**CALIFORNIA STATE WATER RESOURCES CONTROL BOARD**

Division of Water Rights

**Public Workshop:**

Related to Petitions for Reconsideration of the Water Quality Certification for the Yuba River Development Project (Federal Energy Regulatory Commission Project No. 2246)

Remote via video and teleconference

Friday, September 17, 2021

9:00 A.M.

Reported by:
Elise Hicks

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WORKSHOP APPEARANCES

STAFF PRESENT:

Kristen Gangl

Erin Ragazzi

Courtney Taylor

Eric Oppenheimer, Chief Deputy Director

Parker Thaler

CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE:

Beth Lawson

Sean Hoobler

Brianna (Bri) Seapy

ON BEHALF OF CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE:

John McMillan, Trout Unlimited

Stephanie Millsap, U.S. Fish & Wildlife Service

NON-GOVERNMENTAL ORGANIZATIONS:

Aaron Zettler-Mann, South Yuba River Citizens League

Melinda Booth, South Yuba River Citizens League

Chris Shutes, California Sportfishing Protection Alliance

Ashley Overhouse, Friends of the River

YUBA COUNTY WATER AGENCY AND CONSULTANTS:

Jim Blanke (Woodard & Curran)

Paul Bratovich (HDR)

Terri Daly

Steve Grinnell

WORKSHOP APPEARANCES (cont'd)

John James

Tom Johnson (Consultant)

Jim Lynch (HDR)

YUBA COUNTY WATER AGENCY: CONT.

Geoff Rabone

Amanda Ransom (HDR)

Dianne Simodynes (HDR)

Willie Whittlesey

Ryan Bezerra, Attorney for YCWA

PUBLIC COMMENT:

Andrea Abergel, California Municipal Utilities Association

Dr. Francisco Reveles, Superintendent of Schools, Yuba County Office of Education

Brent Hastey, Yuba County Water Agency

David Guy, Northern California Water Agencies

Chelsea Haines, Association of California Water Agencies

W O R K S H O P  P R O C E E D I N G S

9:03 A.M.

Remote via video and teleconference

FRIDAY, SEPTEMBER 17, 2021

MS. GANGL: All right. Well, hello and welcome to the staff workshop for the Petition for Reconsideration we received on the Water Quality Certification for the Yuba River Development Project. My name is Kristen Gangl, and I'm a senior environmental scientist specialist in the Division of Water Rights at the State Water Resources Control Board or State Water Board. With me today from the Division of Water Rights are Erin Ragazzi, Ann Marie Ore, Parker Thaler, and Philip Meyer. Additionally, we have Stephanie Postal and Marianna Aue from the State Water Board's Office of Chief Counsel. Next slide.

Today's presentation will begin with an overview of the main participants in the workshop and a brief discussion of the purpose of this workshop. Then I'll go over a few ground rules that we've established for participants and an overview of the agenda for today. Following this, I'll provide a brief overview of each condition we will be discussing here today. At the end of my presentation, each Petitioner will have five minutes to introduce their group and then we will move

into the Petitioner presentation and discussions of the highlighted conditions. Next slide.

We are joined today by several representatives from the State Water Board, as well as representatives from each of the three Petitioners, which are: the Yuba County Water Agency, or YCWA, also known as Yuba Water Agency; the California Department of Fish Wildlife, or CDFW; and a group of non-governmental organizations, including California Sportfishing Protection Alliance, the South Yuba River Citizens League, Friends of the River, Trout Unlimited, and the Sierra Club Mother Lode Chapter, which I'll refer to as CSPA et al., or the NGOs. This workshop is being recorded and will be available on the California Environmental Protection Agency's website.

We also have a court reporter present today, and the transcripts will be available for purchase via Kate Barr at California reporting. Although we do have some breaks scheduled, we may be taking additional breaks as requested by the court reporter throughout the day. As stated in our August 13th, 2021 notice of this workshop, there may be a quorum of the Board present today, however, no decision is being made. If you are a speaker and you find that you are having connectivity issues, please contact the email address listed in the public notice for this workshop, which is

wr401program@waterboards.ca.gov. Next slide, please.

The purpose of today's workshop is to discuss key technical items raised in the Petitions for Reconsideration submitted by the Petitioners in order to provide State Water Board staff with a greater understanding of each Petitioners concerns and views of specific conditions in the water quality certification, or certification, issued for the Yuba River Development Project, or Project, on July 17, 2020. Prior to issuance of this certification, the entities here today, and many others spent a significant amount of time coordinating and developing proposals to try to achieve consensus in many areas of the Project's Federal Energy Regulatory Commission or FERC relicensing process, and that work is reflected in some of the conditions of the certification.

On August 14th, 2020, YCWA submitted a Petition for Reconsideration to the State Water Board, which it supplemented in January 2021. Additional Petitions for Reconsideration were received from CDFW and the NGOs on January 14th, 2021. We note that there is ongoing litigation regarding the FERC decision regarding waiver of the Project’s certification, but that will not be discussed here today. This is not a hearing. It is a staff-level workshop that provides an opportunity to clarify Petitions and exchange information to inform

Staff's understanding of the Petitions, given the prohibition on ex parte communication. Next slide.

Now I'm going to go over some ground rules for the workshop to ensure it runs smoothly. First, please be respectful of other presenter's view -- points of view. Please also recognized and adhered to established time frames, as we have a very full schedule and want to ensure we have time to cover all of the topics on today's agenda. To that end, please note that the discussion time following presentations is for engaging in discussion, not to extend presentation time. As this is a virtual meeting, please ensure you are muted when you're not speaking to reduce -- to reduce background noises. As we have a court reporter present today prior to asking a question, please state your first and last name and organization. And along those lines, when asking a question, please identify to whom the question is directed. Please also be sure to speak slowly and clearly. Next slide, please.

We will begin with a staff presentation with a high-level overview of the conditions that will be discussed today, but not specific concerns raised in Petitions. Following the staff presentation, the Petitioners will shortly introduce themselves. Then we will discuss each topic listed in the agenda condition by

condition. Each Petitioner who has chosen to discuss the topic will give a presentation, and following these presentations, we have allotted time for Petitioners and State Water Board staff to discuss the topic. There will be a short public comment period near the end of the day. If you wish to make a comment, please fill out the form linked on the notice for today's workshop now in order to receive the details for making a comment. Please note, we will work hard to stay on schedule, but all listed times are approximate. Next slide, please.

Since 2008, flows in the Project area have been governed by the Yuba Accord and Revised Water Right Decision 1644 and Corrected Water Right Order No. 2008-0014. The Yuba Accord is a set of agreements designed to address the interests of various entities relying on water in the Yuba River.

Condition 1(A) of the certification stipulates flows in the Project area by reach. The flows required in Condition 1(A) are almost YCWA's -- almost entirely YCWA's agreed-to flows, with the exception of modifications requiring consistency with YCWA's Water Rights, as described in Revised Decision 1644 in Corrected Water Right Order No. 2008-0014 and FERC staff recommendations for flows below New Bullards Bar Reservoir from June through September, and also in the

Lower Yuba River from June through August. During relicensing, YCWA, and most relicensing participants reached agreement on minimum in-stream flows for the Middle Yuba River below our House Diversion Dam, and Oregon Creek below Log Cabin Diversion Dam. Next slide.

Condition 1(D) is written to provide for the voluntary agreement process as part of the Sacramento Delta Update to the Bay Delta Plan. If a voluntary agreement is not entered into, Condition 1(D) also requires consultation after 10 years of implementing the flows of Condition 1(A) to address any operational changes that may be necessary. This term permits YCWA to move forward with its flow -- proposed flow regime as modified by the FERC staff recommendation, and to gather data to determine whether the flows will adequately comply with water quality requirements over the long term and to work on voluntary agreements that support the Sacramento Delta to the Bay-Delta Plan. Next slide, please.

Condition 6 prescribes closures at Lohman Ridge Tunnel at certain times of the year to minimize the potential for fish entrainment into this tunnel. YCWA proposed some tunnel closures during specific water year types. However, the United States Fish and Wildlife Service and CDFW recommended additional tunnel closures

for important periods of rainbow trout migration and to reduce the potential for fish to be entrained. Condition 6 requires the recommendations of the U.S. Fish and Wildlife Service and CDFW. Next slide, please.

Currently, YCWA does not use the upper intake at New Colgate Power Tunnel owing to in 1993 recommendation from CDFW to only use the coldest water in New Bullards Bar Reservoir, which is accessed via the lower intake. However, since then, both the U.S. Fish and Wildlife Service and CDFW have recommended that YCWA operate both the upper and lower intake to provide the best foreseeable temperature regime below New Bullards Bar Reservoir. To this end, Condition 7 requires the use of the upper intake at New Colgate Powerhouse in the spring for water temperature management. This condition is designed to help manage water temperatures. Condition 7 requires the recommendations of the U.S. Fish and Wildlife Service and CDFW. Next slide.

Conditions 8 and 9 require management of large woody material, or LWM, and sediment at certain project locations to improve -- to help improve the water, the quality and complexity of salmon rearing habitat in those areas. These conditions largely incorporate YCWA proposed measures to manage large woody material or sediment. Large woody material contributes to productive

aquatic ecosystems and is an important component of stream channel maintenance and the formation of complex aquatic habitat. Presently, large woody material is impounded in the project's reservoirs. For this reason, large woody material is largely absent downstream of the Project reservoirs. Sediment is critical to the function of river ecosystems as it provides habitat for spawning fish, benthic macroinvertebrate production, and frog reproduction. Sediment deposition during gradual flow reductions can form side channel bars that provide habitat that's necessary for fish, amphibians, and benthic macroinvertebrates. Sediment is also managed through a separate water quality certification for the Project, which was issued in April 2020.

Finally, YCWA's proposed measure for large woody material includes the potential to burn large woody material on a barge in New Bullards Bar Reservoir. If YCWA plans to do this, Condition 9 also requires that YCWA first submit proposed modifications to protect water quality for Deputy Director review and approval. Next slide, please.

Condition 12 requires YCWA to develop a restoration plan for the Lower Yuba River. Part of this requirement is to develop performance metrics to assess the restoration and enhancement actions YCWA will

implement. The intention of this condition is to have YCWA consult with staff from CDFW, U.S. Fish and Wildlife Service, the National Marine Fisheries Service or NMFS, and State Water Board Staff to develop appropriate restoration proposals to enhance juvenile salmon habitat in the Lower Yuba River. Restoration activities, such as lowering floodplains, planting and repairing vegetation, large woody material management, and or gravel augmentation have the potential to improve the quantity, quality, and complexity of salmon rearing habitat in the Lower Yuba River. Riparian vegetation constitutes an important resource that can provide cover for juvenile salmon and support invertebrate prey for salmon. Along with the U.S. Fish and Wildlife Service, NMFS, and CDFW, FERC staff also recommended YCWA, develop and implement restoration actions. Next slide.

Englebright Dam is the upstream limit of salmon migration on the Yuba River. Though Englebright Dam is owned by the United States Army Corps of Engineers, YCWA's Project operations rely on Englebright to support hydropower production and base flow operations at Project facilities. Project operations directly alter the operation of Englebright Dam by reducing the duration and magnitude of spills from Englebright Dam and by controlling flows in the Lower Yuba River. As such,

under current conditions, the Project directly lists -- impacts listed salmon through its historic and proposed future operation. Condition 20 requires YCWA to develop a report that includes a proposal regarding fish introduction to reduce YCWA Project-related effects to listed salmon. Condition 20 also requires YCWA to consult with NMFS, the United States Forest Service, CDFW, the U.S. Army Corps of Engineers, and State Water Board staff regarding fish passage above Englebright Dam and or around New Bullards Bar Reservoir. Although a lot of work has already happened regarding fish passage, and alternatives have been explored, Condition 20 seeks to ensure that YCWA is part of the conversation and continues to assess feasible fish passage alternatives. Next slide please.

So next up, each Petitioner will have five minutes to introduce their presenters here today, and then we will begin presentations from each Petitioner on each condition. Following these presentations, we have allotted some time for Petitioners and State Water Board staff to discuss and ask questions about the information presented today. At the end of the day, after we have discussed each condition, there's a short allotment of time for members of the public to make comments. After this workshop, State Water Board staff will consider the

record, including what is discussed here today, evaluate the Petitions for Reconsideration and bring any recommendations before the Board. We thank the Petitioners for their time and willingness to provide information on, and clarifications of specific items raised in their Petitions. We look forward to today's information sharing.

So now I'm going to turn it over to YCWA to introduce themselves.

MS. RAGAZZI: Willie, you're muted still. Are you going to take the lead on introducing folks?

MS. TOWNSEND: I gave co-host rights to Steven since he's first on the presentation.

MS. RAGAZZI: I think Willie Whittlesey should be the general manager for YCWA can you go ahead and.

MS. TOWNSEND: Okay. I will go ahead and --

MS. RAGAZZI. Thank you.

MS. TOWNSEND: Not a problem. Okay Willie, I've given you permission.

MR. WHITTLESEY: Excellent. Can everyone hear me?

MS. TOWNSEND: Yes, we can.

MR. WHITTLESEY: All right. Well, good morning. I'm Willie Whittlesey, general manager of Yuba Water Agency. Yuba Water is participating in today's

workshop to provide technical input on various elements of the petitions to the 401 Certification issued by State Board staff in July of 2020. And before we get into technical details, I want to explain to you just how important the issues presented by the certification are to the future of Yuba County its people in the disadvantaged communities, in which the majority of our people live. First, if implemented, this certification could have significant and direct impacts on those communities. It could have severe impacts on agricultural water supplies, undermining a significant driver of economic activity in the small, predominantly rural and disadvantaged communities we serve. The certification could shift demands to a historically over drafted groundwater basin that our communities rely on as their primary source of drinking water. This would compromise Yuba Water Agency's work over the last several decades to ensure sustainable conditions in the basin, work that continues in our role as Yuba County's Groundwater Sustainability Agency. By shifting water releases to the spring, the certification would significantly reduce Yuba Water's ability to generate peaking power during high demand summer months. That would cause multiple issues. It would severely limit Yuba Water's ability to dispatch zero carbon energy

during California's heat emergencies to support the reliability of the state's grid. It would severely limit the availability of our energy capacity to integrate variable wind and solar energy resources into the grid and support California's response to climate change. And it would have severe impacts on the value of Yuba Water's hydroelectric generation, reducing by millions of dollars per year, a primary source of revenue that is used to fund much needed flood risk reduction and resiliency measures, as well as other projects consistent with Yuba Water's mission and responsibilities. Finally, the certification could reduce Yuba Water's capacity to plan for and respond to drought conditions. The bottom line is the certification could have very real and very direct impacts on Yuba County and the communities we serve.

Second, we have significant concerns about the certification and reconsideration process. State Board staff issued the certification as final without a pending application from Yuba Water. Yuba Water was not contacted to discuss the development of the certification's provisions, its development was not transparent, and there was no opportunity to work together to identify the issues and develop appropriate mitigation measures. The reconsideration process exists so that State Board members themselves can reconsider the

staff certification, but we are told that we can't talk to the State Board members. Also, this workshop was announced by State Board staff in May, along with other Petitioners, we asked for clarity on the workshop process and an agenda soon after it was announced. Given the importance and highly technical subjects, we and our experts have spent significant time preparing, with limited guidance.

On August 27th, three weeks before the workshop, we received three pages of detailed questions from State Board staff to address in our presentations today. Some of those questions were legal and not technical in nature. And on September 7th, we received the final workshop agenda. We have just a few minutes to discuss issues that could change Yuba County's future for the next several decades. The lack of transparency in issuing the certification, and lack of clarity surrounding this workshop's format and purpose have a real costs. Yuba Water has spent hundreds of thousands of dollars in response to the certification, and other parties are also incurring significant costs. These decisions are too important for Yuba County's future, for the process to be vague and not transparent.

Moving forward, we believe the Board should withdraw the 2020 certification. We respect the Board's

right to appeal FERC'S Order finding waiver of the Board Certification Authority. And if the court determines that Yuba Water needs a certification, then we'll file an application. In the meantime, withdrawal of the certification would not compromise the Board's litigation position regarding the Waiver determination, but it would allow Yuba Water to dismiss its federal and state lawsuits challenging the certification.

At Yuba Water Agency, we recognize our place in the Yuba River watershed and the need for the river to serve many competing uses. In other settings and through other processes, Yuba Water has demonstrated our interest and willingness to engage in the development and implementation of constructive, collaborative efforts to protect the Yuba River watershed and its ecosystems. We're proud of our agency's record as both a leader and collaborative partner across a wide variety of water and resource management issues, including the Yuba River Accord, groundwater management, forest restoration, fish habitat enhancement, and our work to generate flexible, carbon-free energy supplies to support the state's needs. These are all --

MS. GANGL: Willie, you're at five minutes just so you know, so we got to move on to the next ones quickly.

MR. WHITTLESEY: I've got five more lines.

MS. GANGL: Okay.

MR. WHITTLESEY: These are all critical issues facing our state today. Transparency, inclusiveness, and collaboration have been key to making forward progress on each of them. And unfortunately, the certification undermines our ability to continue that work, as well as Yuba Water's overall mission to benefit the people of Yuba County. As previously mentioned, three weeks ago, we received three pages of detailed written questions from staff. We submitted written responses to each of those questions, and today our technical team is prepared to address each question. I thank you for the opportunity to offer these remarks, and we look forward to the discussion.

MS. GANGL: Thanks, Willie. I think next up, we have CDFW five minutes.

MS. RAGAZZI: And whoever is going to speak for CDFW, can you please raise your hand. Hi Bri. Jeanine will let you know when you're unmuted.

Hey Bri, I see that Jeanine is trying to speak so she might be -- she might have unmuted you. Can you check to see if you're unmuted.

MS. SEAPY: Okay, can you hear me now?

MS. RAGAZZI: Yes, we can.

MS. GANGL: Yep.

MS. SEAPY: Okay. Excellent, thank you. Good morning Board members and Board staff. My name is Briana Seapy and I'm water program supervisor for the California Department of Fish and Wildlife, North Central Region. We're here because in January, we petitioned the Board for modifications to the Yuba River Development Project Water Quality Certification. Our petition was consistent with our agency mission to manage fish and wildlife and the habitats on which they depend, and it was consistent with our FERC 10(j) recommendations designed to balance project operations with improved protections for fish and wildlife beneficial uses.

We stand by these recommendations and hope to answer Board staff questions with our presentation today. So thank you for the opportunity. And then I'll just run through the names of staff who will be presenting so that they're familiar when they pop up. So besides myself, we have Beth Lawson, our senior hydraulic engineer presenting; as well as Sean Hoobler, our fisheries environmental scientist; and we have two external presenters contributing today, John McMillan, the science director and Wild Steelhead Initiative for Trout Unlimited; and Stephanie Millsap, the Watershed Planning Division manager for U.S. Fish and Wildlife Service. So

thank you again for that opportunity, and that's it from us.

MS. RAGAZZI: Thank you very much. And who's going to be presenting from the NGOs? If you can raise your hand. Chris Shutes.

MR. SHUTES: Good morning. I'm Chris Shutes with the California Sportfishing Protection Alliance. Our understanding of these introductions was not to review or repeat our legal or talking legal arguments or talking points, but simply to introduce the participants in today's workshop. I will now introduce the presenters from the CSPA, et al. Petitioners. Aaron Zettler-Mann the watershed Sciences director at the Yuba -- South Yuba River Citizens League, or SYRCL. He has a PhD in geography from the University of Oregon with an emphasis in fluvial geomorphology. He is also a longtime rafting guide in the Sierras, and he has been with SYRCL since 19 -- 2020. Excuse me. Dr. Zettler-Mann will present today on Water Quality Certification 12, Habitat Restoration. Melinda Booth is the executive director of SYRCL. She has held that position since 2017, prior to which she spent six years as director of SYRCL's Wild and Scenic Film Festival. She has an MS in environmental science from the University of Montana. Ms. Booth will be one of the co-presenters today on Water Quality

Certification Condition 20, Fish Passage. Ashley Overhouse is the Resilient Rivers Director at Friends of the River. Ms. Overhouse has a JD from UC Hastings College of the Law and an LLM in environmental law from the University of London. Ms. Overhouse has been with Friends of the River since 20 -- May of 2021. Prior to joining FOR, she was the policy director at SYRCL for just under three years. Ms. Overhouse was recently chosen as the California Chair of the Hydropower Reform Coalition. Ms. Overhouse will be the second presenter of the day on Water Quality Certification Condition 20.

