exit the building. And our evacuation location is in the parking lot in front of the building.

The hearing is being held in accordance with the Notice of Public Hearing dated June 9th, 2017 and the Revised Notice of Public Hearing dated August 16th, 2017.

The purpose of this hearing is to avoid -- I'm sorry -- is to afford the parties to this proceeding an opportunity to present relevant oral testimony and other evidence, which address the following noticed two key issues. And we'll be circling back to these issues over and over again to make sure that we're centered in our discussions.

Number one, does the past or current diversion or use of water by Douglas and Heidi Cole at Marble Mountain Ranch constitute a waste, unreasonable use, unreasonable method of use, or unreasonable method of diversion of water particularly in light of any impacts to public trust resources? That's number one.

Number two, if the past or current diversion or use of water by Douglas and Heidi Cole and Marble Mountain Ranch constitutes a waste, unreasonable use, unreasonable method of use, or unreasonable method of diversion of water what corrective actions, if any,

should be implemented? And with what time schedule should they be implemented? How should the implementation time schedule for any corrective actions be coordinated with the requirements of the Cleanup and Abatement Order issued by the North Coast Regional Water Quality Control Board?

So those are the two issues. I'm sure we'll have a chance to reiterate them.

I wanted to let everyone know we are broadcasting this hearing on the Internet and recording both audio and video. In addition, our court reporter is present to prepare a transcript of this proceeding. Anyone who would like an expedited copy of the transcript must make separate arrangements with the court reporter.

To assist the court reporter, please provide him with your business card. When you speak please be sure to use a microphone, so that everyone can hear you here, and in the recording. A maximum of five microphones may be on at once and they must be turned on and off manually. Therefore, please take care to turn off the microphone you are using when you are finished speaking and I'll try to also follow those rules. It's something that takes some getting used to, so we understand.

Finally, please take a moment to turn off or

mute your cell phones. Even if you think it's already off or muted just take a quick moment to double check. See, I've got the orange on mine, and everyone appreciates that. Thank you very much.

And so now we'll get into the explanation of the Order of Proceeding and thanks to everybody for traveling here today. Everyone had to make some sacrifice to be here and we all appreciate that.

Before we begin the evidentiary portion of the hearing, and hear from the parties who have submitted cases in chief, we will hear from any speakers who are not designated parties but wish to make a non-evidentiary policy statement. Please note that all designated parties will have an opportunity to present an opening statement, even those parties that are not presenting direct testimony. Parties may include any policy-type statements during their opening statements.

Is there anyone here who wishes to make a non-evidentiary policy statement? Please identify yourself.

(No audible response.)

No policy statements? Okay. We will note for the record, that no one here today has indicated that they wish to make a non-evidentiary policy statement and we will move on to the evidentiary portion of the hearing for presentation of evidence and related cross-

examination by parties who have submitted notices of intent to appear.

So the hearing teams receive scheduling requests from multiple parties to the hearing. We appreciate the parties' efforts to coordinate. To accommodate these requests the best we can, we will deviate from the general order of the proceedings at times, particularly today and tomorrow. I will explain the general manner of proceeding first and then how we will be deviating from it.

We received a request to discuss the order of proceeding and I will allow for a brief discussion shortly. But first, would Konrad Fisher from Old Man River Trust please come up to the microphone and explain the need to accommodate your witness, Phil Alpers, (sic) on this morning.

MR. FISHER: Here we go, so I have two witnesses. One is another person who has been -- who is connected to the mouth of Stanshaw Creek, Phil Albers, who is here. The other was to talk about remedies. Phil can only be here today and even if it means me not speaking, I would very much appreciate if he could speak for ten minutes. It's what he has to say is relevant and it would be just ten minutes. I, on the other hand, can be flexible and speak another day.

MS. WEAVER: So we need some additional information to determine whether there's good cause to change the schedule, so can you tell us a little bit more about why he can only be here today?

MR. FISHER: So first I thought this was resolved already, so we had a process where parties were -- said please work it out. And this was one of my requests within that process, so until yesterday, I thought it was already resolved. The reason is your question? I have only --

MS. WEAVER: That's correct.

MR. FISHER: Sorry?

MS. WEAVER: That's correct.

MR. FISHER: I have only two witnesses. This is my most important witness. I follow the procedure to ask that he speak first, as it was explained to me.

HEARING OFFICE MOORE: Well, that's fine. I think what Ms. Weaver is pointing out is that we did get the correspondence. We have arranged a whole Order of Proceedings. For the record, we just wanted you to explain why we needed to change the schedule to accommodate Mr. Albers.

MR. FISHER: Okay, great. Thank you. I appreciate that.

HEARING OFFICE MOORE: Okay. Well, I

appreciate the explanation. So the general order in which the parties will present their direct testimony and/or conduct cross-examination will be first, Division of Water Rights Prosecution Team, Kenneth Petruzzelli.

And second, Douglas and Heidi Cole, Marble Mountain Ranch, Barbara Brenner.

Third, National Marine Fishery Service, Christopher Keifer.

Fourth, California Department of Fish and Wildlife, Stephen Puccini and Nathan Voegeli.

Fifth, Karuk Tribe, Fatima Abbas and Drevet Hunt.

Sixth, Old Man River Trust, Konrad Fisher. Excuse me.

Seventh, Klamath Riverkeeper, Paul Kibel.

Eighth, California Sportfishing Protection Alliance, Chris Shutes and Michael Jackson.

And finally ninth, Pacific Coast Federal -- sorry, Pacific Coast Federation of Fishermen's Associations and Institute for Fisheries Resources, Noah Oppenheim or Regina Chichizola.

Okay. As I stated earlier I will allow all the parties to make an opening statement. At the beginning of each case in chief, the party may make an opening statement. Opening statements should briefly summarize a

party's position and if applicable, what the party's evidence is intended to establish. Given that California Sportfishing Protection Alliance and Pacific Coast Federation of Fishermen's Associations and Institute for Fisheries Resources will not be providing direct testimony, we will hear their opening statements after conclusion of the direct testimony. So are we clear?

After a party's opening statement is presented we will hear oral testimony from the party's witnesses. Before testifying, witnesses should identify their written testimony as their own and affirm that it is true and correct. Witnesses should summarize the key points in their written testimony and should not read their written testimony into the record.

Direct testimony of each party's witnesses will be followed by cross-examination from the other parties, the Board staff, and myself if it comes up. Redirect testimony and recross-examination limited to the scope of the redirect testimony may be permitted. So that is the recross-examination is limited to the scope of the redirect testimony. After all cases in chief are completed the parties may present rebuttal evidence. Parties are encouraged to be efficient when presenting their cases and their cross-examination.

Except where I approve a variation, we will

follow the procedures set forth in the Board's regulations and in the hearing notices.

The parties' presentations are subject to the following time limits. Opening statements are limited to 20 minutes per party. Oral presentations of direct testimony are limited to one hour total per party, 20 minutes per witness. Any cross-examination will be limited to no more than one hour per witness, or a panel of witnesses. Additional time may be allowed upon a showing of good cause. And, in the interest of efficiency, all parties should take care to meet the time limits for direct testimony and cross-examination, particularly when all witnesses of a party are not presenting direct testimony and undergoing cross-examination as a panel.

We will not be conducting oral closing arguments. An opportunity will be provided for submission of written closing briefs. I will set the briefing schedule at the close of the hearing. Given the scheduling requests we have received, it is foreseeable that we will only have an opportunity to hear from the following witnesses today: Joey Howard, for the Division of Water Rights Prosecution Team; Steve Cramer from Marble Mountain Ranch; and Phil Albers for Old Man River Trust.

In light of the shifting schedule for presentations that were received and in the interest of time, I will allow the Prosecution Team, Marble Mountain Ranch and Old Man River Trust, if they wish to reserve the remainder of their unused opening statement time today for when they present their remaining witnesses testimony.

So today, after the appearances of the parties, we will hear the Prosecution Team's opening statement followed by oral direct testimony and cross-examination of their witness, Joey Howard. Following any potential redirect and recross of Mr. Howard, Marble Mountain Ranch will have an opportunity to present their opening statement. This will presumably take us into the afternoon. No earlier than 1:00 p.m., Marble Mountain Ranch witness Steve Cramer, will provide oral direct testimony and will then be cross-examined. Following any potential redirect and recross of Mr. Cramer, Old Man River Trust will have an opportunity to present an opening statement, followed by the presentation of direct testimony by Phil Albers, with the potential for redirect and recross.

As described in my October 31st, 2017 ruling letter, parties should be aware that witnesses will be compelled to return on Tuesday, November the 14th, 2017

if necessary to complete cross-examination. If witnesses fail to return to complete cross-examination the Board has discretion to entertain such motions as may be necessary to present prejudice to other parties.

On Tuesday, we will complete any remaining cross-examination of these witnesses, if necessary. We will then allow Klamath Riverkeeper to present its opening statement and direct testimony, after which we will resume the Prosecution Team and Marble Mountain Ranch's remaining cases in chief.

That was an earful I'm sure, for everybody. But we aim to accommodate the needs, especially with those who have traveled so far. And we want to be sensitive to folks' schedule, so we hope this accommodates folks to the best of our ability.

This brings us into housekeeping. Would any parties like to discuss the Order of Proceeding I have just outlined? We do have somebody who would like to discuss this. Come up to the microphone please and identify yourself. Thank you.

MR. HUNT: Hi, thank you. I'm Drevet Hunt. I'm here on behalf of Karuk Tribe. And one of our witnesses, Leaf Hillman, has to travel to Colorado on Wednesday. So we were hoping that perhaps between the Klamath Riverkeeper and the resumption of the Prosecution

Team's case, tomorrow we could present his testimony and if necessary, because things aren't moving as quickly as possible, before the end of the day tomorrow, to present his testimony. It shouldn't take too much time. It's not that lengthy.

HEARING OFFICE MOORE: Okay. I just want to make sure folks have an opportunity to object to this proposal if it's going to cause any concern. And seeing no objections I think we will do our best to figure out the scheduling and the sequence of witnesses to accommodate -- what's the person's name again --

MR. HUNT: Leaf Hillman

HEARING OFFICE MOORE: -- Leaf Hillman's scheduling constraints, so I'll make a note of that.

MR. HUNT: Okay.

HEARING OFFICER MOORE: And I'll work with the Hearing Team to make sure that you have some certainty on when that will happen.

MR. HUNT: Okay. Thank you so much.

HEARING OFFICE MOORE: Thank you.

MR. PETRUZZELLI: The Prosecution Team has a request.

HEARING OFFICE MOORE: Please come forward and please identify yourself. Thank you.

MR. PETRUZZELLI: Kenneth Petruzzelli for the

Prosecution Team. The Prosecution Team would like to present the direct oral testimony from its witnesses, starting out. And this does prevent -- present the foundation for the case, so it can most -- be most easily understood by everyone here.

We have for our Prosecution Team witnesses -- they have presentations with exact amounts of budgeted time. Mr. Howard is an adverse witness, so his time is a little less exact. So it would be much easier for me to be able to present our main Prosecution Team witnesses first and then Joey Howard with our remaining time.

HEARING OFFICE MOORE: Okay. Thanks for the --

MR. PETRUZZELLI: Thank you.

HEARING OFFICER MOORE: -- the request. We're taking that into account here. I'm looking at the Order of Proceedings. And so I guess, Mr. Petruzzelli, one question I have is do you have a suggested time in the sequence for Mr. Howard to be inserted?

MR. PETRUZZELLI: So I was budgeting ten minutes for him, so we could stay within our hour. So I was trying to -- my hope is that we can present direct oral testimony from all of our witnesses in an hour. And then if I need a bit of latitude with Mr. Howard, given his adverse nature, I would request that if necessary.

HEARING OFFICE MOORE: Okay. I --

MS. WEAVER: Let's confer (indiscernible)

HEARING OFFICER MOORE: Let's confer, because this is a little different than our understanding coming in.

(Whereupon, Hearing Team Panel confers in sidebar.)

HEARING OFFICE MOORE: Okay. Thank you. We want to clarify here a little bit. On Friday I believe, we received this request for special scheduling in the order of witnesses. And so this request is not consistent with that request. And I understand the need to have a flow and everything, but actually we've gone to great lengths here to accommodate folks's (sic) schedule. And so flow is not the most important thing to us. The most important thing, because all of the requests that were made and our juggling to try to accommodate schedules, is to go with what the Prosecution Team requested in the first place, which was to have Mr. Howard go first.

And we're growing a little impatient with all the different scheduling, because in order to accommodate your request we're going to have to have all the potential cross-examiners come up here and give us time estimates to meet the schedule that we're trying to meet today. So I would rather actually deny the request and

go according to the script that we put together based on everybody's input.

So is there any other -- any objections, comments on this proposed schedule? So one thing I want to make sure is, is Mr. Howard present?

WITNESS HOWARD: I'm here.

HEARING OFFICER MOORE: Is that you, Mr. Howard? Okay. Thanks for coming down from Ashland.

So let me get back on my script. So, for the purpose of scheduling this is a challenge. You heard there are nine different parties and we were trying to accommodate everybody's scheduling requests, you know? And we wanted to do that, but we don't want to have all these scheduling changes come up last minute like this. We're starting to get impatient.

So in terms of the scheduling for today, I anticipate taking a lunch break of about 60 minutes each day. Please keep this in mind as we get closer to the afternoon. We'll be looking to find a natural breaking point. We don't really want to cut people's testimony in half in the name a certain amount of flow to the schedule.

On subsequent hearing days we may begin earlier than 10:00 a.m. I'll announce any changes to the start time at the hearing at the end of the day. Each

afternoon we'll have a hard stop at 5:00 p.m., so plan on wrapping up each day around 4:45. Today, however, we will need to end at 4:30. If the hearing is still ongoing on Thursday, we will end early at 3:30 p.m. on Thursday. Please make a note of that. Today is 4:30, Thursday is 3:30, and the default time is 5:00.

Are there any other procedural issues that need to be addressed? Don't be shy. It's okay. You know, just the scheduling has been very challenging. Okay.

So at this point, because we didn't have any proposed policy statements, no blue cards were submitted for policy statements.

Now, I will invite appearances by the parties who are participating in the evidentiary portion of the hearing. Will those parties making an appearance please come up to the microphone, make sure it is on, and state your name, address and whom you represent, so that the court reporter can enter this information into the record. The court reporter would also appreciate receiving your business card if you have one with you, in order to facilitate correspondence.

So first Division of Water Rights Prosecution Team, Kenneth Petruzzelli.

MR. PETRUZZELLI: Kenneth Petruzzelli for the Division of Water Rights.

HEARING OFFICE MOORE: Okay. Oh, in the interest of time, yeah please queue up. And I had that order of the one through nine. Thank you, Mr. Petruzzelli. And then next is Marble Mountain Ranch, NMFS, DFW, Karuk, Old Man River, Klamath Riverkeeper, CSPA and PCFFA.

MS. BRENNER: Good morning. Barbara Brenner on behalf of Marble Mountain Ranch, Doug and Heidi Cole. Churchwell White is the law firm, 1414 K Street, 3rd Floor, Sacramento, 95814.

HEARING OFFICER MOORE: Thank you.

MS. BRENNER: And he has my card.

HEARING OFFICE MOORE: Great.

MR. KEIFER: Christopher Keifer with NOAA's Office of General Counsel for the National Marine Fishery Service, 501 West Ocean Boulevard, Suite 4470, Long Beach, California, 90802.

HEARING OFFICE MOORE: Thank you.

MR. PUCCINI: Good morning. Stephen Puccini and seated behind me Nathan Voegeli, for the Department of Fish and Wildlife, 1416 9th Street, Sacramento, 95819.

HEARING OFFICE MOORE: Thank you.

MR. PUCCINI: 95814, excuse me.

HEARING OFFICE MOORE: Oh, yeah. Make sure you get that zip code right. Thank you.

MR. HUNT: Hi again, Drevet Hunt. I'm with Lawyers for Clean Water here on behalf of the Karuk Tribe. My address is 1004-A O'Reilly Avenue, San Francisco, California, 94129.

HEARING OFFICE MOORE: Thank you.

MR. HUNT: Thank you.

MR. FISHER: Konrad Fisher for Old Man River Trust, P.O. Box 751 Somes Bar, California, 95568. Somes, S-o-m-e-s -- I see you shaking -- and B-a-r, separate word.

HEARING OFFICE MOORE: We're going to hear more about that place.

(Laughter.)

MR. FISHER: The attorney for Klamath Riverkeeper is not here. Would you like his name and address or do you want to save that?

HEARING OFFICE MOORE: Oh, that will be -- fine or I'm okay, yeah go ahead.

MR. FISHER: Paul Kibel, who will be here tomorrow, K-i-b-e-l, 2140 Shattuck Avenue, Suite 801, Berkeley, California, 94704.

HEARING OFFICE MOORE: Thank you for that.

MR. FISHER: Thank you.

HEARING OFFICE MOORE: And CSPA or PCFFA? That's okay, right. We'll just -- they'll introduce

themselves later, so they should be good.

MS. WEAVER: Yeah.

HEARING OFFICER MOORE: Okay. All right, very good. All right, at long last: opening statements, testimony, cross-examination and acceptance of evidence.

We will now here the Prosecution Team's opening statement and direct testimony from Joey Howard, followed by any cross-examination in the order I previously identified. Redirect and recross examination of Mr. Howard may then be permitted. If time permits, prior to the lunch break, we will hear Marble Mountain Ranch's opening statement followed by director testimony of their witness. But we'll see how the time goes.

So as soon as -- actually at this point we're having folks come up okay, so Prosecution Team and Mr. Howard. And then our Hearing Team, please assist folks as to where they should sit. And before we begin we're going to -- yeah, everybody who comes up has to swear to the oath. '

So at this time, Mr. Howard, will you please stand and raise your right hand?

LEONARD JOSEPH "JOEY" HOWARD

called as a witness for the Petitioner, having been previously duly sworn, was examined and testified further as hereinafter set forth:

WITNESS HOWARD: Yes. I do.

HEARING OFFICE MOORE: Thank you. You may be seated.

Counsel, you may proceed and thank you for sticking to this proposed schedule.

MR. PETRUZZELLI: So my understanding is that I present my opening statement first; is that correct?

HEARING OFFICE MOORE: Yes.

MR. PETRUZZELLI: Okay.

HEARING OFFICE MOORE: That is. Oh, okay. Hold on a second. Okay. Yes. Please do as I read into the record.

(Slides uploaded to screen.)

HEARING OFFICER MOORE: It's times like this do you feel PowerPoint makes you feel powerless and pointless? Not always though. Thank you for your patience. Don't worry; your time hasn't started yet.

MR. PETRUZZELLI: Well, somebody has to go first.

HEARING OFFICER MOORE: Exactly.

MR. BUCKMAN: (Whispers) Just ask for the next slide and we'll figure it out. Is that all right?

MR. PETRUZZELLI: Okay. So I'll be asking for the next slide.

So okay, good morning. My name is Ken

Petruzzelli. I am an attorney with the Office of Enforcement and represent the Prosecution Team. We are here because the Diverters, Douglas and Heidi Cole and Marble Mountain Ranch, have diverted and continue to divert water in violation of Article 10, Section 2 of the California Constitution and Section 100 of the Water Code, which both provide that water rights are limited to using water that is reasonably necessary for beneficial use and shall never extend to the waste, unreasonable use, unreasonable method of use, or unreasonable method of diverting water. State Board regulations refer to this collectively as the misuse of water. And it's much less of a mouthful.

We request that the Board adopt an order finding the Diverters have misused water and continue to misuse water. We further request that the Board order corrective actions with a time schedule to eliminate the misuse. Next slide.

Marble Mountain Ranch is a commercial guest ranch. They offer activities such as horseback riding, hiking, white water rafting, kayaking, sport shooting and fly fishing. MMR is owned and operated by the family of Douglas and Heidi Cole. During the peak summer season with seasonal staff there may be up to 50 people at the ranch and 500 with a fire crew. The ranch has six

permanent residents. Next slide.

MMR is located at Highway 96 in Somes Bar in Siskiyou County. The POD is located on Stanshaw Creek, a tributary to the Klamath River, about three-quarters of a mile from Highway 96 on U.S. Forest Service property. They divert up to 3 cfs and convey that water through an unlined ditch about a half mile to MMR. There they use water for consumptive uses such as irrigation and domestic use, but mostly for hydropower. The hydropower effluent fills a pond, used for recreation and fire prevention and then discharges to Irving Creek, a downstream tributary to the Klamath River. Next slide, please.

The POD and ditch were originally constructed in the late 1860s. The POD is a handmade rock wing diversion dam. The ditch has a capacity of roughly 3 cfs, but is prone to failure causing severe erosion and discharging pollutants back into Stanshaw Creek.

The POD has no fish screen and operates independent of demand with continuous diversion year-round at the maximum rate possible, but really only limited by the capacity of the ditch. The Diverters can regulate the diversion by restacking the rocks, but this is time and labor intensive. As a result, during low flow periods the Diverters have diverted all or most of

the flow of Stanshaw Creek. The hydropower effluent discharged into Irving Creek causes additional erosion at the outfall.

In addition, the Pelton wheel requires a minimum operating flow. As a result during low flow periods when the Diverters fail to adequately restrict their diversion, they may divert more water than necessary for their consumptive demands, but not enough to operate the Pelton wheel. This unused water flows through the Pelton wheel serving no beneficial use, but nonetheless causes continued erosion at the Irving Creek outfall.

At high flow periods with low occupancy the ranch may divert in excess of its demands, resulting in excess power generation. The diverters claim they need about 3 cfs to support their peak power demands. At lower flows they rely on a diesel generator. Next slide, please.

Stanshaw Creek is a tributary to the Klamath River, which was added to the Wild and Scenic River System in 1982. Next slide, please.

Stanshaw Creek has a short, but significant section of habitat for Coho salmon below the Highway 96 crossing including an off-channel pool located just upstream with its confluence with the Klamath River.

Both juvenile Coho salmon and steelhead have been documented in Stanshaw Creek. This pool is filled by cold Stanshaw Creek water when high flows in the Klamath River subside, creating a high quality summer and winter rearing habitat for non-natal juvenile Coho salmon migrating down the Klamath River corridor.

The Water Quality Control Plan for the north coast region designates Stanshaw Creek as thermal refugia and requires special protections under its thermal refugia protection policy; in addition to other protections required for implementation of water quality objectives for temperature, sediment and other parameters. Next slide, please.

The Diverters divert under a pre-1914 claim of appropriation and a small domestic use registration. The registration is for a pond used for recreation and fire prevention. The two statements cover their pre-1914 claim of appropriation, which originates from an 1867 claim for about 15 cfs for mining, domestic use and irrigation. Since then the original property was subdivided, hydraulic mining ceased and the amount of water put to beneficial use diminished to less than 0.66 cfs.

Starting around 1965, diversion substantially increased to support hydropower. Today, the Diverters

claim 3 cfs. Peak consumptive use has recently been estimated at 0.183 cfs and on supporting a fire camp, 0.235 cfs. The Diverters use the remaining flow for hydropower. Next slide.

In July 2013, Division Enforcement staff received a complaint alleging the Diverters were dewatering Stanshaw Creek and harming public trust resources. In January 2014, Division Enforcement staff received a video documenting similar allegations. This was the video. And no?

HEARING OFFICE MOORE: Videos are always a risk on a state-run system.

MR. PETRUZZELLI: All right.

HEARING OFFICER MOORE: Oh. Though I appreciate it takes preparation to do that.

MR. PETRUZZELLI: If we can play the video, it's a great video. If not, we'll just go on to the next slide.

HEARING OFFICE MOORE: Right. Yeah, technical difficulties.

MR. PETRUZZELLI: Okay. Can we pause it?

HEARING OFFICE MOORE: What does the control room say? Having any -- they're conferring.

We should -- yeah, good. Stop the time, very good.

(Pause in proceedings.)

MR. PETRUZZELLI: And there's sound with the video too.

HEARING OFFICE MOORE: Yeah. You know, that's fine. For others who if you're planning to have videos in your PowerPoint you should probably confer with the audio-visual folks.

MS. IRBY: Was this also submitted as an exhibit?

MR. PETRUZZELLI: Yes.

MS. IRBY: Because we might be able to call it up by its exhibit number

MR. PETRUZZELLI: On -- yeah, it was submitted as an exhibit. If you -- if we go to the exhibit page I can find it. I don't recall the exhibit number off the top of my head.

MS. BRENNER: So just if I could have one moment? I would like to actually object to the use of this video --

COURT REPORTER: I need you to come to a microphone, ma'am. Sorry.

MS. BRENNER: Sure. I would actually object to the use of this video. This is a video that hasn't been authenticated by the Prosecution Team. We objected to it as part of their exhibit list. It's not been taken by

any of the Regional Board or State Water Board staff. It was taken by somebody else and so we don't have -- it hasn't been authenticated.

MR. PETRUZZELLI: Shall the Prosecution Team respond?

HEARING OFFICE MOORE: Yeah. Well, we actually ruled on that, that it was part of the public record on October 31st. So it will be included as part of the overall record, so I shall overrule that. But it is true that it wasn't authenticated.

(Exhibit WR-75: Video playback begins.)

"Here we have Stanshaw Creek above the point of diversion. Here is the point of diversion, the majority of the water going down the diversion ditch, only that which leaks going down the main channel to Stanshaw Creek and then the river. Here we see Stanshaw Creek to the right and the diversion ditch on the left."

"Here we can see the diversion ditch on the left, Stanshaw Creek on the right along with a "no trespassing" sign on Forest Service land. Following the diversion ditch to the actual point of diversion, we see the diversion ditch on the left. I'm sorry, the diversion ditch on the right, Stanshaw Creek on the left, which gets a little bit of water that leaks out of the diversion dam."

"Here we can see the diversion ditch approximately 50 yards from the point of the point of diversion. In the shot, we also see the trail used to maintain the ditch and three large trees that have been cut down to maintain the ditch. These are three of several. Here we have the diversion ditch again and a flume that would be good for measuring flow and one of a few areas where the diversion ditch has caused mudslides into Stanshaw Creek. You see the diversion ditch and repairs made on another mudslide into Stanshaw Creek; another mudslide that hasn't been repaired or shored up."

"Here we see a portion of the diversion ditch that has been worked on with heavy equipment."

"Here we see a pipe historically used to divert water to lands initially claimed by Sam Stanshaw for mining."

"Here is an unused diversion ditch that is near the intersection of Highway 96 and Stanshaw Creek. And here you can see the highway through the trees."

"This is Stanshaw Creek close to where it should be meeting the Klamath River. And here we see Stanshaw Creek forming a pool near its former confluence with the Klamath River. And on the left side of the pool we see an area where the creek should be reaching the river if there was enough water coming down the creek

filling the pool. And there we see the Klamath River."

"This location should be the confluence of Stanshaw Creek and the Klamath River."

(Exhibit WR-75: Video playback ends.)

MR. PETRUZZELLI: Okay. And can we get the PowerPoint back, please?

(Slides uploaded to screen.)

MR. PETRUZZELLI: Thank you. So then in December 2014, Enforcement staff attended a stakeholder meeting in Orleans to discuss a recent water right report and potential grants for the Diverters to improve their diversion works.

At the meeting Enforcement staff were informed of fish kills in the cold water pool. Division staff followed up with NMFS and the Karuk Tribe to learn more about the fish kills, hydrologic conditions in Stanshaw Creek and flows that would be necessary to protect public trust resources. Next slide.

On February 12th, 2015 Enforcement staff from the Division and the Regional Board conducted a site inspection. They observed the POD ditch and Irving Creek outfall as well as other areas. They measured flow at different locations in the ditch system and observed evidence of failures of the ditch and erosion at the Irving Creek outfall. Next slide, please.

NMFS has recommended flows for Stanshaw Creek. The flow recommendation was designed to be protective of Coho salmon by preserving the cold water pool at the confluence of the Klamath River. It applies to all diverters year-round. The instream flow recommendation requires diverters to bypass 90 percent of unimpaired flow. When diversions for hydropower are occurring, diverters may comply with this bypass flow by returning their hydropower tail water back to Stanshaw Creek above the point of anadromy, so long as they bypass 2 cfs at the POD.

In the course of the investigation, Enforcement staff identified two other diverters in the Stanshaw Creek watershed. After consultation with NMFS, MMR was deemed the only diversion of significance.

DFW has stated that the NMFS recommendation is scientifically sound. DFW has also issued a Draft Streambed Alteration Agreement requiring the Diverters to implement the NMFS bypass flow and substantially other measures in the proposed draft order that we'll speak to briefly.

On August 4, 2016 the Regional Board issued a Cleanup and Abatement Order -- the next slide, please -- to address the Diverters water quality violations. Even with the water right, there is never a vested right to

discharge waste. The Diverters filed a petition for reconsideration with the State Board, but the State Board took no action and the Diverters have filed no legal challenges to the CAO. Since issuing the CAO the Regional Board has issued three notices of violation. Next slide, please.

Under Article 10, Section 2 and Water Code Section 100 there is never a right to misuse water or divert more water than reasonably necessary for beneficial use. The doctrine of reasonable use is self-executing. It applies all the time and to all use of water regardless of the basis of right. And it's mutable. What constitutes a reasonable use at one time may, due to changing conditions, constitute a misuse later. Statutes and regulations, like the Frost Protection regulations for the Russian River, can set per se standards of reasonableness. Next slide.

A separate but related doctrine is a Public Trust Doctrine. The protection of recreational and ecological values are among the purposes of public trust. The Public Trust Doctrine prevents any party from acquiring a vested right to divert or use water in a manner harmful to the interests protected by the public trust.

As Trustee, the state must preserve public

trust property from harmful diversions whenever feasible. The Public Trust Doctrine must conform to the Doctrine of Reasonable Use. However, these doctrines interact, because a diversion that is harmful to public trust resources can constitute a misuse of water. Next slide, please.

The State Board has the authority under Article 10, Section 2 to prevent the misuse of water regardless of the basis of right. Under Water Code Section 275 the State Board shall take all appropriate actions to prevent the misuse of water. If an investigation indicates misuse has occurred staff must notify the interested person and allow a reasonable amount of time for that person to either eliminate the misuse or demonstrate that no misuse has occurred.

If, at the end of that time the misuse is continuing, a hearing may be requested. After a hearing, the Board may issue an order requiring the prevention or termination of the misuse. Next slide, please.

This investigation was conducted as part of the State Board's continuing authority to prevent the misuse of water. On December 3rd, 2015 staff notified the Diverters it believed misuse was occurring. The Diverters subsequently proposed a time schedule and milestones to eliminate the misuse by June 30, 2018.

Staff then gave the Diverters until then to eliminate the misuse, but this was two to three years out and the issues with this water right has been continuing for many years. Staff did not want to revisit this in 2018 and see no progress. Instead, they set an interim deadlines based on a time schedule the Diverters proposed and requested a hearing date 90 to 120 days after the first milestone. If the Diverters met the milestone parties could request a postponement. This would avoid further delay in eliminating the misuse. The milestones have not been met. Next slide, please.

So for key issue one -- next slide -- evidence will show misuse has occurred and continues to occur. Evidence will also show the misuse threatens public trust resources. MMR has no diversion measurement compliant with SB 88, which for them requires measurement every hour. They have no fish screen. The ditch failures discharge waste into Stanshaw Creek. Hydropower effluent and sediment discharge in to Irving Creek. The Diverters cannot reasonably regulate their diversion to ensure all the water they divert is put to beneficial use. And neither can they regulate their diversion to avoid harming public trust resources. Next slide, please.

For key issue two -- next slide -- the Draft Order recommends a variety of corrective actions, so the

Diverters can adequately control their diversion and avoid impacting public trust resources. The Draft Order also recommends actions to bring the Diverters into compliance with diversion measurement and reporting requirements. Next slide, please.

The other part of key issue two is whether an order should coordinate with requirements in the CAO. It must. The CAO is a final order. Its findings, time schedule, and corrective actions are no longer subject to review or judicial challenge. Evaluating compliance with the CAO and enforcing the CAO should be left to the Regional Board. If the State Water Board issues an implementation time schedule for corrective actions it must coordinate with the CAO to avoid imposing inconsistent obligations on the Diverters. The Division and the Regional Board have worked together to coordinate their enforcement efforts on MMR since beginning the current enforcement action, because we believed that by coordinating we could maximize the effectiveness of our respective authorities and areas of expertise for stronger, more effective, and more timely enforcement.

Coordination and cooperation extended to NMFS, DFW and the Karuk Tribe. To our knowledge, this level of coordination and cooperation is unprecedented in Water Board enforcement. We ask that you take the same

approach today. Thank you.

HEARING OFFICE MOORE: Thank you, Mr. Petruzzelli.

At this time, there's still some time left as we discussed. On our sequence of orderly proceedings next will be the Prosecution Team's direct testimony of Joey Howard. And we've budgeted 20 minutes for this.

MR. PETRUZZELLI: So the Prosecution Team was planning on -- we were budgeting 50 minutes for our remaining witnesses. So I'm trying to keep Mr. Howard pretty brief. And I'd like to reserve my remaining -- I believe I'm allowed to reserve my remaining time in my opening statement for that?

HEARING OFFICE MOORE: Yes, you may. Thanks.

JEAN MCCUE: Are you asking for less than 20 minutes on the clock to . . . ?

MR. PETRUZZELLI: So I want to be sure, because I know that my remaining witnesses are roughly 50 minutes. So I'm trying to keep Joey -- so to stay within the total for our hour I'd like to keep Joey at 10. He's an adverse witness even though he's a very nice gentleman.

(Laughter)

MR. PETRUZZELLI: So I may need a little latitude with him. I'll ask for that if I need it, just

for some of the people here who don't necessarily understand the technical description of an adverse witness.

HEARING OFFICE MOORE: Okay. We'll put 10 minutes on the timer.

DIRECT EXAMINATION BY

MR. PETRUZZELLI: So Mr. Howard, starting out I'd like to ask you about some of your professional background. Can you state your name, please?

WITNESS HOWARD: My name is Leonard Joseph Howard.

MR. PETRUZZELLI: Okay. And are you the principal for Cascades Stream Solutions, LLC?

WITNESS HOWARD: I am

MR. PETRUZZELLI: And can you state the address for that business, please?

WITNESS HOWARD: 2704 Clay Creek Way, Ashland, Oregon, 97520.

MR. PETRUZZELLI: Okay. And can you briefly summarize your education and training?

WITNESS HOWARD: I have a bachelor's degree in civil engineering from UC Irvine. I have a master's degree from UC Davis. My master's work was river engineering and fluvial geomorphology.

MR. PETRUZZELLI: Okay. Do you have any

professional licenses and can you state those?

WITNESS HOWARD: I am registered as a professional engineer in both Oregon and California. And I've held those licenses for over 20 years now.

MR. PETRUZZELLI: Okay. Thank you. And is it correct that you primarily perform engineering services for, you know, restoration projects?

WITNESS HOWARD: Correct. Fish passage and fish screen and restoration, yes.

MR. PETRUZZELLI: Okay. Thank you. So and did you perform -- do you perform a significant amount of work in the MMR region?

WITNESS HOWARD: I do. I would say about 50 percent of my projects are within Siskiyou County.

MR. PETRUZZELLI: Okay. And have you been out to MMR?

WITNESS HOWARD: Yes, I have.

MR. PETRUZZELLI: Okay. And about how many times?

WITNESS HOWARD: I don't know this, the exact number, but I believe I've been out there about five times.

MR. PETRUZZELLI: Okay. So, roughly total how much time would you estimate?

WITNESS HOWARD: I spent the night out there

one night, so worked -- I would say that probably on the ground I would guess that I've been out there for over 20 hours.

MR. PETRUZZELLI: Okay. So I'd like to ask you about the Cascade Stream Solution's technical report. It's Exhibit 82 from the Prosecution Team and could we cue that up?

(Exhibit WR-82 displayed on screen.)

MR. PETRUZZELLI: So did you prepare this report?

WITNESS HOWARD: Yes, sir.

MR. PETRUZZELLI: And what was the purpose of this report?

WITNESS HOWARD: It was to assist Martha Lennihan as part of a Coho enhancement grant that was executed through the Mid Klamath Watershed Council. And we were trying to identify the amount of water that was currently being put to beneficial use.

MR. PETRUZZELLI: And was also a part of the purpose of this water right report to identify a water right to then support additional grant fundings that the Coles could use to improve their diversion works?

WITNESS HOWARD: Yes, sir.

MR. PETRUZZELLI: Okay. And what were some of the sources of information for your report?

WITNESS HOWARD: There were numerous sources. They --

MR. PETRUZZELLI: I'll be -- actually, I apologize. I'll be a little briefer. Did a substantial amount of the information for the report come from Mr. Cole or people associated with Mr. Cole?

WITNESS HOWARD: Correct.

MR. PETRUZZELLI: Okay. So in the report, you -- I think this is your exact statement. It's on page 6. You state that the amount diverted typically varies with available stream flow, independent of demand. What do you mean by that?

WITNESS HOWARD: I meant that to my understanding from Mr. Cole, they maintain the diversion dam. During high winter flows, they may try to take the dam down, so that there is not substantial flow going down the ditch and damaging it. But otherwise, they would maintain that dam in place and it would divert for the most part all the flow that did not over top or seep through.

MR. PETRUZZELLI: Okay. So if they had less demand they didn't just turn a switch and lower their diversion?

WITNESS HOWARD: Correct.

MR. PETRUZZELLI: They just had one --

WITNESS HOWARD: To the best of my knowledge, correct. That is correct.

MR. PETRUZZELLI: So and I'd like to ask you about their hydropower diversion too. Do they measure their power generation?

WITNESS HOWARD: To the best of my knowledge, no.

MR. PETRUZZELLI: Okay. Do they measure their power consumption?

WITNESS HOWARD: To the best of my knowledge, no.

MR. PETRUZZELLI: Okay. Does -- and they operate -- they generate power with a Pelton wheel?

WITNESS HOWARD: Correct.

MR. PETRUZZELLI: Okay. Does a Pelton wheel have a minimum operating threshold?

WITNESS HOWARD: It's my belief that it does.

MR. PETRUZZELLI: Okay. Do you know roughly what it is?

WITNESS HOWARD: No, I don't. But I believe that it's probably about 20 kilowatts.

MR. PETRUZZELLI: Okay. Do you know what -- roughly what the minimum flow is to operate that?

WITNESS HOWARD: My understanding was that it requires approximately -- and I might have this number

off by a few tenths, but about 2.3 to 2.5 cfs to provide enough power to operate the ranch when there are guests present.

MR. PETRUZZELLI: Okay. And when they have lower power demands do they, say restrict their diversion to limit generation to what they actually need at that time?

WITNESS HOWARD: It's my understanding that when they have a lower -- when they have a lower demand they burn the -- they generate heat with the water to burn off that extra energy.

MR. PETRUZZELLI: Okay. So since they have difficulty regulating their diversion, when you were out doing your visits did you ever observe them diverting more than they needed for their use at the time, but less than the operating threshold of the Pelton wheel?

WITNESS HOWARD: I did. On one visit they were running their diesel generator. And so they were diverting, I guess the amount of water, but it wasn't sufficient to power their operations. So at the time they were unable both generate power and combine the power with the diesel generator with the hydropower, if that makes sense. And so it's a binary system in the sense that if there's not sufficient hydropower then they no longer run the hydropower and they just run the diesel

generator. They were diverting water for both consumptive use for domestic and for other uses and feeding their pond. And the excess water was going to Stanshaw Creek and they were not generating.

MR. PETRUZZELLI: So was the excess water going to Stanshaw Creek or Irving Creek?

WITNESS HOWARD: Oh, I'm sorry, thank you for correcting me. Irving.

MR. PETRUZZELLI: Okay. So it's not an interconnected system?

WITNESS HOWARD: The return flows do not return --

MR. PETRUZZELLI: So I mean, the power system is not interconnected?

WITNESS HOWARD: That's if -- by that they are separate systems where you can only have one source of generation, power generation.

MR. PETRUZZELLI: Yeah, and I'd like to ask you about the quote from the electrician. I think it's Exhibit WR-157 on Page 84. Do you recall whether this would have been an interconnected system?

WITNESS HOWARD: I'm sorry; I don't know how to respond to this. Oh, about Pavel's?

MR. PETRUZZELLI: Yes.

WITNESS HOWARD: Okay. So my understanding,

and I guess I'm not sure I'm using the proper definition of interconnected although I can see it right there, is that we were -- at the time what we were trying to do is to combine the power sources, so that you could use both sources at the same time and add that to the grid.

MR. PETRUZZELLI: Right. So it would operate together with the hydro and solar, the battery and the propane generator?

WITNESS HOWARD: Yes, sir.

MR. PETRUZZELLI: Yeah. And would this type of system probably allow them to divert water at a lower overall rate and still meet their power demands?

WITNESS HOWARD: Yes. That was the point of that.

MR. PETRUZZELLI: Okay. Moving on, I'd like to ask you about the six-inch pipe project. Do you recall this project?

WITNESS HOWARD: Yes, sir.

MR. PETRUZZELLI: Okay. And did you perform engineering work for that project?

WITNESS HOWARD: Yes, sir.

MR. PETRUZZELLI: Okay. And is it correct that the six-inch pipe size was chosen, because it was considered sufficient for their consumptive use demands?

WITNESS HOWARD: That's correct.

MR. PETRUZZELLI: Okay, but not their hydropower?

WITNESS HOWARD: That is correct.

MR. PETRUZZELLI: Okay. And this would have been funded through a grant?

WITNESS HOWARD: Yes, sir.

MR. PETRUZZELLI: Okay.

WITNESS HOWARD: It was funded. To the best of my knowledge, it was funded. And then we pulled the grant.

MR. PETRUZZELLI: Okay. And I'd like to ask you about the construction characteristics of the pipe. Would it have included a fish screen?

WITNESS HOWARD: Yes. We did have a passive fish screen.

MR. PETRUZZELLI: Okay. And a diversion control mechanism?

WITNESS HOWARD: Yes, sir.

MR. PETRUZZELLI: Okay. And could this mechanism have been controlled remotely from the ranch?

WITNESS HOWARD: The mechanism, as we had devised it, was not. It was a manual valve.

MR. PETRUZZELLI: Okay. So they actually would have had to go out and --

WITNESS HOWARD: And turn it on, turn it off.

MR. PETRUZZELLI: Okay. And did you refine the consumptive use estimates for the six-inch pipe from what you did in the initial Cascades Streams Solutions Report that was done for the Lennihan's?

WITNESS HOWARD: I did. I worked with -- yes, I did.

MR. PETRUZZELLI: Okay. And I'd like to ask you about exhibit -- and that's reflected in -- and that was through correspondence with Mr. Skyler Anderson?

WITNESS HOWARD: Yes, sir.

MR. PETRUZZELLI: Okay. I'd like to ask you about WR-177. Actually I see we're --

HEARING OFFICE MOORE: Yeah. We're right at ten minutes now.

MR. PETRUZZELLI: Okay. I'd like just a moment.

HEARING OFFICE MOORE: Okay.

MR. PETRUZZELLI: Do you recall the revised numbers for this demand calculation, was it roughly --

MS. WEAVER: We'll reset the clock.

MR. PETRUZZELLI: Okay.

MS. WEAVER: And then keep going.

MR. PETRUZZELLI: Okay.

MS. WEAVER: Do you want five minutes?

MR. PETRUZZELLI: I'd only like maybe a couple

of minutes.

MS. WEAVER: Okay, so two.

(Pause to set timer.)

MR. PETRUZZELLI: Okay. So and do you recall that the number for consumptive use, peak use, under normal conditions was roughly 0.183 cfs?

WITNESS HOWARD: Yes, sir.

MR. PETRUZZELLI: And if they were hosting a fire crew, 0.235?

WITNESS HOWARD: Yes, sir.

MR. PETRUZZELLI: And that was consumptive uses: domestic, irrigation?

WITNESS HOWARD: That's correct.

MR. PETRUZZELLI: Okay. And for peak use? Peak use, so summer season probably.

WITNESS HOWARD: Yes.

MR. PETRUZZELLI: Okay. So would a smaller pipe than six inches have been sufficient for this demand?

WITNESS HOWARD: In my opinion, it would be problematic, because you could get that flow through there, but it would require allowing -- this can get difficult, but it's a siphon effect through the pipe. And in that setting, I think that that would be extremely challenging and not fair to the water user.

MR. PETRUZZELLI: So was this for the 0.18 -- 0.235 amount?

WITNESS HOWARD: Yes, sir.

MR. PETRUZZELLI: Or for the amount that it was revised from?

WITNESS HOWARD: It was for the -- we could have gotten the higher amount of about a quarter cfs through that.

MR. PETRUZZELLI: Okay. All right, so that's -- those are my questions for Mr. Howard.

HEARING OFFICE MOORE: Okay. And we want to allow then cross-examination. Is that right? Yeah, so it's the next step. So I want to afford the Marble Mountain Ranch the opportunity to cross-examine the witness.

MS. BRENNER: Good morning.

HEARING OFFICE MOORE: All right, good morning. We're going to switch your name tag out there.

(Laughter.)

MR. PETRUZZELLI: I didn't even know it was there.

HEARING OFFICE MOORE: We run a tight ship. All right, very good.

MS. BRENNER: Thank you.

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CROSS-EXAMINATION BY

MS. BRENNER: Thank you. Okay, good morning. Hi, Joey.

WITNESS HOWARD: Hello.

MS. BRENNER: Joey, when you first came to Marble Mountain Ranch was (sic) the Coles working cooperatively with you?

WITNESS HOWARD: Yes.

WITNESS HOWARD: When did you visit Marble Mountain Ranch?

WITNESS HOWARD: I don't recall the exact dates, but I believe the first time was about 2014.

MS. BRENNER: And they -- do you remember each time period, do you remember -- can you give me just some time sense of when you were there the dates or at least some sense of the time periods?

WITNESS HOWARD: Okay. I went during their off season, so they didn't have guests. I believe I went probably in the spring and the fall. And --

MS. BRENNER: Of 2014?

WITNESS HOWARD: Of 2014. I also had attended, I believe in 2015, before I stopped working on the physical solutions. And I had gone there another time to do a survey. We did a profile of the ditch, so I apologize. I don't have a --

MS. BRENNER: And each time you were there, the Coles cooperated with you?

WITNESS HOWARD: Yes, ma'am.

MS. BRENNER: Answered all your questions?

WITNESS HOWARD: Yes.

MS. BRENNER: Provided any information you needed?

WITNESS HOWARD: To the best of their ability, yes.

MS. BRENNER: Did the -- did you participate in the stakeholder process that was ongoing from over 20 years?

WITNESS HOWARD: I did.

MS. BRENNER: Did the Coles participate in that process as well?

WITNESS HOWARD: Yes.

MS. BRENNER: Voluntarily came to the meetings?

WITNESS HOWARD: To the best of my knowledge, yes.

MS. BRENNER: Was there ever a physical solution concluded by the stakeholder process?

WITNESS HOWARD: At one time, Will Harling, of Mid Klamath Watershed Council and I worked together. We developed a six-inch pipe solution that was -- it was debatable as to whether it was going to be the end

solution or not. But we did come up with a measure and then the scope changed or continued to change and I left the project.

MS. BRENNER: Did that six-inch pipe -- it was grant funded, correct?

WITNESS HOWARD: That was correct.

MS. BRENNER: And what were the conditions on that grant funding, do you recall?

WITNESS HOWARD: I don't recall all the conditions, but I believe that locked the Marble Mountain Ranch into -- that would all -- all that would be paid for was the six-inch pipe and that if they wanted -- I don't -- I think they might have had to give up their right to divert additional water for power or install additional pipe. But I could be mistaken about that.

MS. BRENNER: So is your best recollection that the grant funding was contingent upon the Coles giving up a majority of their water right?

WITNESS HOWARD: It was my understanding that they were going to be putting water to beneficial use and consumptive use and no longer diverting the amount that they were using for hydropower. Whether that's giving up their water right or not, that's for others to decide.

MS. BRENNER: Okay. But that was certainly a contingency?

WITNESS HOWARD: That was my understanding. But again, I'm just the guy who calculates things.

MS. BRENNER: (Laughter.) Do you have any idea, a rough estimate for the costs associated with the permitting, design and construction work for the return of water use for hydroelectric power generation back to Stanshaw Creek?

WITNESS HOWARD: We looked at it and just did rough numbers. But it was quite expensive, because it dealt with putting water down a Caltrans right-of-way that also had a fiber-optic line and had bedrock. And so it wouldn't be surprising to see that it was in excess of several hundred thousand dollars, probably a minimum of $500,000.

MS. BRENNER: And it wouldn't be surprising it'd be in excess of $1 million?

WITNESS HOWARD: I -- that would seem -- I don't have the information to say, but it could be that much I guess.

MS. BRENNER: Why did you leave the project?

WITNESS HOWARD: I work on -- I did not feel like the project was meeting the intent of the grant, which was to provide a mutually beneficial solution that would assist the habitat needs as defined by others and the needs of Marble Mountain Ranch. And so I terminated

my contract and I did not accept any money for any of the work that I did following my work with Martha Lennihan.

MS. BRENNER: Did you review the Regional Board's Cleanup and Abatement Order at some point?

WITNESS HOWARD: I did.

MS. BRENNER: Did you find it possible to comply with that order?

WITNESS HOWARD: Given the conditions and the money that we had to deal with I did not see a way that I could assist with that.

MS. BRENNER: Are you aware of any release of the diverted water off the ditch and back into Stanshaw Creek, as part of the ditch system?

WITNESS HOWARD: Yes. There are areas where water returns.

MS. BRENNER: Did you ever measure the Pelton wheel capacity?

WITNESS HOWARD: I did not take a physical measurement of the Pelton wheel capacity. I did measure the ditch flow with Mr. Cole while the Pelton wheel was operating. And I believe we measured it to be slightly over 2.5 cfs.

MS. BRENNER: Okay. Did you have any idea of the cost of creating the interconnected energy system that was described earlier by you?

WITNESS HOWARD: I did see estimates from Pavel, he's an -- his company's called The Electrician. And then I also saw one by a gentleman by the name of -- with the first name Hal, but I forget his last name. And in general those estimates were in the order of about 500,000 or more.

MS. BRENNER: 500,000 or more?

WITNESS HOWARD: Yeah, about there.

MS. BRENNER: I don't have anything further.

HEARING OFFICE MOORE: All right. Thank you, Counselor.

Next for cross-examination with the National Marine Fisheries Service. Do you have any questions for the witness?

MR. KEIFER: No questions.

HEARING OFFICE MOORE: Thank you.

Next, California Department of Fish and Wildlife.

MR. PUCCINI: No questions, thank you.

HEARING OFFICE MOORE: Thank you.

Karuk Tribe?

MR. HUNT: No questions.

HEARING OFFICE MOORE: Thank you.

Old Man River Trust?

MR. FISHER: (Indiscernible)

HEARING OFFICE MOORE: Yes. Please approach the bench and then we'll switch out the name plate.

CROSS-EXAMINATION BY

MR. FISHER: Thank you, Joey. I just want to reaffirm you did not -- did you or did you not calculate electricity needs and consumption in your report?

WITNESS HOWARD: I calculated the potential to generate power. However, there are some -- and stop me if I'm going too far into this, but there's a couple of things. One is there is just a basic calculation where you can assume efficiencies for a Pelton wheel, but there's also things in terms of the grid and the efficiency of the grid. By the way, I'm not an electrical engineer. I can calculate hydropower, but in terms of the electrical stuff, that is beyond my expertise.

MR. FISHER: Okay. So like home power needs or the needs to meet specific needs in specific buildings, you did not.

WITNESS HOWARD: I did not. We did make an estimate of those; however, it's also the efficiency of the grid that was commented by other professionals that limited, so basically, you would lose power through that system.

MR. FISHER: Okay. And you just said, "We did

make an estimate of those," when I was referring to uses in home, was that -- who was we?

WITNESS HOWARD: "We" was Will and I believe Pavel and I, we made an estimate. We didn't publish any of that. We didn't report on that.

MR. FISHER: Okay. And was your evaluation confined to systems that rely on the current point of diversion, or did you evaluate alternatives such as hydro systems that use more head on a higher point of diversion or such as solar, or was it limited to current point of diversion?

WITNESS HOWARD: It was -- the short answer is that it was limited to the -- well, the power consumption, how much power was independent of the source of the power. However, you had requested that we look at if we moved the point of diversion upstream, so that we could generate more head. And we -- I looked at it and I respectfully thought that it would be too challenging. Not to say that it wouldn't be, but in my opinion it was too challenging due to the nature of the stream and the fact that we would have to cut in a new route for that water or for that line to go.

MR. FISHER: So you ruled that option out?

WITNESS HOWARD: We did rule that option out. Yes.