Finally, I'm Chris Shutes, FERC Projects Director and Water Rights Advocate for the California Sportfishing Protection Alliance, or CSPA, or CSPA. I've held that position for the last 15 years. I have a B.A. in German from the University of California, Berkeley. I gained my experience with hydrologic modeling and its uses in 20 years of hands on work in 15 FERC relicensing proceedings, associated water quality certification proceedings, and State Board proceedings, such as the updated the Bay Delta Plan and the California Water Fix. I have a granular working knowledge of the natural and developed hydrology of most Central Valley rivers from Merced to McCloud, including Delta operations. I will be presenting today on Water Quality Condition --

Certification Condition 1, Flows. I'm the only person on the CSPA et al. team presenting today who has been involved in the YRDP Project Relicensing since its beginning in late 2010.

I'd briefly like to acknowledge some of the other members the Foothills Water Network Coalition of non-governmental organizations who contributed to the technical record that NGOs developed in this proceeding, and which in part are reflected in the exhibits we submitted with our petition. These include biologist Gary Reedy, former SYRCL science director, now semi-retired in demand independent consulting. Biologist Rachel Hutchinson, former SYRCL science director now with the U.S. Forest Service. Bob Center, formerly with the American Whitewater and Friends of the River, an engineer, kayaker and self-taught hydrologist, now retired. Aquatic ecologist Dr. Natalie Stauffer-Olsen, staff scientist with Trout Unlimited, currently on maternity leave. And American Whitewater advocate and former high school economics teacher, Dave Steindorf. Finally, I'd like to acknowledge the Sierra Club's Alan Eberhart who worked for Yuba issues for over 20 years, on Yuba issues for over 20 years, prior to his death last year. Thank you very much.

MS. GANGL: All right, thanks. I think now we

can move into our discussion of the presentations of Condition 1, which we'll start with YCWA's presentation regarding Petition 1. Sorry Condition 1.

MS. RAGAZZI: Courtney, can you bring up the presentation again, please?

MS. TAYLOR: Yeah. It's just taking a minute. One second.

MS. RAGAZZI: And whoever wants to take the lead on this. Steve, it looks like your unmuted. Are you good to go?

MR. GRINNELL: Yes, I'm ready to go.

MS. RAGAZZI: Okay.

MR. RAGAZZI: Here we go. Well, thank you for the opportunity to present today. My name is Steven Grinnell. I'm an engineering consultant for Yuba County Water Agency. The primary presenters for Condition 1 are myself, Paul Bratovich, and Terri Daly. If there are questions, the full list of presenters submitted to the State Board are available to answer questions. Next slide, please.

So several staff questions focused on what flow requirements were modeled for Condition 1, and specifically, Condition 1(D) and the details of how they were modelled. The purpose of projected Condition 1(D) scenario is to show what flows not only might be ordered

under the Water Quality Cert's delegated authority through the Executive Director, but what flows YCWA believes would likely be ordered based on the statements in the Water Quality Cert. And then to determine resulting flow and temperatures in the Lower Yuba River, as well as other effects from operations to these potentially required flows. Next slide, please.

To model Condition 1(D) we combine three main criteria for flows on the Lower Yuba River: the existing Yuba Accord flow requirements that were ordered in 2008 by the State Board; the flows recommended by CDFW in its 10(j) recommendation to FERC, and which are referenced in the Water Quality Cert rationale; and the Bay-Delta Plan Update unimpaired flow requirement based on the description of the default implementation from the 2018 staff -- State Board Staff Framework for the Sacramento River. It's a year-round model requirement, as indicated in the Phase 2 Scientific Basis Report. We selected this combination because the Water Quality Cert states that additional flows, such as those proposed in the CDFW, and its 10(j) recommendations may be needed to improve habitat conditions at the Lower Yuba River and the Water Quality Cert also states the 1(D) consultation and evaluation will examine whether the required flows meet the requirements of the Bay-Delta Plan. And Condition 31

requires operation of the Project consistent with requirements of the Bay-Delta Plan.

The 55% requirement used in the modelling is consistent with the recent direction from State Board staff responding to YCWA's request related to FERC's AIR request. So the greater of these three flow requirements govern at any one time. This slide graphic in the orange and blue bars show the total height of the bars, the governing springtime CDFW 10(j) flow rate and the orange portion of those bars is the amount of additional flow that those flows would require above the 55% of unimpaired requirement for the years and periods where the 10(j) flows are greater than the YCWA proposal. In essence, the CDFW 10(j) additional springtime flows are sometimes quite a bit higher than 55% in the springtime. Next slide, please.

Paul Bratovich. Paul will be providing the next couple of slides. Is Paul able to be unmuted?

MS. RAGAZZI: He should be okay to speak now. Paul.

MR. BRATOVICH: Okay, yes. Can you hear me now?

MS. RAGAZZI: Yes.

MR. GRINNELL: Yes. Okay, thank you.

MR. BRATOVICH: Yeah thanks, Steve. I'm Paul

Bratovich, fisheries biologist for Yuba Water Agency. In today's presentation, we answer the State Board staff questions regarding habitat and we also refer that back to the rationale in the Water Quality Certification itself. Steve mentioned that there are indications that the flow proposal by Yuba Water Agency may not adequately provide for holding temperatures for spring-run Chinook salmon in Schedule 6 years, juvenile habitat, and we'll get into that, floodplain inundation, and spill reductions. We'll address each of these. Next slide, please.

This slide represents a probability exceedance distribution analyses. We used many probability exceedance analyses in our evaluations. In these analyses, the X axis represents probability, or percent of time, that specific values occur, represented on the on the Y axis. In this case, water temperature and degrees Fahrenheit. The blue line represents the FEIS Base, and the red line represents Condition 1(D) for the June through August over summer adult spring-run holding period. Each line represents modelled average daily water temperatures. The June through August holding period is 92 days and over 48 years. Each line is comprised of over 4,400 average daily water temperatures, ranked from highest to lowest. This cumulative

distribution allows comparison of scenarios over the entire range of the distribution of values. It also allows evaluation of the probability of exceeding biologically meaningful thresholds, such as upper optimal and upper tolerable water temperature values. These values were developed by the Yuba Salmon Forum Technical Working Group and were used to evaluate the thermal suitability for reintroduction of spring-run in various reaches of the watershed, including the Lower Yuba River.

Upper Optimal was defined as the upper boundary below which water temperature does not impair physiological or behavioral functions, and upper tolerable was defined as the highest temperature in which fish can survive indefinitely but growth and reproduction success are below optimal. That being said, I'd like to review this figure. It can clearly be seen through this exceedance probability distribution analyses that the projected 1(D) scenario provides much warmer water temperatures than the FEIS Base scenario and exceeds the water temperature index values with substantially more often than does the FEIS Base. This also demonstrates that the FEIS Base does provide adequate holding temperatures for spring-run Chinook salmon, which is contrary to the premise in the Water Quality Certification. The only exception to exceeding upper

tolerable was the single driest, well and warmest year, 1977. Next slide, please.

This slide is addressing the assertion in the Water Quality Certification, the speculation, I should say that inadequate salmonid habitat may trigger earlier premature outmigration of juvenile salmonids. 10 years of rotary screw trapping data are available on the Lower Yuba River, from 1999 through 2008. And the figure on the top right demonstrates the results of the timing, the cumulative distributions of the outmigration of juvenile Chinook from the Lower Yuba River. The gray line on the left represents pre-Accord years and the black line represents Accord years. What this shows us is that rather than triggering early outmigration, or premature outmigration, in fact, implementation of the Accord is associated with up to a month later outmigration from the Lower Yuba River than prior to implementation of the Accord.

The figure on the bottom right is a comparison of outmigration timing with Butte Creek, four years of the same data. This is one year selected, which is demonstrative of the similarity of the relationships. Those sigmoidal shaped curves again are the cumulative timing, outmigration distribution functions and as can be seen, they're really pretty quite similar. The dots are

the size of individuals, average size of individuals occurring, on those specific dates, indicating that this is neither premature or early. We chose to show Butte Creek here because the last National Marine Fisheries Service status review was in 2016, in which NMFS suggested that the Butte Creek population was the independent and viable population and at low extinction risk, with all viability metrics tending in a positive direction. If that is the case then, you know, Lower Yuba River compares quite favorably regarding the Water Quality Certification and speculation that there may be premature or early outmigration from the Lower Yuba River. Next slide, please.

MR. GRINNELL: Well, back to me. For the third Water Quality Cert listed inadequacy CDFW and the Water Quality Cert point to inadequate floodplain inundation. So first, we should utilize some consistent terminology here. As defined by Pasternack's 2012 Land Form Report, which was the reference report in the Fish and Wildlife Service inundation analysis used by CDFW, its recommendation to FERC, the floodplain encompasses areas that are inundated, that close above 5,000 cfs. So therefore, the CDFW 10(j) high stream flow requirement of 3,500 cfs in Schedule 1 years, and 2,500 cfs in Schedule 2 years, do not inundate the floodplain. In fact, these

flows drain storage in New Bullards Bar compared to the YCWA proposal and therefore reduce spills in New Bullards Bar in some years. That results in less inundation of the classic floodplain. Next slide, please.

So now we have to kind of shift over here and look at the Fish and Wildlife Service definition for the analysis that was done for floodplain inundation as a support to CDFW's 10(j) recommendations. To -- examine the method used by Fish and Wildlife Service to define habitat and examine inundation from flows in areas, we've had to change labels. The Fish and Wildlife Service report used the term ecologically relevant areas. The focus of the Fish and Wildlife Service report is used to support the 10(j) recommendations for Lower Yuba River was on a defined area of the Yuba River, labeled Ecologically Relevant Areas, which are areas inundated at flows above either 800 cfs or 1,300 cfs, depending upon the reach of the river. So the figure here shows the exceedance probability of inundation measured as acres of area inundated for an X number of days. So an acre-day metric, that's what's used in the Fish and Wildlife Service report for the ecologically relevant areas being inundated. The YCWA proposal modeling results are in orange in the line. It's actually labeled AFLA AR 3 that's the YCWA flows from the FERC relicensing and the

CDFW 10(j) flow recommendations, and these are 10(j) flow recommendations without a 55% requirement, just looking at the effects of the 10(j) flow recommendations. Those are in blue. As you can see, overall, these results are similar, even though the 10(j) flow recommendations in Schedule 1 and Schedule 2 years are much higher in the springtime than the YCWA proposal. These results are further supported by the report itself, the Fish and Wildlife Service Report at Table 5, which shows -- in that report, which shows the median inundation in acre-days for the target flow years of the Schedule 1 and 2, the increase in inundation with the CDFW proposed flows, there's a less than 2% increase in acre-days for those year types. Next slide, please.

The last inadequacy is spill reductions, or the fourth one, identified as a potential inadequacy and potentially requiring additional modification to the YCWA proposal's spill reduction. This one is a bit confusing since generally all the parties agree and FERC put in its staff alternative, pretty much identical flow spill reduction rates. The only exception was the time frame for applying those rates. YCWA proposed April through July 15th, while the relicensing participants proposed April through September, and FERC in its wisdom, and the FEIS, preferred alternative, has April to July 15th as a

requirement, and July 15th to September 30th as targets. Essentially satisfying the relicensing participants and including the State Board's supported proposal for flow reduction. Next slide, please.

Back to Paul.

MR. BRATOVICH: Yeah, thank you, Steve. On this slide, you can see on the left side that we've already talked about the elevated water temperatures associated with over summer adult holding with implementation of projected 1(D) scenario. I need to point out that also pertains to juvenile rearing, spring-run chinook salmon and steelhead over summer in the river. And they are also subject to these same increases in water temperatures and or adequacy of the water temperature regimes provided by the FEIS Base. On the right is the representation, again of an exceedance distribution of water temperatures during the spring-run Chinook salmon spawning period, defined as September through mid-October. What could be seen from this figure and these exceedance distributions is that there would be redirected impacts with implementation of Condition 1(D), resulting in elevated water temperatures with substantial increases in the amounts of exceedance of the upper optimal, as well as the upper tolerable water temperature conditions in the Lower Yuba River. And Steve, I'll turn

it back to you.

MR. GRINNELL: The next slide, please. So impacts to YCWA's operations. So very briefly, and this is not to minimize, this is one of the largest concerns of the water quality cert for Yuba. The very large increases that could occur and required flows between the 10(j) recommendations and 55% unimpaired requirement are large and frequent water supplier shortages. In fact, storages about 40% of the demand in one third of the driest years. So in the Sacramento Valley, assumption is that if there are surface water shortages, those are replaced with groundwater pumping. However, the sequence of year over year shortages would mean groundwater pumping would be very problematic for groundwater sustainability for the Yuba Basin. Next slide, please.

Well that figure's not doing very well in the presentation, so I'll just kind of describe it because it somehow didn't replicate. What the figure actually was supposed to show, and there's a line on it, it didn't show, didn't come through. There we go. It's a -- it's interactive. If you can go ahead and maybe I'd suggest to click through all of the, there must be some animations in there. There we go. Yeah, I'm not going to animate it for you here. Thank you. So what the graphic shows is that this basin, the south basin, of the

Yuba subbasin was in critical overdraft all the way up until the early 1980s when surface water was delivered to that area. So one of the things we did was model the increased demand on groundwater pumping that -- to replace projected Condition 1(D) water supply shortages. So the red line at the end there shows the groundwater level decline under that scenario. As you can see, the decline is a similar rate to the rate that occurs during the overdraft period of the 50s and 70s, which was intolerable and created worse body shortage of the -- well owners, as well, in that area. Next slide, please.

So this slide focuses on something that we really haven't had the discussion on before, and that is the CDFW 10(j) flow requirements, without an unimpaired requirement, which is modeled in the relicensing process as the response to, part of the response to the CDFW 10(j) recommendations. So one of the elements that is central to those 10(j) recommendations is flows, Delta inflow and outflow contribution, which is discussed at the Foothills Water Network, Petition for Reconsideration, which identifies the 2018 State Board Staff Framework, with Bay-Delta Plan Phase 2. Also, water quality cert identifies compliance with the Bay-Delta Plan. So most importantly, the Yuba River is

identified in the Bay-Delta Plan update documentation as a tributary targeted to increase contribution to Delta inflow.

So it's important to understand the interaction of these proposed flows in the Bay-Delta context. You know, CDFW's 10(j) proposal would require an average annual increase in required flows above the Accord flow requirements of 134,000 acre-feet per year, about 200,000 acre-feet during Schedule 1 years. That's a 60% increase and that's a requirement that's only over about two months. Yet, the 10(j) proposal produces an average only of about 13,000 acre-feet of increased Yuba River outflow in the targeted January to June period. So that's quite a -- quite a ratio there with, essentially, less than 10% effect.

So let me just explain the figure for a second. So the blue bars are this. This is the years that were simulated, and the blue bars are the CDFW 10(j) flow requirement while in this, as it's applied as a higher flow requirement. Then the orange bars are the resulting in that year change in January to June, Yuba River outflow. And as you can see, there is -- there are years with quite a bit negative as well as positives. And that's because essentially what's going on here is we have a shifting around of water with not a lot of

increase to absolute outflow in the January to June period. So what happens is --

MS. RAGAZZI: Steve, I just wanted to flag that the 20 minutes is up, so if you could wrap up your slides and --

MR. GRINNELL: Okay.

MS. RAGAZZI: So we can move on to the next group? Thank you.

MR. GRINNELL: Yeah. So let me just move on to the next slide. And so real quickly, in summary, the 10(j) flows are intended to provide increased floodplain inundation and rearing habitat, but instead reduced floodplain inundation and don't significantly increase habitat. They are significantly less effective at providing higher Yuba outflow when the Delta is low and results in many periods when Yuba River outflow is reduced. And then, of course, the combined CDFW 10(j) flows below Yuba and 55% unimpaired flow for the Delta would have large impacts on Yuba County and reduce YCWA's ability to support disadvantaged communities. Next slide, please. And Terri Daly will present the last slide here.

MS. DALY: So you can see the impacts to Yuba water operations $300 million in reduced water transfers, $140 million in the loss of power generation and revenue.

And I just want to take 30 seconds to really emphasize the on the ground real life impact of this loss of revenue to the people of Yuba County. You know, Yuba's one of the poorest counties in the state. Our per capita income is less than 20,000 a year. 50% of our residents live in disadvantaged communities, and Yuba water is the only local source of revenues with substantial enough money to deal to start dealing with issues like safe drinking water for those disadvantaged communities. In the last three fiscal years, Yuba Water has contributed more than $19.3 million in grant funding and $39.1 million in low or no interest loans that directly support public safety, flood risk reduction, science education, and economic development in the county. Just one quick example we contributed over $3.6 million just this past year for the design and engineering to bring water and wastewater infrastructure to the south of the county. This project will protect our groundwater and secure a reliable source of safe drinking water for existing and new housing, including affordable housing.

And on groundwater, we have reviewed the State Board and DWR's draft Groundwater Management Principles and agree. We suggest that the Water Board needs to consider the effects that the water quality certification would likely cause on groundwater-based drinking water

supplies in Yuba County. We've also invested almost a million dollars working with our schools on water-based science curriculum that meets the next generation science standards. We're -- we also promote the state goals. We've committed more than $8.4 million to forest health in our watershed, and we were a key partner in forming the North Yuba Forest Partnership, which has been widely recognized as a model for the state.

So as these examples show, the loss of revenue cited in this presentation presents serious social, economic, and even environmental consequences to the county and its disadvantaged communities, and even to the state as a whole. Thank you.

MS. RAGAZZI: Thank you very much. Courtney, can you pull up the CDFW presentation? And I'll just flag for people over on the side. If you look at the speaker list, you'll see something that says timer, that's the timer that's running. And if you want to look at it, that's how you can see it at the same time as the presentation in case it's not showing up on your screen when you're just looking at it. That's where you can see it. And Beth, it looks like you're going first. Can you -- can we do mic check, Beth?

MS. LAWSON: Yep. Can you hear me?

MS. RAGAZZI: We can. Thank you.

MS. LAWSON: Okay, great. Hi, my name is Beth Lawson. I'm a senior hydraulic engineer for the California Department of Fish and Wildlife. I just want to thank you for the opportunity to be here and to present and to engage in conversation and discussion today. I think this is really valuable, and I look forward to having a robust discussion. I hope there's some good question and answer later. CDFW, in this part focused on the questions that were asked of us in the recent questions from the State Water Board. And so I'll focus my slides here on those. Next slide, please.

Okay, so the first question that was asked of us is, in general, CDFW's proposal flow, proposed flows result in less carryover storage in New Bullards Bar. How does CDFW's flow proposal consider climate change and the need to manage water supply for multiple water years, given extended dry periods? And our response is that CDFW's flow proposal only releases the additional flow for fish and wildlife benefit in the wetter of the water year schedules because those are the years when water is more available. In the drier water year types, CDFW's flow recommendations, and YCWA's flow recommendations are almost identical. In a few years, when a drier year follows a particular drier spring, follows a wetter year, the storage in New Bullards Bar is impacted compared to

YWCA's proposed operations.

We feel that as climate change compromises all of the fisheries in California, it's very important that we use those wetter years to improve species management when water is generally available. And although there's no perfect forecasting mechanism to prevent us from some impacts to storage, the reason that we did the modeling and the releases the way that we included in our proposal is to take advantage of the times when water is generally available in the Yuba River.

In terms of looking at the water year record, within the record we considered 41-year period of record during the relicensing. And there are multiple drought cycles on them, during 76, 77, 1984 to 88, 2007 to 2008 there were drought cycles. So we were able to consider what happens to project operations when we go back and forth between the drought cycles and periods of wetter and more water availability. And so within that period of record, we were able to look at how the reservoir impact -- is impacted throughout time in different water year types. Next slide, please.

Okay, so this is just a chart that was included in our 10(j) recommendations, and I just wanted to highlight a few things in this chart. This is over that 41-year period of hydrologic record. What we often

consider is a look at the end of September storage because that determines how much water is going into that winter and how much water is being carried into the next year. That's the metric that's used in the North Yuba Index for calculation of the indices of what the water year type is for the next year. And so if you click the forward arrow, you should see that there should be a circle coming here, not used to not controlling my own slides. in point -- in the amended final license application, which was submitted by YWA to FERC, you see that there is a 0.4% decrease in storage because of the changes that have been made in their recommendations, particularly some of the upstream changes. If you click the next arrow, you'll see highlighted below that CDFW's Lower Yuba River 10(j)s do include a 4.1% decrease in that end of September storage. Next slide, please.

Oh, Okay. So we do feel, though, that the Lower Yuba change in storage of that 4.1% versus the 0.4% is an adequate balance. We're looking for balance in how to move additional water during the times that we need it for the benefit of the species in the Lower Yuba River.

The next questions, we believe focused on the North Yuba River and so that's how we're going to answer them, although in the question and answer later, please let me know if we hit the wrong target here. Next slide,

please.

So some of the other questions about question 1 indicative for CDFW, or question 1(b), CDFW says that flow increases from May to June could scour redds at the ramping rates associated with this flow increase, insufficient to protect redds. And again, we're assuming this is in the North Yuba River below New Bullards Bar. We're assuming that this question applies to just that reach only. So there's no agreed upon ramping rates between the minimum instream flows in this reach, the established ramping rates were only applied to spill recession, which pertains to dewatering of redds, not scour.

In the water quality certification the minimum instream flows increased from five to 60 cfs in May to June without any ramping rates. CDFW's recommended minimum instream flows held at 60 cfs during that time period. Absent those ramping rates, CDFW's proposal ensures minimum instream flows do not require dramatic flow increase during that time across the months where redds would be scoured. And of note, there are no foothill yellow-legged frogs in this reach, so the minimum instream flows and ramping rates here were only designed to protect the species that were observed in this reach. In other reaches, such as the Middle Yuba

River and Oregon Creek, we specified and negotiated much more detailed and much slower ramping rates, and that was for the protection of Foothill Yellow-legged frogs. Next slide, please.

The next question that was asked of us was, which minimum instream flows, e.g., which tables in Condition 1, is CDFW referring to in its comments related to severely limited spawning habitat. Please describe how those water quality certifications flows limit habitat. Our response is that we're assuming this question again applies to the North Yuba River. Spawning of rainbow trout at the elevations in the North Yuba River occurs in April to May. Habitat weighted usable area in the model results of the water quality certification recommended 5 cfs in April and May for this condition, yield only 44% of the maximum weighted usable area in this reach for all water year types. And our flow recommendations modeled 85% of the maximum weighted usable area for the spawning life stage during these months. Next slide, please.

Okay. And this is just taking a look at the study results. You can see from these lines, this is what we generally have for weighted usable area plots. If you're not familiar looking at this, the spawning, which is what we're talking about here, is shown in the

blue line below and then the table on the right indicates what percentage of maximum weighted usable area. And so that is a metric that is taken off of the highest maximum weighted usable areas. So we're seeing what -- at what flows we can maximize the habitat in that reach given the existing conditions. And so for this spawning, you see that at 5 cfs, we see a red circle to the right of 5 cfs, we're 44% of spawning habitat is available at 5 cfs. And for the recommended CDFW flows, we see that 85% is available. You can also see in this plot that the blue line is sufficiently below the red and orange lines, indicating that spawning is limited in this habitat. There's a limitation of gravel in this reach and that can contribute to the limitation of spawning habitat available. Next slide, please.

The water quality certification patterns also diverge from the natural hydrograph. And that's the other thing that we wanted to highlight about that 5 cfs, not just the limitation on spawning, but the pattern for New Bullards Bar reach, reflects nearly the inverse of a natural hydrograph when the lowest flows of the year are during the months with the highest unimpaired natural flow. During the months of April and May, 5 cfs provides only 0.4% of the natural unimpaired flow when compared to critically dry years and historic lows. The

recommended 10(j) flows restored just 2.5% of the unimpaired hydrograph in this reach. These recommended flows would improve habitat conditions throughout the year for native fish and other aquatic species by improving water availability and lowering water temperatures, both critical to the current and long-term health of aquatic species. The recommended 10(j) flows additionally keep summer flows higher and improve temperatures in the North/Middle Yuba reach confluence and that reach is the -- there's a, the immediate reach that we're talking about where the prescribed flows are, is the 2., I think 2.3 mile reach, immediately below New Bullards Bar. And then there's an additional 5.2ish-mile reach where the Middle Yuba and North Yuba come together before the top of Englebright Reservoir. Next slide, please.

If we just take a look at these unimpaired flows compared to what's in the water quality certification, the unimpaired flows are in the top reach. And if you key your interest on any one particular water year type, for example, critically dry water year types, the average unimpaired flow in April in this reach would be about 1,400 cfs. Even in the critically dry water year type, or in the table below, which is the water quality certification, we see that there's only 5 cfs in

those months, in both the month of April and May, which is the highest months of unimpaired runoff. And in the next slide.

You see that the CDFW Table has been replaced. This is what we're recommending today. The CDFW Table also has pretty low flows in this reach, but we thought that this was a good balance in order to improve the habitat for the fish in the North Yuba River reach, as well as in that North/Middle Yuba River reach below. We're also trying to improve temperature in that reach so that salmonids will have good temperature throughout the summer in that reach. Next slide, please.

This is just a quick look at that hydrograph graphed up. In this slide I have the scales from the top to the bottom on an equivalent scale, and if you tab to the next one, I've increased the Y-axis. Next slide, please.

Okay, and I increased the Y-axis, you'll now see that they're not equivalent, but I just wanted to highlight that the flows of the water quality certification are lowest during that April, May time period, where the highest ones are shown in the graph above it. Next slide, please.

So just taking a look at the equivalent reaches that are nearby in the proximate Middle Yuba watershed,

where the U.S. Forest Service had mandatory conditions on this project. Minimum instream flows were agreed upon by all relicensing participants for the Middle Yuba watershed, which has just 29% of the watershed area of the New Bullards Bar reach. The agreed upon minimum instream flows range from 40 to 120 cfs, depending on the water type and month. It's counterintuitive for this smaller watershed to receive significantly greater minimum instream flows than the New Bullards Bar reach, which is fed by about 70% more watershed area. Next slide, please.

So our recommendation is that water quality certification Table 1 be replaced with CDFW's Petition for Reconsideration Table C, which restores just 2.5% of the unimpaired hydrograph in this reach. We also recommend that the condition for consultation with the agencies after 10 years be removed from all of the reaches upstream of Englebright. I think that condition was intended just to apply to the downstream Delta flows and downstream voluntary settlement agreements, and in the condition it's unclear whether those on that condition for additional consultation going 10 years forward, additionally applies to the reaches upstream of Englebright. So we recommend that that be removed from this condition. Next slide, please.

Okay, thank you for your time. We look forward to discussing these issues later.

MS. GANGL: Thanks. I think now we will move on to Chris Shutes, presenting for the NGOs. So Courtney, if you could get Chris's presentation up, that'd be great.

MS. RAGAZZI: And Chris, can we check to see if you're unmuted and able to --

MR. SHUTES: Sure. I'm ready to go. I'm waiting for the presentation.

MS. RAGAZZI: Perfect. Thank you.

MR. SHUTES: Very good. Good morning again. I'm Chris Shutes of California Sportfishing Protection Alliance, or CSPA. I'm going to talk today about how Yuba Water -- Yuba County Water Agency, YCWA, on the one hand, the California Division -- the Department of Fish and Wildlife, CDFW, and CSPA, on the other hand, have used the operations model for the YRDP. I will discuss modeling both for license – relicensing, and for the water quality certification. As I go, I will explain much of the rationale for the joint flow proposal developed by CDFW, U.S. Fish and Wildlife, and the Foothills Water Network Coalition of NGOs, also known as FWN. This flow recommendation was a jointly developed project -- product. In his letter to Mr. Lauffer on

September 3rd, YCWA's attorney, Mr. Bezzera, suggested that the NGOs quote, have simply agree with CDFW's streamflow proposals, and not submitted any technical analysis. That is untrue, unwarranted, and frankly insulting. The YRDP operations model is the next based -- Excel-based spreadsheet model. It is excellent and highly versatile. I have no objection to the model itself and no question about the technical competence of YCWA and its consultants in using the model. What I dispute is the way that YCWA has used technical tools to advocate for its regulatory positions. When I speak of modeling today, I mean the use of the YRDP operations model. Next slide, please.

Water Quality Certification 1 adopts the flow recommendations of YCWA as a starting point for the water quality certification and creates an open-ended 10-year review process, which does not include NGOs, and which will occur within 10 years of license issuance. Next slide, please.

YCWA has adopted the position of using the operations modelling to analyze worst case, or close to worst case, scenarios of the potential impacts of Condition 1's open-ended review requirement. CSPA et al. has objected to the lack of adequate flow on -- lack of adequate flow requirement on the front end. Next slide,

please.

YCWA has chosen variables to input into the model that show close to worst case and embed those variables in its modeling. YCWA has then call -- conducted what I call derivative analysis. Assuming its chosen variables as fact, it has voluminously described the consequences to such factor as generation revenues, water sales, water temperature, groundwater impacts, etc. Another step removed, YCWA described impacts of reduced revenues to Yuba County community more broadly, layering on unstated assumptions about how YCWA would allocate revenues, but it is assumed, would be reduced. In my opinion, the overall purpose of YCWA's analysis is to show that the water quality certification is unreasonable. Next slide, please.

Slide 5 shows what I will discuss today. It shows how lack of decisions in the water quality certification create analytical variables and identifies those variables. It describes how YCWA and other FERC licensees modeled those variables, both for the water quality -- particularly for the water quality certification and what conclusions they drew. It describes that CDFW and CSPA model variables in relicensing and what conclusions we drew. It recommends

analysis to reach reasonable water quality certification flow conditions, and it discusses the importance of approach for the Bay-Delta plan. Next slide, please.

Slide 6 identifies six major variables that one must confront in operations modeling of the water quality certification. These variables exist because the conditions in the water quality certification did not address them specifically, and don't provide direction or clarity on how the Board plans to address them. The structure of this presentation begins on slide seven. Next slide, please.

And it's generally, to review each variable, I will discuss how YCWA, briefly, address each variable in the modeling water quality certification and contrast that with how CDFW and CSPA at al addressed the same variable in modeling during relicensing. For lack of time, I have to speed through this, I will discuss and summarize the bullets, not read them. I suggest the Board, Board staff, listen now and review again later. The left side of Slide 7 describes my analysis of YCWA's approach to modeling the water quality certification. The right side shows how CDFW, Fish and Wildlife Service, and Foothills Water Network developed our joint flow recommendation but there is much more extensive discussion of the development of the recommendation in

CSPA at al.'s Exhibit 1 pages 10 through 28. Next slide, please.

Slide 8 provides the percent of unimpaired flow over the entire month that the CDFW, Fish and Wildlife Service, Foothills Water Network flow recommendation would provide. On a monthly basis, this flow recommendation achieves many of the target percent of unimpaired flows in the Board's 2018 framework for the Bay-Delta Plan update. Next slide, please.

Slide 9 summarizes the months and lists the percent of one unimpaired flow, as applied, and when it would make a difference. Remembering Slide eight, in most cases, the difference between applying in February through June and applying year-round, is small. It is likely that the biggest effect of the year-round requirement would be during storms and refill months like December and January. There are also specific measures for bed protection in the Yuba Accord that would be lost by applying a percentage of unimpaired flow in October through January. In addition, this could add to YCWA's water cost. Next slide, please.

How much upstream diverters would have to bypass to meet a percent of unimpaired flow is a major variable. YCWA has not released modelling of this yet, but PG&E and the Nevada Irrigation District upstream,

have filed modelling with FERC. Reportedly, as I understand it in consultation with YCWA, it was performed by a consultant that is also one of YCWA's consultants. PG&E and NID assumed 55 to 65% bypass at their upstream control points. That is only one way of looking at it. The requirement in the -- in the Board's 2018 Framework, it's for a percent of unimpaired at the downstream control point. Next slide, please.

Slide 11 asks fundamental questions that the Board must answer for technical analysis to be meaningful. A couple of the questions are legal or policy questions. The point today is that the answers have profound technical consequences. Next slide, please.

Slide 12 is a map of the total Yuba watershed area. To the right is an area breakdown by sub-watershed. Next slide, please.

Slide 13 is another more targeted map that shows how much water, on averages, passes or is diverted at major features in the Yuba watershed. What is clear from the maps on Slides 12 and 13 is that YCWA, as the downstream diverter, has the opportunity to divert far more water than senior diverters PG&E and NID upstream. The Board will have to consider how to divide responsibility. Applying the same percent of bypass at

upstream and downstream compliance points seems inherently inequitable, Since at least May -- March 19, 2014, at a State Water Board workshop, I've been asking this Board to provide clarity on how much, if at all, the Bay-Delta Plan will require diverters upstream of Central Valley rim dams to contribute to Delta inflow and outflow. I've heard no answer. Here is another example how deferral of basic decisions leads to technical confusion. Next slide, please.

Slide 14 reflects that YCWA's modeling in dry year sequences, applies a percent of unimpaired flow in the same way as it does in other years. This has storage and water temperature requirements -- impacts, excuse me, that YCWA says are unreasonable. YCWA then argues, like almost every other water purveyor in the valley, that since impacts are unreasonable in dry year sequences, the Board should scrap the entire percent of unimpaired framework. The CDFW, Foothills Water Network, U.S. Fish and Wildlife flow recommendation doesn't have these impacts, since the driest years the flows are very close to the Yuba Accord. The biggest impact YCWA cites in the Joint Flow Recommendation is when YCWA would miss out on a $40 million windfall in 2014 by selling carryover storage to Westlands Water District, one of the most junior diverters in the valley. That was also the year

when many water agencies were shorting customers and when this Board weakened water quality certification -- water quality standards in the Delta, and saw Delta smelt become virtually undetectable in a year of surveys. The Board needs to decide if that $40 million windfall to YCWA in 2014 is reasonable. Next slide, please.

Slide 15 reports that YCWA's modeling completely sidesteps Water Quality Condition 16. The Board made it easy to ignore this because the water quality certification sets no clear rules for droughts. It proposes that YCWA and the Board collaborate to make those rules. That's a fallacy and a fantasy. YCWA, like every other major purveyor in the valley, is not going to help this Board develop reasonable drought rules. YCWA uses droughts to make the water quality certification in the Bay-Delta Plan appear unreasonable. The Board needs to make the rules. Next slide, please.

On July 22nd, YCWA's GM wrote to the Board proposing to discuss rules for variances that would occur under Condition 16. That's wrong. The water -- the Board doesn't need rules for variances. The Board needs rules for droughts and dry year sequences that make variances unnecessary. CSPA and allied groups have been asking this Board for such rules and FERC processes across the valley and water, associated water quality

certifications. These include Merced and Tuolumne, and also in comments in the Delta -- Bay-Delta Plan for close to a decade. Next slide, please.

Here are the necessary elements of drought plans, and alternatives for how to address rules. The Board should hold a technical conference open to Petitioners to discuss this -- discuss this, not just a closed-door discussion, as suggested, between YCWA and FERC. Next slide, please.

YCWA claims an impact to local irrigation deliveries from the CDFW, FWS, FWN flow recommendation. It is a modeling artifact unlikely to occur in practice. Next slide, please.

The combined outlet capacity of Narrows 1 and 2 Powerhouses or bypasses. It's about 4,130 cfs. In reviewing modeling, CDFW and CSPA noticed there were times when a percent of unimpaired flow requirement would require YCWA to induce or augment spill from Englebright to meet the requirement. In response, we adjusted the flow recommendation to allow YCWA to use the existing outlet routes. We also allow compliance when late April flood-up strains the limits of those offset -- outlet routes. So YCWA could meet both irrigation, and Marysville, flow requirements. YCWA, in its modelling of the water quality certification, assumes it will have to

induce spill to comply and argues that that is unreasonable. Next slide, please.

In summary, CDFW, U.S. Fish and Wildlife, and the Foothills Water Network did extensive research and analysis on the particular characteristics of the Yuba watershed and facilities and built their flow recommendations around this analysis. CSPA started from the Delta and looked upstream. CDFW and U.S. Fish and Wildlife, used a more traditional approach that started from the Lower Yuba River. Next slide, please.

The State Water Board must also conduct site specific analysis of the Yuba watershed and every other major valley watershed. The Board's biggest mistake was to rely on YCWA to help. YCWA will not help improve the water quality certification and the Bay-Delta Plan. Next slide, please.

The State Water Board should conduct modelling and analysis that address the variables shown here and reject YCWA's prefixed menu of bad choices. It should address variables in the matrix of potential choices stated as in clear enforceable conditions, and then iteratively modify them based on modelling. It should focus on outputs for flow, storage and deliveries, it should limit derivative analysis until it's honed in on the appropriate flow requirements. It should use

well-grounded decisions on Yuba as a partial template for the Bay-Delta Plan update. The key to adequate technical analysis is clear enforceable conditions to analyze. Last slide, please.

The State Water Board should set flow conditions for the Lower Yuba River now based on the record consistent with the CDFW, Fish and Wildlife Service, Foothills Water Network Flow Recommendation. The Board should not kick down -- the can down the road for review after 10 years, a review which in fact would not include any non-governmental organizations. Thank you very much for the opportunity to discuss these issues.

MS. RAGAZZI: Thank you, Chris.

MS. GANGL: I think what we're going to do next is take a 15-minute break to catch our breath and everything, and then we can move into discussing everything that we just heard. So if you all want to make sure you're back in 15 minutes, we'll start, promptly in 15 minutes. I'm not sure exactly when that is. Thanks, everyone.

MS. RAGAZZI: And just so everybody knows, we're going to start off with YCWA, first up to ask questions of the Petitioners, followed by CDFW, and then the NGOs, and then State Water Board staff will go at the

conclusion of that. So why don't we meet back at 10:45.

(Workshop recessed at 10:28 a.m.)

(Workshop resumed at 10:46 a.m.)

MS. RAGAZZI: Okay, looks like it's 10:45 or 10:46, and we can go ahead and get started with the discussion portion of Condition 1. Whoever wants to ask, lead-off the questions from YCWA, could you raise your hands, please? And as a reminder, please state your name for the court reporter, and who you're directing the question to. Does YCWA have any questions for any of the Petitioners? Hi, Ryan. I see your hand is raised. Thank you.

MR. BEZERRA: Yes, thank you. We do not have any questions. We've submitted all of our materials and in light of the short amount of time, we think it's more efficient just to proceed to see if anybody else has questions.

MS. RAGAZZI: Thank you so much. I'm going to go to CDFW. Is there anyone from CDFW that wants to ask a question. You can raise your hand. Hi Bri.

MS. SEAPY: Hi. I think we're in the same boat as YWA. For now, in the interest of time, we will wait for Board questions for us.

MS. RAGAZZI: Okay. And I'll move onto the NGOs. Do the NGOs have any questions for any of the

Petitioners, based upon the presentations?

MR. SHUTES: Hi. Chris Shutes. Same response here. We don't have any questions at this time. If there are questions from Board or Staff later on, we'd be happy to answer them. Thanks.

MS. RAGAZZI: Thank you. Okay, then I'm going to turn it over to Board staff.

MR. OPPENHEIMER: Hey Erin, this is Eric Oppenheimer. Can I start with a question?

MS. RAGAZZI: That'd be great, Eric. Thank you so much.

MR. OPPENHEIMER: Thank you. Hi, everyone. This question is for Yuba County Water Agency. And so just start off by saying, well start off by saying thank you to everyone for the presentations. They've been really informative, and I appreciate, obviously, the clear level of effort that went into preparing for today and I think it's worth getting a lot of really great and useful information. So thanks to everybody.

With respect to Condition 1(D), on its face, it's fundamentally a condition that requires consultation. And that consultation may lead to Yuba County Water Agency submitting a updated or modified set of minimum instream flows for consideration by the Deputy Director for Water Rights. And so in trying to tease out

what that means, my understanding from the presentation, other information submitted by Yuba County Water Agency, is that basically part of what you did was taking 10(j) flows and a 55% unimpaired flow requirement, and it appeared in some ways, stacked them together, and then in some ways, maybe just look at 10(j) in isolation in some of the flows if I understood correctly. It was pretty, some of the information was really good. I'll have to go back and look at it. It was -- but it was somewhat dense, just meaning technically dense, a lot of information packed into the slides. And so I'm not sure that that, you know, outcome of those two flow requirements stacked together, and then looking at the economic impacts of that through things like changes in power operations, is the most likely outcome from this 1(D) consultation process.

And so my question to the water agency is, did you look and analyze different flow scenarios and what the outcomes might be from those? And especially including your voluntary agreement flow schedule since the condition itself specifically calls out that voluntary solutions acceptable to the Board would essentially satisfy the condition.

MS. RAGAZZI: So whoever wants to respond from YCWA if you could raise your hand. Oh, Steve.

MR. OPPENHEIMER: It looks like – it looks like Steve's got his hand up. Yeah.

MS. RAGAZZI: Yeah.

MR. GRINNELL: Thanks, Eric. So yes, to answer your question, you know, we have looked at the individual pieces as, and we actually, you know, talked to you about some of those into the voluntary recruitment process. In FERC relicensing we looked at solely and specifically just the 10(j) flow requirements, and then separately in the Bay-Delta process, previously, we looked at, you know, just solely a percent of unimpaired flow requirements. So we have, you know, separated out each one of those. And as you would imagine, as we've said many, many times, we're obviously very much focused on a voluntary agreement approach and operation going forward for the Bay-Delta process. And, you know, I mean the summary of the 10(j) flow is, you know, if they didn't come through in the presentation, is, you know, those flows are for supposedly for, you know, habitat on the Yuba and some, you know, inflow to the Bay-Delta, and it doesn't go either. So we're not sure what the purpose of those are exactly. They don't meet their stated objectives, and that's the purpose of our separating that out and modeling it. We did most of that in the in the relicensing process.