MR. FISHER: Based on having to cut out the hillside, based on --

WITNESS HOWARD: Based on a few things. One is that, that stream in my opinion is subject to debris flows. And so moving up in the system it would be an expensive to do was one. Two, there was some permitting issues with the Forest Service that -- I'm not involved in the permitting, but it was relayed to me by others that that would be a challenge. And then we would have to find a place to put that, a line, and we would have to somehow get that line down the steep canyon.

MR. FISHER: Okay. For the solution you did evaluate would you not also -- wouldn't you have also had to obtain permitting and put a line and kind of a lot of those same things?

WITNESS HOWARD: It -- again I'm not an expert on permitting. I just provide support. So it was my understanding at the time, and I could be wrong, was that basically they already had a right. So the permits were really mainly based on erosion control, best management practice permits. There was a 1600 permit that involves alteration to stream bed or bank and some other issues. But the path to permitting as I understood it, and again I could be mistaken, was going to be simplified by using the current point of diversion.

MR. FISHER: Okay. So we've established that you ruled out a higher point of diversion. How about solar, did you evaluate solar potential?

WITNESS HOWARD: That was part of -- was going to be part of the solution. That I terminated my contract, so basically I wasn't paid. And I did not issue any documents with my stamp on them associated with that. But we were looking at that and that was basically what we were planning on doing.

MR. FISHER: Okay. So you were planning to evaluate maybe a stand-alone solar or just integrated with hydro solar?

WITNESS HOWARD: At the time, based on what I understood we could do without returning flow back to Stanshaw, it was going to be primarily stand-alone solar.

MR. FISHER: Okay. And the final question, who --

WITNESS HOWARD: May I correct that for a moment?

MR. FISHER: Yes, of course. Go ahead.

WITNESS HOWARD: So there would be other sources too, like a propane generator and some other things. But there would be no hydropower in that.

MR. FISHER: Thank you. And in this huge process who determined what questions you answered?

WITNESS HOWARD: That's one of the reasons why I terminated the contract is it became difficult to understand what our objective was going to be and who was defining that. So originally, I believe we were trying to work cooperatively with both the Coles as well as the state and then with some direction from Mid Klamath Watershed Council.

MR. FISHER: Thank you, Joey.

WITNESS HOWARD: You're welcome.

HEARING OFFICE MOORE: Okay. Thank you.

Next, does Klamath Riverkeeper have any questions? Maybe they're not here. And CSPA?

MR. SHUTES: No questions, thank you.

HEARING OFFICE MOORE: Thank you.

And Pacific Coast Federation of Fishermen's Associations? No.

Okay. At this point, I wanted to ask Counsel, do you have any redirect testimony you would request from the Prosecution Team?

MR. PETRUZZELLI: No, we don’t.

HEARING OFFICE MOORE: And offer anyone to do recross?

(Multiple parties "no".)

HEARING OFFICER MOORE: Marble Mountain, no. Okay, because there's no redirect, so thank you.

Okay. Good. Well, we seem to be doing pretty well on schedule. I'm going propose that we keep moving and that we would have Marble Mountain Ranch's opening statement. Also, as part of our scheduling work, we're going to have direct testimony from Steve Cramer, as part of this. And so it would be first your opening statement as the Prosecution Team had done and then we'll have Mr. Cramer come.

So Mr. Howard, thank you. Yes, you may go, appreciate it. Thank you for traveling.

And so Ms. Brenner, please --

MS. BRENNER: Just make one suggestion?

HEARING OFFICE MOORE: Sure.

MS. BRENNER: I know that you don't want to change the schedule --

COURT REPORTER: Can you please get to the microphone before you talk, so we can get it on the record? Thank you.

MS. BRENNER: Sure. I figure my voice is pretty loud.

Could I just make one suggestion? I appreciate that you've been very cooperative and willing to work with us on our scheduling, but I'm just wondering whether Prosecution doesn't want to put up another witness before I start. You've got 35 minutes.

MR. PETRUZZELLI: I --

MS. BRENNER: No? I mean, I'm just making a suggestion. I don't care.

MR. PETRUZZELLI: Well, I'm just debating whether or not I should go to the next witness.

HEARING OFFICE MOORE: Yeah. It's okay if you need a break to get ready too.

MS. BRENNER: No, I'm fine.

HEARING OFFICE MOORE: Oh, okay.

Okay. Mr. Petruzzelli?

MR. PETRUZZELLI: No. The preference for the Prosecution Team would be to present all of our witnesses together. So --

HEARING OFFICE MOORE: Okay.

MR. PETRUZZELLI: Yeah.

HEARING OFFICER MOORE: So --

MR. PETRUZZELLI: It's ruled on.

MS. BRENNER: That's fine.

HEARING OFFICE MOORE: Okay. So we'll just continue with the proposed schedule.

MR. PETRUZZELLI: We resigned ourselves to the proposed schedule.

(Laughter.)

HEARING OFFICE MOORE: Thank you for working with the Hearing Team.

MS. BRENNER: Yeah. I'm going to make a very brief opening statement and would like to reserve the additional time for witness testimony. I think that'll be more effective in this particular hearing.

HEARING OFFICE MOORE: Yes. Yes, you may.

MR. PETRUZZELLI: Oh, just one more thing?

HEARING OFFICER MOORE: Oh. You okay, Mr. Petruzzelli?

Stop the time, please.

MR. PETRUZZELLI: We'd like to verify that Mr. Howard is now done, so that he may leave?

MS. BRENNER: Yeah.

HEARING OFFICE MOORE: Yes.

MR. PETRUZZELLI: Okay.

HEARING OFFICE MOORE: Thank you, safe travels.

Okay. So are we ready?

MS. BRENNER: Ready.

HEARING OFFICE MOORE: Okay. Thank you, your opening statement.

MS. BRENNER: So as I indicated, I'll make a very brief opening statement.

The basic facts of the Stanshaw Creek system, and the fishery resources that the Marble Mountain diversion affects is pretty straightforward. You'll find it in both the fishery agencies, the state and federal

fishery agencies, as well as Mr. Cramer's testimony as well as some tribe testimony, we know pretty much how the system works and what benefits or lack of benefits there are in this particular pool. And just suffice to say that Marble Mountain diversion has not had any significant effect on the resources in the Stanshaw system. That's what we think the evidence will show. And that evidence again is not just the Coles' evidence, but it's actually the fisheries' evidence that helps, the fish agencies' evidence that helps establish that fact.

And so when you're talking about the public trust doctrine, we're talking about actual harm, preventing actual harm. Not benefitting the fishery resources. And we suggest that what's going on here is an attempt to benefit the fishery resources on the back of one diverter, to the extent that it will put the one diverter out of business given the current recommendation on the bypass flow.

The clearest evidence of the fact is the NMFS 2012 to 2013 assessment of the Stanshaw pool. The Coles were diverting their full 3 cfs at that time and returning the non-consumptive use to Irving Creek, so they were not returning that non-consumptive use to Stanshaw yet the conclusions of the NMFS study was the fishery resources at that time were quite well. They

were healthy and robust. And that's their fish report.

The technical data also supports the conclusions that Stanshaw Creek is not suitable habitat to Coho to spawn. So we're limited in the amount -- the type of habitat that this actually provides. And that's an important fact. Nobody's disputing that fact. None of the fishery biologists are disputing that basic fact.

The floodplain pool off the stream of the Klamath River near Stanshaw Creek is not naturally sustainable and requires significant human intervention to redirect the flow to the pool during low-flow periods, even when the Cole's limit their diversion to their domestic and consumptive use. The bypass flow of a 1 to 2 cfs without returning that flow to Stanshaw Creek is sufficient to provide the habitat for the minimal use of the floodplain pool at Stanshaw Creek.

The cost to return the non-consumptive use of the water is prohibitive. We just heard testimony in excess of a half a million dollars, at a minimum. Permitting alone for that project could easily reach half a million, based on our assessment. At least 250,000 just for the permitting of the return flow. That's not talking the construction or anything else to build basically three-quarters of a mile of pipeline.

Without a direct showing of the benefit or

removal of harm gained by returning the flow to Stanshaw Creek, there's no practical nor legal basis to require such an effort.

The Coles are pegged as the bad actors in this case. To the contrary the evidence will establish that the Coles have been cooperating for over 20 years with the stakeholder group improving their ditch system, preventing ditch failures, replacing the World War II Pelton wheel, replacing the electrical system, and going from flood irrigation to a piped irrigation system. These and other improvements have been made to decrease power and water demands.

These efforts have come at a very high cost, both financially and emotionally. The Coles have spent nearly $1 million on improving the system and defending their water right. They've upgraded and improved both the water and the electrical systems and complied with regulatory requirements. The emotional stress on not knowing what is coming next, and from what agency, has been tremendous. It's taken a major toll on the Coles, their family and their extended family. Mrs. Cole has suffered from cancer and other health issues that the doctors have all said is directly caused by stress.

Since 2015, the Coles have voluntary decreased their flows, their diversion, to consumptive use needs

only during low-flow periods. So during the drought years, the dry weather flows, the Coles in fact did decrease their use. They didn't use their hydro system. And they used diesel power to power their system. In the last couple of years they have voluntarily done just diesel. In order to get through the permitting process they've asked for permits to divert into Irving Creek. There's been no response. The 1600 permit's been held up for this process. They've really been a stranglehold with the permitting process, all weighing on a determination as to their ability to use their hydropower 3 cfs.

So when we say that they're that bad actors since 2014 and we've had all these investigations, they've done nothing. In fact, before 2014 they've done quite a bit. Since the issuance of the order and some of these other regulatory activities they've been hamstrung. They haven't been able to even get a response on the discharge permit and as indicated in the record, the 1600 permit's on hold.

It's all focused on whether we can afford, or whether it's practical, whether it's necessary, to have return flow. Instead of going to Irving Creek we should return the flow at a cost of over a million, we would estimate, and for very little if any benefit, based on

our evidence. So this is -- this seems to be the core issue in this hearing. When you hear ides about solar and diesel and interconnected and more efficient energy system or electrical system, when you start digging into each one of those alternatives the interconnected system, half a million dollars; return flow, at least another half a million dollars. That's not counting the cost to actually put in the piped diversion and some sort of culverting or other physical solution to the top end of the diversion ditch, in order to have a metering system in place.

The Coles have agreed to do that. They've already agreed to do that. They've agreed to 1 to 2 cfs bypass flow. They've agreed to no -- only consumptive use when there's not adequate water flow for hydropower. The question is what else? They can't afford every single option that's being presented to them and required of them. And they certainly can't afford to return the flow from the Stanshaw from -- or from Stanshaw back to Stanshaw. The system's been used for years to go into Irving. The proposal to shore up the Irving outflow has been presented for over a year, close to two years, in order to make that a sufficient system. And ensure that there's no sediment entering into the Klamath or into Irving for that matter. Irving's a viable system. It

too has fishery resources.

There's simply no basis to find the Coles are wasting or unreasonably using their pre-1914 water right to divert up to 3 cfs from Stanshaw Creek. And there's certainly no evidence in the hearing that the public resources have been harmed by the diversions by the Coles, over the years. And we will establish that during this hearing. Thank you.

HEARING OFFICE MOORE: Thank you.

At this time can we call up Mr. Cramer? Thank you. So we will conduct direct testimony from Steve Cramer followed by any cross-examination in the order I previously identified. Redirect and recross examination of the witnesses may then be permitted.

And so when you're ready, would you please stand and raise your right hand, Mr. Cramer.

STEVEN P. CRAMER

called as a witness by the Diverters, having been previously duly sworn, was examined and testified further as hereinafter set forth:

WITNESS CRAMER: Yes. I do.

HEARING OFFICER MOORE: Thank you. You may be seated.

Counsel, you may proceed. Thank you.

MS. BRENNER: Thank you.

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DIRECT EXAMINATION BY

MS. BRENNER: Can you please state your name and address for the record?

WITNESS CRAMER: Steven P. Cramer. My address is 300 Southeast Arrow Creek Lane, Gresham, Oregon, 97080.

MS. BRENNER: And can you briefly describe your technical background, your education?

WITNESS CRAMER: I have a master's of science, a master's of fish biology degree, 1974. I began my career then. That's by calculation 43 years I've been a practicing fishery scientist. My first 13 to 14 years was with the Oregon Department of Fish and Wildlife. I led research on the Rogue River, a very -- a watershed similar to that of the Klamath. In fact, I collaborated with the Klamath team. After those 13 to 14 years with the Oregon Department of Fish and Wildlife I, in 1987 launched my own consulting firm. So that's now been in operation 30 years: offices in California, Oregon, Washington and Idaho.

Our focus has been on understanding how people's actions impact fish resources. So we've looked at all kinds of environmental effects on the fish, what is the population dynamics of the fish, frequently do

population modeling and have in the past done a number of projects on the Klamath Basin. Probably the -- well, the largest and most noticeable in the Klamath Basin was for the Bureau of Reclamation in the mid-2000s -- I think it was 2000, perhaps like 8, 9, 10s; I may have those years wrong, but they're approximately right -- where we did population modeling for Coho salmon in the Klamath Basin including all of its tributaries and all the known places where the Coho were propagated naturally. So in that case, we were putting together a jigsaw puzzle of the existing information that existed. No one else had done that before. So that we could predict how operation of the water system within the Klamath Basin would affect Coho and what other kinds of things could be done to improve that run.

MS. BRENNER: Thank you. Were you asked to assist the Marble Mountain Ranch with the allegations against them with regard to their diversion of water from Stanshaw Creek?

WITNESS CRAMER: I was requested by Marble Mountain Ranch to identify what the fishery values were of the Stanshaw Creek and how that might be affected by their water use.

MS. BRENNER: And did you put a PowerPoint summary of your testimony together for today's hearing?

WITNESS CRAMER: I have.

MS. BRENNER: And can we just -- well, go ahead and let him walk through his PowerPoint? Would that be more efficient, I believe.

HEARING OFFICE MOORE: Yes. I'll allow that. Thank you.

(Slides uploaded to screen.)

WITNESS CRAMER: Okay. First of all, let me just introduce what the -- evaluation process that I went through. I have submitted two reports already that were in my written testimony.

First one, I reviewed all the available information on Stanshaw Creek that was in the correspondence to Marble Mountain Ranch and that was limited in extent. And then I gathered what reports I could from the Internet and whatever resources I already had available. And I completed a report that I turned in on September 29th. And I'm not exactly sure when that had to be submitted to the Board, but that was submitted.

Subsequent to that, and at the time we made that report I had proposed that I would do a survey of the stream, so I could look at the actual features of the stream and determine how they might influence fish production. And so we did do that stream survey on October 3rd. And then I completed a report analyzing

that data that was submitted on October 30th. So now both -- I believe those are both in your possession.

Stream assessments, first of all let me just tell you -- well here's a four-step process. First of all, we wanted to look at the impediments to upstream passage, because we wanted to know could fish get up the creek. We wanted to look at the suitable patches of spawning gravel. Is it a place where fish could actually spawn and reproduce naturally? This is in the creek. What's the rearing capacity for salmonids? And we wanted to identify where we could establish a point to monitor how the depth and velocity of the stream would change as flow changed.

In doing that, I recognized first of all that there was rules of thumb that had been applied to how much water should be diverted. And that that rule of thumb is often used when there is no data. And so the idea was this data of an actual stream survey and measuring these things would give a means to calculate what a more appropriate number is. When you use a rule of thumb like 10 percent is the amount diverted, that is broadly sited and has a basis, it's an extremely conservative choice of how much could be diverted, because it has to apply to any circumstance. But there is uniform agreement in the fisheries' literature that

cite specific circumstances are the right way to determine what a stream would need to have in its course in order to sustain fisheries' values. So rule of thumb is only what you use if you don't have any data.

So first of all, I'm going to talk about stream barriers that we looked for. You can measure the heighth and the lateral distance that a fish has to jump, and also measure the depth of the pool it must jump from to determine if it's a passable barrier. It's not an absolute value unless it is an extremely high jump, but it is a very reliable means to say probability that fish would be able to pass that spot. So what I've done here is I've listed nine locations in this slide that are the locations where we found a barrier. I'll show you a couple of pictures of them that were likely to be a barrier. And we measured the heighth, the lateral distance a fish would have to jump, and we measured the depth of the pool where they would have to jump from in order to get over that barrier.

And so starting at the top there, these are for -- well, let me just -- I guess what I would say rather than going through all nine of those I would just look at the heighth of the jump. That's from the surface of the water to how high they have to land at the next surface of the water to be over the jump. And all of these that

are listed there are three feet or more.

Fisheries literature establishes very clearly when you do laboratory tests and you can vary the heighth of the jump and the depth, for juvenile Coho salmon they fail to jump 30 centimeters, which is just a little over one foot. So these are 105 millimeter-length juvenile Coho, recently published Transaction American Fisheries Society in the fisheries literature in a very carefully extensive evaluation of different jump heights. More flow, more depth, did not enable them to jump any higher. But when they went down to 26 centimeters, just a little bit more, they had 3 percent succeed. And so they -- as each time they reduce the heighth a little more succeeded. But it went to zero at 32 centimeters. They couldn't jump over a foot. That's for juvenile Coho.

For adults the guideline is typically used in fisheries literature, a number of studies come back to this ratio, that the depth they jump from has to be 1.25 times, that is 125 percent the heighth they have to jump. So it has to be more depth than heighth in order to get up enough speed to pass over the obstacle.
There would be some very shallow jumps that that wouldn't be true of, but that's the guidelines. What you see here, these are three-foot high jumps, lateral distance in some case is zero and that's fine. But some is very

great. None of these depth heights you see in that last column compared to the heighth they had to jump, meet the criteria. They are not good for adult passage. They are not good for juvenile passage. All of these are likely barriers. There could be some flow where a few fish get over.

The one that's most significant as a natural barrier down there, it's called Unit 71, it's next to the bottom line. And that one is just right above the highway crossing. So this is clear down if you look at the total, that 4,000 feet of these barriers, that upper one is still below the point of diversion. So down at 1,288 feet down to the floodplain of the Klamath there's a barrier that's 4.6 feet high, 7.5 feet lateral, because it's over a long sloping shot of bedrock. I'll show you a photo. And it's -- others have also ruled it's impassible and it's only 40 feet above the highway. So the highway culvert's been found impassable and then this is 40 feet above that, so really no opportunities above the highway.

I'll point to that last one there and I'll bring it up with a photo and we can discuss it, but there's another barrier to migration as it presently stands. When we were in there in October, 66 feet above the floodplain and its human constructed. It is not

natural.

Here's that first barrier that's right above the highway. You can see 4.6 vertical, but 7.5 feet lateral and it would be a lot longer depending if you could see we've got a person standing with a stadia rod, that's an expandable rod. It's all fully metricated so you can read the length right off of it, how far it spans a distance and we were using it -- it's just there for perspective. But the closest jump you could make on any of these, and it probably was to that little lower pool on the left, would be 4.6 feet vertical and still had the 7 feet horizontal from any possible jump pool. You can see there's no jump pool in this picture. It's out of the picture to the left. This is the one that others have looked at and all agreed this is probably a barrier. And this is the lowest in the system natural, it's right above the highway.

As we went further up just to identify there's a couple more. Here's another one, this one 4.6 foot vertical. It can jump straight up. There was no problem lateral, but it only had a 2-foot deep pool. So it wasn't nearly deep enough to give a fish the opportunity to build speed to pass that barrier.

Here's another one. This one's really problematic to pass and I'm sure it's a barrier, because

there's really no place to jump from. We did measure the pocket right where you see that stake reaching. It's very frothy. All kinds of tests show that they can't jump from froth, but if you give that froth pile credit it's 2-feet deep and it's a very small little spot. They likely could not use that to jump from, so it's actually quite a bit higher than that if you add the other distance. But this is certainly a barrier, hence the --

MS. BRENNER: I'm going to ask you to kind of speed it up a bit, so that we can make sure we get through your testimony.

WITNESS CRAMER: Okay. Thank you. I just need to touch on this one. This one is an artificial barrier, manmade, 3-feet high. What you see right here in front of you -- and I don't have a -- I'm going to use this pointer. Well, I don't know if that -- yeah, okay hopefully it's -- this is all a manmade rock berm. This pool is within 66 feet of the mouth of the stream. It is in view of the owner that's on the west bank. It's obviously created seasonally. It would blow out with any high flow. The closet place to get any jump out of this is less than a foot deep. From the heighth of that surface to this is over three-feet high. It certainly blocks any juvenile migration during the summer. So this is where -- and you'll see other places where juvenile

migration upstream is also blocked by manmade structures that are not in any way related to Marble Mountain Ranch.

Okay. Here's what that outfall looks like as they come out from under the highway. And so it's this stretch downstream that I'm now going to talk about what we found out for survey results. And I've surveyed that. I've measured everything from the top all the way down by channel units. And here we see the point of diversion is 4,284 feet upstream from the floodplain of the Klamath.

Note an error in my October 30th report just in case you come across it. I had failed to add the 1,048 feet that was below, so I was only saying 3,236 feet I think is what I said for the whole thing. And that was just down to the highway. There's another 1,048 below the highway and this is the -- it's that 1,000 feet that we're going to talk about now.

Channel unit composition below the highway, this is where there could be potential access, 12 percent of that area is in pools, 3 percent if in riffles. Those are the two unit types that potentially could be useful to the fish. The rest of it is high-velocity complex fast water stretches that at any flow other than extreme low flow would not be useful. The velocity is very high and not -- is beyond the reach of juvenile fish. There's few marginal gravel patches. I found none suitable for

spawning, and then finally, the nine barriers that I just showed you.

To explain how I went ahead and estimated the capacity of this stream to rear fish, I just wanted to show you quickly that there are hard data that actually will estimate how many -- what kind of density should we expect in different types of channel units. A pool is a type of channel unit. A riffle is a shallower, faster one. But what you can see here is the pools have the highest ability to support -- this is from 19 streams on the Oregon coast -- 19 and I'm sorry, the parr per meter squared is the way the density is calculated. And so if you have a measurement, so on a pool you have a surface area, you would expect a density in this case of 0.17 parr per meter squared of surface area of a pool, but much less if it was a glide. There were no glides in this stretch, rapids and riffles. And I used a value intermediate to this value on this chart right here.

This is just another one on the x axis is the depth. And what this shows is, as you have more depth you have more parr per meter squared regardless of the unit type except by the time you're about two-and-a-half feet, which is about 0.8 meters, things change. It no longer any more -- doesn't provide additional value, but it starts to become a problem in riffles, because they

start to get too fast if they are doo deep. They don't have friction, and to create a riffle is too fast at that point.

Okay. So here's the actual data that we can see of what there is in that stream. And what we see on the top is Stanshaw Creek. I listed Irving Creek, because then we went over and surveyed 3,000 feet of Irving Creek as well, just to get a comparison. I wanted to know is there indications that Irving Creek has a comparable or a lesser value of what -- what happens if we put water into Irving Creek instead of Stanshaw Creek? So we needed to get a look at Irving Creek.

What you see here, I want you to just look at pools, because that's predominantly where the opportunity for fish rearing is, particularly for Coho which have a dominant preference for pools. Pools, on average are 15.6 feet long and 8.4 feet wide. And when you're classifying units if they're not more than at least one time as long as they are wide, that is if they're wider than they're long they're not really a unit. It's just part of the whole flowing stream. So if they're not at least one channel width long they don't even qualify as a unit and that's standard in fishery science. At any rate you can get these things that are just barely two lengths -- that are two widths wide, so 8.4 width and they're 1.4

foot deep.

Now, just look down at Irving Creek. You can just see by comparison Irving Creek is larger. It has pools at almost double the length, another 50 percent more width, and at least another 50 percent more depth, also. So they have all these traits that are much more desirable for Coho production, for steelhead production, for all of those in Irving Creek.

This is a picture of Irving Creek. This is just one stretch we looked up and it should be real obvious. This is a much lower gradient than what you're going to see when we look at pictures of Stanshaw Creek. Stanshaw Creek has an average slope that ranges from 9 to 11 percent. Far beyond the range that is useful for Coho, which typically don't use anything more than 5 percent. You can find a few a little and above that, up to 7 percent, but by the time you're at 9, 11, there is essentially no Coho production in those kind of streams. They don't have a morphology. They have too much velocity for Coho. This one has less. And so it has more desirable habitat.

Now just to look I wanted to show you without going through this giant table that I'm on now, this is the actual calculation channel unit by channel unit below that highway crossing in Stanshaw Creek, how many

steelhead parr it could support. And the reason I picked steelhead parr is because they do like higher velocity and at age 1+ they are able to swim in higher velocities. They're a little bit larger than Coho would grow before the Coho would leave. And we're estimating that by this method that's been used widely and is published, 36 Coho parr is all you can produce. And if you put the average expected survival of a Coho parr at age 1+ through the winter is about 50 percent. So if you take that -- those 36, then you've got 18 that would become ready to go the ocean next year. And if you quite liberally allow them 10 percent survival, 10 percent of 18 fish is 1.8 returns.

This stream is capable of producing in a very good year one or two adults; in most years, no adults. So this stream is not capable of supporting a sustainable population of steelhead. And it's certainly not capable of supporting a sustainable population of Coho. Very important conclusion, measured, not a theory. These are numbers and these are actual measurements. And this has been applied widely and is in published science literature.

Okay, so here's -- now comes the really shocking part of what we found in that. This is as you come out onto the floodplain. And we show a couple of

photos that I hope you will be able to understand. What I want to show you right here. This, where you see my curser wiggling there is where this thing -- where Irving -- I'm sorry, Stanshaw Creek emerges onto the floodplain. Right there. It's coming from kind of straight ahead to your left what is -- I'm going to show you another angle of it -- the main force of this channel is here to the right. There's rocks stacked in the bushes here. It's really hard to get, but there's rocks stacked here to block the flow, so that it doesn't go to the right. But a whole bunch does.

On the day that we were there, we measured flow at 5 cfs at the diversion. There was return flow coming through one of the fist diversions down the -- the ditch operates so that there's overflows to allow excess flow off of it to return to Stanshaw Creek. There was at least 1 or 2 cfs coming down the first of those. There was more at another point that were returning to Stanshaw Creek. So what you measure at the diversion is not what you end up at the bottom end, at least it certainly was not on the day that we made these measurements. So you probably have in the order of 6 or 7 cfs at least, arriving right here.

There's two channels going off to the left and the creek is coming out here and tending to go straight

to the Klamath. What you realize is the pond that you've seen pictures of, is 45 feet at a right angle to the left here. So that this stuff has got to go -- turn around and go left across the gravel bar and so that's why these rock berms are there. What you'll see now. We'll look at a different views. This is that same spot --

MS. WEAVER: Sir, if you could pause for a second?