MR. OPPENHEIMER: Yeah, I just I get the impression through the presentation that it's almost like a foregone conclusion that the result of Condition 1(D) will be imposition of a 55% unimpaired flow regime where 10(j) flows or those two prescriptions independent or some combination of them. And I just, I think that's, you know, a fairly big assumption and again, you know, maybe not the most likely outcome from that process. And so are -- is it -- is it Yuba's position that that is what that -- what will what is the most likely outcome from the 1(D) term? Can you --

MR. GRINNELL: And so the purpose, you know there were -- there were other purposes because of the way the construct of where the water quality stood. You know, I think that you know Yuba stated pretty clear that the delegated -- delegation authority of such large effects the Project to the Executive Director, are problematic. And so that process is of concern. And then the other element is it's to demonstrate that through the delegated authority process, these things that have been pointed to could occur, and that they would be very large if they did. So I don't know about probability of will they occur, but the fact, and you know the -- it's kind of taking the mechanics of what is being discussed in the water quality cert as a -- as a

possibility and maybe even likely when it's listing inadequate, potential inadequacies.

But then also linking that up with a very uncertain future in a very uncertain process, that's a delegated one and appears to not be before the full Board, and so that together as a totality is, and all of those elements are, one of the major concerns of Yuba, uncertain future, which you know, FERC relicensing is supposed to provide some reasonable certainty.

MR. OPPENHEIMER: Thanks, Steve. That's helpful. I guess one just response is that while the condition leaves certain things up to the Executive Director and the Deputy Director, any actual change to the Bay-Delta Flow requirements or acceptance of a voluntary agreement would be through the full Board process. So just a point of clarification. But thanks. Thank you for that.

MS. RAGAZZI: Any other questions, Eric?

MR. OPPENHEIMER: No, that was my main question.

MR. THALER: Well then --

MS. RAGAZZI: Parker has a question.

MR. THALER: Yes. So I have a few questions, and I thought I would start with Yuba Water Agency and then move to CDFW. And most of -- all of my questions

are directed at an entity, such as, you know, agency. But my first one is I think more for Willie. And it's the -- it's based on the introduction statements that were made. I just wanted to clarify or seek clarification because in that intro statement, there was discussion that implementation of the cert would cause severe impacts, to just name a few, to irrigation, hydropower generation, as well as flow releases. And I wanted to clarify if those concerns are mainly focused on Yuba Water Agency's assumptions from 1(D) versus the flow requirements and conditions of the cert.

MR. WHITTLESEY: Yeah. Parker, thanks. So the certification leaves open a lot of discretion for the Water Board. I think that's our biggest concern, and like Eric's previous question, Steve's response, we went under the assumptions of what likely would happen and because of measures that have been proposed throughout this process. So yes, we're, you know the water quality cert doesn't specifically state what flow regime may occur. So we just applied what likely would occur and the impacts related to that. So without specificity, it's more difficult to get any more accurate than that.

MR. THALER: Okay, thank you. And I've asked if some of the slides could be up while I'm asking some questions because I think some visuals would be helpful

here. And kind of a more technical question on Slide 2. You know, thank, first off, thank you guys for sharing this and putting the time into today. I do appreciate it. And you know, from this slide as well as your Petition, I can understand that what you're presenting here is a FERC Base, which is, you know, essentially what the FEIS was looking at with those changes that you're listing, as well as Yuba's assumptions of what 1(D) could require. But one minor note in how these are looked at, it's -- I feel like it might have been a little more accurate to have the water year types be consistent across both. In the projected 1(D), you're using Condition 3's water year types and then in the FEIS Base, I believe you're using Yuba's proposed water year types, and there's only a slight change between them. But having them wind up on the same water year type may have allowed for more of a complete comparison between the two. And I would just make the note that the water year types in the cert are consistent with what's in Decision 1644. And so the FEIS Base would require additional actions to implement those new water year types.

All right, well, then I'll keep going. Can we go to Slide 6 for a minute? So I think this question might be for Steve, or Paul, or anyone at Yuba Water Agency. But you know, based upon what's been presented,

there's the FEIS Base, as well as Yuba's assumptions of what Condition 1(D) could require, but neither, or the part I wanted to ask is, or seek clarity on is that the FEIS Base requires minimum instream flows that are consistent with condition 1(A) of the cert. So I wanted to just make sure that that same understanding is there and if not, could Yuba please let us know what minimum instream flow requirements in Condition 1(A) vary from the FEIS Base?

MR. GRINNELL: This is Steve Grinnell. As far as the, let's see, so Condition 1(A) versus the FEIS Base. The primary one is -- are releases below New Bullards Bar, you know, released below New Bullards Bar. So 1(A) has some different flows there, I believe. And as you pointed out there, the water -- the water year type determination, which is a minor, relatively minor change, which is evaluation in February, which is -- which in Schedule 5, 6 in Conference years, are slightly different. Other than that, I do not believe that they are -- there are any differences in the 1(A) requirements.

MR. THALER: Thank you, Steve. I don't actually believe there are any differences from the Cert 1(A) New Bullards Bar flow requirements, from what the FEIS is requiring.

MR. GRINNELL: Yeah, I'm sorry. I misspoke. You're right. The CDFW 10(j) recommendations are different, but the -- but the, you're correct that 1(A)'s are the same as the FEIS Base.

MR. THALER: Thank you. Can we actually back up to Slide 5 for a second? So when --

MS. RAGAZZI: Hey Parker.

MR. THALER: Yeah.

MS. RAGAZZI: Ryan had his hand raised --

MR. THALER: Oh.

MS. RAGAZZI: -- and I don't know if it was related to the last question or not.

MR. THALER: Apologies.

MS. RAGAZZI: I don't see it anymore, so maybe it's not there anymore.

MR. BEZERRA: Yeah, hi. Just a request that if we're going to discuss specific parts of the certification, if at all possible, could we pull them up on the screen so people can see them while they're discussing them? Thank you.

MR. THALER: Okay. I think that may be possible. Is there a need to pull up the New Bullards Bar, given Steve's response? Okay. I don't see any. But we'll continue.

So on Slide 5 you're showing the YCWA

assumptions of what 1(D) could require in relation to the FEIS Base. And we've kind of established that the FEIS Base is very similar to the requirements of the certification, with some changes to water year types, but the minimum instream flows line-up, and I know there's also some changes to the tunnel closures. And so what I -- what I kind of take away from these graphs, is it showing that the FEIS Base, or the minimum instream flows of the cert, provide better water temperatures than what Yuba's projecting under Condition 1(D)?

MR. BRATOVICH: Yeah, hi, this is -- Parker, this is Paul Bratovich. Yes. The FEIS Base modeling results indicate they're much better water conditions than the projected 1(D) scenario.

MR. THALER: And those are consistent with the requirements in -- for minimum instream flows in the cert? Sorry, I'm just skimming through.

MS. RAGAZZI: Ryan.

MR. BEZERRA: Yes, thank you. I just -- we need to have a little more clarity, Parker. When you say the instream flows in the cert, there's a wide variety of them. With Condition 1(D) --

MS. RAGAZZI: The Condition 1(A) flows in the certification.

MR. BEZERRA: Yeah, we -- yes we need to have

some --

MS. RAGAZZI: We're talking about talking Condition 1(A) flows.

MR. BEZERRA: Yes. We need to have clarity on that with those questions. Thank you.

MR. THALER: Okay. And I, yeah and to clarify, Erin is right, I'm referring to the minimum instream flow requirements of the cert Condition 1(A). And I was just noting that in comparison to the projected, or Yuba's assumptions of 1(D), it appears that the FERC Base, which is fairly consistent with the cert's requirements, provides better temperatures. But I think I have a few other questions. And I'm just skimming through my notes very quickly. So if we could please go to Slide 9?

So on this slide, there's a discussion about the recession rates for riparian seedling recruitment and the note that in 2018, the Water Board supported the collaborative effort that was developing targets for riparian seedling recruitment rates. I just, and there's a table provided on the side of that discussion, and I wanted to just, I guess note or clarify that are the same requirements that are in the certification. So I think it's consistent with the State Water Board's previous support for those recession rates in 2018.

MS. RAGAZZI: So to clarify, Parker, what your

question is, is it's clarifying that what is proposed here, or discussed here, is consistent with what is required in the certification?

MR. THALER: Yes. And so I guess the question I would have is, is the concern here again focused on Yuba's assumptions for 1(D) or with the actual riparian recession rates in the certification. And I can provide the cert condition if needed.

MR. GRINNELL: This part of the purpose here was, and we -- that is our understanding as well, that what is in the cert is consistent. But the point being made here was that the cert is highlighting potentially inadequate spill reductions, but we've all agreed to use, you know, and is it a cert and the FEIS, and what everybody has proposed are these numbers. So we question whether there really will be inadequate spill reductions with this construct.

MR. THALER: Given the assumptions for 1(D)?

MR. GRINNELL: No. Well, this is separate from 1(D). Remember this was a rationale for Condition 1(D) that there were inadequate, there was inadequate spill reductions, but we believe that that's essentially been addressed by everyone agreeing to these flow reduction spill cessation rates.

MR. THALER: Okay, thank you. So this is more

of a comment on that portion of the rationale.

MR. GRINNELL: Correct. Yes.

MR. THALER: Thank you. So my next question is, you know, from my memory of the YRDP operations model, it had built-in carryover storage targets that are at times, you know, well above the amount necessary for, you know, inundation of the intakes. And so when Yuba developed their assumptions for what they thought Condition 1(D) could require, did they look at adjusting these carryover targets to reduce impacts to irrigators, or did it maintain the same carryover storage targets, even if it meant reduction in irrigation deliveries?

MR. GRINNELL: Well, there's two sets of carryover storage targets. There's a targeted flow requirement for the properties in the Accord, 650,000 acre-feet if there's sufficient water. So that's a desired target, and then there are carryover targets in the modelling specifically for, essentially absolute, if there's enough water and irrigation deliveries are shorted if we do not meet those targets. So that’s how shortages are applied. If there's a carryover target and if the reservoir is going to be falling below that, then irrigation is shorted until we meet that target, that carryover. That, we use consistent modeling for that across all of our scenarios in order to understand the

relative differences in those.

MR. THALER: That's helpful, thank you. And then I had previously asked in our write-up, that Yuba very kindly provided written response to -- responses to, a little bit about how they integrated the 10(j)s and 55% unimpaired and Yuba responded, as well as in this presentation, that they took the highest of the two at given points. And the point of clarity I'm looking for is at periods of time in that project -- Yuba's assumptions of 1(D), as per their Petition, they're mentioning that 15% of the time there's less Chinook spawning habitat. And so I was just trying to seek some clarity that if the highest of the two flows were always taken, how did it result in less Chinook spawning habitat 15% of the time?

MR. GRINNELL: Paul, you want that one first, and I can address that from a flow standpoint, but.

MR. BRATOVICH: Yeah. Oops. Can you hear me?

MR. THALER: Yes.

MR. BRATOVICH: Yes. When you take the flows and you turn it into a habitat discharge relationships and you model the amounts of habitat, again using an exceedance probability distribution, the results show that the -- similar amounts of spring-run spawning habitat, over 85% of the distribution, but lower amounts

of spawning habitat during that 15% of the distribution. My understanding, I'll have Steve correct this, but my understanding is that during the spawning period, which is September 1 to October 15th, that the Condition 1(D) scenario resulted in lower flows during that 15% of the time, which resulted in lower habitat probabilities. But I defer to Steve to clarify that connection.

MR. GRINNELL: Yes. Condition 1(D) results in changes to the Accord instream flow schedules, and so it shifts those flows for the fall time period, even though generally, well, the CDFW 10(j) flows are not active at that time. And the percent on impaired flow is generally not operated through that time. At that time, it's the Accord flows that are usually, that are almost always in force. But when there's a shift in, because of storage reduction resulting from Condition 1(D), drawing on storage quite a bit more than the FEIS Base, we have a lower storage, so the following year we'll -- can shift to a lower flow instream flow requirement under the Accord, and that shifts the flows in the fall.

MR. THALER: Okay. So I'll repeat what I think I understand, and please let me know. It's in that period of time where you get that 15% less, it's the Yuba Accord flows that are kind of running that area, but the reduction is a result of the water years being shifted by

the other periods of time in which higher flow releases were triggered by the 55% and 10(j)s.

MR. GRINNELL: That was outstanding.

MR. BRATOVICH: That's good.

MR. THALER: Do you think the water year types, and how they were built into the two assumptions differently, may have influenced that?

MR. GRINNELL: Well, remember that the water types, the process for developing the Accord, was matching up the water year types, the thresholds between them and the flows that the biologists collaboratively developed. So it was all, it's a matching set. And so once you significantly change the probability of storage, end of September of storage, which is a part of the calculation of the index and therefore water year type, it starts to shift everything. We see a doubling of the occurrence of conference years. We see a doubling of occurrence of Schedule 6 years so that everything shifts to drier flow schedules because storage in those dry years is such an important element of the operations the Accord. We're basically boosting the natural flow in those very driest years with significant amounts of storage release.

MR. THALER: And is that storage target the Yuba Accord, 650,000 acre-foot target, or the absolute

delivery target, or a combination of both that can --

MR. GRINNELL: Well the target, well remember that the index is just whatever the resulting end of September storage is. That just goes into the -- into the calculation of the index. So it's the -- it's the absolute value minus the, you know, the FERC minimum pool is the, what we call active storage amount, and that's one component of the index. So anything that changes, you know, on relative scenarios changes the occurrence of that storage is going to start to affect the Accord flow schedules for the following years.

MR. THALER: That's helpful. Thank you. So my only other question is for CDFW. And it was based upon some of the information provided in the slides. I'm trying to find what slide it is right now, but essentially, YCWA's presentation, I believe Slide 8 that took a look at floodplain inundation was comparing the CDFW 10(j)s to the amended FLA flows and was finding, you know, relatively the same amount of floodplain habitat inundation. And based upon the materials from CDFW, there's discussion that the CDFW 10(j) flows, one of their goals is to increase floodplain habitat. But given the information provided by Yuba, it seems to be relatively similar, and so I didn't know if there's any explanation for that.

MS. GANGL: That will probably go to Beth Lawson, so if we could unmute Beth, I think that's where we should unmute.

MS. LAWSON: Can you hear me?

MS. GANGL: Yep.

MS. LAWSON: Okay, great. I think that we're going to get to this metric in our next set of presentations when we talk about Condition 12, because as Steve was just saying, you know, their metric or, you know, their Yuba Accord Water Schedules, as well as their water type really paired up. Our flow schedule was really paired with a restoration proposal as well that included cutting and grading within the Lower Yuba River. And so I think that slide that you're referring to Parker, I do see that there is a bit of an increase in the flow, or in the floodplain inundation, and I think we have to be careful what's being called floodplain. I haven't had any time with that slide to really digest, you know, where the numbers are coming from in there. But I think that we have to be careful about what's called floodplain because I think I heard YWA define that as 5,000 cfs, however, the control of the Project at the two Narrows powerplants is at 3,430, I think. And so, you know, there's a bit of a definition around where you're starting to call something an inundated

floodplain.

We in our proposal were careful to call out that when we were trying to put more water in the Lower Yuba River, you'll see that we keyed that off of the capacity of the Narrows power plants because we wanted to be able to do something that was within the scope of YWA's ability to control the two Narrows powerplants. And so that's why our restoration proposals focused on that area, which is also below the control of the Project. Anything above the combined capacity of the Narrows 1 and 2 Power Plant just has to be uncontrolled spill at Englebright. And the only way that that's controlled is by bringing Englebright's elevation down before storms, which is some sort of operational work that YWA does in order to absorb some of the storm flow that's coming in. And so, you know, I think when you're looking at a floodplain, you really need to consider what that is and what is within the control of the Project. So as Stephanie in particular, will get into in the next set of presentations, in our proposal, we looked at what was controllable by this Project and what we could influence within the control of YWCA FERC Project.

MR. THALER: Thank you. Then I'll just hold the -- any other thoughts on that until after the next segment?

MS. LAWSON: And Stephanie, did you want to add to that? I didn't want to speak, I'm an engineer, not a biologist, so I'd like to let the biologists speak if there's any other response to that question.

MS. GANGL: That's Stephanie Millsap that she's referring to if you can unmute Stephanie Millsap.

MS. MILLSAP: Hi, thanks. So I agree that this question is better answered after the presentation that I'll be given, or giving, and that I do address some of these questions that you're posing, Parker, during that. And I think some of the figures that I show may also be helpful for this discussion.

MR. THALER: Well, thank you. I want to thank, you know, YWA, and CDFW, and U.S. Fish and Wildlife for addressing some of these questions. I appreciate it.

MS. GANGL: Are there any other questions regarding the flow or should we move on to Condition 12? Because it sounds like we're ready for that. Okay, let's move on to Condition 12: Habitat Restoration in the Lower Yuba River. We'll start with a presentation from YCWA. If we can get that pulled up, we can get that going.

MS. RAGAZZI: And whoever is going to be the first speaker, if you could raise your hand so we can get you unmuted and make sure your mic's working.

MS. GANGL: It looks like it's Tom Johnson.

MR. JOHNSON: Sorry about that, I'm struggling a bit with the little hand-raise icon on this version of Zoom, or Teams, or whatever it is that we're using here. Sorry about that. Are we good to go?

MS. GANGL: We're good to go. We can hear you, So go ahead and then when you need the slide advanced, just say next slide. It's all you.

MR. JOHNSON: Very good. So my name is Tom Johnson. I'm a consultant with Yuba Water and have been working on Yuba River issues for just over 20 years. Next slide, please. I'm going to move pretty quickly through these first few slides, because I think the meat of our technical analysis is a little further along. So the water quality condition calls for a plan of restoration for the Lower Yuba River. Next slide, please. The rationale for this condition attributes a number of impacts to the river of -- impacts of the river corridor to the Project, however, we believe that that attribution is at least somewhat in error. There were some very substantial physical impacts to the Yuba River, which started shortly after the arrival of the first gold miners in the mid-1800s. And any attribution of impacts that doesn't accept and account for those rather substantial impacts does not correctly attribute causal factors. Next slide, please.

The impact of hydraulic mining is really hard to overstate. It was just a staggering amount of sediment that was injected into the Yuba River. We're going to get to that in a moment. But in addition to the mining debris itself, there were substantial modifications in the form of dredging, and channelization, dams and so forth. Those impacts are largely documented. I admit that it's very heavy reading and there are probably a couple thousand pages of that sort of material in the FERC record for the Project. Next slide, please.

Sorry, I got to advance my own here. I'm running in parallel. Unfortunately, the record of conditions on the Lower Yuba River prior to 1880 is very sparse and we really do not have much in the way of photographic evidence, but there are some hand-drawn maps. And what we can see is that the, prior to the mining sediment, it was a very different river. It was described as being very heavily vegetated. And probably one of the most dramatic differences is the floodplain was estimated to be four or five kilometers wide, and that's compared to the 200 to 500 meters, .2 to .5 kilometers that we see today between either the levees or the training walls. Next slide, please.

This is a brief summary of the amount of

hydraulic mining debris that was -- came from the west slope of the Sierras during the heyday, and the photograph is of Malakoff Diggins. And this shows just a very small piece of what that works look like, and that was in turn, a very small piece of what occurred all over the watershed. It was estimated in a fairly comprehensive survey that was conducted in 1917, that at that time, roughly half of the total amount of sediment in the Yuba remained in the Lower Yuba River downstream of what the location of Englebright Dam now. So that is on the order of 350 million cubic yards of material in the Lower Yuba River. It's really hard to fathom what that looks like, so I ran a little bit of math this morning. The distance from Englebright Dam to the Feather River confluence is 24 miles. If you could imagine a block of sediment 24 miles long, 8 stories tall, and 3 football fields roughly a thousand feet wide, that's what 300 and, just below 350 million cubic yards look like. And so if you take that block of sediment and distribute it all over the Lower Yuba River, that is approximately what is out there today. Next slide, please. Next slide, please.

Should be looking for seven, thank you. There has been some clearing of sediment. And these photographs that show 1908 to 2006, roughly 100 years

apart. You can see that while a lot of sediment is gone, there's still a tremendous amount remaining. We don't have comparable photos for further down in the river. We didn't have flight or drones in the early 1900s, and so we don't have anything from a high enough perspective, and we didn't have the same sort of riverbanks. Next slide, please.

Just want to touch on some of the other engineering works. Like most of the rivers in California, the Yuba River was very substantially channelized. The levee systems started in the late 1800s. They grew in size and complexity and ultimately got narrower as the land was more valuable outside of those levees, and taller. Next slide, please.

One of the things to also consider about this massive block of sediment, which we described a little bit ago, is that it didn't just go out onto the floodplain, fall to the bottom, and then start its process of whatever healing that natural processes would allow. Instead, this sediment was dredged, and dredged, and re-dredged, and re-dredged. Floating dredges, and there's a picture of one in the lower right-hand corner, grew in size and sophistication. The largest ones were almost 100 meters long and would move several thousand cubic yards of material per day. They ran seven days a

week. Next slide, please.

And I believe Paul Bratovich is going to pick up for a couple of slides here. If you could unmute, Paul.

MR. BRATOVICH: Yes. Thank you, Tom. I think the point of your presentation was clear and it was the incredible anthropogenic perturbation of the river. The river was a wasteland of slickens and sediment deposition. So what we have faced with here is, again, not unlike in Condition 1, was looking at the rationale associated with the water quality certification for Condition 12. I'm going to start, you know, Steve talked about inundation, I'm going to talk about connectivity. A recent, relatively recent study by Gervasi and Pasternack, 2019, which is a peer reviewed article in the Journal of the British Society for Geomorphology, establishes two very important premises, and it was done through comparison of digital elevation models that were constructed in 2008, 14 and 17. The emphasis was comparing DEM, or topographic change, between 2014 and 2017. The analyses concluded that the bankfull channel, the river defined by the banks, which as Beth mentioned, has been defined by Pasternack, Professor Pasternack at UC Davis, as generally being for characterization purposes, up to 5,000 cfs. But that is not in sizing,

it's not cutting down, it's not disconnecting from the floodplains at all. The conclusion was that it actually is well connected to the floodplains. And it in fact, in contrast, the active river valley is found to be down cutting due to the various processes that preferentially scour and down cut the river floodplain instead of the active channel itself. Well, now it is true, and the FEIS concludes that the Project does moderate flows, but the available information and recent studies, as the one I just described, do not support the water quality certification rationale that Project flows have reduced connectivity to the floodplain. Next slide, please.

Regarding riparian habitat, the available information, which was presented in the technical memorandum for the relicensing process, has that contrary to the water quality certification concern that Project flows have suppressed the establishment of the riparian community, is not supported by empirical information. This is a revisualization of the data presented in TM 6-2 and it, for this index sites that had consistent aerial photography over all of these time periods, 47, 70, 87 and 2010, it demonstrates the change in riparian vegetation coverage over time. It's important to note in this figure that YRDP was constructed and began operating in 1970. And for these index sites that have consistent

aerial photographic representation, you can see that rather than suppressing, the riparian vegetation communities is recovering from the disturbances Tom pointed out. And in fact, for these sites, riparian coverage has actually doubled since establishment and operation of the YRDP. So it's hard, based on looking at the aerial photographs, to come to the same conclusion that Project flows have suppressed the riparian community. Next slide, please.

This slide demonstrates that the YRDP has not adversely affected habitat in all respects, certainly not in the respect of water temperature. I know we've been emphasizing the importance of water temperature and I think we'll continue to do so, but implementation of the YRDP turned an inhospitable, terribly disturbed, thermally-challenged system into one supporting various populations of anadromous salmonids. These figures represent with and without YRDP over the analyses that were conducted for the June through of August period, and the top figure showing Smartsville. The bottom figure showing the Daguerre Point Dam. As you'll remember, from our previous discussion, June through August represents the over-summer holding period of pre-spawning adult spring-run Chinook salmon. But it also represents the over-summer rearing period for juvenile spring-run, as

well as steelhead in the Lower Yuba River. These figures clearly demonstrate that, relative to water temperatures, the available information doesn't support the concern expressed in the water quality certification for Condition 12 that YRDP contributes to the low quality and quantity of rearing habitat. It's clearly not for water temperature. In fact, if it weren't for the effects of releases of cold hypolimnetic water from New Bullards Bar Reservoir, the Lower Yuba River would be inhospitable for various life stages of anadromous salmonids. Thank you. Next slide, please.

In addition to water temperature, there are physical habitat considerations that we did examine for Condition 12. And we've come to the conclusion, based on these, again these exceedance analyses, that the Project implementation provides substantially more spawning habitat than prior to the YRDP, and it also provides more spring-run salmon juvenile rearing habitat to -- prior to YRDP. Again, I want to emphasize that this is not a FEIS Base, relative to, you know, Condition 1(D), as we talked about in the Condition 1(D), but this is with and without Project. The point of these slides and these presentations is addressing the concern expressed in the water quality certification that the Project's flows have resulted in adverse impacts to the habitat suitability

and availability in the Lower Yuba River. And that is not supported by these with and without YRDP comparisons. Next slide, please. Yeah, I'll turn it back to Tom.

MR. JOHNSON: Thanks, Paul. In conclusion, we believe the certification does not correctly characterize the attribute -- the current habitat conditions and attributes of the Yuba River, and it ignores that the mining, dredging, and levee construction that fundamentally altered the character of the Lower Yuba. Instead, we believe that the FERC and Army Corps Final Environmental Impact Statement did correctly assess this in saying that while the Project moderates flows, we find that the Project has minimal influence over floodplain topography, floodplain connectivity, and off-channel habitat availability in the Lower Yuba River is largely a result of historical activities unrelated to YRDP operations. We believe that the analysis of data shows that the Project has not suppressed riparian community, and the Project operations have improved habitat, and particularly thermal conditions in the Lower Yuba River. And so, yeah. I'm going to stop there and be happy to answer any questions when they are posed.

MS. RAGAZZI: Thank you.

MS. GANGL: I think we'll hold questions for the discussion period at the end. So we'll go now to

SYRCL's presentation, and that would be Aaron Zettler-Mann from South Yuba River Citizens League.

MR. ZETTLER-MANN: All right. Excuse me, can everybody hear me?

MS. GANGL: Yep.

MR. ZETTLER-MANN: Excellent. All right, thank you very much. My name is Aaron Zettler-Mann. I'm from the South Yuba River Citizens League. I'm the Watershed Science Director there. I'd like to thank you all for the opportunity to talk to you about Condition 12: Habitat Restoration. Next slide, please.

In this presentation, I'll be providing some brief context for why restoration is needed due to historical and ongoing impacts. I'll spend some time providing a broad overview of river form, function, and restoration. Then I will address the Water Board's specific questions. I will finish by addressing some of the points made by YCWA and offering some thoughts on restoration in the broader climate change context. Next slide, please.

The hydraulic mining washed millions of cubic yards of sediments into the watersheds. These mined tailings ended up in channel and were subsequently washed into Lower Yuba River. This material was subsequently reworked by dredge mining and then pushed into large

training walls. What was likely once an anastomosing multi-thread channel prior to the gold rush, is now virtually devoid of vegetation, single channel, and confined by large training walls and elevated gravel bars. Next slide.

YRDP operations inhibit the natural processes by which the Yuba could restore itself. Rivers are inherently connected. Silts, sands, wood, nutrients, and other material move from the upper portions of the watershed downstream. The dams YRDP rely on, prevent this connectivity. Also, flow modification alters the frequency, timing, and duration of floodplain inundation, and alters ramping rates crucial to the Chinook life cycle, as well as other natural processes. In addition, the dams YRDP relies on physically block upstream migration of salmonids from accessing nearly 90% of historical spawning and rearing habitat. Next slide.

The Lane's balance gives us a framework for understanding how ongoing YRDP operations continue to impact habitat degradation and prevent natural processes, which would have, in the absence of the Project, allowed the river to move back towards a healthy ecosystem. During the gold rush, slope and water availability in the Lower Yuba remained relatively natural, but there was far more material and coarser material being delivered to the

channel. More material than the energy could move. As Tom pointed out, this triggered a lot of channel aggredation. With YRDP operations, the slope in this excess sediment remained the same as post gold rush, but the amount of water and timing is altered. This modified hydrology and disconnectivity in the system mean the river isn't able to rework and transport the material available as frequently, restoring natural processes. Dams mean that during high flows, when gravels are mobile, the woods, sands, and other sediment are blocked. So the channel further erodes bars and training walls and becomes more disconnected from the elevated floodplain surfaces, which are characterized by homogeneity and denuded ecosystem function. Next slide, please.

To help with some of these definitions, when we talk about bankfull, we're referring to the discharge at which the channel is full, but prior to spilling out onto the floodplain. The floodplain then is the wide, generally flat area, adjacent to the main channel, which begins to inundate at flows above bankfull. In the Lower Yuba River, when talking about important habitat features, we are referring to side channels, backwater areas and lowered floodplains. The goal is to increase the area of high primary productivity and low velocity refugia during the rearing portion of the Chinook life

cycle and create additional perennially wet wetted areas. The ecotone then refers to the transition area between the terrestrial and river systems. We can think of the myriad side channels, backwater areas, and lowered floodplain surfaces, as comprising the ecotone of the river. It is likely that pre-Europeans, the Lower Yuba River was an anastomosing channel, meaning a single main dominant channel with multiple side channels and backwater areas which were perennially wet and were broken up by heavily vegetated, largely stable islands. Next slide, please.

Broadly speaking, the goal of restoration in the Lower Yuba River is to recreate the function of an anastomosing channel form, within the constraints of connectivity lost due to YRDP structures and operations, and lateral confinement from training walls in the legacy of gold mining. Restoration in the Lower Yuba River is largely focused on rearing habitat for spring and fall-run Chinook. In the absence of flow modification, the objective is to construct habitat, which inundates more frequently offering an increase in food availability. Flow management can significantly increase the benefits of this habitat through the timing, duration and ramping rates to benefit juvenile rearing, as well as spawning salmon. Remember, the longer a surface is inundated, the

more benefit it offers to the rearing salmonids and steelhead when it comes to food availability and decreased competition. Next slide, please.

When we think about restoration in the Lower Yuba River, we tend to talk about lowering floodplains and increasing the frequency of inundation. It is important to remember that simply because an area of river is lower in elevation than it used to be, does not necessarily mean that it meets the habitat needs of salmonids at various life stages. In these photos, we see constructed side channels, channels with willow plantings. Lowering the floodplain increases the frequency with which it is flooded, but vegetation is also required to provide additional high water refugia and increase food availability. These ecosystem benefits are directly related to the frequency, timing, and duration of this inundation, all under the control of YRDP. Next slide, please.

As an example of -- next slide, please. Thank you. As an example of restoration's ability to jumpstart natural processes, we can look at Hammon Bar Project from 2012. Here, we see the growth of planted repairing willow species and the recruitment of some fine sediment and natural vegetation recruitment downstream. Next slide, please.

We also see that this project is durable to high water. Here, seeing the complete inundation of the Bar area in 2017, with little to no impact on vegetation. During this flood event, and this above bank flood event, juveniles hid in low velocity pockets behind the planted willows and enjoyed increased food availability offered by the additional vegetation. The point here is that restoration projects help jumpstart the natural processes within the channel and are resilient to high water. Next slide, please.

The Board had two questions for the NGOs. The first asked about how recommended flows related to habitat restoration, in terms of benefit. The second asked how the number of acres recommended came to be. Next slide.

Without the CDF and W flow recommendations, the full benefits of restoration will not be realized. However, some marginal benefits would be realized without the flow recommendations, albeit less frequently and with less benefit to the full ecosystem. Channel restoration benefits are tied to timing and the duration of inundation, as well as ramping rates. In the simple schematic here, in A, we can see a no flow, no restoration state. This is most of the Lower Yuba River today. There is not much habitat available at flows at

and below bankfull, which means there is limited rearing habitat and high competition for space and food.

In B, we see restoration but no flows. The new side channel and backwater areas are available, but flow availability, timing, and duration are not optimized to match the life cycle needs of spring and fall-run Chinook, nor the ecosystem more generally. This is the restoration actions, but no flow modification scenario.

And in C, we see restoration and flows. Here we have the same amount of new habitat area, but the flows are managed to maximize the benefits of juveniles through the timing, duration, and volume of water released. It is not simply the total acres of available habitat which is important. When, how, and at what rates water is released through YRDP operations, are also crucial to the Chinook life cycle. Next slide, please.

The restoration recommendations for 340 acres of restored off-channel, side channel, backwater, and floodplain habitat, with the goal of increasing the availability area of -- availability of area for juvenile rearing salmon and increasing food availability. Modeling efforts assumed a Schedule 2 water year and that YRDP operations alter flow within the Lower Yuba River. Two models were used. The Acre-Days Analysis, which you will hear about more from Stephanie Millsap shortly, and

the HEC-EFM Model, which was run by Gary Reedy, formerly of SYRCL. Next slide, please.

The HEC-EFM Model is designed to help teams determine the ecosystem responses to changes in the flow regime of a river or connected wetland. This table looks at some of the results of this model. The columns are the duration of inundation of available habitat and flood frequency return interval. The number, or the area of inundation under a Schedule 2 water year, and the area of inundation using the CDF and W flow recommendations. Note that the acres in this table are in addition to the 514 acres during base flow, as referenced in the bottom row. Utilizing the CDF and W flow recommendations, and based on channel form in 2012, the two major takeaways here are one, that under all scenarios, there is an increase in habitat availability, and two, that under the most beneficial inundation duration, that is 60 days, and most frequent return interval, we see a more than 300% increase in available habitat. And it's important to remember that these benefits do not include the recommended 340 additional acres of habitat necessary to mitigate for the unavailable habitat due to YRDP operations, as determined through Acre-Days Analysis. Next slide, please.

Habitat restoration is necessary to mitigate

for YRDP impacts on habitat in the Lower Yuba River, and the recommendations here represent a minimum, when we think about how the climate is likely to change moving forward. These graphs, from a 2010 paper by Null, Viers, and Mount, illustrate future conditions across the Sierra Nevada under two, four and six degrees of warming. The Yuba watershed is highlighted in red. These graphs on the left show on top that the central timing of runoff in the Yuba could shift between two and four weeks earlier in the year. And on the bottom, that a decrease in millions of acre-feet of runoff between 12,000 and 70,000, could occur depending on warming scenarios. The series of graphs on the right express vulnerability of the watershed as a function of available water storage to water availability.

Note that the Yuba tends to be more vulnerable to climate change under all climate scenarios than similar watersheds in the Sierra Nevada. Considering the likely impact that climate change will have on availability and timing of flows in Yuba watershed and the time it takes for restoration projects to occur, and riparian vegetation to mature, it is crucial that the proposed restoration and flow suggestions be implemented immediately. Because natural ecotone habitat features are limited in the Lower Yuba River, and it is not

practical to manage flows such that they engage the existing features, it is crucial that we construct additional areas of high quality habitat and make the necessary adjustments to flow we can to maximize those benefits. Next slide, please. Next slide, please.

Thank you. In a number of places in YCWA's reconsideration document, and then notably in Section 4.2, YCWA claims that they are being held solely responsible for habitat restoration. It is important for the Board to know that this is factually untrue. The U.S. Fish and Wildlife Service, through the AFRP, California Department of Fish and Wildlife, and Wildlife Conservation Board, are all actively funding restoration in the Lower Yuba River today. Throughout their document and notably in Section 3 and in the previous presentation, YCWA claims that conditions were worse in the Lower Yuba River prior to the construction of the YRDP. This was true at the time and well documented. CDF and W, among others, recognized that degraded habitat as early as the beginning of the 1950s, and at that time it was thought that the YRDP may help. However, if we look at salmon numbers over the last 50 years, we see a steady decline. Clearly, the YRDP operations, and the necessary infrastructure, creates an impediment to fish recovery. Next slide, please.

To summarize, the recommended habitat restoration should serve as a minimum in the Lower Yuba River. As drier years and a more rain-dominated hydrograph become more common, it is crucial to construct habitat, which offers benefits across a wide range of flow scenarios and manage water to maximize the benefits of that habitat across the salmonid life cycle. Contrary to what YCWA would like you to believe, Chinook presence in Yuba River has been on the decline since the 1950s. We are getting further and further away from the AFRP's doubling goal every year, and when drought occurs, and we expect drought conditions to occur more frequently in the future, numbers are even worse. Thus, the restoration and flow recommendations are a minimum if we want any hope of survival for Chinook. Thank you.

MS. RAGAZZI: Thank you.

MS. GANGL: Thanks. Next up, we have the presentation from CDFW, and that will be Stephanie Millsap that will be presenting their Condition 12 presentation.

MS. RAGAZZI: Stephanie, can you raise your hand, so it's easy to unmute you.

MS. MILLSAP: Good morning, everyone. I hope that you can hear me now.

MS. GANGL: Yep.

MS. RAGAZZI: Yes, we can. Thank you.

MS. MILLSAP: Good morning, everyone. My name is Stephanie Millsap. I work for the U.S. Fish and Wildlife Service, and I conducted the cumulative Acre-Day analysis that was used as the foundation for the 10(j) condition regarding restoring juvenile rearing habitat in the Lower Yuba River that was filed with FERC. Next slide, please.

Today's presentation is meant to address the State Water Board's questions regarding the underlying rationale and methods used for the analysis and how that analysis was used to develop the restoration proposal as outlined in the 10(j). Next slide, please.

The timing, duration, and magnitude of water flowing through a river is known to directly impact a wide variety of biological and ecological processes. When identifying the various ways in which the Project affects fish and wildlife resources, we spent a lot of time looking at how the Project impacts flows through the Lower Yuba River. This figure is based on relicensing efforts and shows modelled average flow by month for over 30 years. The top green line is a model of what flows would have been in the Lower Yuba if it were unregulated, meaning that there were no facilities at all within the watershed. The middle line shows what flows would have

been in the Lower Yuba River if every other facility in the Yuba watershed were operational, except for YRDP. Therefore, this is called the Without Project Hydrology. Finally, the lowest line on the figure shows what flows would be like on the Lower Yuba with the other projects and the YRDP Project. And so it's called the With Project Hydrology. It is this overall decrease in flows in the Lower Yuba River, from the Without Project Hydrology to With Project Hydrology, that we analyzed. Next slide, please.

There's a wide body of scientific literature detailing how regulation of a -- of a river's flow impacts the aquatic and riparian habitat, including reducing overall connectivity. It's these types of broad ecosystem impacts that we were especially interested in trying to address when developing our 10(j).

Next slide, please. We chose to use a cumulative Acre-Day Analysis in order to quantify how different flow proposals would impact inundation on the Lower Yuba River. The Acre-Day Analysis incorporates inundation along different reaches of the river, and varying inundation durations. This analysis also has the benefit of being able to be used to quantify how many acres of restoration are warranted. Next slide, please.

The datasets generated for relicensing were

robust and were used as the basis for how inundation was quantified. I used the stage discharge model to compute total wetted area, in combination with flow data output from the operations model. In order to identify how much area was inundated each day for the Without Project, With Project, which is the AFLA flow proposal, as well as the agency-NGO flow proposals. In order to conduct the Acre-Day Analysis, the service identified at what flows inundation of ecologically important areas, such as the bank ecotone and side channel, habitats begin. We also narrowed the timing to when juvenile Chinook salmon were most likely to be present in the Lower Yuba River. Next slide, please.

This figure is meant to help visually show how the Acre-Day Analysis is conducted. I applied the relationship between flow and acres that are inundated for each day, and then sum them across all the reaches. Then the acres that were inundated each day from February 1st to June 15th are added to get the cumulative acre-days inundated for each year. So if you take a look at this slide, you'll see that in parts of February, flows were above, a little bit over 4,000 cfs, which corresponded to each day, just over 200 acres being inundated. And so each one of those days are then summed across that entire time period for, in 1972, to equal

16,066 cumulative acre-days for that year. And as you can see, both shorter inundation periods, as well as longer periods, are incorporated into the cumulative acre-day total. Next slide, please.

When comparing the cumulative acre-days from hydrology resulting from the Project flow proposal to the Without Project Hydrology, it's clear that not only does the AFLA flows reduce inundation overall, but also across all -- the AFLA flows reduces inundation across all water year types, but it has a progressively greater impact on inundation during the drier water year types. So you can see that in Schedule 1 water years, the Project reduces inundation by approximately, by 9%, and Schedule 2, the Project reduces inundation by 39%, compared to Without Project. And during Schedule 3 to 7 water years, the Project reduces inundation by 80%. Next slide, please.

These figures show the comparison of cumulative acre-days by month, of the Project proposal, compared to the agency-NGO flow proposal, for a Schedule 1 and a Schedule 2 water year. The agency flow proposal increases inundation for rearing juvenile salmonids in March, to a much greater extent in April compared to the AFLA, or the YRDP Project Hydrology. Next slide, please.

Now that I've provided some background into how the Acre-Day Analysis was conducted and some of the

results, I want to focus on how that analysis was used in developing the rearing habitat 10(j) recommendation, and also that the restoration action -- that the restoration recommendations are based on known actions that improve rearing conditions. Next slide, please. Next slide, please.