WITNESS CRAMER: Yeah.

MS. WEAVER: Your 20 minutes has expired.

MS. BRENNER: Right and we would like additional time, so that Mr. Cramer can complete his testimony. Just we have what, another four or five minutes?

WITNESS CRAMER: At least. There's --

MS. WEAVER: So you --

HEARING OFFICE MOORE: Go ahead.

MS. WEAVER: You have 11 minutes, 20 seconds left from your opening statement. Would you like to start there?

MS. BRENNER: We can start by applying that time.

MS. WEAVER: Okay.

HEARING OFFICER MOORE: And you still have an hour going.

MS. BRENNER: Yeah.

HEARING OFFICER MOORE: Okay. Continue.

WITNESS CRAMER: Okay. So now this is the same view of the spot. And this is now standing over into that channel where the most flow is directed and there's a couple of boulders here that were placed in the channel and so it's diverting stuff off to this left.

Now, I'm going to show you some views. I estimated right here that about one third of the flow is coming down this channel; two-thirds are getting diverted this other way. One of those is splitting and not showing and I'm looking at -- pointing at it. There's one little channel there. There's actually two channels directed down to the left that are created here.

Now, we'll look down them so you can see that they're aligned. This is the upper one going off through the trees and you see it's lined by a gravel berm that's -- sorry, cobble and boulder berm manmade, to direct it over to -- and that in the distance is the pond. You can see it from this person standing down there, the heighth is about four to six feet, something like that at the pond versus at the pond -- the heighth of the stream emerging from the channel and now entering here onto the floodplain.

Here is the other channel that goes that way.

And again, you can see that it's got rock berm construct all the way along it. Some stair steps obviously to -- would appear to be intending to help fish move from the pond down there, up the creek. Now, remember for this distance out to over here is about 45 feet upstream, up the gravel bar, from where the creek emerges from this channel.

All of this water right here is flowing through the edges of the berm and going out across the gravel bar. It's not entering the pond. So by the time you have all the losses that are on this bar, plus the other about two-thirds of the flow that's coming out does not reach the pond. That's by natural inclination of where the pond is and where the creek is. The amount that does reach there you can see is manmade. Those are manmade berms to get the water over to the pond.

Here is a picture of that pond that was taken the winter after 2013 when it was enhanced, so that there was a special enhancement project to go alter the pond to make it more favorable for fish. And so we can see something's real different in this 2013 picture than there is now. I don't know that happened in between. There was a flow of over 100,000 cfs in the Klamath this last winter. That could have been the one. There may be others that were there to see it.

I will show you some more pictures, but what you need to look at right now is where does the water come out of the pond? Here, we're looking at this one channel going in and I just showed you now there's multiple channels that are built up going in. And I'll now show you the outflow, but there's a giant rock berm built up. Wherever the outflow is I assume it must be right about this location, but it looks quite a bit different than this now.

So here's me standing in the -- in the -- what I'm standing in is the Klamath River. It's the backwater of the Klamath River. This rock berm plugs that pond. The pond is out of sight directly behind this rock berm and all of the flow coming out of the pond is going through the crevices of the rocks. And again there's been previous estimate that whatever it used to be could have been maybe 2 cfs would get you to overflow. There was times where it was slightly less than 2 and it just was like an inch or two from the top. Well obviously here we've got in total probably 7 cfs reaching the floodplain. And it's not close to coming over the top there and it won't, because it's coming through the berm that is human constructed.

And all that other stuff that I showed you coming through is substantially out your picture to the

right now. Other flow is coming out across the gravel bar to the right where it's all natural. The problem is you've got the flow of the Klamath River shooting sideways across the front of this and floods will reconfigure that gravel bar.

Restoration -- our firm does a lot of restoration projects -- restoration is an inexact science and it has to deal with highly variable environments and sometimes you win and sometimes you lose. There's a tremendous backlog of examples of restoration projects that did not live up to their expectations. And what I see now is this one is not living up to expectations and I'll show you some more in the snorkel. But the key thing here is that this is -- upstream passage now is blocked by human-constructed rock berms, absolutely independent of natural flow. What this would look like without those I'm not sure. I don't know that any flow would even get to the pond without the berms under today's setting. Maybe some would. But at any rate all we've got is all these rock berms.

Here's the pond itself. Now I'm standing on top of what you were just looking at there and looking at. Here's our snorkeler. We had him snorkel very slowly to not disturb fish. If you could see it more clearly, yeah closer up you can actually see the bottom

here. Visibility is very good. There's woody debris establishing this -- that provides cover. That's here in the front. There's an island over to the left and then it goes quite a bit back to the left.

He covered the entire thing very slowly, twice. Ten minutes in between and he had separate accounts each time, because we wanted to know how repeatable is the count. And so I have those listed there on the slide.

First run through, 9 steelhead. These are age 0+, so these are just young of the year. And there was 2 Coho on his first run through. Waited 10 minutes and went back to swim through. His count varied, which you would expect. You don't see everything on one of these, but he was going -- being very careful, so it's very close. He got 15 steelhead zeros and one steelhead 1+, but no Coho.

So he -- if you just assume that perhaps that he was only 50 percent efficient then you could say well this, for Coho-wise maybe there was somewhere less than 5 Coho, maybe there was 30 steelhead in the whole pond this year. Those are very small numbers, compared to historically.

Let me just quickly tell you about some of the numbers that I compared that to, because it really puts perspective that had been reported previously. And in

2000 -- just a second, I want to get my years right, okay -- in 2005 the Karuk Tribe had reported 156 Coho. These are just Coho. They also had a large number of steelhead. And those are just listed in a side column in a table that was submitted for evidence, and so this is where I found it. In 2008 they had 130 Coho in there. In 2010, 55.

In 2012 a study that actually did Marble Creek capture estimated the full number there, 120. And then immediately following the enhancement project that I showed you, that winter picture, there's a report they said they counted or they estimated -- I don't know how they did it -- 105 in February of 2016.

So now, move ahead. I've only found two other estimates. The ones we made. We found five. And so this is since that project. And then in 2014, Krall I believe it was estimated -- did a project there. It might have been Whitmore. Anyway there was a study done and it's in evidence, an estimated 10. So we've been nowhere close to those numbers after the enhancement project. I don't know why they couldn't all get there. If it was the rock berms or what else happened. If somebody has other data it hasn't been presented in evidence and I don't have it.

So it appears that this is performing poorly in

spite of the fact for the last two years that the Marble Mountain Ranch has not diverted water during the summer. It's complied during the summer low flow with not diverting water except for their benefit -- their -- what do you call that? The --

MS. BRENNER: Consumptive use.

WITNESS CRAMER: -- consumptive use, thank you. It's not the hydro use. It's the consumptive use part. That's the only thing they've diverted, so substantially more flow coming down and yet very different and much lower performance in the past.

Here's, just so you look at Irving Creek, here's what happens when it enters on to the floodplain. It looks a lot like what part of the Stanshaw Creek looks like. When we entered out of Irving Creek on to the floodplain immediately it branches out across all the boulders and you've got this complete braided channel just going in all kinds of directions. But even there naturally there was a floodplain pool formed. And upon approaching this, we didn't expect to find one, but there it is. It's natural. And fish darted away as we approached. We weren't there with snorkel gear and couldn't go do any estimate, but it would form some of its own.

Just so you know now just thinking about Irving

Creek, its pools are larger, deeper. Its riffles are deeper. And the estimate -- I didn't complete the estimate, but just by looking at the data on it, its capacity would be somewhere in the order of five to seven times the capacity of Stanshaw Creek to produce something. And whatever's in Stanshaw Creek remember it's not reproducible, but the floodplain pond would be. The floodplain pond has value and those numbers show it. It's just what they've done to it now, it's not performing. And it's not flow that it's lacking for. It's got problems for fish getting to it.

So here's just some Stanshaw Creek riffle. I just -- I wanted to show you the velocity changes as flow goes up, so more flow causes more trouble for fish in the stream. So what we did here, first at the upper table there's ten increments across the stream. We measured the depth and the velocity at each of those increments. Three feet per second is a reasonable velocity for juveniles, but all the depths note, are under six inches. They're under half of a foot, 0.5 feet, six inches. Juvenile salmonids of any size are very vulnerable to bird predation and mammals, whatever. They do not -- they will strongly avoid depths under six inches. And so if you don't have six inches, they feel totally vulnerable. They will avoid that.

So this riffle doesn't work at low flow. But look what happens to the velocities -- and I use this, because you remember that when I gave you the versions before -- 3 percent of the area was riffle and like 12 percent was pool. And those were the only channel units that really could produce fish. And this is one of the shallowest riffles there, but it was where we could get to it to do these measurements.

Within -- there was a full event just shortly after this. Then we got the measurements again, and you can see the depth had increased only slightly. Most of it is still under half -- six inches. There was one that was 0.7 feet. And the velocities, if you look at the second half of this thing, where's my -- there it is -- over here are these -- the whole second half of those 10 is now up 4 and even here's one at 5.9. So you're getting a whole lot of velocity across this riffle. It's getting deeper, but too fast.

MS. BRENNER: And Steve, we're going to have to get you to get to your conclusions.

WITNESS CRAMER: Here they are. Four, okay? So here's the conclusions, so what do we see from all that? Number 1, the stream morphology and the habitat suitability --

HEARING OFFICE MOORE: Sorry to interrupt, but

we've got another break in timing

MS. WEAVER: So we have a couple of options. If you'd like to move to transfer time from the other witnesses you have that option or we can very quickly wrap.

MS. BRENNER: I think you've got to your conclusions, correct? So we should be what, another minute?

WITNESS CRAMER: Right. I'm just on the last two slides that have the conclusions.

MS. BRENNER: So if we could just have one more minute?

HEARING OFFICE MOORE: I'll allow it.

MS. BRENNER: Thank you.

WITNESS CRAMER: Okay. Now, stream morphology and the habitat suitability for salmonids is low and it's primarily driven by the 9 to 11 percent stream gradient. It was predictable before we even went out and measured all the habitat. Upstream passage is blocked within 40 feet of the highway naturally. And we showed -- we looked at that. The habitat is not suitable for Coho and it's capable of supporting less than 50 steelhead parr in that stream. This is in the stream portion, at moderate summer flows. Higher flows will start to increase velocities where it doesn't work. Higher flows actually

in a very steep channel become a problem for the fish. Capacity likely declines as flow increases due to those increasing velocities, so more flow is not necessarily good when you're in a 9 to 11 percent gradient. The floodplain pond is capable of providing cool water refuges through the summer. And it's also good for high-flow refuge in the winter or spring when -- for juvenile salmonids. And that would be at least in some years it's dependent on what happens by shaping of that gravel bar by the Klamath River, not by Stanshaw Creek.

Manmade rock berms intended to divert flow, direct flow, and increase the depth in the pond also created substantial impediment to upstream access by the juvenile salmonids to both the pond and the stream. Floodplains are dynamic and the function in the function of Stanshaw pond as a refuge is likely to vary widely between years without annual human intervention. A number of others in the Klamath Basin have made the same statement. That they have found they worked great in some years and not others. In this case, that whole arrangement is heavily influenced by the Klamath River.

Monitoring data did indicate that Stanshaw Pond likely functioned more effectively as a refuge before the habitat enhancement in 2013. Because once those fish left in the winter, now it's the summer 2014 and the

first look at it, is that there was only 10 fish in there, 10 Coho. Flows of 1 cfs into that pond, several of the years there was measurements we found on a Karuk Tribe data table. One cfs often was measured entering the pond in past summers when numbers of fish were present and doing well. That suggests that that's been tested, field tested, it works for water quality in the pond.

Is there more value to gain in Irving Creak? That's an open question. Water in Irving Creek is valuable for fish. It does not lose all of its function if it goes to Irving Creak. I can tell you that.

MS. BRENNER: Thank you, Steve.

HEARING OFFICE MOORE: Okay. Thank you and before we -- I would say before we break for lunch or do you want to continue? (Panel confers off mic.)

Okay. Yeah, the next order of proceeding is to do a cross-examination. But that could take an hour or more depending on folks, you know the different parties' list of questions and the detail we'll get into. So it is now 12:10 according to that clock. This presents a logical point to break for lunch. We'll take 60 minutes as we said earlier and we'll return here and recommence at 1:10 p.m. And thank you to adhering to those parameters. And I'll see you at 1:10.

(Luncheon recess was taken at 12:10 p.m.)

Monday, November 13, 2017 1:14 P.M.

P R O C E E D I N G S

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HEARING OFFICER MOORE: We're reconvening the hearing. I am Vice Chair Steve Moore, the Hearing Officer. And next on our list we will invite cross-examination of our witness, Mr. Cramer.

First, I would like to invite the Division of Water Rights Prosecution Team to do cross-examination. Yes, someone's at the stand?

MR. SHUTES: Good morning, Mr. -- good afternoon --

HEARING OFFICER MOORE: Yes.

MR. SHUTES: -- Hearing Officer Moore. I'm Chris Shutes for the California Sportfishing Protection Alliance. I wanted to let you know that we're present today and I misread the hearing notice this morning and showed up promptly at 10:00 o'clock at the State Water Board.

(Laughter.)

But I'm here and prepared to proceed in the proceeding. Thank you.

HEARING OFFICER MOORE: Okay. Great, welcome. And you'll have an opportunity to cross-examine before

too long, so --

MR. SHUTES: All right.

HEARING OFFICER MOORE: -- please hold tight. Thank you, Mr. Shutes.

And Mr. Petruzzelli?

MR. PETRUZZELLI: Thank you.

CROSS-EXAMINATION BY

MR. PETRUZZELLI: So Mr. Cramer, I wanted to ask you about, you know, your characterization of some of the generalities of the NMFS flow recommendation on does the NMFS recommendation look at some site-specific factors on Stanshaw?

WITNESS CRAMER: They talked about flow --

MR. PETRUZZELLI: I'm just asking you just yes or no, does it?

WITNESS CRAMER: Well, I mean you've got to define "site specific." They did an analysis primarily of the flow.

MR. PETRUZZELLI: Okay. Does it look at what wetted channel width -- within Stanshaw?

WITNESS CRAMER: It might.

MR. PETRUZZELLI: Okay. But you aren't sure?

WITNESS CRAMER: Well, it -- they did not do a channel unit by channel unit analysis of their shape. It was not possible with the data they provided to estimate

the carrying capacity of the channel.

MR. PETRUZZELLI: Okay. Does it locate the ecological significance of Stanshaw?

WITNESS CRAMER: They speak to it.

MR. PETRUZZELLI: Okay. And does it discuss species of significance within Stanshaw?

WITNESS CRAMER: It discusses species.

MR. PETRUZZELLI: Okay. Does it evaluate the importance of connectivity within Stanshaw?

WITNESS CRAMER: Evaluate? No. I think it discusses it.

MR. PETRUZZELLI: Okay.

WITNESS CRAMER: You -- so terminology, I just want to be fair -- they talk about it. And they make some assumptions, but they did not present data to establish a bunch of things about connectivity.

MR. PETRUZZELLI: Okay. Does it discuss forest cover?

WITNESS CRAMER: I don't recall.

MR. PETRUZZELLI: Okay. Does the recommendation assert that Stanshaw is spawning habitat?

WITNESS CRAMER: It -- no, my recollection is that they did not accept that it was a spawning habitat for Coho salmon.

MR. PETRUZZELLI: So it does assert that it's

spawning habitat for Coho salmon?

WITNESS CRAMER: No. They assert that it was not for --

MR. PETRUZZELLI: Okay.

WITNESS CRAMER: -- Coho salmon.

MR. PETRUZZELLI: So they don't assert that it's spawning habitat?

WITNESS CRAMER: For Coho salmon.

MR. PETRUZZELLI: For Coho, okay.

And are you aware of --

WITNESS CRAMER: And let me just -- let me just -- so some of the questions you're asking, my -- there was implication in the wording, and then especially when they're asking for flows, that there is a purpose behind those. And so I was checking to identify what could we measure to just establish what the stream could produce? I provided those measures. Those were not available with NMFS. So that's why I did those measurements, so we could establish what it could do.

MR. PETRUZZELLI: Okay. Are you aware of whether -- that Stanshaw is designated a thermal refugia in the North Coast Water Quality Control Plan?

WITNESS CRAMER: I understand that it is listed.

MR. PETRUZZELLI: Okay. Do you understand that

there is a regulatory process to put it in there?

WITNESS CRAMER: I don't know the nature of the regulatory process.

MR. PETRUZZELLI: Okay. Okay. Are you -- but do you have a general, you know, awareness or understanding of what's in the basin plan as it pertains to thermal refugia?

WITNESS CRAMER: I understand that there is a listing of thermal refuges and that it is among them.

MR. PETRUZZELLI: Okay. And do you have an understanding that because it is designated as thermal refugia that the basin plan then requires -- has certain regulatory protections, because of that designation?

WITNESS CRAMER: I'm a fish biologist. I'm not a legal expert.

MR. PETRUZZELLI: Okay. Fair enough.

So in the information that you reviewed in preparing your report were there any references to fish up in the diversion ditch?

WITNESS CRAMER: Yes.

MR. PETRUZZELLI: So there were, so reference -- so fish actually in the diversion ditch?

WITNESS CRAMER: Yes.

MR. PETRUZZELLI: Were there references to fish up in the ranch pond, and I mean the pond at the ranch,

not the pond --

WITNESS CRAMER: Oh, I saw one that referenced fish in the ranch pond.

MR. PETRUZZELLI: Okay.

WITNESS CRAMER: I also know that there was fish planted in the ranch pond.

MR. PETRUZZELLI: Okay. Do you know which were which?

WITNESS CRAMER: No.

MR. PETRUZZELLI: Okay. All right. And in your -- in both of your reports you reference the typical manner of operation of the diversion. I think in your first report, it's MMR-17 on page 4, you state these past diversions were made while water diversions at Marble Mountain Ranch were being operated in their typical manner; is that correct?

WITNESS CRAMER: Yes.

MR. PETRUZZELLI: Okay. Would you characterize the typical manner of Marble Mountain's diversion operation as how they've operated since roughly spring 2015?

WITNESS CRAMER: Roughly would be a reasonable kind of statement. I don't know exactly what modifications have been made exactly when, so it would be when they were continuing to make diversions during the

summer for -- through some portion of the summer to do hydro.

MR. PETRUZZELLI: So you would characterize their typical manner of operation as hydropower diversion throughout the summer?

WITNESS CRAMER: But whenever it was practical and however they would normally have done it.

MR. PETRUZZELLI: Okay. But not -- but not just bypassing flows or excuse me, not limiting flows to consumptive uses. Or not limiting diversions to consumptive uses. I'm sorry; I can rephrase that if it's confusing.

WITNESS CRAMER: So my understanding is that it was in August of 2016 that they terminated use of hydro during the summer and use only consumptive water.

MR. PETRUZZELLI: Okay. And is that what you would consider their typical manner of --

WITNESS CRAMER: So it's --

MR. PETRUZZELLI: -- diversion operation?

WITNESS CRAMER: -- it's atypical of earlier use. So the August 2016 and later is atypical in that now they have terminated hydro use during the summer.

MR. PETRUZZELLI: So what you'd describe as their typical manner of diversion operation would be only diverting for consumptive demands since August 2016? Is

that -- I'm just trying to understand it.

WITNESS CRAMER: Yeah, so what I'm saying is that from -- yeah from August 2016, at least during the summer and even -- well even now in the winter I -- when I was there -- there it was fall -- that they are -- they have changed their operation to comply where they're only doing consumptive diversions and then that's my understanding. So my -- when I say typical it's before that change was made and where they were still running things as you might have expected any time in the last couple of decades.

MR. PETRUZZELLI: Did your -- did the -- did your -- is your understanding based on information received from the Diverters?

WITNESS CRAMER: It is. I would say and that information includes the tables of data that show the flow measurements that were made at the diversion by others.

MR. PETRUZZELLI: Would you --

MS. WEAVER: So just to pause quickly, Mr. Cramer, we have a request for you to sit a little closer to the microphone?

WITNESS CRAMER: Yeah.

MS. WEAVER: Apparently it's hard to hear you on the Webcast.

WITNESS CRAMER: Okay.

MR. PETRUZZELLI: So I'd like to ask you about your initial recommendation for flows. It's on Page 12 of MMR-17. And in that recommendation for low flow periods, which you define as under 5 cfs, you recommend limiting diversions to 10 percent of flow with a 2 cfs minimum; is that correct?

WITNESS CRAMER: So what you're reading now is what I termed my initial recommendations? I had --

MR. PETRUZZELLI: Yes.

WITNESS CRAMER: -- not yet done the survey, so yeah. And so which sentence -- that you could read the sentence, I guess -- which sentence you're looking at?

MR. PETRUZZELLI: It's, I know it's on page 12, I don't have the exact sentence handy.

WITNESS CRAMER: Okay. I have one that says, "During low flow periods of 5 cfs or less, typically associated with summer, the diversion could be limited to 10 percent of flow in Stanshaw Creek with a minimum bypass of around 2 cfs. This would allow the Coles to divert their 0.3 cfs for consumptive use and domestic needs, not accounting for ditch loss."

MR. PETRUZZELLI: Okay. Is that -- I mean, would you -- would you say that's, you know, pretty similar to parts of the NMFS recommendation? And when I

say "parts" you know, where NMFS is excluding hydropower diversions.

MS. BRENNER: I'm going to object as vague. Can you just ask him --

MR. PETRUZZELLI: Yeah, I'm going to try to --

MS. BRENNER: -- precisely what portion of the bypass flow (indiscernible)?

HEARING OFFICER MOORE: Okay.

MR. PETRUZZELLI: Yeah.

HEARING OFFICER MOORE: If you can restate the question, please?

MR. PETRUZZELLI: Yeah, I'm -- would you say you're --

MS. WEAVER: If you would come up to the microphone to object just for the benefit of the court reporter?

MS. BRENNER: Sure.

MR. PETRUZZELLI: Would you -- so do you also recall that the NMFS recommendation where it has it -- 2 cfs minimum bypass at the point of diversion and only allows for hydropower diversion when flows are more than 2 cfs and requires a 10 percent bypass.

Do you -- is that --

WITNESS CRAMER: My understanding was that they required the 10 percent bypass year-round.

MR. PETRUZZELLI: Yes. Okay.

WITNESS CRAMER: And so that's where an implication is, somewhere it's --

MR. PETRUZZELLI: Right.

WITNESS CRAMER: -- probably something, that year-round, but it's not explained what it is. That's why I had to say okay I wanted to look at more than just what's said there.

MR. PETRUZZELLI: Yeah, but I -- but is the recommendation to, you know, limit diversions to 10 percent during -- when hydropower -- is the recommendation to bypass 2 cfs and limit diversions to 10 percent; is that similar to your low flow recommendation?

WITNESS CRAMER: Well, at the time it was, but no as I have -- you see now there's further data that's been submitted as part of the record. And so there's additional, I got the survey and a whole bunch of other people have submitted additional data, and I think the data suggests that that's much more than is necessary. And so I've
-- a lower flow, there's evidence suggests a lower flow it does fine.

MR. PETRUZZELLI: Okay. So and I'd like to ask you about your supplemental testimony. You indicate you surveyed Stanshaw on October 2nd and 3rd?

WITNESS CRAMER: Correct.

MR. PETRUZZELLI: Okay. Have you conducted other surveys at Stanshaw?

WITNESS CRAMER: I have not.

MR. PETRUZZELLI: Okay. So this was your only onsite survey --

WITNESS CRAMER: Correct.

MR. PETRUZZELLI: -- of Stanshaw? Okay. And I think it's on page 2 you indicate evaluating the stream in areas where woody vegetation and stream complexity did not infringe upon the observer's ability to see the stream?

WITNESS CRAMER: Yes.

MR. PETRUZZELLI: Okay. So were you able to evaluate the entire stream, because of those visibility limitations?

WITNESS CRAMER: Yes, we were. So I was going to put one photo in and thought, "Well, I've got enough photos in there already." But the patches where we could not walk along in each -- there were probably several I would say. During the course of that 4,000 feet that we covered, there were probably four or five times where we had to go around a patch that might've been 50 to 100 feet long, because it was just a jumble of trees and brush that we couldn't penetrate. But you could

distinguish by sound and by the -- by water through it that it was a fast water unit. None of those hid a pool or a riffle, so we were able to see basically what was going on under there. But we couldn't get in and measure depths and widths and stuff, because it was just too tangled. So it was a small portion, but it was definitely several times.

MR. PETRUZZELLI: Okay. Did you take any temperature measurements?

WITNESS CRAMER: We did. It was about ten degrees. I forgot if it was the afternoon or -- we were there for several hours, so we had one at ten degrees, one at eleven.

MR. PETRUZZELLI: Are those in your report?

WITNESS CRAMER: Well, I thought they were. They're certainly on my data sheets and I would have to look to see if they did or did not get in there somewhere. But ten and eleven degrees were the two temperatures that we recorded during the course of our survey.

MR. PETRUZZELLI: So you don't -- do you recall -- so you don't recall exactly where they are in your report?

WITNESS CRAMER: I do not. I could do search real quick to see if I could find it.

MR. PETRUZZELLI: Okay. I did a search. I couldn't find any, but I --

WITNESS CRAMER: I do have it. I have the raw data sheets if -- and those do have it recorded in them.

MR. PETRUZZELLI: Are those entered into evidence?

WITNESS CRAMER: I don't think so. They may be. In fact, maybe it's on the table. I have no -- I'd have to look again. I could see if it's in there somewhere.

MR. PETRUZZELLI: Okay. You compare some prior surveys of Stanshaw to your observations during your site visit; is that correct?

WITNESS CRAMER: I was only there the one -- I was there that one time.

MR. PETRUZZELLI: So just some prior -- some prior -- do you -- did you compare some prior published fish counts of Stanshaw to --

WITNESS CRAMER: Yes.

MR. PETRUZZELLI: -- your more recent -- your onsite observations?

WITNESS CRAMER: Yes.

MR. PETRUZZELLI: Okay. Your current observation comes roughly a year after the drought; is that correct?

WITNESS CRAMER: The drought?

MR. PETRUZZELLI: The California --

WITNESS CRAMER: I believe there are many droughts, so --

MR. PETRUZZELLI: Yes, but the last year. But your site visit occurred a year after the end of the California -- the recent California drought; would that be correct?

WITNESS CRAMER: It occurred this October.

MR. PETRUZZELLI: Okay. All right.

WITNESS CRAMER: So yeah, you have droughts frequently, so in the course of my years working in California we've been through several.

MR. PETRUZZELLI: But I'm referring to our most recent drought.

WITNESS CRAMER: Yeah. Yeah.

MR. PETRUZZELLI: Would this be -- would the cohort you observed in your visit be one that would have been impacted by a recent drought?

WITNESS CRAMER: It could have been. Far more impactful than drought on the Coho is the ocean survival. And so we can have drought years, but fairly good returns. They don't always correspond with drought years, so we don't have data. I do not have data to correspond how many -- what the spawning escapement was.

It produced juveniles that should have showed up this year, so I can't really speak to what it would be. Other streams might be a good place to compare and see if they're all way down.

MR. PETRUZZELLI: Okay. And the published surveys you used as a comparison; were they cohorts that would not have been affected by the recent drought?

WITNESS CRAMER: They were over a period of years, so I had listed -- when I made that just when I listed the years, so in each year different flow, different spawner escapement each year. And the flow and that -- the flow that they'd experienced that summer and the spawner escapement that produced those juveniles, both things that might have influence, were not measured. I didn't have the spawner escapement. All I had was the data that had the counts of fish in the pond. I also didn't have data on how they got access to the pond, because I didn't have pictures of those years. So there's just numbers of fish in the pond and there's a year.

MR. PETRUZZELLI: But you didn't -- so you didn't look at the cohorts in these earlier surveys, whether they would have been impacted by the drought?

WITNESS CRAMER: The drought? Well, if they came before what's the drought then they were not

impacted.

MR. PETRUZZELLI: Okay. The drought from I think it was roughly what 2012 until 2016; is that?

WITNESS CRAMER: The years it had good numbers of fish, so we've definitely had drought before then as well. But there was a -- I listed the years that had the fish and obviously the fish could get into the pond. Obviously the flows into the pond were affected by the diversions from the operation of Marble Mountain Ranch in the way that you're saying is harmful. And now that there's not those diversions there's very few fish and there's physical impediments, manmade and put there that now prevent fish from getting there so easily. So those are the circumstances that we can see. And you're asking about other circumstances I didn't have and couldn't see. We don't know how they affected it, but you're asking about drought. Well, there was a drought and then -- and I don't have the escapements of spawners, so there's a whole lot of information that doesn't help assign cause and effect between the abundance of fish in those ponds and drought.

MR. PETRUZZELLI: Okay. Have you -- did you evaluate Coho populations elsewhere in the Mid Klamath River Basin at about the same time as you conducted your survey?

WITNESS CRAMER: In October of 2017, this year?

MR. PETRUZZELLI: Yes.

WITNESS CRAMER: I've not done -- I haven't seen anyone else's data for this fall nor did I do any.

MR. PETRUZZELLI: Okay. So you have not compared -- so you did not compare the count from your October 2017 survey to other -- to surveys in other parts of the Mid-Klamath Basin in October 2017?

WITNESS CRAMER: Correct.

MR. PETRUZZELLI: Okay. So you wouldn't know for instance, whether Coho populations are low throughout the Basin?

WITNESS CRAMER: In 2017, no.

MR. PETRUZZELLI: Okay.

MR. PETRUZZELLI: During your presentation you've indicated that the Coho population in Stanshaw was not sustainable. Was that an --

WITNESS CRAMER: I'm sorry, I was thinking about something else, so I missed the first part of your sentence.

MR. PETRUZZELLI: Okay. During your presentation you indicated that -- and forgive me if I'm being -- if it's Coho or other fish too, that the population in the thermal refugia pool was not sustainable. Was that something you indicated during

your presentation?

WITNESS CRAMER: No.

MR. PETRUZZELLI: Okay.

WITNESS CRAMER: I was -- I indicated -- so there was two things I may have said about not sustainable. I did say not sustainable is a population in the creek that is self-reproducing. In other words, it can't produce enough smelts to be sure to even have any adults returning in many years.

In the pool I said -- I may have used a not sustainable in that the morphology of that pool is not naturally sustained. So the way it functioned will change and that's -- so it's not sustainable at one specific configuration and ability of fish to access it or how deep it is. That's subject to change due to the flooding of the Klamath River.

MR. PETRUZZELLI: Okay. So that conclusion is based on your October 2017 site visit?

WITNESS CRAMER: It's based on the comparison of that --

MR. PETRUZZELLI: And on the conditions that were observed at that time?

WITNESS CRAMER: Yeah, it is based upon what I observed in 2017 and the photos I've seen that show the site quite different only a few years ago.

MR. PETRUZZELLI: Okay. I was going to ask you about one of those photos. The photo from, I think you described it as after the 2013 restoration project at Snowy?

WITNESS CRAMER: Snowy yes, yeah.

MR. PETRUZZELLI: Did you take that photo?

WITNESS CRAMER: No. That photo is in the final report and it -- that was prepared by the Mid Klamath Watershed Council.

MR. PETRUZZELLI: Okay. And you also indicated that high flows from the Klamath could alter the pool; was that correct?

WITNESS CRAMER: Yes.

MR. PETRUZZELLI: Alter it pretty substantially from year to year?

WITNESS CRAMER: They can, yes.

MR. PETRUZZELLI: Yeah, so they could continue to alter the pool; is that --

WITNESS CRAMER: Correct.

MR. PETRUZZELLI: Is that a possibility?

WITNESS CRAMER: Yes.

MR. PETRUZZELLI: Okay. They could alter it for the worst?

WITNESS CRAMER: Correct.

MR. PETRUZZELLI: They could alter it for the

better?

WITNESS CRAMER: Correct.

MR. PETRUZZELLI: They could keep it the same roughly?

WITNESS CRAMER: You would not stay the same.

MR. PETRUZZELLI: Okay. But they would continue to change it?

WITNESS CRAMER: Yes.

MR. PETRUZZELLI: Okay. So right now that's all the questions I have for him.

HEARING OFFICER MOORE: Okay. Thank you, Counselor.

MR. PETRUZZELLI: Yeah. How much time was that?

HEARING OFFICER MOORE: There's about 36 minutes left, but this hour has -- yeah, per party you have one hour, so.

Okay. We'll next offer up cross-examinations to National Marine Fishery Service, Mr. Keifer? And after Mr. Keifer there'll be opportunity for the Department of Fish and Wildlife.

CROSS-EXAMINATION BY

MR. KEIFER: There we go. Hello, Mr. Cramer. My name is Chris Keifer. I'm an attorney with the National Oceanic and Atmospheric Administration. I just

have a couple of very quick questions for you.

On cross-examination, in answer to one of Mr. Petruzzelli's questions you said that there were things in the letter, the NMFS recommendation letter that implicated or tended to imply that spawning habitat was a concern. Do you remember that answer?

WITNESS CRAMER: Yes, I do.

MR. KEIFER: Okay. Can you identify the wording in that letter that --

WITNESS CRAMER: Well, so what I was --

MR. KEIFER: -- made that implication?

WITNESS CRAMER: Yeah. I can tell you what I was thinking about when I made that. So when it said, and I read back what I had responded to. I said because it asked for winter only 10 percent -- it wasn't just during the period when the pond was in use. Then it said it wanted no more than 10 percent all season long. That implied somebody was assuming some value of the stream or something somewhere that had to be protected. And so that's why I wanted to cover spawning in the stream. I wasn't clear what it was, but there was a recommendation to limit diversion during that whole winter season.

MR. KEIFER: The letter in question is Marble Mountain Ranch Exhibit Number 9. Can we pull that up and show it to the witness?

HEARING OFFICER MOORE: Yes. We'll just take a second.

(Exhibit MMR-9 displayed on screen.)

MR. KEIFER: If we can go to the second page of that letter. Do you see that heading underneath the photograph, Mr. Cramer, that reads, "Importance of Stanshaw Creek Flows to Coho Salmon and Stream Ecology"?

WITNESS CRAMER: I do.

MR. KEIFER: Okay. There's a couple of relatively short paragraphs in there. Is there any mention of spawning habitat?

WITNESS CRAMER: In that particular paragraph there's not.

MR. KEIFER: I don't want to take up too much of the Board's time. If I were to submit to you that there's no discussion of spawning habitat anywhere in the letter would you accept that characterization, Mr. Cramer?

WITNESS CRAMER: I guess I -- that is my impression, that it was not explicit. And again it was asking for the winter flows that caught my eye. That somebody's got a reason behind that, so I need to check out what uses would be made and that's a spawning season.

MR. KEIFER: Can we forward to Page 11 of that letter, just below Figure 7. Do you see that first

sentence under Figure 7, Mr. Cramer?

WITNESS CRAMER: I do.

MR. KEIFER: Can you read that out loud for us; just that first sentence?

WITNESS CRAMER: "In summary, Stanshaw Creek flow" -- "low flow periods" -- I'm sorry, let me just -- this is a little bit -- "In summary, Stanshaw Creek low flows provide critical cold water to the Klamath River and access to cold water, off-channel refugia and food supply during low flow months."

MR. KEIFER: Would that summary sentence that encapsulates concerns in the letter implicate to any reasonable reader that spawning habitat was a concern?

WITNESS CRAMER: It would not. I think this statement is accurate. I'd concur with it.

MR. KEIFER: So would it be reasonable to conclude that the NMFS recommendations in this letter have nothing to do with spawning habitat?

WITNESS CRAMER: Again, I'll just go back to the same thing, for no reason at all while this says during summer low flow, it later says 10 percent year-round. I'm simply saying I wanted to find out what's going on year-round. I need to talk about fish functions that are used year-round to find out if there's a reason why you wanted to have it at other times of the year.

Spawning happens in the winter.

MR. KEIFER: Is thermal refugia a year-round concern?

WITNESS CRAMER: Thermal refugia is a summer concern, so it addresses summer concern. And then recommends a 10 percent reduction, no more than 10 percent year-round, so those two are not congruent with one another.

MR. KEIFER: No more questions.

HEARING OFFICER MOORE: Okay. Thank you, Mr. Keifer.

Next, a opportunity for California Department of Fish & Wildlife to cross-examine.

MR. VOEGELI: I don't have anything.

HEARING OFFICER MOORE: Okay. Thank you.

Next the Karuk Tribe, if you have any questions for cross-examination?

CROSS-EXAMINATION BY

MR. HUNT: Good afternoon, Mr. Cramer.

WITNESS CRAMER: Good afternoon.

MR. HUNT: So just a couple of questions, because most of what I would have wanted to ask has been covered. But I do have one question; did you consider whether to undertake modeling the rearing capacity of the pool for Coho?

WITNESS CRAMER: I considered it and thought that is much less well substantiated. Quite a range could be made. And I didn't have the explicit information and backing to do that in the same manner I could for a stream and so I chose not to do it for the pool.

MR. HUNT: What information didn't you have?

WITNESS CRAMER: Well, it's the typical densities that juveniles would rear at in pools of that size and the numbers that have been counted. And there have been from large to small across the years, a lot of variability. So you can't use that year -- those -- the data from that pool to talk about its capacity. And I just -- I've had to do that for other places and the numbers vary on what you'd find in a lake, in a beaver pond. So there's many conditions in the pool that could change over the years that I just thought that would be controversial no matter what I chose.

MR. HUNT: Sorry, I'm just trying to formulate anything else I want to ask. So the Prosecution Team asked a couple of questions about this and I just wanted to follow up. Related to the drought, which close enough characterized 2012 to 2016, were the fish that you would have observed in the pool from a cohort that experienced whatever other impacts the drought may have had on their

numbers?

WITNESS CRAMER: Well, so there are three-year Coho or three-year-old fish, so they would have -- what you'd find in 2017 should have been the -- and these are juveniles. So they would have been progeny of the spawning that occurred in 2000 -- winter 2016. So if there's a drought in 2016 those adults that came back in 2016, three years back from that would be 2013, they would have been -- so you can extend it down. There's life cycles that intersected the drought.

MR. HUNT: So there's two years. There's two times during this fish's -- you know, impacts on this particular --

WITNESS CRAMER: Yes.

MR. HUNT: -- fish's life history that were during drought periods?

WITNESS CRAMER: That's correct.

MR. HUNT: And did you make any attempt to evaluate the impacts that those conditions may have had on the value of the -- or not of the value, but on the numbers of fish that you may have observed?

WITNESS CRAMER: Well, attempts is a -- failed attempts. There was no data available for what other -- as I said I think the best way to look at that is what you found in other streams this year. What kind of an

abundance we have of Coho juveniles this year elsewhere. And nobody had reported that data where I could get it. The last -- and then as far as Stanshaw Creek goes the pond and in fact all of the mid-water ones I find basically no data after about 2012. So I can't -- they've got reporting. I did consult the reports by the tribes on their evaluation of the Mid Klamath and Lower Klamath and I didn't find numbers for their observations in refugia after about 2012. I found the one study that had them in 2014. It was a small number, but comparable data were not readily available after 2012.

MR. HUNT: Were the numbers in 2014 at least partially potentially impacted by drought conditions?

WITNESS CRAMER: Those would be 2014 juveniles in the summer, would be the offspring of the spawning that came in the fall of 2013. Now, that's a drought, but the 2013 spawners were the offspring of 2010 spawners. So they reared in 2011 when it was not the drought, so there would be -- I mean, it's just real variable on drought effects. And remember that when you're talking about fish in the pond the big issue here with the flow was not about their capacity of pond, it was about access to the pond, which is independent of whether it's a drought or not. Is there a channel of water that gets them to the pond?

MR. HUNT: Just one -- or just one other question or one other area of questioning is would the fish that use Stanshaw Creek, the Coho that use Stanshaw Creek, are they native fish?

WITNESS CRAMER: Well, that would be -- so they -- I don't know whether they were hatchery or wild, because the ones that we observed and the ones that others observed I believe are observed at distance by a snorkeler and it's hard to observe fin clips. I think the question you're asking is about whether they were produced in Stanshaw Creek or not. And if that's the question you're asking then there's no evidence at all that they've been produced in Stanshaw Creek. And I found no reports of anyone that there has ever been spawning of Coho observed in Stanshaw Creek.

MR. HUNT: So the correct term for discussing whether fish is -- uses Stanshaw Creek for spawning is "non-natal," and not "non-native"?

WITNESS CRAMER: Correct, non-natal. Yeah. Yeah, they weren't born there, but they migrate into the creek from the Klamath.

MR. HUNT: And is the -- does the Stanshaw Creek pool provides --

WITNESS CRAMER: Yes.

MR. HUNT: -- and Stanshaw Creek itself provide

useful, beneficial habitat for fish whether they spawn there or not?

WITNESS CRAMER: It has, yes. In some years, yes it does.

MR. HUNT: Thank you.

HEARING OFFICER MOORE: Okay. Thank you, Mr. Hunt.

Next for an opportunity to -- Old Man River Trust to do cross-examination. No? Klamath Riverkeeper, who I don't think is here. And CSPA, would you like to ask any questions of the witness? Please come forward.

Is everything okay over there? All right, good.

CROSS-EXAMINATION BY

MR. SHUTES: Good afternoon, Mr. Cramer. I'm Chris Shutes with the California Sportfishing Protection Alliance. I just have a couple of questions. When you visited Irving Creek for purposes of this hearing were the Marble Mountain Ranch hydropower facilities operating to your knowledge?

WITNESS CRAMER: They were not.

MR. SHUTES: Okay. So is it fair to say that the fisheries benefits in Irving Creek that you described this morning are not dependent on the discharge of water to Irving Creek from the Marble Mountain Ranch hydropower

facilities?

WITNESS CRAMER: That's correct. They are not dependent on those.

MR. SHUTES: Very good. That's all I have.

HEARING OFFICER MOORE: Thank you, Mr. Shutes.

And do we have a representative from the Pacific Coast Federation of Fishermen's Associations and Institute of Fisheries Resources? I don't think we have someone from that party here today.

Okay. And before we're done -- and thank you, Mr. Cramer, for participating -- I believe Board staff may have --

HEARING OFFICER MOORE:

Okay. At this point then would you like to ask questions for redirect?

MS. BRENNER: Yes, thank you.

HEARING OFFICER MOORE: Okay. Thank you. All right.

REDIRECT EXAMINATION BY

MS. BRENNER: So I just want to clarify it's your interpretation of the NMFS bypass flows that those are -- based on assumptions comparing other stream systems, not on direct data, correct?

WITNESS CRAMER: That's largely correct. The assumption that there should be a minimum 10 percent --

or a maximum 10 percent diversion of the flow is kind of a standard that is used broadly when there's not information that would help you determine otherwise. So instead of using site-specific information it's a broad generality you can apply, so that one does not use local data.

MS. BRENNER: Okay. And when Stanshaw flows are greater than 4 or 5 cfs does it -- is it your opinion that you should require 90 percent of the flow? That it -- that's the recommendation that you would make for this diversion?

WITNESS CRAMER: No. In fact, it may seem counterintuitive, but the higher the flow goes on Stanshaw Creek as far as any benefit you would get out of the stream goes down. Because of the very high gradient the velocities accelerate. Those step pools that will hold no fish whatsoever, because they're very high velocity, very turbulent at modest flows start to become calmer pools at real low flow. And there actually would be some pocket of water that has calm water suitable to hold fish at lowest flow that quite quickly becomes not suitable. The riffles as I illustrated with that one measurement, become less suitable the more flow you add, and that only got up to 14 cfs. The NMFS letter estimated what kind of flow frequencies there were and

they go way, way higher than 14 cfs. And it's really easy to see in that stream that that thing becomes one giant torrent with that kind of gradient as flows go up at higher flows in the winter. That would be detrimental to fish, so taking a few cfs certainly would not hurt.

MS. BRENNER: Okay. You indicated that there were fish in the Marble Mountain diversion ditch?

WITNESS CRAMER: They have been observed in the Marble Mountain ditch.

MS. BRENNER: Do you have any opinion as to where they come from?

WITNESS CRAMER: Yes. I guess I could just offer some ideas, because there's really not a whole lot of options. One of the options is that there could be some limited reproduction in the stream from trout that are present. And that could happen. There, as we noted in our entire survey walking the small stream, the entire 4,000 feet of it did not see a single fish. That's really unusual.

On the other hand, it doesn't mean there was no fish there. So you could have limited production. They would have an extremely difficult time surviving the winter in that stream.

The other possibility is that it's from some upstream source. I didn't survey the rest of the stream.

I asked a question of Doug Cole. He said higher up there are some meadows and some channels in the meadows that are slow flowing and may have fish in that he thought perhaps were even stocked. I didn't check that out, so I don't know what could be upstream. But upstream sources certainly do provide fish to downstream places, so that could be a source. But I haven't confirmed whether that's possible or not.

MS. BRENNER: And the source is not from the thermal refuge pool?

WITNESS CRAMER: Definitely not from the thermal refuge pool. They could not have obtained access up that far.

MS. BRENNER: Okay. You noted in your report fish counts prior to 2016, correct?

WITNESS CRAMER: Yes, I saw -- I reported some fish counts prior to 2016.

MS. BRENNER: In this, in the off -- Stanshaw off-stream pond, correct?

WITNESS CRAMER: Yes.

MS. BRENNER: And do you recall generally what years that you noted that data?

WITNESS CRAMER: I do, because I made a little table for my notes here. Okay. So and this data comes -- I don't know how you identify -- this is -- excuse me.

I don't see a numbering on this sheet, but it was one of the exhibits apparently says, "Data collected by Six Rivers National Forest, Orleans Ranger District, Klamath National Forest, Happy Camper Ranger District, Karuk Tribe of California." And so it was an exhibit that I was able to find and look at what it listed for numbers. And within it for Stanshaw Creek they had one count in 2005 for the pond, 156 Coho; in 2008, 2 -- in 1,000 -- in 2008, 130 Coho; in 2010, 55; in 2012, 120; winter of 2014, 105.

MS. BRENNER: Do any of those data also include the flow at the time of that fish count in Stanshaw Creek?

WITNESS CRAMER: There are years when -- there's another set of tables and I didn't go through them all, but there is a way to start making some comparisons. This is a table that was supplied, I think by the Karuk Tribe. Mid Klamath tributary streamflow data collected by the Karuk Tribe and Klamath Six -- Klamath and Six Rivers National Forests, 1996 to 2012. And so in that table there are flow data for a number of years for Stanshaw Creek at -- measured. It specifies where they were measured and what date they were measured.

MS. BRENNER: So in -- do you see -- in the

data associated with the flow and then in the fish count for let's say 2005?

WITNESS CRAMER: Gee, I'd have to compare a couple of tables here, but there's -- okay, so let me just look for 2005 -- 156 Coho were observed on September 12th, 2005. This shows Stanshaw Creek 2005, September 27th, 0.4 cfs below the diversion. You see it goes 100 feet above Highway 96. So wherever that -- so that would be.

MS. BRENNER: So about 0.5 cfs?

WITNESS CRAMER: Yeah, 0.5 cfs. In August of that same year, 0.9 cfs at the -- right -- about 100 feet above Highway 96.

MS. BRENNER: Okay.

WITNESS CRAMER: So that'd be about the same location that we also show the impassable barrier.

MS. BRENNER: Okay. How about 2010?

WITNESS CRAMER: In 2010, okay this shows -- in 2010 there was 55 Coho on July 20th. Okay. Here's July 20 -- and that's 2009. July 13th, 2010 directly in Stanshaw Creek below the diversion by the highway. I think that there was a -- I think in the video it submitted it showed a channel that was above the highway that doesn't use -- I'm not familiar with that one. I don't -- but it's not used, so I think they're just

talking -- there's some location right by the highway, above the highway. On July 13th, 2.4 cfs; August 2nd, 2.1; August 5th, 2.0; August 18th, 1.1; August 26th, 0.4.

MS. BRENNER: So generally the data that's developed by others, not your data but data that you've reviewed by others, indicates that even during low flow periods of Stanshaw Creek as low as 0.5 cfs there's still fisheries in the Stanshaw pond, thermal refuge pond?

WITNESS CRAMER: It does show that. And it would -- you'd have to compare your -- there's several years that you can do that exercise with the data.

MS. BRENNER: Is 2009 another example of that data?

WITNESS CRAMER: It is. In 2009, okay so in 2009 it doesn't show any Coho. So the numbers I'd been giving you were Coho and here's the interesting thing. There's a comment column here and so in 2009 no Coho on July 13th. But it says in the comment column, "179 juvenile steelhead and 1 juvenile Chinook were seen." So I assume they did snorkeling. In the column that lists Coho there was none, but they'd -- in several of these same years. So even for example back there in 2000 and -- is that -- 2008, 502 juvenile Chinook were in the pond. So there's other fish in the pond in these years as well. Not this year, there was a few steelhead and two Coho we

saw.

Okay. Your question in 2009, on -- yeah 179 Chinook on July 13th.

MS. BRENNER: And is there flow data for that time period?

WITNESS CRAMER: 2009, July 13th. 2009, July 28th 1/10th of a cfs, 22 feet below diversion; July 28th, 60 feet above diversion 1.9 cfs. So there was above and below diversion that day. They did one of those where it was up at the upper part. Then on July 1st below diversion near Highway 96, so this would be way downstream then, 0.5 cfs. And again on August 3rd, 0.3 cfs a hundred yards above the highway.

MS. BRENNER: Okay.

WITNESS CRAMER: So some very low flows there.

MS. BRENNER: So the data does suggest that during very low flow periods you still have fishery resources in the pond off of Stanshaw Creek?

WITNESS CRAMER: That's correct. Fish got -- they were there, they had access some time.

MS. BRENNER: Do you recall the flow when -- of Stanshaw Creek when you were at the site?

WITNESS CRAMER: We estimated it was 5 cfs on the day of our survey.

MS. WEAVER: So before we move on if you could

just -- before when you're done if you could provide a copy of those charts to staff? It sounds like they're both exhibits. It sounds like KT-6 and KT-9, but we'll just want to make sure we're cross-referencing the --

WITNESS CRAMER: Okay. Great.

MS. WEAVER: -- same thing. Thank you so much.

MS. BRENNER: Can you indicate what benefit, if any, there would be to return the 3 cfs hydropower flow from Stanshaw back into -- well, from originally diverted from Stanshaw back to Stanshaw versus going to Irving?

WITNESS CRAMER: That wasn't that I wanted to estimate, and I would have to say evidence is equivocal on how the benefits would balance off between having it in one stream or other. Typically, it would be a standard policy of fisheries agencies that you would not allow one stream to be diverted to another, because it would cause homing troubles. For that reason it's very important if there's any spawning in Stanshaw Creek, and we show there's not a sustainable steelhead habitat, there's not Coho spawning, so there's not homing to Stanshaw Creek. You don't have to worry about losing homing if the water's in Irving Creek, so we can rule that out.

But still the question then is how about for a benefit to the fish use in the pond? And what we can see

is the fish were using the pond while it was being diverted. In turn, there was more water that could've been in the pond, but was over now in Irving Creek. Did that do any good? With some of the flow in Irving Creek it's hard to say whether more is better or at that time or not, but it's not the steep gradient -- it was not -- it would not be likely a damaging problem at all in Irving Creek. So for those who think more flow is good, well Irving Creek is a more suitable habitat for producing fish than is Stanshaw Creek.

MS. BRENNER: Okay. I have nothing further.

HEARING OFFICER MOORE: Okay. Thank you, Counselor.

Do we have any recross-examination from first the Prosecution Team?

MR. PETRUZZELLI: Yes.

HEARING OFFICER MOORE: All right, come on up.

MS. WEAVER: As a reminder, recross is limited to the scope of redirect.

MR. PETRUZZELLI: I can't remember what's in redirect.

(Laughter.)

MS. BRENNER: Yeah, you do.

HEARING OFFICER MOORE: Yeah, we've been paying attention to what the scope was of the redirect, so we're

watching that.

MS. BRENNER: Yeah, I know (indiscernible).

RECROSS-EXAMINATION BY

MR. PETRUZZELLI: So Mr. Cramer, I wanted to ask you about some of the refuge habitat benefits over summer. And in particular, in your conclusion in your second report, Number 21, I think it's Conclusion 1 you acknowledge that the floodplain pool fed by Stanshaw Creek near the confluence with the Klamath River provides refuge habitat during summer and winter for juvenile salmonids; is that correct?

WITNESS CRAMER: Correct.

MR. PETRUZZELLI: Okay. And then in that conclusion -- and then I think it's Conclusion -- so but so you do agree -- you do acknowledge that the refuge has habitat both in the summer and winter?

WITNESS CRAMER: Yes, I do.

MR. PETRUZZELLI: Okay. And then I think it's Conclusion 2 you also indicate that -- do you then agree with NMFS that the key months when salmonid, juvenile salmonids seek access, is spring in May and June and then again in fall and winter?