Thank you. The agency-NGO flow proposal does result in more cumulative acre-days than the AFLA flow proposal. However, the agency flow proposal doesn't result in as much inundation as there would have been under Without the -- as under the Without Project Hydrology. Therefore, there's still a need for mitigation. We chose to mitigate based on the Schedule 2 water year -- water year type because of how much the Project is able to exert control over flows in the Lower Yuba River compared to Schedule 1 water year type. And the way that we chose to mitigate was by lowering surfaces adjacent to the main stem channel for better connectivity that would also increase off-channel rearing habitat for fry and juvenile salmonids, therefore rather than solely increasing flows to bring fish up to the habitat, we've proposed lowering those surfaces to bring habitat down to where the river is expected to be under the agency-NGO flow proposal. And mitigation would be achieved when the median number of cumulative acre-days

of the agency flow proposal, in conjunction with surface lowering, is equal to the median number of cumulative acre-days of the Without Project Hydrology. Next slide, please.

While there are -- while there were other components of the 10(j) restoration measure, the State Water Board's questions dealt primarily with the 340 acres of surface lowering. Next slide, please.

As part of that method, I modified the stage discharge model results to change in wet reaches along the Lower Yuba River would inundate, and how that lowering occurs. Most of the lowering occurs so that the lowered surfaces start becoming inundated at flows corresponding to the higher spring flows provided by the agency-NGO flow proposal that occurs during Schedule 1 and Schedule 2 water year types. So using this proposal, an additional 119 acres in the Hallwood Reach would become inundated, and of these 100 -- and of these 119 acres, 35% of them would become, would begin inundated at approximately at 2,000 cfs. Another 30% would become, would begin inundated at 2,500 cfs. And the final 25% would begin inundated at 3,000 cfs. Next slide, please.

This figure highlights results from the Schedule 2 water year type. It shows the cumulative acre-days by year for the Without Project, the Project or

the AFLA flow proposal, as the agency flow proposal, and the agency-NGO flow proposal in conjunction with surface lowering. Although you can see there's variation among the years, the agency-NGO flow proposal, in conjunction with the 340 acres of surface lowering, does mitigate for the Project's changes in inundation during Schedule 2 water year types. I haven't done an analysis to identify how many acres would need to be lowered to mitigate using the AFLA's flow proposal. However, looking at the number of cumulative acre-days for the YRDP flow proposal and the agency-NGO flow proposal, I would expect that there would be more than 340 acres that would need to be lower to fully mitigate for the Project's impacts to inundation. Next slide, please.

Numerous efforts have been undertaken throughout the years to identify restoration actions to benefit salmonids in the Lower Yuba River. And these efforts can serve as a foundation to develop a plan to implement the 10(j) recommendations. Next slide, please.

In order to answer your questions regarding costs, I thought that it would be helpful to see a summary of some of the other restoration projects that the Service has helped fund and implement, both in the Yuba River and other rivers in California's Central Valley. These restoration projects are similar in that

their goal was to better connect a regulated river to the adjacent floodplain habitat, while also increasing and improving juvenile rearing habitat. Next slide, please.

The 10(j) filed with FERC included a recommended timeline. We assume that FERC would issue a license for 40 years. Our desire in having the restoration projects completed by year 20 was for there to be high quality functional habitat in place and providing benefits to -- for salmonids, for at least half of the new license term. Next slide, please.

So this presentation has only scratched the surface of how the acre-day analysis was conducted. Therefore, in this slide, I've also included some other references for you that go into greater detail regarding that analysis. Thank you so much for your time today and allowing me to present some of the information about this analysis, and I'm happy to try and answer your -- any questions that you might have.

MS. RAGAZZI: Thank you.

MS. GANGL: So I think where we'll go now is similar like we did before, when we were in the discussion period. So YCWA, we have about five minutes, if you have any questions you'd like to ask any of the other Petitioners. Just raise your hand, please and let us know. Looks like Ryan would like to say something.

If you could unmute Ryan.

MR. BEZERRA: I don't believe we have questions. We've submitted substantial technical materials in writing unless any of the presenters disagree with me.

MS. GANGL: I'm not seeing any other hands from YCWA. So let's go to the NGOs, do the NGOs have any questions for the other Petitioners based on what we saw today? I'm not seeing any hands. Okay. Then we'll ask CDFW or Stephanie Millsap if they have any questions they'd like to direct to any of the other petitioners.

MS. RAGAZZI: I think you're unmuted, Stephanie, but I could be wrong.

MS. MILLSAP: I am unmuted, sorry. I wasn't expecting to speak on behalf of CDFW. No, CDFW does not have other questions.

MS. RAGAZZI: Okay, thank you.

MS. MILLSAP: Mm-hmm.

MS. GANGL: Okay, then we'll turn it over to State Water Board staff and other representatives if they have any questions.

MR. THALER: I guess I can go first. Thank you guys, again, for continuing to share and clarify your Petition item into these presentations. I think I'll flip through the order and the questions this time, and

I'll start with U.S. Fish and Wildlife Service.

So in your presentation, you walked through your model results for the different scheduled years in which, and how much the Project would reduce floodplain connectivity based upon the modeling that you did. And your slides showed a division of a Schedule 1, a Schedule 3, but you lumped, or sorry, a Schedule 1 and a Schedule 2, but you lumped the results of Schedules 3 through 7. And then you provided a separate metric of a percent across all years. And so I'm curious why you did that lumping for Schedules 3 through 7.

MS. MILLSAP: So I did that lumping of Schedules 3 through 7 because of how so few water year types there are of those type across the record. So I believe that the, and I'm sure that others will correct me, that Schedule 1 water years typically make up approximately half of the water year types within the total number of years that there's hydrology for. Schedule 2 is about 25% of those years, and then Schedules 3 through 7 make up the remainder 25%. And so just having a couple years of a Schedule 3, a Schedule 4, 5, 6, or those conference years, didn't seem to be a very good way to present that data. And so we wanted to look at what the decrease in inundation was, not only across all water year types, but then also specifically at the,

as you get progressively drier. Did that answer your question?

MR. THALER: That helps. It does, it's helpful. And I'll make my own statement based upon my understanding of the water year types, and if anyone has a better understanding, please correct me because I believe we have -- we haven't actually seen a Schedule 6, or worse, in the Yuba system. I think the worst we've seen is a Schedule, what like 5 during the last drought? Or that might have even been a 4. So I was just -- that's part of my curiosity for the lumping.

MS. MILLSAP: So --

MR. THALER: Steve has his hand up. Hopefully it's to set this straight.

MR. GRINNELL: Yeah. 2015 was a Schedule 6 year.

MR. THALER: Oh, it was. Sorry. Thank you. So my other question for U.S. Fish and Wildlife is floodplain inundation is one tool for restoration. And I think that's a general understanding, and there could be other tools that are done in substitution for or in conjunction with. And so I was just curious if there has been any exploration in looking at different restoration tools outside of floodplain inundation to achieve the targets and goals that the model that you've ran is

looking for?

MS. MILLSAP: Yes. So the proposal that we have is not only those increasing flows in the springtime to increase inundation, but it's in conjunction with the restoration proposal, which is to lower surfaces down so that they can become inundated at lower flows. And it takes into account the reality of the situation that we're not living in a system of Without Project, but that we need to bring habitat down to where fish are. And so they work in conjunction with one another and also, as Aaron stated, it's not just the traditional floodplain habitat of the above bankfull areas, we're also looking at those ecotone areas of those off-channel rearing habitat side channels, and so forth. And also, when you look at the restoration proposal, it's not just the lowering surfaces, and that's it. It's also making sure that we're planting those surfaces as well and jumpstarting that vegetation processes as well, to be able to provide cover and additional food for juvenile salmonids as well.

MR. THALER: Thank you. And to try and summarize CDFW's concerns in their Petition with Condition 12. Is it that, because what Condition 12 does is it, as currently written, is it requires Yuba to develop a Restoration Plan in consultation with different

entities that looks at various options for restoration in the river. But it does not prescribe metric, like a solid metric for floodplain inundation or other items. And is that kind of the core to CDFW's concern with Condition 12?

MS. MILLSAP: can we unmute either Beth Lawson or, actually, can you –

MS. RAGAZZI: Bri has her hand up. She has her hand up.

MS. MILLSAP: Okay, thank you. That was --

MS. SEAPY: And if we could only Beth Lawson to, she can speak to it with more experience. But Parker, yeah. My -- our perspective is putting quantifiable, attainable metrics in there will help kind of make it real and make the restoration implementable with concrete targets that were justified based on mitigating for Project impacts, impacts that were directly associated with the Project and not peripheral other like previous historical impacts. But Beth, would you like to elaborate on that?

MS. LAWSON: Yeah. I mean, I think I would just say that it's our experience that going to a post-licensing monitoring plan that has to be established later, it's difficult to come to consensus. And so having a metric right now, written in your certification

would make it so that we can try to write a plan later, but that we have metrics to try to achieve.

MR. THALER: Thank you. So then my other questions are for Yuba Water Agency. And I understand the concerns that were raised in relation to the rationale of the cert. But I would like to seek some clarification on Yuba Water Agency's concern, or opinion, or thoughts on Condition 12, in restoration in general. Is Yuba Water Agency’s view that Condition 12, or restoration in association with the YRDP, isn't appropriate, or is there a more specific issue with Condition 12 itself, such as, you know, an undefined metric?

MS. GANGL: I wonder if we should unmute Tom, because I think he was the presenter previously. Or maybe Willie because Willie turned his camera on.

MR. THALER: I would note, when people raise their hands, for our view, it jumps you to the front so we can quickly see and unmute.

MS. GANGL: Go ahead, Willie. I think you're unmuted.

MR. WHITTLESEY: Okay, thank you. So you can hear me?

MS. GANGL: Yes.

MR. WHITTLESEY: Okay. Excellent. So, yeah, I

mean, our concern is the nexus, I mean, Tom talked about it in his in his presentation, and the major impacts to the Lower Yuba River are -- were caused by hydraulic mining. We see the Lower Yuba River as an absolute opportunity for salmon, and that's why we provide flows, and we're concerned about fish species, always. I mean, if you, Chris touched on it early on, he showed one of his slides, all the diversions in the Yuba watershed. Well he showed most of the diversions in the Yuba watershed. The Yuba Water Agency is the only entity that actually provides flow in the Lower Yuba River for, specifically for salmon habitat. And you know, we're -- we would like to see the salmon species survive and be successful, but we don't see the nexus to our Project. We already provide the lifeblood. We already provide that through our existing -- our existing flows, so we don't see a need to prescribe that in a water quality cert.

MR. THALER: Thank you. My next question is, you know, when it comes to habitat, such as how we're discussing it for the Lower Yuba River, I think a lot of factors go into what is habitat. You know, and it's a combination of a lot of things like sediment, large woody material, flow, floodplain connectivity, vegetation and the Yuba River Project does control flows in that section

of the river and does have an impact on large woody material. And so I was curious if there was any, I guess you're clarifying that the, Yuba's concern is there isn't a nexus, and I'm trying to raise that, given that the Project has interactions with large woody material, instead of out of the North Yuba River, as well as flow, wouldn't those be components of a restoration project, or wouldn't those be components that you can look at in restoration actions, and it doesn't have to be a target on floodplain inundation, but it could be other items that occur in the Lower Yuba River.

MS. GANGL: Looks like Willie's trying to talk.

MS. RAGAZZI: Let us unmute you, Willie.

MS. GANGL: Can we make sure Willie's unmuted.

MS. RAGAZZI: You should be unmuted now, Willie.

MR. WHITTLESEY: Okay, thanks. So, Parker, I think you're asking about sediment and woody debris. And, you know, are those components of a restoration action? And yes, we believe they are.

MR. THALER: Thank you. I mean, another piece of the FEIS because Tom was reading a piece of it in relation to FERC and Army Corps' determination on restoration, and I was reading through that myself and there is a statement that aquatic and riparian habitat in

the Lower Yuba River has been slowly recovering from a variety of historic disturbances tied to hydraulic mining, dam building by the federal government for sediment and flood control, as well as channelization. And while the majority of these existing habitat conditions are unrelated to Project YRDP operations, Project operations does affect the quantity and quality of available salmon and steelhead rearing habitat by altering the natural flow and water temperature regime. The Project also blocks the downstream movement of large woody material and coarse sediment, both of which are key components of complex bonding and rearing habitat. And so I just, I was just trying to think back to that Condition 12, as currently written, is requiring consultation to look at a variety of actions: floodplain inundation, as well as large woody material, plantings, other habitat improvement options. And as Yuba was pointing back to the FEIS, there is materials in there that is drawing some links that the Project may have a contribution.

MR. WHITTLESEY: Yeah Parker, so I think you also need to look at the benefits the Project provides. You know, you could look at inundation in the springtime and then you can look at temperatures in the summertime and what do we provide? I mean, in a year like this,

we're providing three times the amount of flow today that would be naturally in the river, so there's a benefit to the Yuba River Development Project, even as it exists today. Some of the slides that Aaron showed, those are under existing conditions. You know, you saw inundation under existing flow regimes today. I'll remind everyone that the Yuba -- the New Bullards Bar Reservoir is not on the mainstem of the Yuba River. You know, we aren't the only ones that control flow through the -- through the Lower Yuba River, and I'll say again, we're the only ones that provide flow specifically designed for salmon habitat or that species.

So and then Aaron made a point, and Aaron, I'm not trying to put words in your mouth here, but that, you know, we feel that we're being, you know, we're being caused to be in charge of, you know, an entire Restoration Plan in the Lower Yuba. And that's how we feel. There's no -- if this water quality cert, this condition went through, we would be the only ones that are regulatorily required to develop a plan in the Lower Yuba River for restoration. While I'll agree and we partner with many of you on this meeting with habitat enhancement, we would be the only ones that are regulatorily required to and there are many other users in the Yuba watershed, and I think a holistic analysis

needs to be done, and truly, don't just pin this on the Yuba Water Agency. We are providing the flows, and we do do habitat restoration, and we do partner with others. And we think it's unreasonable to pin an entire Restoration Plan on us, but we're happy to collaborate and develop something, and we are doing that today.

MR. THALER: Thank you, and I would just give some clarity from the cert's perspective. You know, when we -- when we consider a Project's impacts, it's not a consideration of what went -- what occurred in the past, but it's the current impact that's occurring as related to, you know, water quality standards. And so I don't think it's our intent to make any one entity responsible for anything outside of their Project's impact. And so I guess the last question I would ask is given the North Yuba River has New Bullards Bar on it and New Bullards Bar does entrain a decent amount of wood and sediment, that would have otherwise gone downstream to the Lower Yuba River. Isn't -- isn't there any thought that the Project may have some need or impact on habitat in the Lower Yuba River as a result of that operation?

MR. WHITTLESEY: Well actually, Englebright Reservoir, the Army Corps' dam, would stop the sediment and woody debris.

MR. THALER: Unless wood were to fill in or

were to top the dam.

MR. WHITTLESEY: Right. Yeah.

MR. THALER: All right, well, thank you.

MS. RAGAZZI: Hi, Erin Ragazzi. I have a broader question that I'm interested in feedback from, I think all three Petitioners on. We heard about pre-1970 and post-1970 operations and how they impacted -- how different folks think they impacted the watershed as a whole. YCWA indicated that there's been an increase in riparian vegetation post-1970 with the operation of the Yuba River Development Project. I think the other presentations indicated that there's an ongoing need for vegetation. I'm curious how we're defining riparian vegetation in terms of the increase, relative to what the different parties are talking about. It seems like there's riparian vegetation that occurs, you know, higher up in the watershed that provides, on the banks that provide shade, versus habitat within bars and within the stream system. So I'm curious, when YCWA is talking about an increase in riparian vegetation, which metric is being used to measure that riparian vegetation? Or maybe it's both. And then when the other parties spoke about the needs for vegetation, how that relates to it. So I see Paul wanting to respond to that question and if any of the NGO or other parties want to, please raise your

hand. Thank you. And Stephanie, we'll come to you after Paul. Thank you.

MR. BRATOVICH: Yeah, thanks, Erin. Have I been unmuted?

MS. RAGAZZI: Yes, I can hear you.

MR. BRATOVICH: Thank you. Yeah, I can at least start and provide a partial answer to your question. What is the definition or what was the consideration regarding riparian vegetation, where is it in relative to the to the channel and such? And the information that I presented was based upon index sites for reaches longitudinally distributed along the Lower Yuba River. Each index site was selected to represent a range of channel and habitat types in the entire study area, which was the sediment level which is the entire Lower Yuba River and perhaps in answering more clearly your question, each site was 20 times the average bankfull width, as I recall from the technical memorandum. So it extended out away from the actual wetted perimeter and incorporated that larger area. And again, I can check in TM 6-2, but that's my recollection. Thank you.

MS. RAGAZZI: Thank you. Stephanie, did you still want to talk? Otherwise -- yeah. Okay and then Aaron, we'll go to you next.

MS. MILLSAP: Yep. And so, you know similar to what Paul said, I think that the areas that they were looking at, at increased riparian vegetation, included areas that were become inundated at flows of over 100,000 cfs. And so when we're looking at being able to get that riparian corridor closer, we want it closer to where the river actually is so that you can start to have more of those natural processes of both shading as well as, as that -- as those trees get older and they fall over, you're starting to get natural recruitment of large wood back into the river and restoring some of those natural processes that would occur. And so it's in part, a difference of where that -- where though the vegetation is occurring, and I think Aaron can also speak to the amount of vegetation that is kind of closer to the river side, the main stem channel, and at flows in which the Lower Yuba normally experiences, especially during Schedule 2 water years and even some of the drier Schedule 1 water types and lower. And so not just having access to those high floodplain areas during the wettest of the wet water years, but also making sure that there's habitat available for juvenile salmonid rearing in the drier water year types as well, so that each salmon cohort has food and cover available to it. And so I will, look like Aaron's got his hand up next, so I'll let

him go.

MR. ZETTLER-MANN: Yeah. Thank you. So one of the things that I want to lead with is that simply because vegetation is growing doesn't mean that it is because of YRDP operations. Vegetation and some natural recruitment of native and invasive species began to happen, you know once we started dumping mine tailings on the floodplain. So you know, there's a correlation versus causation discussion there.

And to kind of emphasize and reiterate some of what Stephanie has, it's not just floodplain and riparian vegetation at these above bankfull flows that is above roughly 5,000 cfs that we're interested in. We also need vegetation close to the channel. Using some of the imagery that I, in one of my slides that shows that newly constructed channel, we want vegetation all the way up to that water, at low water so that the benefits of mature woody riparian vegetation, so willows and cottonwoods can provide shade and the sort of trophic levels for plenty ample food for juvenile salmonids, kind of throughout the life cycle and year-round. And then that wood also falls into the channel, creating mid-channel bars and islands, and ultimately, that more anastomosing channel type that we believe the Lower Yuba was prior to the gold rush and European involvement. Does that offer clarity? Are

there, anything else I can explain, or somebody else.

MS. RAGAZZI: No, I appreciate the input from all parties on this topic. Is there anything else anyone wanted to add, based on the discussion we've had just now, or is there any more State Water Board questions at this time? If not, we get to go to lunch so. Looks like we have a vote for lunch. So, Kristen, when are we supposed to be back from lunch?

MS. GANGL: Let me double check the agenda. 1:20.

MS. RAGAZZI: Okay. Everyone, I hope you have a great lunch, and we'll see you back here at 1:20. Thank you

MS. GANGL: Thanks everyone.

(Workshop recessed at 12:31 p.m.)

(Workshop resumed at 1:21 p.m.)

MS. GANGL: Okay. Welcome back, everyone. I think we're going to jump right into our presentation from YCWA on Condition 6. And if we could unmute, it looks like Jim Lynch. He can get started. All right, Jim?

MR. LYNCH: Okay, thank you.

MS. GANGL: We can hear you. Go ahead.

MR. LYNCH: Great. Thank you very much. If I could have the first slide. Thank you. My name is Jim Lynch. I am a fisheries biologist with HDR, supporting

YCWA. I've been involved in the Yuba River upstream and downstream of YRDP for the last 25 years. Next slide, please.

Today, we're really focusing not on whether Lohman Ridge Tunnel should be closed or not, but how often. The State Board has a condition, Condition 6, which requires additional closures as compared to the closure that YWCA proposed. And that FERC, the U.S. Army Corps of Engineers and the Forest Service all proposed. And that's really the difference we'll be focusing on today.

And to give you a highlight of some of those differences between them, and if you -- slide two shows you the main differences. So with -- they both closed the tunnels between April and September in the spring and October and December in the fall. Typically, called spring and fall tunnel closures, but you can see when they close them is slightly different. The triggers, which we spent a lot of time on during, with stakeholders, during the relicensing. So the tunnel closures under the, I'll call it the FEIS Condition, basically is when the flows are at a certain -- flows are a certain level, we're at wet water year. And New Bullards Bar storage is at a certain level.