WITNESS CRAMER: Yes.

MR. PETRUZZELLI: Okay. And it's fall and winter when, as you describe it, stream flows rise in

response to rainfalls?

WITNESS CRAMER: Yes.

MR. PETRUZZELLI: Okay. So it does have -- so it has value in the spring?

WITNESS CRAMER: Yes.

MR. PETRUZZELLI: And then value, fall and winter?

WITNESS CRAMER: It has value in both those periods.

MR. PETRUZZELLI: Okay. And you also -- so you do conclude that juveniles would seek to access the pool during high-flow periods?

WITNESS CRAMER: Yes, that would occur.

MR. PETRUZZELLI: Okay. And then also in Conclusion 2 you indicate that access to the floodplain pool should be possible at flows between 2 to 3 cfs or more?

WITNESS CRAMER: Okay. Then so I'm glad that you ask that, because I never did go back to read -- that's in my first report, not my second. I don't see -- oh yes, the access to floodplain pool should be possible at flows 2 to 3. Okay. So I needed to correct it, because I had written that before I had gone back and analyzed not only -- so I got -- I had to submit this report before I finished it. You may find out that

there's some data presented there with no discussion of it. The 2 to 3 cfs was my initial thinking based upon comments of others. That was -- and in the first report I introduced it said everybody seems to be agreeing on about 2 to 3 cfs. And I had some number, something like that.

However, after reviewing the photos that I later saw of the pond reconfigured, looking and seeing that the pond had been substantially modified since that enhancement, something is causing big change in the pond that we can't control. So choosing a 2 to 3 cfs it was circumstantial dependent on the configuration of the pond. We've got 5 cfs now and it's not even close to being accessible until you remove all those rock berms.

So the amount of required is circumstantial. If it was naturally configured without a bunch of people trying to build it up, so it would be deeper it would likely have a more defined outlet, I think, so. And that's the best we can do, because it's -- we don't have that and those pictures to identify that.

MR. PETRUZZELLI: So is that why you then have this qualifier after the first clause in the first sentence of conclusion two where you say, "If people add" -- you add, "If people presented from" -- "If people are prevented from building rock berms." That passage in and

out of the pond, then?

WITNESS CRAMER: Correct. That would change the configuration. You know, there's been a request to have people change their diversion, so fish could get in and then people promoting those have also built rock berms that prevent the fish from getting there. So it's kind of --

MR. PETRUZZELLI: I actually -- I was just going to ask, did you intend, because it looks like there's a word missing --

WITNESS CRAMER: There might be.

MR. PETRUZZELLI: Did you intend to say, "If people are prevented from building rock berms, that" -- and this is where it looks like did you intend to say, "prevent passage of fish in and out of the pond"?

WITNESS CRAMER: Okay. Which -- now are you -- which report are we in?

MR. PETRUZZELLI: It's -- so it's Conclusion 2, Page 22.

WITNESS CRAMER: Okay. Thank you.

MS. WEAVER: Can we put that on the screen?

(Exhibit MMR-21 uploaded to screen.)

MR. PETRUZZELLI: It's MMR-21, it's Page 22.

WITNESS CRAMER: No, no. Okay. No, I didn't -- see it's dated correctly. Only 2 to 3 cfs could work

under some circumstances, but those circumstances would require that the rock berms not be there.

MR. PETRUZZELLI: Now, I -- what I -- okay and that's great, so I'm -- it's just looks like there's a word missing in the second clause of that first sentence in Conclusion 2?

WITNESS CRAMER: It would be accessible "if people are prevented from building the rock berms that passage of fish in and out of the pond" -- oh, yes there is a word in there missing, interesting. Yeah, prevented, if they're prevented from doing those, that block passage.

MR. PETRUZZELLI: Ah, okay.

WITNESS CRAMER: "That block passage of fish," thank you. Now, we've figured it out. Sorry about that.

MR. PETRUZZELLI: That's what I was trying to figure out.

WITNESS CRAMER: Okay. (Laughing.)

MR. PETRUZZELLI: Okay. Thank you. That's all the questions I have.

HEARING OFFICER MOORE: Well, good.

So Ms. Brenner, you didn't come up to do anything, but see -- to read?

MS. BRENNER: Well, I can't hear or read from back there, sorry.

HEARING OFFICER MOORE: Okay. Good, I'm with you.

So very good. Now, at this point I was made aware that staff might have some questions.

HEARING OFFICER MOORE: Oh, that's right. Is there anybody else who wants to do recross? Okay, Old Man River Trust. That means NMFS and DFW don't want to recross? Okay. And Karuk Tribe, no recross? Okay.

Mr. Fisher?

RECROSS-EXAMINATION BY

MR. FISHER: You said essentially, correct me if I'm wrong, that given that there were fish in the pool when the flows are 1 cfs that that's an indication that 1 cfs is enough?

WITNESS CRAMER: For water quality, the fish were alive.

MR. FISHER: How about fish habitat in general?

WITNESS CRAMER: I covered the fish habitat. We measured it at 5 cfs and the limiting factor then was high velocity. We didn't measure it at 1 cfs, but much of the high velocity habitat would have become more desirable at 1, because there's a lot of carved out pockets that are very fast as it plunges as a step-pool kind of a formation.

MR. FISHER: You said there were fish in the

pool at a time when the flows were low. I don't recall the exact amount. And your response to her was essentially that means that it was adequate for fish habitat. Is that essentially what you're saying?

WITNESS CRAMER: In the pond?

MR. FISHER: In the pond, yes. Correct.

WITNESS CRAMER: It was -- yes, it was adequate for the fish to survive in the pond.

MR. FISHER: Okay. Are you aware that the fish come in when the flows are higher?

WITNESS CRAMER: Very much.

MR. FISHER: Okay. Are you aware that when the flows are low they cannot get out?

WITNESS CRAMER: That was my point.

MR. FISHER: What do you mean that was your point?

WITNESS CRAMER: My point throughout was that there's rock berms all over that prevent them from --

MR. FISHER: No, no, no --

WITNESS CRAMER: -- going in or out.

MR. FISHER: Out of the pool?

WITNESS CRAMER: Out of the pool. They cannot go out.

MR. FISHER: The rock berms don't block the pool from the river --

WITNESS CRAMER: Yes, they do.

MR. FISHER: -- the rock berms guide -- I live there.

WITNESS CRAMER: Good.

MR. FISHER: The rock berms guide the creek to the pool and then they can't get out?

WITNESS CRAMER: The only way the fish can get out of that pool is to go upstream, back up to the point, and go back down through the -- they can -- the water's flowing through the berms. I showed the picture. I inspected that whole berm blocking the way out. There was no overflow. It was flowing through the pores in the rocks out of the pond.

MR. FISHER: Okay. For clarification for the Board the creek goes into the pool, and then the creek leaves the pool.

MS. BRENNER: I have an objection, the witness is testifying. He (indiscernible)

HEARING OFFICER MOORE: Sustained.

MR. FISHER: That's fine.

Okay. So (chuckles) you acknowledge the fish get in the pool and then can get trapped when flows are low?

WITNESS CRAMER: Correct.

MR. FISHER: Just one more question, when you

visited the site how'd you get there, by car or by boat?

WITNESS CRAMER: We surveyed the stream channel.

MR. FISHER: How did you get there, by car or by boat, did you drive there or did you come from the river?

WITNESS CRAMER: I went down -- straight down the stream channel when we measured the channel units.

MR. FISHER: By foot then?

WITNESS CRAMER: Yes, straight down the stream channel.

HEARING OFFICER MOORE: Any other recross? CSPA?

Mr. Shutes?

RECROSS-EXAMINATION BY

MR. SHUTES: Hello again, Chris Shutes for the California Sportfishing and Protection Alliance. In your -- in the redirect testimony you stated that there was no benefit to increased flow in Stanshaw Creek above a certain point, and I believe it was about 2 cfs. Is that a fair characterization?

WITNESS CRAMER: No. I didn't pick a number. I said at 5 cfs, probably less would be better, but --

MR. SHUTES: Okay. That's the --

WITNESS CRAMER: -- determination of the exact

number we didn't come up with.

MR. SHUTES: Fair enough, you said 5 wouldn't be too much, but you were speaking about fish that were in the creek as opposed to the pool; is that correct?

WITNESS CRAMER: Correct.

MR. SHUTES: Okay. So wouldn't the benefit of increased flow of fish of a water into the pool depend on the configuration at that time of the creek in relation to the pool?

WITNESS CRAMER: So if I'm understanding your question right, the configuration of the creek to the pool influences what arrives at the pool?

MR. SHUTES: Right.

WITNESS CRAMER: Yes.

MR. SHUTES: Okay. And you stated previously, and this goes to the characterization of the relative benefit of flow, you stated previously in your testimony that in 2017 the system -- that whole area basically are reset during high flows in the Klamath River; is that correct?

WITNESS CRAMER: That was my -- I believe that that's how it would have reset, because it doesn't -- it's configured differently now than it was in the pictures of 2000 -- winter 2014.

MR. SHUTES: Right. And isn't it fair to think

that the existing configuration, regardless of the human manipulation, is going to change over time. And that what happened because of a very high flow in 2017 may not have the -- that what happened in a very high flow in 2017, may not last into the next year or the year after that or the one after that?

WITNESS CRAMER: Agreed. Yeah, I definitely believe it will change over time depending on how it's scoured by the flows of the Klamath River.

MR. SHUTES: Is it possible that it could change from the flows of Stanshaw Creek even if the Klamath River did not reach that elevation?

WITNESS CRAMER: As it's configured now I can tell you what it largely would do, because as soon as it gets larger it's going to blow out the berms that were intended to direct the water straight a 45-degree right turn to go over to the pond. And they would head out across the bar and miss the pond. Now, some that would be the majority. I would imagine there may still be some to the pond. I'd have to do experiment to find out, but clearly berms are directing it in a direction it was not going naturally.

MR. SHUTES: But for about 20 years at least of the period of record that you discussed with Ms. Brenner there was greater flow into the pool and more fish were

using the pool than used it in 2017; isn't that correct?

WITNESS CRAMER: Part of what you said was correct. There was not more flow. There was less flow in those earlier years, but there were more fish in the pool I believe, probably because there was better access to the pool from the Klamath River.

MR. SHUTES: Okay. So really whether or not there are benefits to increased flow in the -- in Stanshaw Creek coming from the project's diversion really depends on the configuration in any given year of the Stanshaw Creek with relation to the pool. Isn't that fair?

WITNESS CRAMER: That is fair. So you could go back and look at the years where it was configured naturally before they started making a bunch of modifications, because it certainly seems to have been a problem since the modifications.

MR. SHUTES: Oh, okay. And how do we know that it was the modifications and not some other natural events that --

WITNESS CRAMER: We don't --

MR. SHUTES: -- changed it?

WITNESS CRAMER: -- fully, the only thing we know fully about the modifications is they clearly are causing an impediment to upstream migration.

MR. SHUTES: And are you talking about the modifications in 2017 or are you talking about the modifications in 2013, which one of them?

WITNESS CRAMER: Yeah, thank you. So the ones that I can speak to are the ones that I observed on October 2nd, 3rd, those are the rock berms that are piled. It shows a picture of me standing there and a rock berm blocking the tail that's -- and all the water flowing through the rock berm, that's artificial. That's blocking it and that's human.

MR. SHUTES: All right. Thank you.

HEARING OFFICER MOORE: Okay. Thank you.

And I think that's it for potential recross and I would turn the Hearing Team. Do we have any questions from staff based -- or to Mr. Cramer?

MS. WEAVER: If we could take five minutes to (indiscernible)

HEARING OFFICER MOORE: Sure. Well, it's probably a good time for a break anyway, don't you think folks? So we'll take five minutes to confer. And please stick around, Mr. Cramer. We'll be right back.

(Recess taken at 2:25 p.m.)

(Proceedings resumed at 2:36 p.m.)

HEARING OFFICE MOORE: Okay. We're good. Thank you, Peter.

All right, at this time I'd like to turn the microphone over to Ms. Irby, who has a couple of technical questions for you, Mr. Cramer. Thank you.

WITNESS CRAMER: Thank you.

RECROSS-EXAMINATION BY

MS. IRBY: Hi.

WITNESS CRAMER: Hi.

MS. IRBY: Given that you observed fish in the pool during 2017, and you observed the rock berm that blocked their passage out from the pool, could you explain how you would expect that those fish entered the pool?

WITNESS CRAMER: Yes. Good question, because there seems to be a lot of misunderstanding how that works. So, and I described this in my first report and it's consistent with the way NMFS described it as well, the pond is accessible in the spring. So the redistribution of fish happens in the spring, as new juveniles emerge and the flows are high. They gain access to ponds, off channel ponds. Many of those ponds, not just Stanshaw Creek, but it's common for those ponds then to become really fish are trapped through the summer, in those ponds. And then in the fall as flows rise, fish can again get back out of the ponds.

Additionally, in the fall there's a whole bunch

of fish that redistribute as the flows rise plus all kinds of things change and fish move around. So in the fall you can get additional fish coming in, as access reopens. So movement in happens at higher flows different times of year. Summer, you just need enough water into that pond to sustain water quality, so the fish that are in it stay alive. And the data shows, as presented in my first report, that they grew well. There's some marking of history there, so that there's evidence that things are okay in that. It's not -- there's evidence in every year, but where there is it looks good.

MS. IRBY: And to be clear we're talking about the Stanshaw pool, correct?

WITNESS CRAMER: Stanshaw pool pond.

MS. IRBY: Yes. So are you suggesting that flows this fall were higher at some point to allow those fish to enter?

WITNESS CRAMER: Good question. No, they could not enter in the fall. At the time I was there what I think is they were probably as high as they had been. I suppose they could have been temporarily higher. There were some rains. But I don't know what flow it would take with all those rock berms in the way to get them in there. Those fish probably were there all summer.

MS. IRBY: So were spring flows high enough for them to enter, or do you --

WITNESS CRAMER: Oh, yeah. Spring flows are far higher. So you have much higher flows out of Stanshaw. You have way higher river out of Klamath, so the whole situation's a lot different in the spring.

MS. IRBY: Okay. So that barrier was not a problem for them in the spring, particularly?

WITNESS CRAMER: Well, all I can say is likely not.

MS. IRBY: Okay.

WITNESS CRAMER: I wasn't there and we don't know for sure exactly when those fish got there.

MS. IRBY: Okay. Are you aware how readily accessible the Irving pool might be to fish?

WITNESS CRAMER: Well, I think it was -- there was fish in it at the time I was there in October. It's a relatively shallow pool, but it had good cover with vegetation all around it, and it was only I think perhaps 20 feet from the edge of the river. So I think fish could have gotten into the portion of the stream that was flowing into that little pond.

MS. IRBY: Okay. If spawning is possible in Irving Creek, do you think that the diversion flow from Stanshaw into Irving might affect the return signal for

migrating salmon returning to Irving Creek? Could they be thrown off by --

WITNESS CRAMER: Oh, no. They wouldn't be, because they would detect Irving Creek. So just any tributary, think of it in reverse, any stream that they home to they've got to navigate up a whole bunch of mixed signals to find "the" signal. An Irving Creek signal will only come from Irving Creek. So they'll find Irving Creek.

MS. IRBY: Okay. Lastly, I just wanted to ask in your snorkel survey you assumed a 50 percent observation rate in order to get your estimate for the number of fish in the pool?

WITNESS CRAMER: And that was -- when I say assumed I was giving you that as a -- just a rough off the hand. You know, the right way would be to electrofish the whole pool tag -- a mark recapture would be the right way to do it, which is a long process and you've got to get a permit to handle the fish. So I'm just telling you I think roughly doubling it is a quite reasonable assumption, but you could choose another number in that range. It's still -- you'd have to blow them up a long ways to get enough to be a sustainable population.

MS. IRBY: So that was based on conditions that

you observed at the pool; that 50 percent seemed reasonable?

WITNESS CRAMER: Yes.

MS. IRBY: Okay.

HEARING OFFICE MOORE: Great. Thank you, Ms. Irby.

During your testimony, you mentioned some measurements of temperature that haven't been entered into evidence yet. And if that's the case --

WITNESS CRAMER: Ah.

HEARING OFFICE MOORE: Oh, unless they are associated with an exhibit in the MMR list or other I was going to request that you submit the information to support the temperature data that you included in your testimony.

MS. BRENNER: Yeah.

HEARING OFFICER MOORE: And that could be another exhibit in the Marble Mountain Ranch list.

MS. BRENNER: That data come from other exhibits that have been submitted, so we have the exhibit.

WITNESS CRAMER: I think he's -- I think you're talking about when somebody asked me, "What was the temperature on the day you did it?" And it was 10. I said 10 and 11.

HEARING OFFICE MOORE: Right.

WITNESS CRAMER: And I can check to see if it -- I thought it was in here, but I -- for sure I can give a copy of the original data sheets that has it written on it. So let me check and make sure I don't get out of here without giving you that.

HEARING OFFICE MOORE: Okay, good. Well, we'll follow up on that, but in the event that it is -- has not been submitted into evidence at this point, I was requesting that it is submitted into evidence.

WITNESS CRAMER: Yeah. Okay.

MS. WEAVER: And do you have an ETA for when you'd be able to get that to us? I mean, I don't know if you have it just on a laptop or you need to actually go back to the office.

WITNESS CRAMER: I can do it here.

MS. WEAVER: Okay.

WITNESS CRAMER: Today.

MS. BRENNER: We have the data. We have it right here.

WITNESS CRAMER: No, now this is different data. This is from my survey.

MS. BRENNER: Okay.

WITNESS CRAMER: He's talking about the day I was there what did I -- and I put a thermometer in and

measured the stream temperature.

MS. BRENNER: Okay.

WITNESS CRAMER: Yeah, I have it here.

HEARING OFFICE MOORE: All right, excellent. Thank you. I appreciate that. Okay. Well, I believe that is the --

(Overlapping voices.)

MS. MCCUE: Can I ask one question? Sorry.

HEARING OFFICE MOORE: Oh yes, Ms. McCue.

MS. MCCUE: I just had a question.

HEARING OFFICE MOORE: Oh yes, sorry. Mr. Cramer, one more question. Thank you.

RECROSS EXAMINATION BY

MS. MCCUE: On redirect, when you were reading from all the -- from the pages what do you -- what exhibits were those -- were those exhibits that --

WITNESS CRAMER: Oh. You're talking about the tables?

MS. MCCUE: Yeah.

WITNESS CRAMER: Yeah. That was the same ones that we were -- I was just thinking that I needed to go find. We have full copies. I just have some of my personal ones here, but they're an exhibit.

MS. BRENNER: Those are Karuk Tribe exhibits.

MS. MCCUE: Okay.

MS. BRENNER: Yeah, the Karuk's exhibits have that data. We could (indiscernible)

MS. MCCUE: I just remembered I wanted to -- or maybe they could come back later and say what they were just to have it on the record, so we can correlate and tie it back?

WITNESS CRAMER: Yeah.

HEARING OFFICE MOORE: Yeah, specifically which ones that you were reading from.

WITNESS CRAMER: Yeah. I can find it real quick.

MS. FULLER: I believe it's here.

MS. BRENNER: Yeah. They're not marked.

HEARING OFFICE MOORE: Yeah.

(Off mic colloquy to locate documents.)

MS. FULLER: They're this one and --

MS. BRENNER: What's it called?

MS. FULLER: It's Karuk Tribe-6 and Karuk Tribe-8.

HEARING OFFICE MOORE: All right, so they're Exhibits KT-6 and KT-8 --

WITNESS CRAMER: Yes, those are the right ones that I looked at.

HEARING OFFICE MOORE: -- were the reports you were quoting from --

MS. MCCUE: Thank you.

HEARING OFFICER MOORE: -- during your testimony?

WITNESS CRAMER: Yes.

HEARING OFFICE MOORE: Okay. Good question. Thanks, Ms. McCue.

And I believe with that, that is the end of Mr. Cramer's testimony.

WITNESS CRAMER: Thank you.

HEARING OFFICER MOORE: And we appreciate you traveling here in a timely manner, so we could stay roughly on time.

We're going to switch gears now and we're going to invite Old Man River Trust. And their direct testimony as well as direct testimony from witness Phil Alpers, (sic) as part of our attempts to accommodate folks' complex schedules given how far people have had to travel.

Phil Albers, with a "b". So I'd like you to --

MR. FISHER: If it's okay, I would let Phil go first?

HEARING OFFICE MOORE: Yes, so I want to hear your opening statement first. That was the plan. And then to direct testimony from Phil Albers followed by any cross-examination in the order I have previously

identified. Redirect and recross examination of the witness may then be permitted.

And so is Mr. Albers here? Please come up and sit at the witness location. And any witness testifying at this time, I would ask you to please stand and raise your right hand.

PHILIP ALBERS, JR.

called as a witness by the Interested Party Old Man River Trust, having been previously duly sworn, was examined and testified further as hereinafter set forth:

WITNESS ALBERS: Yes. I do.

HEARING OFFICE MOORE: Thank you very much. You may be seated. I appreciate it.

And, Mr. Fisher, you may proceed.

MR. FISHER: So I would just offer to Phil a broad question. What's your relationship to Stanshaw Creek and how do you use it?

HEARING OFFICE MOORE: So at this point you've decided to go into direct testimony and not do your opening statement?

MR. FISHER: I can. I guess earlier I thought we were worried about time, but we can do both now.

HEARING OFFICE MOORE: I'm open to either.

MR. FISHER: Okay. Well --

(Off mic colloquy.)

HEARING OFFICE MOORE: Okay. Do the opening statement.

MR. FISHER: I'll be brief with this.

I will -- I'll submit evidence and direct personal testimony showing that the Marble Mountain Ranch diversion does in fact constitute waste and unreasonable use under the California Constitution. And it does harm public trust resources, and also that there are remedies, there are solutions. Per the second question that posed for this conference there are remedies that will mitigate or completely prevent harm to the fisheries and public trust resources and will not -- that will minimize economic harm to Marble Mountain Ranch or cost very little.

MR. FISHER: So to the point of public trust impacts and recreation, I guess I would open up to Phil Albers to say what he wants to say.

HEARING OFFICE MOORE: Okay.

DIRECT EXAMINATION BY

WITNESS ALBERS: *(Speaking in Karuk language.)*

I said my name is Phil Albers. I am a Karuk person of the Karuk Tribe. Right now I live in Orleans at 414 Ferris Ranch Road, 95556.

And my testimony goes back as far as I can

remember. I would -- as far as I have ever known my family -- okay, so let me go there. My family has ancestral ties to the Village of Ishiraam'hirak, (phonetic) which is identified as across the river from the mouth of the Stanshaw Creek. And that currently is an Indian land allotment up along the Forest Service property. So I have stories and family history that date back to before it was even documented through written materials. And those were passed on and shared with me as I grew up. And even from the time I was one year old -- well, I was born in October, so before my next birthday my family had traveled back to that land from Yreka where I was born and grew up and have always had connections to that land and to that place. So I grew up knowing that and understanding that and that being a part of my regular life, specifically during times of -- I guess like mini-family vacations.

And I remember playing in that creek, all along that creek and the pool or near it with my brothers, or my one brother and my two sisters and all my cousins and family. And we would spend time there and sometimes even when we weren't able to cross the river for the reason of sometimes in the early summer or late spring, Memorial weekend, we would travel across there. My family has a family cemetery on the other side of the river that every

year, several times throughout the year, we go and maintain and clean up and pay our respects. But sometimes during different times of the year the river would be too high to safely cross in a boat. We didn't -- we don't really have a motor boat that we use, we just row across. And if it's not safe for the kids or for some of our, at the time elders to go across, we wouldn't go. So we would still go there and try to maintain that practice, but also we'd stay on the other riverside right near the creek. And all of us kids would play in the creek and hear stories about how our family used to do the same thing all the way since anybody could ever remember.

So then as that happened and I grew up with that in my life, when I really started to pay attention and understand the habitat and the environment, I started to notice probably a little before high school what the creek was like. What it sounded like and really starting to have the ability to recall actual memories of it, so that I can reach back upon them when I'm at somewhere else. And I feel like for me that happened right around 12, 13, 14 when I started to really like make designated memories of what was going on.

Anyway, so as I got older and I got into high school and I started becoming more active in sports and

other things, getting a job, my time there got a little bit less. And so when I did go back and I had that opportunity, I was really able to remember some things a little more clearly and then pick out differences. And between maybe 16, 17 and 18, before I left for college I just remember thinking that the creek had gotten a lot smaller then I previously remembered. And I remember going down there and just thinking like, "Oh, man. I used to have to jump across to get to the other point to go over here where me and my brother would have our little toy car tracks set up or whatever." And try to think about well, how did it change? You know, oh the creek changed, because we used to put our little boats in up here and race them down and see who could win. And you can't do that anymore and really started to pay attention to those things.

So then as I got older and even started my own family, I really wanted to make the dedicated effort to bring my children there and have an opportunity to relive some of those memories. And share some of those stories with -- from my grandmother and my family, my -- even my own childhood with my kids. And bring them there for that purpose in the hopes that they would be able to do that and maintain this line of a place for us to go as a family. And just in the last -- so I was able to do

that. My children were able to go there and we've had good times, really fun times to be there and have an opportunity to talk and be on the river and have our little mini-family vacations, so to speak.

And within the last two years specifically I have a daughter, she's two. So she's been able to go there every year of her life and have an opportunity to experience the creek at a little bit better place than it was for my other children when they were younger. So we've really appreciated that.

MR. FISHER: So I guess I would ask -- thank you, Phil -- I would ask if it's possible to bring up Exhibit OMRT-10.

(Exhibit OMRT-10 uploaded to screen.)

So Phil, you essentially around your teens the -- you saw the creek diminish and these last few summers it has been slightly better?

WITNESS ALBERS: Yeah. That's right. I feel confident with that, yes.

MR. FISHER: Okay. So to me this speaks to the public trust implications, correlated with the diversion of the creek, about the time Marble Mountain Ranch purchased the land. We were both teenagers. I'm slightly older. The flows went down dramatically to the point where it no longer made it to the river. And since

there was a recent enforcement action flows have increased dramatically and most -- more times than any of the previous years since Old Man -- since the Coles bought Marble Mountain Ranch, the creek has made it to the river. The recreation that's in the -- shown in the photos, if you can scroll down a little bit, has become more possible.

And speaking specifically to the public trust implications the cold water refugia, the cold water plume in the Klamath River, as a result of Stanshaw Creek entering the Klamath River is much larger. And that's a definite resource, public trust resource in the summer when the Klamath is unsafe to swim in. There's a clean cold water plume in the Klamath if it is allowed to reach the Klamath. So yeah, is there anything else you wanted to -- any other stories?

Okay. So later on when -- in the interests of time I just wanted to get this out of the way, but I will show evidence that this diversion is unreasonable, the method. And that there are remedies that we can -- we'll get into that with the next round. Thanks.

HEARING OFFICE MOORE: Thank you, Mr. Fisher.

MR. FISHER: Philip, yeah. If there's anything else, Phil, I'm done for now.

HEARING OFFICE MOORE: Well, as a -- or as a

witness then other have the opportunity to ask you questions. And so that's a direct testimony. So would the Division of Water Rights Prosecution Team like to ask any questions?

MR. PETRUZZELLI: Yes.

HEARING OFFICE MOORE: Come on up.

MS. WEAVER: (Indiscernible)

HEARING OFFICER MOORE: Oh, yes. Go ahead, Counselor.

MS. WEAVER: So I just wanted to note for the record, because Mr. Fisher hasn't taken the oath to the extent he was talking about his own experiences or conclusions we're not taking his testimony at this time. So just make sure that you -- yeah, my understanding is that you will be testifying later and I just wanted to make sure there's no confusion.

HEARING OFFICE MOORE: All right, thank you.

And Mr. Petruzzelli?

CROSS-EXAMINATION BY

MR. PETRUZZELLI: Mr. Albers, thank you for coming. So you talked about, you know in your memory thinking back and realizing that the pool is now smaller than it once was. In your memory, is there roughly a timeframe that you can think of when you noticed the pool getting smaller?

WITNESS ALBERS: Yeah. I tried to reference it, because I don't -- I didn't actually think of it or reference it by my age, but more of what was happening to me in that time. And I remember I noticed and I would go because I would miss some of my football practice for the high school to be working on the family cemetery. And I was excused by the coaches. And they -- you know, I mean -- anyways, so I started high school football I was 13. I turned 13 my freshman year.

MR. PETRUZZELLI: So do you know about how long that was, because I don't know how old you are.

WITNESS ALBERS: Yeah, it's all right. I think I -- well I graduated in '97. So I mean --

MR. PETRUZZELLI: From high school?

WITNESS ALBERS: Yeah. Yeah, in 1997. So --

MR. PETRUZZELLI: So if you were 18 when you graduated in 19 --

WITNESS ALBERS: Well, I was 17. I was --

MR. PETRUZZELLI: Oh, 17. Okay.

WITNESS ALBERS: -- 17 when I graduated, yeah. Yeah.

MR. PETRUZZELLI: Okay. And you said you were -- you said you were about 13 when you noticed?

WITNESS ALBERS: Yeah. Yeah.

MR. PETRUZZELLI: So that would be about 1993?

WITNESS ALBERS: Well, I mean I'm sorry, that's not when I noticed the decline in water.

MR. PETRUZZELLI: Oh, okay.

WITNESS ALBERS: That's when I -- like what I was saying that's when I started to notice that, "Oh, this is what it's like. This is something I should," you know -- or consciously put into my memory and remember. So and then to continue with that it must have been when I started to get older and I was -- and I went there less, because I started to do things. So I would say like '96, '97 and '98; that those are the times when I started to at least feel like in my memory that -- noticing, "This is less water." Like I was saying I used to be -- you know, I'd have to jump across. Now, I can just step over or, you know, it's not as loud. I used to stand right here and look at my family's house and hear the river and -- or the creek and feel it. And then I wasn't able to do that.

MR. PETRUZZELLI: So it was about -- so about 1997, '98, about you remember --

WITNESS ALBERS: That's when, yeah.

MR. PETRUZZELLI: -- a noticeable difference in the size of the pool?

WITNESS ALBERS: Yeah, that's for me. Yeah.

MR. PETRUZZELLI: Okay. I'm just asking about

your personal observations.

WITNESS ALBERS: Yeah.

MR. PETRUZZELLI: So okay, great. Thanks. And that's all I have for him.

HEARING OFFICE MOORE: Thank you, Mr. Petruzzelli.

Next, I'd like to ask Marble Mountain Ranch if you'd like to cross-examine the witness.

MS. BRENNER: Yes.

HEARING OFFICER MOORE: Ms. Brenner?

CROSS-EXAMINATION BY

MS. BRENNER: Has it been your experience when you visit the Stanshaw Creek that the conditions change over the years? In other words, one year may have a certain amount of flow and the next year may not have that amount of flow, due to different winter conditions.

WITNESS ALBERS: I don't know that I would say due to certain conditions, but yes. I think that there are variances every year.

MS. BRENNER: The creek system changes?

WITNESS ALBERS: Yes.

MS. BRENNER: It's a dynamic system. How many other creek systems along the Klamath River do you enjoy?

WITNESS ALBERS: Usually not quite to the extent of Stanshaw Creek, but I do spend time in them:

Camp Creek, Indian Creek. I mean, I'm speaking throughout roughly the same time that I remember as a kid: Elk Creek, Indian Creek, Ti Creek. I don't know if I said that one. And a couple of other smaller little streams, I guess you could say that I -- because I have a lot of walking grounds and trail grounds that I go with my family, so.

MS. BRENNER: And does your experience of those different creek systems that lead into Klamath also change on an annual basis; that they're also dynamic?

WITNESS ALBERS: (Clears throat) Excuse me. Yeah, I would say that. Yeah. Yeah. I don't think maybe quite to the extent of Stanshaw Creek and during that period of time, but yeah.

MS. BRENNER: And what's generally the time period that you visit Stanshaw Creek?

WITNESS ALBERS: Probably more so from early -- well I guess mid-April all the way through November, even -- yeah, mostly November before Thanksgiving. Usually it's less. And I remember less. Now, it's a lot more, because I'm older. I control my own life. But when I was a kid it was just that early spring through that late fall, because my family would hunt on the other side of the river.

MS. BRENNER: So you still currently enjoy

Stanshaw Creek and have time in the pool at Stanshaw Creek?

WITNESS ALBERS: During the wintertime we don't really go into the pool too much, but yeah we still go down there to that area and spend time as a family and talk about things and --

MS. BRENNER: You swim?

WITNESS ALBERS: Yeah. When the weather's -- when it's safe for the kids, yeah.

MS. BRENNER: Do you do anything else, recreate in any other ways around the pool?

WITNESS ALBERS: Sometimes my kids fish. My children like to fish or at least put a fishing pole in the water with a hook on it, you know. And I don't actually really promote them too much to go out there and try to catch fish. But they also explore and we've done I guess little contests where who can find the biggest water dog, or we call it a water dog, but we're talking about a salamander and slugs.

One of the best that I was making a reference to, or one of the experiences I had as a kid, was that my -- I bet my grandmother that I didn't feel like there were any fish in the creek. And she would tell me stories about how when she was a kid she felt the same way. And she bet her grandfather that there were no

creek (sic) in there and so he set up a line, set up a pole. And the deal was if he caught a fish she would have to eat a slug. And so he caught a fish, of course. You know, there was lot of fish in there at that time. And I think this must have been -- this must have been like the '40s, because she wasn't -- late '40s.

Anyway, so I made that same bet with her and I remember she put her line in and did everything. She said, "This is exactly what my grandpa did." And I had no fear at all. And then so she set it up and then we left and then we came back and there was the pole wobbling around. And I got like really sick in my stomach.

(Laughter.)

And I was like -- felt really nervous and it turned it was a salamander on the end that she had caught. So I didn't have to catch anything. But she said, "Well, let's try tomorrow." And I said, "No way, I'm not. I'm not betting." So . . .

(Laughter.)

MS. BRENNER: You didn't test that theory any longer, huh?

WITNESS ALBERS: No, no. I just said I'll listen to my Gram.

MS. BRENNER: But in your grandmother's opinion

there were fish in the pond at that time?

WITNESS ALBERS: Um-hmm.

MS. BRENNER: Do you know what year that was?

WITNESS ALBERS: Geez, I was -- I think I was 10, so '89?

MS. BRENNER: Do you know how many years there's been a diversion point at Marble Mountain Ranch off of Stanshaw Creek?

WITNESS ALBERS: From my own understanding there, it's been there since before I was born. I don't know exactly where at or I don't have that. I didn't become aware of it until geez, probably I was 18 or 19.

MS. BRENNER: Okay, so -- okay. So you're not aware that there's been diversions at Stanshaw Creek into Marble Mountain for over a hundred years?

WITNESS ALBERS: I later learned that, but I didn't know that until, like I said I was like 19, or 18 or 19, yeah.

MS. BRENNER: Okay. I have nothing further.

HEARING OFFICE MOORE: Thank you.

What does slug taste like, I was wondering. I'll get back to you on that.

(Laughter.)

WITNESS ALBERS: Yeah, yeah. Check with my kids, because I'm going to make that bet with them.

HEARING OFFICE MOORE: Well, yeah. You know, people eat snails, right?

Okay. Does the National Marine Fishery Service have any questions?

MR. KEIFER: We will not be cross-examining on the slug issue.

(Laughter.)

HEARING OFFICE MOORE: Good. Well, there's more there, I know it.

And Department of Fish and Wildlife?

MR. VOEGELI: No, thank you.

HEARING OFFICE MOORE: Okay. And the Karuk Tribe?

MR. HUNT: No, thank you.

HEARING OFFICE MOORE: No? Great. And Riverkeeper and CSPA?

MR. SHUTES: No, thanks.

HEARING OFFICE MOORE: Thank you, very good.

And any redirect testimony from Mr. Fisher? No. Okay. Then no recross?

And at this time, thank you Mr. Albers, for traveling down here and sharing your experience and being a witness.

WITNESS ALBERS: Yeah.

HEARING OFFICER MOORE: We can keep going

trying to keep on track and at this point in the proceedings, we would -- and so you're free to go.

WITNESS ALBERS: Okay. Thank you guys, very much. I appreciate it.

HEARING OFFICE MOORE: Thank you for joining us.

MR. FISHER: Thank you.

HEARING OFFICER MOORE: We will continue with the Prosecution Team's remaining witnesses. And if you want to take a break we can, but otherwise the next phase is the Prosecution Team and the remaining direct testimony, followed by any cross-examination in the order that I previously identified.

So would you like to continue now? It's okay if you want to take some time.

MR. PETRUZZELLI: Yeah. If we can have a few minutes to set up and maybe take restroom breaks?

HEARING OFFICE MOORE: Sure.

MR. PETRUZZELLI: Yeah.

HEARING OFFICER MOORE: Okay. How does 10 minutes sound?

MR. PETRUZZELLI: It sounds great.

HEARING OFFICE MOORE: 3:15, we will reconvene. Thank you.

(Recess taken at 3:06 p.m.)

(Proceedings resumed at 3:17 p.m.)

HEARING OFFICE MOORE: Okay. It looks like we have about 50 minutes remaining for direct testimony for the Prosecution Team. And doing a time check it's about -- almost 3:20. And so we really have an option to either jump into cross after their testimony, or just break and do -- begin cross the next day, because we're going to have to quit at 4:30 today. So Counselor, do you have a preference?

MS. BRENNER: I'm just trying to get a clarification, so what -- are you suggesting that they each do their direct exam all in a row?

HEARING OFFICE MOORE: Yes.

MS. BRENNER: And then --

HEARING OFFICE MOORE: As a panel

MS. BRENNER: -- and then just have cross as a panel?

HEARING OFFICE MOORE: That's right. Yes.

MS. BRENNER: That's fine.

HEARING OFFICE MOORE: That work?

MS. BRENNER: Yeah. That's fine.

HEARING OFFICE MOORE: Okay.

Okay, so without further ado, I would like to ask the witnesses to please stand and raise your right hand.

TARO MURANO, SKYLER ANDERSON and STORMER FEILER
called as witnesses for the Petitioner, having been previously duly sworn, were examined and testified further as hereinafter set forth:

WITNESSES: Yes, I do.

HEARING OFFICE MOORE: Thank you. You may be seated. I appreciate that.

And Counsel, you may proceed.

DIRECT EXAMINATION BY

MR. PETRUZZELLI: All right. Go ahead.

DIRECT TESTIMONY OF DWR WITNESS PANEL

WITNESS MURANO: Good evening, everyone. My name is Taro Murano. I am a Senior Environmental Scientist for the Northcoast Enforcement Unit in the Division of Water Rights Enforcement Section. The testimony I've prepared is offered into evidence as Exhibit WR-7. I have taken the oath and I have no change to make to my testimony. My testimony will focus on the general background of Marble Mountain Ranch, the water rights, the timeline leading up to the current investigation and the enforcement action.

(Slides uploaded to screen.)

MMR is owned and operated by the family of Douglas and Heidi Cole. MMR is located at Highway 96 in Somes Bar, Siskiyou County.

Marble Mountain Ranch is a commercial dude ranch. MMR offers activities, such as guided horseback trail riding; arena horse riding in an arena with lights and guided whitewater rafting and kayaking in the Klamath region, jet boat tours, trap shooting at the shooting range, guided fly fishing and other activities that fit the western dude ranch theme. MMR offers gourmet and authentic ranch cuisine serving produce grown at the ranch and in a greenhouse, or locally-harvested fish as well as ranch style barbeque.

The ranch may host up to 50 people including seasonal staff during their busy season. Guests stay in cabins that include a bathroom and kitchen or kitchenette.

MMR has made significant improvements since the Division's inspections, which include a petting zoo, a bunk house for MMR seasonal staff, and a barbecue depot and trail improvements.

Water is diverted under a pre-1914 Claim of Right and two statements of water diversion and use from Stanshaw Creek, a tributary to the Klamath River.

The Diverter also has one small domestic use registration filed on December 1st, 1998.

The Diverters use the same POD, or point of diversion, for all their water rights. The POD is

located on Stanshaw Creek, on land owned by the U.S. Forest Service approximately three-quarters of a mile upstream from the Highway 96 crossing. The POD consists of a hand-stacked rock wing dam located on the south bank of Stanshaw Creek. The rock wing dam extends about halfway across the creek channel. An unlined ditch conveys the diverted water approximately half a mile to MMR's place of use for water diverted. According to the Diverter the POD and the ditch were constructed in the late 1860s.

MS. BRENNER: Can I just raise an objection?

HEARING OFFICE MOORE: Okay. Please explain.

MS. BRENNER: Yeah. To the extent that any of this direct testimony goes to challenging in the pre-1914 water rights, I have a standing objection to any of that evidence being entered into the hearing for that purpose, and consistent with your ruling on the issue.

HEARING OFFICE MOORE: Yes, I'm not clear why an objection is needed if we've issued a ruling. But I've been clear that there's two key points to this hearing and the issue of the right is not one of those two issues.

MS. BRENNER: Yes, and for the record I want the standing objection to be stated for the record, so that I may use that if such evidence is entered into

during oral testimony.

HEARING OFFICE MOORE: Okay.

MS. BRENNER: Thank you.

HEARING OFFICE MOORE: Sustained.

Go ahead and continue.

WITNESS MURANO: Okay. The Diverters discharge non-consumptively used water to Irving Creek located approximately one-and-a-half miles downstream of Stanshaw Creek, its confluence with the Klamath River.

Stanshaw Creek has a drainage of approximately four square miles. It has a short, but significant section of Coho salmon habitat below the Highway 96 crossing, including an off-channel pond located just upstream of its confluence with the Klamath River. The pool is filled by Stanshaw Creek water when high flows in the Klamath River subside, creating a high-quality summer and winter rearing habitat for juvenile Coho salmon migrating down the Klamath River.

The National Marine Fishery Service, Department of Fish and Wildlife, the Karuk Tribe and the U.S. Forest Service have all asserted that the Diverters diversion and use of water adversely impacts Coho and steelhead and their habitat. Juvenile Coho and steelhead have been documented in Stanshaw Creek and the off-channel pond provides excellent summer and winter rearing habitat for

juvenile salmonids.

The Diverters pre-1914 claim of appropriation originates from an 1867 claim filed by Mr. E. Stanshaw for 600 miner's inches or 15 cfs used for mining, domestic, irrigation use, on a large patented parcel patented on March 27th, 1911. Since then, the property has been subdivided and MMR now occupies a smaller parcel. Mining has ceased and MMR's current use of water include domestic use, irrigation and mostly hydropower. Today's use is limited by the capacity of the diversion ditch, which is about 3 cfs.

The Diverters filed Statement 15022 for domestic, irrigation, fish and wildlife protection or enhancement, fire protection, stock watering and claims a pre-1914 right to divert 0.49 cfs year round with a 2.5 cfs diversion work capacity and a total annual diversion amount of 354 acre feet.

Annual supplemental statements for 2013 through 2016 have not been filed. The deadline for filing annual supplemental statements is June 30th of each year.

The Diverters second statement, 16375, also claims a pre-1914 claim of right to divert 3 cfs for irrigation, domestic and hydropower usage year around with a total annual diversion amount of approximately 1,950 acre feet. Supplemental statements filed for 2010

through 2013 report domestic use of water for 12 to 50 persons seasonally. No annual supplemental statements have been filed for 2014 through 2016.

The Diverters small domestic registration allows the collection of 10 acre feet of water annually into their pond for domestic use. The registration renewal is required every five years and the Diverter renewed their registration in 2014. Among the other terms required in the registration, MMR must comply with Fish and Game Code Section 5937, maintain a method of measuring and bypassing sufficient water to satisfy downstream prior rights, and any DFW requirements.

The water right issues with the property date back to 1989, when the Diverters predecessor in interests, Robert E. and Mary Judith Young filed the application on March 17th, 1989. This application sought to divert and use water in the same manner as the Diverters divert and use water under their pre-1914 claim of right. The Youngs sought to appropriate 2,168 acre feet per year of water, at a rate of 3 cfs from Stanshaw Creek from January 1st to December 31st, for fish and wildlife protection and enhancement and power generation. The Diverters took ownership of the diversion and the application in 1994.

The Youngs claimed a pre-1914 right dating back

to E. Stanshaw in 1867. However, the prevailing view at the time was that most of the right had been lost due to forfeiture with the only rights for irrigation and domestic uses remaining. The Youngs therefore filed the application to appropriate water for hydropower purposes. After assessing the amount of water continually put to beneficial use without a period of non-use of five years or more, Division staff recommended 0.2 cfs for domestic use and 0.09 cfs for irrigation purposes.

Did I just skip something? Oh shoot, excuse me. I might have missed something here. I was just on the wrong slide, sorry. Let me continue. Okay.

The Youngs therefore filed the application to appropriate water for hydropower purposes. After assessing the amount of water continually put to beneficial use without a period of non-use of five years or more Division staff recommended 0.02 cfs for domestic use and 0.09 cfs for irrigation purposes. Another measurement included DWR Bulletin 94-6, estimated total annual use at 362 acre feet, approximately a half cfs and the flow capacity of the ditch at 1.25 cfs.

The Young's legal counsel stated that although the Youngs were unsure when the hydropower was installed the prior property owner had indicated that hydropower was installed between 1940 and 1942. When the Diverter

took ownership of the application, they too asserted that -- the pre-1914 basis for their right. I'm sorry. They too asserted the pre-1914 basis for their right, but the only evidence they had at the time was the 1867 claim filed by Mr. E. Stanshaw.

In 2000 the Division noticed the application. NMFS, US Forest Service, Department of Fish and Wildlife and the California Sportfishing Protection Alliance filed protests alleging the project would adversely affect resident fish species. James and Phyllis Fisher, the property owners downstream of MMR, filed a protest alleging that the Diverts would dramatically reduce flows in Stanshaw Creek, especially during the dry season, resulting in insufficient water for their domestic and irrigation needs and causing aesthetic impacts to the riparian property.

NMFS and DFW both offered to dismiss their protest if the Diverter agreed to certain conditions. Both agencies request that minimum bypass flows. NMFS requested that the Diverter return –tail water discharges to Stanshaw Creek. NFMS and DFW asserted that maintaining sufficient flows in Stanshaw Creek is important for maintaining the thermal refugia for salmonids and voiced concern that the Diverters actively would -- I'm sorry -- the Diverters activity would

adversely impact habitat.

In response to the protest filed by NMFS and DFW that asserted the need for minimum bypass flows the Diverter agreed to alter the diversion system to return flows back to Stanshaw Creek, if grant funding would cover the costs.

In 2001, the Klamath Forest Alliance filed a complaint against the Diverter alleging the diversion adversely impacts public trust resources, including but not limited to Coho salmon.

Division Enforcement staff conducted an investigation and observed that Diverters were diverting approximately 0.6 cfs at the time of the inspection. This amount of water diverted was insufficient to operate the Pelton wheel. Division staff also believed that 0.7 cfs would be sufficient to maintain stream temperatures and maintain fish habitat at the mouth of Stanshaw Creek. But this recommendation was based on a single measurement during a single site visit in the month of October. Subsequent stream analysis by DFW and NMFS, have now indicated that higher flows are necessary to maintain thermal refugia and fish habitat.

When Division Enforcement staff completed the investigation, they recommended that the Diverters cease all diversions of water, whether pursuant to a pre-1914

appropriative water right or and -- I'm sorry, appropriative right or an appropriative right derived from their application or small domestic registration, unless the Diverters bypass the fish and flow below the POD to maintain adequate flow in lower Stanshaw Creek.

The Diverters did not secure grant funding and stated that they would not otherwise fund measures necessary to resolve the protests filed by DFW and NMFS. The Division therefore informed the Diverters that their application would be cancelled unless they provided a plan to comply with Water Code Section 1275(b).

In response the Diverters stated that they would rely on the pre-1914 claim of right instead of continuing to pursue the appropriation of water under the application. As a result, the Division cancelled their application and in an order dated January 7th -- and I'm sorry -- and then cancelled their application with an order dated January 7th, 2013.

After the Diverters chose to rely on their pre-1914 claim, the Mid Klamath Watershed Council commissioned a report to be prepared by Lennihan Law. The report was funded through a grant from the National Fish and Wildlife Foundation and was released September 1st, 2014. The Lennihan Report was prepared in association with an ongoing stakeholder process involving

MMR's diversion. The report included water right files, MMR's chain of title, historical water use, the Diverter's comments and provided a summary of past and present water use of the Diverter and the Diverter's predecessor and interests.

The report determined that although the Diverter likely lacked a riparian water right the likely pre-1914 appropriative water right that can be exercised by the Coles, on Cole's Marble Mountain Ranch, is approximately 1.16 cfs with varying seasons of use. Mr. Cole stated to the Division staff that the 1.16 cfs was an amount that could allow MMR to still operate as a business.

The Lennihan Report found that the majority of the predecessor in interest right had been -- had not been put to continuous beneficial use and had been lost due to forfeiture. However, the Lennihan Report was completed before the court issued its decision in the Millview case and could not consider the impacts of that decision. The Millview case stated that a clash of rights was required for a forfeiture to occur.

On November 18th, 2014, the Mid Klamath Watershed Council and Cascade Stream Solutions released the Water Use Technical Memorandum prepared by Joey Howard, in conjunction with the Lennihan Report. And

assesses the Diverter's historical beneficial use of water and the manner in which the Diverter regulates the water diverted.

The technical memorandum states the following, "Hydropower does not exceed 0.36 cfs until after 1965 and it exceeds 0.66 cfs in 1994. The amount diverted varies with streamflow independent of demand. Under streamflow of less than 3 to 4 cfs, the majority of the creek flow is diverted by MMR. Water is diverted continuously throughout the year at a maximum rate possible. MMR stops diverting on rare occasions, usually during high flows when the creek flows risk damaging the ditch.

Power demand peaks in the summer during mid-afternoon. Water demand is greatest during the summer. MMR does not measure actual power production and use. And Mr. Cole has stated that power and water needs are met when diverting 3 cfs.

Thank you. And that concludes my presentation.

HEARING OFFICE MOORE: Okay. Please proceed.

TESTIMONY OF SKYLER ANDERSON

WITNESS ANDERSON: I need the -- I don't have the keyboard.

(Slides uploaded to screen.)

WITNESS ANDERSON: Good afternoon everyone. My name is Skyler Anderson. I am an Environmental Scientist

for the North Coast Enforcement Unit in the Division of Water Rights Enforcement Program.

The testimony I've prepared is offered into evidence as Exhibit WR-9. I have taken the oath and have no changes to make to my testimony. My testimony will focus on the most recent inspections and the current enforcement actions against Marble Mountain Ranch.

In 2013 and 2014, the Division received three complaints. The essence of the complaints was that diverters were dewatering Stanshaw Creek and harming public trust resources. The complaints included a video documenting the Diverters' point of diversion, diverting nearly the entire flow of Stanshaw Creek. On December 17th, of 2014 Division staff toured MMR and attended a stakeholder's meeting regarding the MMR complaints. During the tour of MMR, Doug Cole told staff that he would be okay if the Division supported the numeric water right determination in the Lennihan Report.

On December 17th of 2014, stakeholders including California Department of Fish and Wildlife, National Marine Fishery Service, United States Forest Service, Mid Klamath Watershed Council, Karuk Tribe and Representatives Doug Cole and Konrad Fisher met to discuss the recent Lennihan Report, physical solutions and a potential process for obtaining public funding --

public funding assistance for a project. During the meeting NOAA staff indicated that fish kills had occurred in Stanshaw Creek. After the meeting I followed up with NOAA and the Karuk Tribe regarding the alleged fish kills.

The diagram above shows a general flow chart of where water is diverted and how it is used at MMR. The next half-dozen slides will describe each feature in greater detail. This photo shows what the point of diversion looks like in typical winter conditions. MMR's point of diversion consists of a rock wing diversion dam located on the south bank of Stanshaw Creek. The point of diversion lacks a permanent control structure to regulate the amount of water diverted from Stanshaw Creek. The point of diversion also lacks a fish screen or permanent mechanism for measuring diversions that is consistent with Senate Bill 88.

The point of diversion also requires regular maintenance. According to Mr. Cole, the Diverters currently regulate the amount of water diverted from Stanshaw Creek by manually rearranging the hand-stacked rocks on the diversion dam. Water is diverted via gravity at a point of diversion and conveyed approximately one-half mile in a partially lined and partially unlined ditch. The ditch is located on a

steep, heavily-treed hill slope, which resembles a narrow road cut on a steep hillside. The ditch requires regular maintenance due to sediment deposition, cut bank slumps and landslides.