And the reason we did that is because the goal

initially, and moving forward on this, was try and not divert water from the Middle Yuba River to the North Yuba River and then just spill it there. Leave it in the Middle Yuba River and let it do benefits there.

Condition 6 were to close it in both wet water years and above normal water years. The forecast is also slightly different. The DWR, I'm sorry, the YCWA forecast would be -- start in April, start the tunnel closures that would trigger it, where the Condition 6, the water quality cert is actually in March.

Also, there is some other differences as we go through in the spring, but one thing is that the water quality Condition 6 allows the tunnel to be reopened if the forecasts are different for below normal drier years. And in terms of the fall closures, the main difference is that the FERC, the FEIS closure was Below Normal or wetter water years with again an end of September storage preserve water storage in drier years where the Condition 6 requires a ton of closure in all water years. Next slide, please.

So to take a look at this more closely, this is a model run that we made very early in the relicensing, but we looked at the 41-year model during the relicensing and we triggered when both conditions would occur, and at least the tunnel closures in spring, we found under the

FEIS, would occur in 12 -- would occur in 12 years with Condition 6, as compared to eight years with the FEIS condition. And obviously with the Condition 6, the tunnel would be closed in all 41 years we looked at, as compared to 24 years with the FEIS condition.

Now why is this being proposed? The water quality cert didn't really go into details but pointed towards the CDFW's condition. And CDFW's condition at page 150 basically says they want to avoid because it makes little sense to the licensee to divert water just to spill it at New Bullards. Also, they thought that these were peak periods for protection of entrainment and also they said this would add very little economic impact to the overall cost of their measure. Next slide.

In terms of the spring tunnel closures, if above normal water years weren't included, as you can see, I mentioned earlier there were for four years, and these are the four years. And what you see here is the amount of water that would be diverted in the spring, how much water is spilling from New Bullards Bar Dam during that period and then on the last column to the right is how much water would actually remain in New Bullards Bar reservoir for power generation. And as you can see, there's a considerable amount of water that remains in every year except one, 2000. A good portion of the water

remains in storage. In fact, a majority of the water in some -- in some years remains in storage, so this water wouldn't just be -- wouldn't just be spilled at New Bullards Bar, but it would add to generation at New Bullards Bar Reservoir. Go to the next slide. Thank you.

In terms of the fall tunnel closures, one concern that YCWA had is that the fall tunnel closures are somewhat indiscriminate, and they closed the tunnel in critically dry and dry water years. So they don't allow storage. And if you look to the left, you'll see the years where the fall tunnel closures would occur. We've organized them by water year type, critically dry to wet. And the end of September New Bullards Bar storage, which would have triggered it under YCWA's condition for not closing the tunnel. And what the elevation was. And then lastly, how much water would be lost from storage in New Bullards Bar Reservoir. Next slide.

So I also want to address the question asked by the State Board that asked one question regarding this, and it dealt with how did YCWA estimate the cost for the impact of this. Well, what we did was run five models, five runs of the same model, I should say. One was at a baseline, which is basically existing conditions at the,

in 2007, that's the environmental baseline for the relicensing, and it's for other environmental procedures, as we're moving forward this relicensing process and associated processes. So we had the baseline which said this is the this is what's going on today. And then we ran the baseline with all the conditions exactly the same, except we added YCWA's spring tunnel closures. Then we ran it again a third time with the baseline exactly the same, but we used the CDFW tunnel closures, which are the same as Condition 6. We ran it a fourth time with YCWA fall. A fifth time with CDFW's fall. And we looked at each one of those to see what the differences were compared to the baseline, baseline to zero out. And what we found basically was under the spring tunnel closures with YCWA's and FEIS conditions, the overall annual cost. And I should point out, the way we did that we ran the model for the 41 years, came up with a generation cost, compared it to baseline, subtracted out the baseline, which gave us the cost of the condition. And then we divided that by 41, the number of years in the model run, to come up with an average annual cost, which is basically how FERC does a lot of its costing information. So we came up with the FEIS flow at about $418,000 average annual cost for spring time. The Condition 6, remember four additional

years was $763. The difference between the two was $345,480. So it almost, it doesn't double the cost of the spring time to those of four additional years, but it's probably 70%, 80% of it.

The fall tunnel closures weren't quite as impactful. The FEIS by itself was $255 and the Condition 6 was $393. So the difference was around $138,000. So to come up with an overall cost, we combine the two. So for the overall YCWA FEIS cost, the total cost over 50 years, taking the average annual cost, some spring and fall, multiplying it by 50 gave you around $33 ½ million. That's what we assume to be the cost for the measure as YCWA has, and it's in the FEIS. Excuse me. The Condition 6 at a cost of around $58 million for the two. So about $25 million more. And what we looked at was that's $25 million more, and it's focusing primarily on four additional years of closure and closing all the time in the fall.

One thing I want to point out here is that these costs are all in 2017 dollars. If you escalated these costs, their current dollars or dollars out in the future, it would obviously be much higher. Also, we ran these against the baseline. So we did not run them against all the other conditions as baseline in the FEIS or the water quality cert. These were all ran against

the environmental baseline to isolate just these costs. So with that said, we think the tunnel closure should be moved back to what was proposed in the FEIS. The cost is very, very high, $33 ½ million, just for what's in the FEIS. And when you add in the additional cost of the closures, almost $25 million for the additional benefits, perceived benefits, that adds up to an awful, awful lot of cost for somewhat of undefined impact.

And just to get into that, just a little bit more in closing, keep in mind that what we're protecting here, and I'm not trying to diminish the resource in any way whatsoever, but there are no ESA-listed species in the area of the tunnel closure. There are no anadromous fish in the area of the tunnel closure. There are no fish that migrate in the area of the tunnel closure. Contrary to what some people say, rainbow trout are not a migratory species. They can complete their entire lifecycle without migrating. They do move around as all fish do.

Secondly, any entrained fish would not be injured or suffer mortality that, in that they wouldn't be going through a powerhouse, a clone valve, or anything like that. They'd be displaced from the Middle Yuba River to Oregon Creek, or potentially to New Bullards Bar Reservoir.

Third, there's not a unique fishery there. There's, it's a rainbow trout transitional fishery, which means there's trout, suckers, other fish species in that area. So it's not a cold-water, classic cold-water habitat. The temperatures in the summer routinely get up above 20 degrees in July and August.

MS. RAGAZZI: Hey Jim.

MR. LYNCH: Yes.

MS. RAGAZZI: I'm going to ask you to wrap up because it’s -- you're quite overtime.

MR. LYNCH: Yep. Okay.

MS. RAGAZZI: So if you have any last remaining statement.

MR. LYNCH: I do, I have, just have a couple. I appreciate it. Thank you.

So I just wrap up and I just want to point out that there was an estimate from CDFW on the cost of the water per acre-foot. And when you run that with the model, you still find that the cost of the, just using their dollars which we don't agree with how that was developed, still, the cost is 8 to $10 million just for that spring closure. Thank you.

MS. RAGAZZI: Thank you.

MR. LYNCH: You're welcome.

MS. GANGL: Thanks. So we'll move ono CDFW's

presentation, and I believe that is Beth Lawson and Sean Hoobler, and I think it starts with Beth, if I remember correctly.

MS. LAWSON: It starts with Sean.

MS. GANGL: Okay. It starts with Sean. Sorry.

MS. LAWSON: That's okay.

MS. RAGAZZI: Sean, can we make sure your mic is working? Sean, can you raise your hand?

MR. HOOBLER: Can you guys hear me.

MS. GANGL: Yes, we can.

MR. HOOBLER: Okay. Perfect.

MS. RAGAZZI: Whenever you're ready.

MR. HOOBLER: Thank you very much. So thank you guys, and good afternoon. I'm going to turn on my camera for you guys as well. So my name is Sean Hoobler. I'm with the California Department of Fish and Wildlife. I'll be talking to guys today about the Condition 6 tunnel closures at Lohman Ridge Diversion Tunnel for the beginning part, and then I'll be turning it over to my colleague, Beth Lawson. Next slide, please.

So, you know, just to give you a little bit of a background in, you know, where the thinking came from the Department, you know, we worked with YCWA and did an entrainment study for the Middle Yuba River, specific to Lohman Ridge Diversion Tunnel that went for a little over

a year from October 2012 through November 2013. And rainbow trout were PIT-tagged, and detections were made with an antenna array that they installed in Lohman Ridge Diversion Tunnel. And so, similar to how Mr. Lynch described entrainment, the Department -- the Department also defines entrainment as fish being transported along with the flow of the water and out of their normal streams, creeks, or rivers. And fish entrained by water diversions are often transported out of their basin watershed and to locations that may not be ideal for survival or spawning. And additionally, entrainment can cause loss of genetic integrity. Next slide, please.

And so during the study, we, the Yuba County Water Agency tagged 161 rainbow trout and 49 of those were detected as being entrained through the tunnel, resulting in a 30% entrainment rate of tagged rainbow trout. You know, the resource agencies expect that this entrainment rate actually underestimates the overall rate of entrainment. Next slide, please.

And you know, part of the reason for that is when you look at how the study interpretation was done. And so, you know, the study results, and our ability to fully understand entrainment effects from the Project itself and develop proper PM and E's were limited by the size of the fish that were actually tagged. The PIT tags

themselves were limited to being utilized in fish 60 millimeters or greater. In this case, for this Middle Yuba River, the smallest fish we tagged was 72 millimeters. And therefore, we really don't have entrainment rates available for smaller fish, especially those young-of-year in mobile life stages that tend to live on the margins and could be at higher risk of entrainment. This study was conducted in a dry year, and wetter water years with higher more diversion rate could be -- include entrainment rates may be higher. Yuba County Water Agency estimated entrainment that did not include rainbow trout that were entrained when antenna efficiencies with less than 80%. And lastly, Yuba County Water Agency did not model the population-level effects of entrainment on the fish of year after year removals of fish from the population and the impacts to genetic diversity of those fish. Next slide, please.

So here's a graphic that shows unique detections. Those are the red dots that you see at the bottom of the axis overlaid with the discharge through the tunnel. And you know, entrainment detections were highest in the fall and correlated with higher diversion rates, and those are the clump of red dots you see on the left of that graph. You know, however, late spring detections, which you see on the right of your graph, may

actually be the result of an attraction flow for spawning rainbow trout that may be lured into the tunnels. Next slide, please.

And so, you know, this is similar to the same graphic, but it shows you the two main seasons where entrainment detections were highest. The fall and the spring-time period stand out as the greatest risk of entrainment. And these time periods were what the Department looked at, along with other factors, in informing our 10(j) recommendations and to be able to provide some sort of protection for that. Next slide, please.

And then before I turn it over to my colleague, Beth, I just want to talk briefly about the Project effects of entrainment. And so Project effects of entrainment, fish entrainment, are often seen downstream of the point of entrainment, in this case, the Middle Yuba River directly downstream from the Our House Diversion Dam. And the graphic shows the Relicensing fish population survey results from 2012 and 2013. And you know, the one thing that really stands out from that, and it's marked in a big yellow box with the blue line, is that there's a near-complete loss of the young-of-year age class fish. Those are those ones that were not PIT tagged and ones that have a very low mobility and are

more vulnerable to detection.

So this population data below Our House indicates that there is less than 1%, that young-of-year fish comprise less than 1% of the population. And just to kind of give you an idea of what this graph should look like in a healthy, robust fish population, that where that blue mark is, the arrow, that should be your highest bar on a normal healthy population, it should slowly descend to the right as older fish die or there's predation, and they're moved out -- removed out of the population.

And so with that, I'll -- I'd like to turn this over to Beth. And next slide.

MS. LAWSON: Hi, can you hear me?

MS. GANGL: Yes, we can.

MS. LAWSON: Okay, great. So with that, after the entrainment study results came in, we started talking about what we can do about entertainment here. And of course, the first thing that we started talking about was fish screens, and there were some cost estimates that had been done for the fish screens, and for a screen at this location with a tunnel at Lohman Ridge that could take up to 860 cfs and would be a very large and costly fish screen. And so we started looking at, you know, some other alternatives. Are there ways that we can operate

the Project differently so that we can entrain less fish? Is there something else we can do? And so we turned to the hydrology as we were talking about this, and I wanted to highlight in this graph the differences in water year type.

So in the solid, sort of dark green line here, we have the hydrology upstream of the tunnel in 2011, which is a wet year. And then in the dotted green line, which is around the 800 cfs mark, we see the water that's going into the tunnel. And then similarly, in the solid line in blue, below, we see 2013 Middle Yuba flow above the Lohman Ridge Tunnel, and then in the dotted line below that, we see the flow that is diverted into the tunnel. And one of the things that we noticed here, and that we often notice at tunnels like this, is that the entire spring snowmelt hydrograph, essentially goes into the tunnel.

So as you get into the spring time period, the river is essentially only seeing just spills anything above the 860 cfs, or it's seeing just the minimum instream flow. So it sees very, very flashy flows and then none of the tailing, descending limb of the hydrograph, down to just the minimum instream flows. So it's a very quick drop off. And that spring recession provides a lot of things. It's not just about

entrainment, it provides those natural ramping rights, the foothill yellow-legged frogs are queued off of -- in their life cycle in order to not dewater their eggs. That for geomorphological purposes, it creates natural bar formations that form as the natural hydrograph creates a stable bar formation that is lacking in the Middle Yuba below the Our House Dam, and for fish and other aquatic species, it does mean entrainment. And so as we were looking at this hydrograph, we thought it was important to understand what Jim was talking about before, that a lot of this is spilled at New Bullards Bar. Next slide, please.

And so because we had a post-processing tool here, we had the ability, the Licensee had generated a post-processing tool that allowed us to look at power generation. And so what we're able to do is we're able to look at how much power generation and in-value we got out of all of that water diverted. So on the X-axis, you can see that over to the right are wetter years, and over to the left are drier years. And as is kind of not expected after you think about the results, the wetter years, the energy value is lower than the water that's diverted at the tunnel in the drier years. And so the reason for that is because in the wetter years, New Bullards Bar is very full, and so to follow their rule

curve, the Licensee, YWA, is just pushing water out of Colgate Powerhouse. Colgate Powerhouse, during these spring months, is essentially running 24 hours a day, which means they're not falling peak load, they're pushing water out all the time and not just capturing the very high value dollar hours. And so on the left side, we see that in the drier years, those in the drier years, the energy is worth a lot more, or the water that is diverted at the tunnels is worth a lot more. So if you go to the next slide.

I've now highlighted in the squares, the times when New Bullards -- the years when new Bullard's Bar is spilling. If you go to the next graph, you will see the years when CDFW is proposing a tunnel closure, and in the next graph you see the years when the Fish -- U.S. Forest Service 4(e) required a tunnel closure. So you can see the difference in these. There's sort of a breakpoint around $20 for all of -- for each acre-foot diverted, and CDFW feels that this breakpoint of when we have decided to have tunnel closures is a fair balance because we really are looking at the times when energy is really not that valuable on the market. By doing these tunnel closures, we're able to provide the additional snowmelt runoff hydrograph in, as we've seen four years on the record, an additional amount of time in order to protect

not just entrainment, but natural bar formation and natural ramping rates for foothill yellow-legged frogs. Next slide, please.

Okay. And so what this looks like, I think Jim talked about these numbers too, in the fall tunnel closures, CDFW has recommended 41 years, which is every year, because those are the months that we saw the most amount of entrainment. And as Jim talked about, that is really not the high value part of this condition. And in the spring tunnel closure, we have recommended more tunnel closures. And the difference in number of years modeled on a 41-year period of record is just 10 years of tunnel closure versus seven. And we feel that the breakpoint still shows that the energy value is pretty low for those diverted because we are not getting into the wetter, or into the drier water years. And that's why we've continued to recommend the additional years of tunnel closure. Next slide, please.

MS. RAGAZZI: And Beth, you're going to want to wrap it up because you're close to, well you're over time.

MS. LAWSON: Yeah, this is it. So YCWA seeks to change this condition and the final water quality certification does include the tunnel closures in addition to those agreed to by the U.S. Forest Service to

protect native rainbow trout from entrainment and provide those additional geomorphic pulses to the Middle Yuba River and Oregon Creek. And CDFW supports keeping the measure as written in the final water quality certification. Thank you.

MS. RAGAZZI: Thank you.

MS. GANGL: So now we have about 15 minutes that we can discuss, and so I'll do the same thing and go around the circle. YCWA do you have any questions for Beth or Sean? I don't see any hands, so I'm going to take that as a no.

I'm going to ask CDFW the same question. Do you have any questions for YCWA? I'm not seeing any hands.

So I think then I can turn it over to State Water Board to ask questions, so feel free to chime in if you have questions. State Water Board.

MR. THALER: Hey, it's Parker. I'll start, I think I just have one for Jim Lynch. And thank you for walking through that presentation, everybody, but thank you Jim, for walking through and really trying to touch on the comments that we had provided in advance. It's very helpful.

MR. LYNCH: You're welcome.

MR. THALER: I did want to ask a follow-up

about the annual cost and just see if you could catch me up on maybe where I'm missing something. I went back and I looked at that 20 the, I believe October 9, 2017 document that Yuba issued in response to REA comments.

MR. LYNCH: Yes.

MR. THALER: And what it looks like there is you're right, it ran a 41-year model, but the cost that came out of the -- over the 41 years was $14,512,027. And then it looks like Yuba applied that cost to the, at the time, 30-year proposed licensing period. And so I didn't see the annual adjustment in that previous report. And then the part that led me to kind of ask that previous question is when you take the $14 million figure and you divide that by 30, you get the annual cost that Yuba is presenting in their petition, of the $485,734.

MR. LYNCH: Sure.

MR.THALER: And so I've not seen the piece for that 14 million, which is the cost of the 41-year model, or the 41 years modeled, was broken down to an annual and then brought up to either 30 or 50 years.

MR. LYNCH: Sure. I'll try to explain that, but if Steve Grinnell can also be on to back me up anywhere, I'd appreciate it. And the answer Parker, is you were so close. Basically, we ran the model for the 41 years, and that comes up with a total generation loss,

compared to the baseline. And then we take that total that we come out of the model with, and we divide by 41 to come up with an average annual cost. So under the -- FERC likes to express all of its costs in 30-year terms. It comes out of their Meads decision, and they just like to do that in current costs, current dollars, 30 years with no escalation on it. So we, that's why we always do an average annual cost. So we took the average annual cost, 41-year total, divided by 41 to give us an average annual cost over the modeled period, and we multiplied that value times 30. That's why your numbers are jiving to come up with a 30-year cost. YCWA believes and has requested from FERC that it would like a 50-year term of a new license, which is the cap. So we took the same average annual cost and multiplied it by 50 to come up with that $24 million cost. You were almost there.

MR. THALER: The step where it breaks it down to the annual and then brings it up to the 30, is the piece I'm not seeing in that report. So I think that's where my question --

MR. LYNCH: I can see where it would, and I apologize for confusion there.

MR. THALER: Yeah. All right, well thank you.

MR. LYNCH: If I could just ask Steve Grinnell just to chime in. Steve, did I get all that right? You

did most of that costing and you did all the modeling, so was I correct with that?

MR. GRINNELL: Well done, Jim.

MR. LYNCH: Okay. Anyway, sorry for the confusion there, Parker, but --

MR. THALER: All right. Well, thank you.

MR. LYNCH: -- that's why your -- that's why your numbers were jiving later in the process, so.

MR. THALER: Yeah.

MR. LYNCH: Okay.

MS. RAGAZZI: And I'll just have a quick question as well, related to the cost. Jim, when you were giving your presentation, I think in passing you mentioned other costs that were estimated, I think you said 8 million, I could have misheard --

MR. LYNCH: Sure. Yeah.

MS. RAGAZZI: -- as something else.

MR. LYNCH: Yeah.

MS RAGAZZI: You said you thought those were not accurate. So I was wondering if you could just go over what those costs were.

MR. LYNCH: Sure.

MS. RAGAZZI: And why you think they aren't good representations of what the costs are.