During the February 12, 2015 inspection we could see there's limited freeboard space along the majority of the diversion ditch. The elevation of the outer berm crest of the diversion ditch varies greatly. Seepage, failure and washouts lead to significance (sic) conveyance losses in the ditch. This discharges sediment back into Stanshaw Creek and causes erosion and mudslides. It also increases the amount of water MMR must divert in order to meet its demand. The diversion ditch contains two outfall structures, downstream from the point of diversion to relieve excess amounts of water that would otherwise overflow the diversion ditch during periods of high flow in Stanshaw Creek.

The first outfall structure is located approximately 50 feet downstream of the point of diversion. It appears to operate in a similar manner as the point of diversion and requires regular augmentation of flashboard risers and rocks in the diversion ditch to manipulate the amount of water conveyed by the diversion ditch.

The second outfall structure is located

approximately 300 feet downstream of the point of diversion. Flashboards are used in the second outfall structure to manipulate the amount of excess water discharged from the diversion ditch.

The ditch continues to an inlet where water is routed to a water treatment facility, via a two-inch PVC pipe. At the time of inspection Marble Mountain Ranch used five 3,000 gallon plastic storage containers for its domestic water treatment and supply. At the time of inspection we observed numerous leaks in the tanks. The Diverters have indicated that since the inspection they replaced the tanks with new tanks and added additional tanks.

The ditch continues past the inlet for water treatment for water treatment facility and is then routed into a penstock for hydropower generation.

Shortly before the Pelton wheel the pipeline splits and diverts some water to irrigation. The Pelton wheel requires a minimum amount of flow to generate electricity. During an inspection, in 2002, staff observed water flowing through the hydro facility, but not enough to operate the Pelton wheel. In such a circumstance, water diverted in excess of the consumptive use demands would discharge to Irving Creek without the input to beneficial use. Mr. Cole has acknowledged

operating MMR's diversions this way and this is corroborated by the Cascade Stream Solutions Report.

The Diverters rely on a diesel generator when insufficient flow is available from Stanshaw Creek. This can occur due to low flows or when the ditch is inoperable due to fallen trees or landslides. According to the Diverters, 3 cfs is necessary to operate the Pelton wheel to meet their peak electrical demand. This occurs on hot summer days in the afternoon. At other times, this can result in excess or unnecessary power generation. According to the Cascade Stream Solution Report, MMR requires a heat sync system to dispense excess electrical generation to avoid overloading that system.

Irrigation flows are conveyed through a steel pipe that extend from the junction at the power plant to sprinklers located in the pastures and hose bibs located throughout the property. MMR irrigates about seven acres of garden and pasture.

Water flowing through the hydro facility discharges into a ditch that flows to a pond. The pond serves as a recreational feature and provides fire protection. Water discharges from the pond once the pond fills, then continues across the property south before dropping off a head cut to a ravine and into a tributary

to Irving Creek.

During the February 12th, 2015 inspection, I calculated that approximately 1.23 cfs was flowing through the pond and discharging to Irving Creek. During the February 12th, 2015 inspection I took three flow measurements at three locations in the ditch. Based on my flow measurements in the ditch, I calculated that at least 27 percent of water diverted at the Stanshaw Creek POD was lost in the conveyance system; 16 percent of the water diverted was consumptively used; 56 percent of the water diverted was used non-consumptively for hydroelectric power generation and discharge to Irving Creek.

There are two other water right holders in the Stanshaw Creek Watershed. One is upstream and one is downstream. The upstream diverter is Mountain Home and the downstream diverter is Konrad Fisher. Mountain Home uses a Harris wheel to generate hydropower and returns the tail water to the stream of origin. Mountain Home supplements its hydropower with a system of batteries charged by the Harris Wheel. They also have solar panels that also store power in batteries.

After investigating other water rights on the Stanshaw Creek we consulted with NMFS. According to NMFS the other diversions are too small to be even measured in

Stanshaw Creek. This means MMR is the only diversion of significance as far as public trust impacts are concerned.

On December 3rd, 2015 the Division and the Regional Water Board issued a joint letter to the Diverter. The letter included a Notice of Violation, a Draft Cleanup and Abatement Order and inspection reports from both the Regional Water Board and the Division of Water Rights. The Division's Report of Inspection identified misuse of water resulting in impacts to the public trust resources. The Division's Report of Inspection also prescribed corrective actions. The letter notified the Diverters that if they failed to respond in 30 days the Regional Water Board and the Division may pursue formal enforcement. The goal of this notice was to give MMR an opportunity to propose a solution and show we were serious about addressing the issue. The Division's Report of Inspection prescribed a host of corrective actions to eliminate the misuse of water and impacts to the public trust resources, as summarized above.

The Report of Inspection also evaluated the Diverters pre-'14 claim, which had been subject to much contention in at least two prior Division investigations. The main issue was how much of the original Stanshaw

claim had been lost to forfeiture. Before the Millview case, our understanding as investigators was that failure to put water to beneficial use for five consecutive years would lead to forfeiture. In 1998, the Division concluded that MMR's right was likely no higher than 0.49 cfs based on a diversion reported in the Department of Water Resources Bulletin 94-6. A 2002 investigation determined that although MMR likely had a pre-'14 right for domestic and for irrigation uses, but not for hydropower. Hydropower use did not start until the early 1940s.

With Millview, forfeiture required a clash of rights. Due to the lack of evidence of contesting claims the Report of Inspection stated that MMR pre-'14 water right may be up to the full capacity of the ditch, which MMR claims to be 3 cfs. However, the ROI also determined that the Diverters diversion and use of water could constitute a misuse of water and impacts to public trust resources.

On January 19th, 2016 the Diverters responded to the Division's December 3rd, 2015 letter. The Diverters now claim a 3 cfs right or excuse me, 3 cfs under the pre-'14 claim of right. The Diverter further claimed to have repaired all leaking water treatment tanks. The letter also outlined immediate and long-term

solutions to address concerns raised in the Regional Water Board's Draft CAO and the Division's Report of Inspection. Nonetheless, due to a lack of timeliness, specificity, identified consultants and other factors, the Division and the Regional Water Board concluded that the letter did not demonstrate any commitments to actions substantially addressing the concern outlined in the Regional Water Board's Draft CAO and the Division's Report of Inspection.

On February 12th, 2016 we informed the Diverters that we would begin pursuing formal enforcement. But we encouraged them to continue developing and implementing corrective actions, because their efforts of compliance would be considered.

On March 24th, 2016 the Diverters proposed a series of corrective actions and a timeline to eliminate misuse. They said that they retained Joey Howard and Will Harling as consultants and planned on installing a six-inch pipe in the diversion ditch by May, so that they could meet NMFS' flow recommendations.

On April 15th, 2016 the Diverters said they were finalizing their plans for the six-inch pipe. Furthermore improvements to Irving Creek outfall were in the final states of design and approval and on track for completion by May 15th, 2016.

By August 2016 the Diverters had taken some steps to eliminate their misuse of water and adverse impacts to public trust resources, but had fallen behind on their proposed time schedule. They had not stabilized the head cut at Irving Creek. They had not installed the six-inch pipe in the diversion ditch, or a head gate at the POD. They would no longer pursue the energy audit or water efficiency studies and said there was no need, because they could use the right the way they wished. After what was initially looking like some good progress, it looked like we were going nowhere.

In August of 2016 the Division received the updated flow recommendations from the National Marine Fishery Service. The flow recommendation was designed to be protective of Coho salmon by preserving the cold water pool at the confluence of the Klamath River. The instream flow recommended -- or instream flow recommendation required 90 percent of the unimpaired flow to be bypassed at the POD, when diversions for hydropower were not -- were are -- were -- excuse me -- when hydropower are not occurring. When diversions for hydropower are occurring a minimum of 2 cfs shall be bypassed at the POD and water that's not consumptively used shall be returned to Stanshaw Creek above the point of anadromy.

The Diverters six-inch pipe proposal was intended to support their consumptive use demands. As a part of that project we worked to resolve the lingering questions regarding such demands. For instance, in the Cascade technical memorandum, the amount of irrigated acreage included areas that were likely not irrigated. This led to a consumptive use demand of 0.353 cfs. The consumptive use estimates seemed wrong, so I corresponded with Joey Howard to refine those calculations. Using satellite images to get a more accurate amount of irrigated acreage we came up with a more precise number: 0.18 cfs without a fire crew and 0.235 with a fire crew. Since the six-inch pipe would only be sufficient to support the Diverters consumptive demand they would have needed a second pipe for hydropower.

On August 30th, 2016 the Assistant Deputy Director for the Division requested that the State Water Board hold a hearing and receive evidence to consider adopting a draft order finding that the Diverters had misused water or were continuing to misuse water and ordering corrective actions. By this time, the Diverters were so behind that we believed an order imposing a time schedule and legal accountability would be the only way to resolve the issues with MMR.

Division Enforcement staff gave the Diverters

until June 30, 2018 to cease misusing water. We considered this a reasonable amount of time, because this was the time schedule the Diverters had proposed.

The Division wanted to resolve this issue and we do not want to have to revisit this issue in two years, see no progress and start all over. To avoid that problem, we set up a series of interim project milestones, based on the milestones the Diverters had proposed. If a milestone was met the parties could request postponement. Many of the milestones had already passed by the time the Division had requested the hearing. So we've postponed all of the deadlines that would have preceded the hearing request and moved them to after the hearing request. This gave the Diverters extra time for many of the early tasks. We thought this would give the Diverters a reasonable amount of time to complete the milestones. Nonetheless, the milestones have not been met. Bear in mind this is the project the Diverters proposed.

The corrective actions should eliminate the misuse of water and harm to public trust resources. In summary, the corrective actions are: complete an energy and water efficiency audits in order to identify project alternatives; install a locking head gate valve or other appropriately sized structure that will regulate the

diversion to the amount of water that can be put to beneficial use; comply with Senate Bill 88, which requires the Diverters to measure their diversion.

Conveyance loss -- excuse me -- conveyance losses in the ditch occur through seepage, evaporation, over-topping and ditch failures. This increases the amount of water the Diverters must divert in order to support their beneficial uses. Regardless, conveyance losses that result in a discharge of pollutants or create a nuisance should be considered unreasonable. Physical solutions discussed thus far have included piping or lining the ditch.

Eliminating the discharge to Irving Creek will encourage better management of hydropower operations to reduce impacts on public trust resources until the NMFS flows are implemented. Implementing the NMFS flows will preserve the cold water refugia at the confluence of the Klamath River. This is feasible and will prevent harming public trust resources. Implementing the NMFS flows will also likely require returning flows diverted from Stanshaw Creek, not put to consumptive use, back to Stanshaw Creek. Otherwise implementing the NMFS flows -- implementing the NMFS flow recommendations only becomes feasible during high-flow periods.

Thank you very much and that concludes my

presentation.

HEARING OFFICE MOORE: All right. Thank you, Mr. Anderson.

And we'd like to continue to proceed on this panel with Mr. Feiler, when you're ready.

(Slides uploaded to screen.)

TESTIMONY OF STORMER FEILER

WITNESS FEILER: Good afternoon, ladies and gentlemen. I'm Stormer Feiler. I'm a Senior Environmental Science Specialist for the North Coast Regional Water Quality Control Board. I have taken the oath and I have no change to make to my testimony. I'm here today to talk to you about the Douglas and Heidi Cole Marble Mountain Ranch diversion.

I'm going to go over the case history, the Regional Board's involvement, our inspection findings, our approach based upon the case history and the inspection findings, and the impacts observed to beneficial uses of water related to the diversion.

The Regional Board became involved in 2011 through receiving a complaint in January that alleged repeated failures of diversion impact to aquatic resources in the Klamath River and its tributaries through excessive sediment loading. Our initial response was to assign staff to engage in the ongoing stakeholder

process.

In 2015, the Division of Water Rights requested collaboration on the investigation of the site. This resulted in a site assessment on February 12th, 2015. During that inspection on February 12th, 2015 I observed sediment discharges through ditch operation and management, potential for sediment discharges from the diversion ditch, erosion at the Irving Creek outfall. Failure causes were primarily cut bank sumps, seepage of diverted water through the berm leading to saturation and failure, and cumulative ditch capacity losses through sedimentation. At the Irving Creek outfall, there was a complete lack of structural controls on the outfall.

Oops, wrong way, sorry. To start, I'm going to give you an overview of the diversion provided in LiDAR. As you can see up here at the start of the diversion, point of diversion up in the image, and then the diversion flows down through the penstock here over to the pond where this arrow, is to the Irving Creek outfall, which you can actually see in the LiDAR imagery as a significant source of erosion.

The next images that I'm going to show you are the -- the diversion -- point of diversion. So this is the point of diversion where it starts. I'm also going to show you some more LiDAR imagery that will show you

some features along the ditch where there's significant erosion caused through operation of the diversion. Stanshaw Creek flows to the left in the image. And then the diversion flows to the right, towards my feet.

Here's a close-up of the point of diversion. As you can see, there's a red arrow highlighting where a stream flows underneath the diversion works. This is going to be shown on Slide 8, 9, 10 and 11. Here's a close-up of the LiDAR relief, so you can see the clear relief of the imagery here where the stream flows underneath. You can see the enlargement of the channel below, which I'm going to talk about.

This is approaching that sight. As you can see the channel is -- the diversion channel is reduced through the arrow to the left here, the double-headed arrow. You can see where the channel's reduced to carry flows across the stream, which is going to be shown in the next imagery. Here is also there's a shotgun culvert that's where the flow goes that's not going through the diversions works. At this point, it goes over here and it drops directly into a stream below here where it's caused a significant erosion.

This here in the foreground is a good example of the ditch seeping and weeping and potential saturation. Here's the stream flowing underneath

diversion, the blue arrow on the upper right. This is the culvert outlet I showed you in the last image, the red arrow in the in the middle. And this long arrow here at the bottom is showing you where the stream comes out underneath the diversion. This will give you context for the next image.

Well, this upstream -- as this is the channel upstream of the diversion before it flows underneath the diversion. Note that it's only about two feet wide. Here we have the culvert outfall. It's flowing during inspection up here in the upper-right corner.

We have the eroded banks below the culvert outfall, in the stream, below the diversion. The diversion's flowing behind this image here, back up here. And then you can see the channel's much enlarged here where this double-headed red arrow is. It's about 12-feet wide. So it went from a 2-foot to a 12 foot channel underneath the diversion works.

This is Stanshaw Creek in the background here where the blue arrow is. This is the image of cut bank slumps along the ditch, so you can see there was some recent maintenance done with hand tools. It's still slumping into the stream right here.

This is an image of seepage and cumulative ditch capacity loss. The ditch here is filling with

sediment and through this depositional reach. And there's been multiple repairs here to try to control the seepage, so it seems to be on going.

Here's where they installed a sediment tank or a sediment tank car, or basically a sediment trap into the diversion works. On the other side of the berm is the inlet to this -- it's basically an old train tank car is what it looks like. And it's completely full of sediment. You can see how it bubbles out here with the flows and change and it forms a pool of sediment and water.

Here's the lower diversion works and through LiDAR imagery, as you can see here is the penstock. Here's the pond. And then this red arrow points to the head cut. I'm going to show you the head cut in the next image.

This is the Irving Creek outfall, the head cut. So as you can see there's the tree that's come out of the bank and is dislodged across the channel here diagonally with its root wad attached. That root wad was right up here in the bank in the past, but it's fallen out of here now through erosion. During the inspection on February 12th, 2015 this Douglas fir tree that is across the channel here still had green needles, which leads me to believe that recent erosion was relatively recent in

comparison to the inspection date.

This is just downstream from the last image. I've turned and looked downstream basically from the bank I was standing on. And you can see that there's a large wedge of earthen material with grass and trees growing out here in the center of the channel. That is the -- that's -- this channel flows around here in the front and around the back. That's the diversion outlet flowing around into the tributary to Irving Creek, right here.

Regional Board enforcement actions, December 3rd, 2015 we issued a Note (sic) of Violation to the Discharger, a Draft Cleanup and Abatement Order and our inspection report through -- We gave him time to comply. The Discharger failed to demonstrate an ability to follow through on their own commitments and produce required agreed upon work products.

On August 4th, 2016 we issued a Final Cleanup and Abatement Order, Order Number R1-2016-0031. The Cleanup and Abatement Order was about alternatives, getting the best alternatives for Water Code compliance considering the beneficial use of the water at play.

As you can see these are the directives that were in the Final Order. Directive 1 was one of the ones we were most interested in, which was the value and reporting of the Pelton wheel, basically an energy and

efficiency audit.

Here's the chart of deliverables with negotiations. Basically here's where we were before we issued the Final Order. These white numbers, they were agreeing to complete this scope of work by the dates here in this first column. This is the deliverable due dates of the Final Cleanup and Abatement Order here in the second column. And then the red over here highlights where we're at today in terms of compliance. Basically "We will not complete, canceled," various situations like that in terms of compliance of the Cleanup and Abatement Order.

The Regional Water Board is interested in compliance. In terms of compliance of the Final CAO on September 6th, 2016, the Discharger filed a Petition for Reconsideration. The State Water Board took no action. There was no legal challenge filed by the Discharger to the Final CAO.

In terms of the compliance with the Regional Water Board, we've issued three Notices of Violation for the Discharger's failure to comply with the CAO. The Notice of Violation Number 3 is a good place to look for a summary of directives met and the outstanding compliance needs, and tallies up days of violation as well.

In summary, the directives we can consider to be met (phonetic) with leniency on interpretation of met are as follows: Directive 4a, part of that and Directive 4b and the Directive 5 progress reporting.

The Water Quality Control Plan for the North Coast Region Basin Plan is a tool the Regional Board used to implement the Porter-Cologne Water Quality Control Act and the Federal Clean Water Act. It includes a temperature policy and temperature objectives for intrastate waters, which basically prohibits any alteration of natural receiving water temperature unless it can be demonstrated that such alteration does not adversely affect beneficial uses. In addition, there's prohibition on point source and non-point source discharges.

And there's also a Klamath Basin Action Plan that's for implementation to Klamath Basin TMDLs that applies to the affected watersheds. The basin plan temperature policy includes water quality objectives -- policy for implementation of water quality objectives for temperature and states the following. That Regional Board and its staff will collaborate with others in such a manner as to prevent, minimize and mitigate temperature alterations associated with the potential to reduce instream flows or reduce sources of cold water, including

cold water refugia. The temperature policy directs Regional Board staff to take various actions to achieve temperature objectives and influence temperature TMDLs. This includes coordinating with the Division of Water Rights to help ensure the terms of water right permits and licenses are consistent with the water quality objectives for temperature.

The basin plan also includes the Klamath River Action Plan, which includes the thermal refugia protection policy, which prescribes enhanced protection for thermal refugia, identifies Stanshaw Creek as one of multiple streams requiring greater protection through the cold water and presence of fish, prescribing a 3,000-foot buffer instead of a 500-foot buffer.

In addition, the thermal refugia protection policy includes a policy directive for State Water Board staff to consider the impact of increased diversions, hydro modifications in tributaries that provide thermal refugia when issuing water right permits for surface water diversions in the Klamath River Basin. It also includes -- it also prohibits discharges of waste that violate any narrative or numerical water quality objective not authorized by waste discharge requirements or other order or action by the Regional or State Water Board.

So refugia protection policy describes thermal refugia as areas of cool water created by inflowing tributaries, springs, seeps, upwelling hyporheic flow, and/or groundwater in an otherwise warm stream channel that offer refuge habitat to cold water fish and other cold water aquatic species. It defines these refugia as essential to the support of the cold water fishery, because they moderate naturally-elevated temperatures in the mainstream Klamath River.

Oops -- this is the Stanshaw Creek thermal refugia pool. It's attractive and it's a complex habitat. As you can see there's lots of flow coming into the pool in this image on February 12, 2015. The substrates mixed up of large cobbles and small cobbles, which provides good micro-invertebrate production.

Then there's a lot of wood associated with this pool as well: a lot of roots, a lot of logs, a lot of trees. All these trees are bare of leaves now, but in the summertime these are going to leaf out and be Alder trees covered with leaves, which also provides terrestrial inputs of micro -- or insects for food as well as places for micro-invertebrates when they hatch to hide and seek cover and breed.

In terms of my experience with the Marble Mountain Ranch diversion through the process of

investigating on February 12th, 2015, and then following up to this point of this hearing, as I kept working on the project I kept recognizing hydromodification was playing an important role in the process in terms of moving water from one watershed to another. So I started looking for available data and I turned to the Karuk Tribe and the U.S. Forest Service and asked them what they had.

In terms of analysis of available temperature and diversion data the key was to find a day when I have flow and temperature data to evaluate the diversion's potential effects. I found this together on July 1st, 2009, where I had Stanshaw Creek flow data for 0.5 cfs below the diversion near Highway 96 and Stanshaw Creek diversion ditch at the Irving Creek outfall of 1.0 cfs in the diversion outfall before entering the tributary to Irving Creek. The water temperatures on July 1st, 2009 from 1400 hours to 1500 hours in the Stanshaw Creek pool rose from 63 degrees Fahrenheit to 107 degrees Fahrenheit in about one hour. So the temperature increase declines over approximately a nine-hour period. For about four or five hours it was very high.

The likely cause was dewatering in the Stanshaw Creek confluence pool or the data sonde. Either case means habitat was significantly affected.

In 2016, the Discharger contends they did not run the diversion for hydropower. I also have 2016 temperature data for the Stanshaw Creek refugia pool, which I looked at to see what a year like this without the diversion operating might look like in terms of *temperature*. I'm going to show you that data in a minute.

Here's July 1st, 2009. As you can see, we have a temperature and date and time. And then we have a significant rise in that temperature, approximately 1430 hours it spikes. And that's about a 40 degree -- it's over a 40-degree Fahrenheit increase in temperature. That's significant in terms of a fish that's living in that pool.

Here we have Stanshaw Creek 2016 temperature data for the season from approximately May through November. As you can see, we have a 65-degree Fahrenheit line right here. And we see that temperature barely touch that line for a couple of days in July, late July and early August.

The diversion as operated -- represents potential pollutant sources of hydromodification of the stream's natural flows, sedimentation from operation and maintenance. It discharges sediment and flow by taking one watershed's product and placing it in another

watershed after use. The diversion impacts temperature in receiving waters habitat by decreasing cross-section volume of streams and also through sedimentation. It appears to represent a threat and a nuisance to beneficial uses through altering cold water refugia.

It's important to remember that a refugia represents an attraction flow for the fish in the river that has elevated water temperatures. As such, the refuge will attract fish into it over and over again when flow conditions that do so exist.

If each individual event results in mortality as likely occurred on July 1st, 2009, then the operation of the diversion has an even greater cumulative impact, given the potential for repeated incidences of harm. Returning waters put to nonconsumptive use would likely alleviate much of this problem, whereas continuing to divert such flows to a different stream likely enhances the problem over time.

There are many other concerns in terms of beneficial uses of water such as decreased macro-invertebrate and steelhead resident trout production in Stanshaw Creek, due to repeated dewatering events of riffles and interstitial niches. This can also be remedied by returning flows not put to consumptive use to Stanshaw Creek. Where those flows are returned on the

stream’s continuum has a potential increase or decrease to the benefit to beneficial uses.

The Regional Board supports the National Marine Fisheries Service bypass and Return Flow recommendations for the Stanshaw Creek diversion.

Thank you sincerely for your time and consideration.

HEARING OFFICE MOORE: Thank you, Mr. Feiler.

Well, there's about a minute remaining in direct testimony, Mr. Petruzzelli. Do you have anything to add?

MR. PETRUZZELLI: I don't think we have anything to add. The guys went a little faster than we thought they would.

HEARING OFFICE MOORE: Okay. Well, good.

In terms of the Order of Proceeding, the next step would be to open up our witnesses for cross-examination. But we provide for an hour per party to be able to do that and we have less than an hour left. And so to -- in the spirit of keeping a good flow to the hearing, I don't think we should go into cross-examination unless it's going to be less than 20 minutes, because we've announced that we're going to end today at 4:30. And so the first party to do cross-examination would be Marble Mountain Ranch. And if you think you're

going to exceed 20 minutes, I wanted to get your preference on -- yes.

MR. PETRUZZELLI: Could we have a clarification on the cross-examination time? Since Mr. Howard previously provided direct testimony and was cross-examined, would that be included in the previous -- in the one hour that would normally be provided for cross-examination since their direct testimony was subsequently 50 minutes?

HEARING OFFICE MOORE: Yeah, that's a reasonable question.

(Off mic conference.)

HEARING OFFICE MOORE: Yeah. So in the Notice, Counsel tells me that it was per panel or per witness and so it is a full hour. Okay? So what's your preference, Ms. Brenner?

MS. BRENNER: My preference is to start cross-exam tomorrow morning.

HEARING OFFICE MOORE: Okay.

MS. BRENNER: I'll be more than 20 minutes.

HEARING OFFICE MOORE: Okay.

MS. BRENNER: For this panel.

HEARING OFFICE MOORE: Yeah, I appreciate that.

And so with that in mind we're going to be adjourning the proceeding today. We will reconvene

tomorrow. Based on just our own schedules I'm going to propose we begin at 9:30 a.m. tomorrow, sharp. And we'll plan to wrap up by 5:00 o'clock p.m., but we'll let you know if there's any in the schedule based on juggling everybody's schedule.

So, with that we'll recess -- is it recess -- recess the proceeding and reconvene at 9:30 a.m. tomorrow, Tuesday, November 14th, 2017. Thank you.

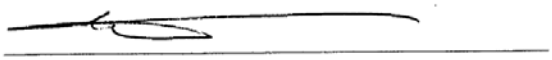
(Proceedings adjourned at 4:13 p.m.)

REPORTER'S CERTIFICATE

I do hereby certify that the testimony in the foregoing hearing was taken at the time and place therein stated; that the testimony of said witnesses were reported by me, a certified electronic court reporter and a disinterested person, and was under my supervision thereafter transcribed into typewriting.

And I further certify that I am not of counsel or attorney for either or any of the parties to said hearing nor in any way interested in the outcome of the cause named in said caption.

IN WITNESS WHEREOF, I have hereunto set my hand this 26th day of January, 2018.



PETER PETTY
CER**D-493
Notary Public

TRANSCRIBER'S CERTIFICATE

I do hereby certify that the testimony in the foregoing hearing was taken at the time and place therein stated; that the testimony of said witnesses were transcribed by me, a certified transcriber and a disinterested person, and was under my supervision thereafter transcribed into typewriting.

And I further certify that I am not of counsel or attorney for either or any of the parties to said hearing nor in any way interested in the outcome of the cause named in said caption.

IN WITNESS WHEREOF, I have hereunto set my hand this 26th day of January, 2018.

Myra Severtson
Certified Transcriber
AAERT No. CET**D-852