MR. LYNCH: Oh, sure. Be happy to. I

apologize. I was getting close to the end, and I jumped over that, but it goes back to CDFW's proposal, which I think Beth did a very nice job presenting. What we're referring to was CDFW had said, in their petition and in their response to the comments, that having the spring closure with the additional years would have very little -- would have minimal lost power costs. And they estimated, I think on average, they said for an above normal year, which is what they're recommending, having the tunnel closed in spring in above normal years. YCWA just wet years with a trigger in storage. They estimated $33 per acre-foot. It's called the Water Duty, the water that would go through New Colgate Tunnel and into the Powerhouse. So what we did was say, okay, we'll look at that and we'll just take the amount of water that would have remained in storage and multiplied it by 33. That comes out to $8 and $9 million, in that range. We don't consider that to be a minimal cost for lost generation for those additional years. That was my point. But I will add, we didn't get any backup material or any other material from CDFW. They presented some information, but we never dug into their analysis. And frankly, I consider YCWA a better crystal ball of costs for generation than CDFW. It’s what they do for a living every single day, every minute of every single day. So

that's why we think our numbers are probably more reliable than CDFW's. And that's where the $8 million came from. Just pointing out that we don't think of that as a minimal lost generation cost, especially in California, where the push now is carbon-free energy sources, which exactly is what we would be losing here.

MS. RAGAZZI: Thanks, Jim.

MR. LYNCH: You're welcome.

MS. RAGAZZI: And Beth, I see you raised your hand.

MS. LAWSON: Yeah. I mean, I think I just wanted to respond to that a little bit. I mean, obviously, I showed the years that New Bullards Bar spills and we would have always, and I think Jim mentioned this, we didn't have a lot of time to go into it, we would've all liked to only write a measure where the tunnels could be closed just during the time when New Bullards Bar spilled, but that doesn't work because the timing of New Bullards Bar spilling is later than the timing of diversion at these tunnels. And so you would have been turning on and off the tunnels, and we actually tried to go down that road and see if there was a way that we can do that, and it doesn't work.

And so what we were trying to do in our measure is come up with a point, and you saw in our analysis that

we were looking at the times when energy value is not as large, and so in those wet and above normal years, the reservoir is, and because we're using reservoir targets, we're targeting years when the reservoir is very full. And so I think the difference between YWA is, you know, it's either a full or very full reservoir. And so although they're able to push additional water through Colgate Powerhouse, we don't deny that they're able to generate additional revenue off of that. But you know, it may be a matter of them running the powerhouse for 24 versus 20 hours a day or something. And so when you look at when YWA is pushing water through Colgate Powerhouse, they're pushing it through in the most valuable hours of the day. And so as you get more and more water in the reservoir, you're pushing it, the generation, into the less and less valuable hours. And that's what we're showing in our analysis, is we feel that the breakpoint of when you make that decision is different. We're leaning towards the resource, we're leaning towards putting that benefit back into the river when available. And so I think that's the trade-off that we're making here.

And we really -- we're focused on those years. There was initially a target of trying to get to like 33% of the years for geomorphological reasons, for the

natural bar formation. And so we're really pushing our numbers as close as possible to try to restore some natural function to the river downstream that comes from only from that spring snowmelt hydrograph.

MS. RAGAZZI: Okay, thank you, both. And I've been told that we were supposed to end this session at 1:55 and it's 1:55 now, so unless there's any other questions from staff, I think we'll move on to the next topic.

MS. GANGL: Can I ask one question really quick? This is Kristen --

MS. RAGAZZI: Of course.

MS. GANGL: -- with the State Water Board.

Beth, at the very end of your presentation, and I know you might have been a little bit short on time, you had mentioned geomorphic pulses. Can you just take like a minute and talk about that a little bit more because I am not really sure what you were getting at there?

MS. LAWSON: Yeah. Again, I'm an engineer. I'm not a geomorphologist. And because the Forest Service did not have a petition for reconsideration, they're not able to speak to that today. So I think the Forest Service geomorphologists were the ones that were really working through the need to have those

geomorphological pulses in the larger number of years. And what I understand is that the spring snowmelt hydrograph, and I've seen this in many papers, is that that forms natural bars and that forms bars within the river where the gradation of substrate is stable and forms a more natural shape of the bar, rather than just dropping off very quickly and dropping material out of suspension very quickly. And so with these more natural forms, bars are able to restore, you're able to hold on to riparian vegetation and you're able to have a bar that is easier for species like foothill yellow-legged frogs to have more habitat on.

Again, this is my interpretation. So if there's someone else that wants to jump in, maybe Aaron, to talk about that natural bar formation, I think that that was a really high priority when we were negotiating this term and trying to restore that component that we felt was all going into the tunnel in as many years as we -- as we possibly could to restore that natural river function.

MS. GANGL: Thanks. That's helpful. And then I do have a quick question too, for Jim Lynch. And if you don't know the answer, that's fine. Yuba's petition mentioned that, I think, 21 fish were entrained. Do you know offhand what percentage of the population that 21

fish is?

MR. LYNCH: Depends upon how you define population. We did an analysis where we looked at how many fish were entrained in time, and we found at least that most of the fish that were entrained, we had tagged fish upstream for quite a distance, most of the fish that were entrained were right near the intake. In fact, many of them were in the impoundment, and they were entrained, relatively quick, so we found that. So if you define your population as say, within one or two miles of the -- of the of the tunnel, it'd be one number. If you did it further upstream it would be a different. We actually tried to use all the fish data we had from the Yuba River, from the Middle Yuba River, and we came up with a population estimate that we thought the total rainbow trout population and the size class we were looking at, the entrainment would be about three-tenths of a percent. But that was a -- that was a gross estimate, as Sean accurately said, we didn't do a population model, nor did anybody else.

If I could just add one thing, just as a clarification. Beth was absolutely right, the geomorphological processes were an issue and the Forest Service and YCWA and other parties designed a condition to provide those morphological processes in the Middle

Yuba River on Forest Service land that the Forest Service included as a 4(e). So that will be in the new license. So I hope that answers your question, Kristen.

MS. GANGL: Yeah, thank you. I appreciate that. That's all I have, but I thank --

MR. LYNCH: Sure.

MS. GANGL: -- thanks, everyone for letting me go a minute or two over. But with that, we can move on to our, it will be YCWA's presentation on Condition 7. So the speakers will be, looks like Steve Grinnell and Paul Bratovich. If we could get them unmuted, that's great.

MR. GRINNELL: Yes. Well, hello again. And exactly, Paul Bratovich and I will be presenting Condition 7 for YCWA. Next slide, please.

So Condition 7 requires rejuvenation of the upper intake of New Colgate Powerhouse on the intake on New Bullards Bar Dam, and to use the upper intake in the spring and the upper, or the lower intake the remainder of the year for temperature management. The lower intake has been used exclusively since 1993 at the -- at the direction of CDFW. Next slide, please.

So the water quality cert rationale for use of the upper intake include statements that using the lower intake depletes the cold-water pool and that by using the

upper intake there would be temperature benefits to fish in the Middle Yuba River and the Lower Yuba River. Ah, next slide, please.

So what did FERC say about this. FERC rejected this proposal that CDFW made in its recommendations by saying that modeling indicated the cold-water pool would not normally depleted -- be depleted, although FERC did suggest, in its FEIS, that the cold-water pool may have been depleted in 2014 and 2015, I'll address that in a second. They infer that this, by looking well downstream of New Colgate Powerhouse releases, it releases from New Bullards Bar. They were looking at flows on the Lower Yuba River below Englebright Dam.

FERC also stated that warmer water was not yet present in New Bullards Bar in the springtime for using the upper intake, and that the reservoir does not strongly stratify at this time. And FERC noted that the upper intake is not available in drier years due to low storage levels in the spring. Next slide, please.

So let's have a look at this issue of depletion of the cold-water pools, specifically what we went through in 2014 and 2015. So we have recorded temperature profiles of New Bullards Bar. They are done roughly every two weeks, and they -- that's been done for years. And so we have those for -- plotted here for 2014

and 2015, and we see that the cold-water pool was not depleted even into September. And the blue, I mean, the black dash line is the elevation of the lower intake. The figure's a little tough to read, but the temperature at the lower intake in both 2014 and 2015 in late September is in the 48 to 49 degree F range. That's exceptionally cold water, and there was a substantial volume of cold water above that elevation that would still be available for release well into the fall when temperatures are no longer an issue. And so therefore, you know, contrary to what has been put forth, suggested by FERC, the cold-water pool in New Bullards Bar was not depleted. Next slide, please.

So depleting the cold-water pool. What we did was we took a look at the average temperatures, release temperatures, for Colgate Powerhouse for the last several years in the September to mid-October spring-run spawning period, most critical time for temperatures, needing colder temperatures. 2014 and 2015 are not substantially different from any other years. As you can see, you know, they kind of range from anywhere from around 49 high 48 to 51. Even in mid-September in 2015, when storage was going down substantially down to about 398,000 acre-feet by the end of September. Colgate release temperatures were still hovering around 51

degrees. That's actually going on today. The temp -- the elevation of New Bullards Bar, today as we speak, is almost identical to the elevation in 2015 at this time. And I just checked this morning and the release temperatures out of Colgate Powerhouse at about 51 degrees. Next slide, please.

So a major impediment to a multi-intake strategy for the reservoir is that in the driest years, the upper intake is not submerged to allow its use. This partially occurred in 2014, where there's only a limited amount of time in the springtime where the upper intake could be used and was not available at all in 2015. And this year, once again, the upper intake could not have been used. In fact, subsequent elevation didn't even get close to being able to utilize the upper intake, so it would not have been able to be used this year as well. Obviously, a very dry year. This figure is for elevation, subsequent elevation that was recorded in the 2012 to 2017 timeframe. The red line is the -- is the upper intake elevation. As you can see, in 2014, just kind of touches that line for a little bit of the -- of the springtime. And of course, in 2015 did not get to the point where the upper intake could have been used. Next slide, please.

And I think Paul Bratovich is going to take

over here for a minute.

MR. BRATOVICH: Next slide, please. Oh no.

MS. GANGL: I think you're on mute, Paul. I can't hear you.

MR. BRATOVICH: Am I still on mute?

MR. GRINNELL: No, you're good.

MS. GANGL: I can hear you now. Yeah.

MR. BRATOVICH: Okay, thank you. Yeah, I'm sorry. I got disconnected for a moment there, but just reconnected, so I'm sorry for the inconvenience.

But yeah, we looked at the water temperature benefits associated with using the dual intake structure, rather than just the lower intake structure alone in the REA responses to comments. And that's the 41-year modeled simulation period. As you can see, here's yet another exceedance probability analysis. As you can see, yeah, the water temperatures from using the dual intake do reduce water temperatures during the fall, as indicated as part of the objectives of this strategy, defined as September to mid-October for spring-run Chinook salmon spawning. But they're minimal. I mean, they're really generally less than half a degree difference across the entire distribution, but very little difference, like as the slide indicates, only about a 3 1/2 percent probability of exceeding upper

optimal and no difference in exceeding upper tolerable using that 41-year period of simulated water temperatures. So very minimal and probably not biologically meaningful difference in water temperatures associated with our assessment of the dual intake strategy versus the lower intake only. That was very brief. Steve, I'll turn it back to you.

MR. GRINNELL: Great. So next slide, please. Just to summarize. So contrary statements in the CDFW presented information in the water quality cert statements, you know, the available information demonstrates that even during critically dry years, such as this year, 2015, the use of low intake does not deplete the cold-water pool. And in these types of years, the upper intake is not available in the springtime. So the element, I think we skipped over one slide, but basically what that slide said is that the implementation of the water quality cert Condition 7 using the multilevel intake, would not improve water temperatures in Middle Yuba River. In fact, it wouldn't have any effect on the Middle Yuba River, these releases, so flow from the Middle Yuba River don’t affect it.

And that the, in summary, the implementation of the condition would provide only minimally cool water temperatures for spawning during the fall, but only in

years when the upper intake could be used, which are generally the -- not the driest years. And that's, I think, all we have.

MS. GANGL: Thank you. Next up, it will be CDFW's presentation for Condition 7. And that will be, I believe, Beth Lawson and John McMillan.

MS. LAWSON: Okay. I think I'm unmuted. Can you hear me?

MS. GANGL: Yes, go ahead.

MS. LAWSON: Great. Okay. My name is Beth Lawson again. I'll introduce John McMillan when we get to his part. So –

MS. RAGAZZI: Hey, Beth.

MS. LAWSON: Yep.

MS. RAGAZZI: Can we just make sure that John's unmuted too, so we don't have any -- John are you…? John, can you raise your hand.

MR. MCMILLAN: Can you hear me now? This is John McMillan?

MS. RAGAZZI: Yes, we can.

MS. GANGL: Yeah, great. Thank you.

MR. MCMILLAN: Thank you.

MS. LAWSON: Okay, next slide, please. Okay. We were asked some specific questions about the -- about this measure, so I want to make sure to answer this. The

question here is essentially asking us what is the status of the 1993 agreement? And explain why the upper intake at Colgate is recommended and the status of that agreement. Our response is that the 1993 agreement with CDFW was based on the best available science at that time, and 28 years of additional monitoring and climate change predictions for more potential back to back, and wet-dry cycles have cause CDFW staff to reconsider this agreement and now recommend that the upper intake be preferentially used in the spring months. Additionally, CDFW believes that this Project, that fixing this infrastructure and allowing this to be able to be used, will be -- will allow for more flexibility in temperature operations in the future under climate change conditions. Next slide, please.

As a little bit of background in Water Rights Decision 1644, YWA was told in 2003 by the Water Board to diligently pursue development of the Narrows 2 Powerhouse Intake Extension at Englebright Dam, in coordination with Fish and Wildlife Service, CDFW, CDFG at the time, and NMFS, YCWA did not pursue funding or construction of the Englebright intake and instead deferred that issue until relicensing in 2007.

And then during relicensing YWA concluded, in Technical Memorandum 7-2 that water temperature related,

operational or infrastructure modifications were not needed at that time. State Water Board filed extensive comments about this operations issue in their draft Environmental Statement comments on July 30th, 2018 and directed YCWA to include additional analysis considering recent drought operations, in addition to the historic record that had been included at the time, which included monitoring through 2012. Next slide, please.

Okay. In a second here, I'm going to turn it over to John McMullen. But what I wanted to talk about is this moment is it's not just about fall temperatures, it's really about having the maximum flexibility within the infrastructure capabilities of this Project to operate the Yuba River to what would be the best temperatures for the river. And as our understanding of the river and our understanding of the species in the river is evolving, potentially over the next 50 years, CDFW believes that it's important to have working infrastructure and to be able to operate that to what we think is the best for the species in the river at the time.

And so with that, I'd like to turn over for a few minutes to John McMillan to talk about one of the potential benefits of releasing a little bit warmer water during the spring months in the Lower Yuba River.

MR. MCMILLAN: Thank you, Beth. Hello, everyone. Let me see if I can get my camera on here. There we go.

Hello, everyone. My name is John McMillan, and I'd like, just like to talk briefly about steelhead and rainbow trout. So steelhead and rainbow trout are essentially the same species. And while there are genetic differences that do promote an individual going to the ocean, becoming an anadromous, or a steelhead, or remaining in freshwater and becoming a rainbow trout. Each of those life histories can give rise to one another, and very strong environmental influences can override those genetic tendencies and shift the balance of life histories. For example, stream flow and water temperature regimes can and often do exert a strong influence on the expression of anadromy and residency in rainbow trout.

For example, streams with cooler summer temperatures and more stable stream flow regimes and large amounts of food tend to be correlated with higher levels of residency. And that is one reason the dam influenced rivers may experience a shift in life histories because dams can reduce the variation in stream flow and provide much cooler water temperatures. In the case of the Yuba, it appears that juvenile mykiss are

growing really rapidly, and that could be related to the relatively stable stream flows in cold spring and summer temperatures in the river. The rapid growth and the modified stream flow and temperature regimes could also be one factor that is resulting in more resident rainbow than steelhead. and this is because cold-water temperatures are known to induce greater fat or lipid storage in mykiss. And the more fat a fish gets early in life, the more likely that fish is to become a rainbow trout. Hence, operational modifications to the dam, including using different water temperature releases and regimes, could potentially shift the population more towards anadromy and steelhead and a bit more away from residency in rainbow trout. And to date, I'm really not aware of any efforts to modify thermal regimes to produce more steelhead than rainbow trout. However, I do think such experiments could be very useful because they may provide insights into how we manage our rivers to restore a more -- a more normal balance of life histories. I think that's really important because these climate effects continue to unfold that it may be necessary to modify dam operations in ways that we can improve the diversity of life histories in a population, which in turn could increase the population's resilience to climate change.

MS. LAWSON: Thank you, John. Next slide.

And so I like that Steve Grinnell and I are using largely the same slides, so you've already seen this. This, we didn't see each other's slides in advance. So you're now looking at a cross section of New Bullards Bar Dam. You can see that the upper intake is at about elevation 1808 in this diagram, although in the next slide, you'll see that it's listed as 1880. It's my understanding that if the elevation comes below that point, they will potentially start seeing some -- or they had historically potentially started seeing some cavitation at that intake, and so they did not want to operate above the 80 feet. That tells me that that upper intake is potentially pulling from a much higher zone in the reservoir. But this is the difference. There is not quite 200 feet, but there is about 200 feet difference between the two intakes to Colgate Powerhouse. Next slide, please.

And we already saw Steve present this slide that was in response to the State Water Board's comments, and then I wanted to go to the next slide and this one went up through 2017. So in the next slide, you'll see that I just added to that record. I went from 2017 all the way through today. And so I think what I wanted to show in these two plots together is that when we go from

using 2012 through 2021 hydrology, we have an additional 9 years of record. And although the difference, the red line again, if you remember from Steve's presentation, was the top point where that intake would -- where the bottom intake – sorry, top intake would not be able to be used anymore. And so in two of those years, the temperature, the alternate modification of the intake, and the alternate use of the intakes, would not be available because the reservoir doesn't get high enough to use that. The water is still available, potentially if there was a fix. You may be able to fix it so that you could use that reservoir, or that intake a little bit more.

And so what I'm saying is this is not a silver bullet. It is not the answer to temperature management in every year, but we don't want to continue to think about all or nothing solutions. I think that our response to climate change needs to be able to use existing infrastructure in order to be modified -- to be modified and to modify operations within the capabilities of the Project as to give as much flexibility to respond to climate change situations as possible and to give as much flexibility to river operations as possible to operate the temperatures in the Lower Yuba River for the best benefit of the fish. Going to the next slide.

CDFW believes that any Project infrastructure that may be used to adaptively manage temperatures is important for species management under future climate change conditions and should be maintained in good operable condition, to enable flexible operations in a dynamic and unknowable climate future.

I think that's the last slide. Thank you

MS. RAGAZZI: Thank you, Beth and John. So I'll ask YCWA. Do you have any questions?

MS. GANGL: Questions about what we just heard? I don't see any raised hands.

So same question to CDFW, do you have any questions for YCWA about what we just heard? No.

Okay, I'll turn it over to any State Water Board representatives that have questions. Actually, you know what, I have one for Steve. Do you know offhand the current elevation of the reservoir, like is the upper intake currently inundated right now?

MR. GRINNELL: There we go.

MS. GANGL: Thanks.

MR. GRINNELL: No. The upper intake is not. It actually wasn’t even inundated in the springtime. We're down below 400,000 acre-feet right now, so we're well below. Actually, the plot that shows 2015, the profile for elevation this year is almost identical to

the plot that showed 2015, and so we're way, way down. Yeah.

MS. GANGL: You had said earlier, 2015 was Schedule 6.

MR. GRINNELL: Yes.

MS. GANGL: And this year, I forget offhand. Is it Schedule 5?

MR. GRINNELL: Five. Yes.

MS. GANGL: Okay, thank you. Okay. I see Parker's hand up, so go ahead, Parker.

MR. THALER: Yeah, just one quick clarification, maybe. I believe it was you, Steve, who was mentioning that this does nothing for the Middle Yuba River, and I think there might just be a semantics on this. When we mentioned Middle Yuba, we were we were referencing to the stretch of the Yuba that's between New Colgate Powerhouse and Englebright. And so I think in some forms it's called Middle Yuba, but it may be more widely known as just Yuba at that point, but I hope that helps clarify.

MR. GRINNELL: Oh yeah, yeah. Right. There is a small stretch between Colgate and the upper ends of Englebright. We, you know, everything I've been used to is where the Middle Yuba and North Yuba come together, then that becomes the Yuba River down through

Englebright, and the Lower Yuba below Englebright. But yeah, that's they say nomenclature.

MR. THALER: Yeah. Well, thank you.

MR. GRINNELL: Yep.

MS. RAGAZZI: I had a question that maybe I could get clarification from YCWA and CDFW on. Beth, you mentioned cavitation potential and how that might affect operation. I just wanted to better understand what that might look like and when that might be an issue with operation of the tunnel and whether both parties could speak to that.

MR. GRINNELL: Beth, do you want me to go first? Do you want me to take it?

MS. LAWSON: I mean, sure. It was my understanding that when they did operate that upper intake, that there was some vibrations of it, I don't know if it was about Powerhouse cavitation. I mean, I think cavitation of a turbine is different. But everything I've read says YWA doesn't want to use that below 1880. But I do understand that there was some vibration and YWA had to continuously manufacture new bolts for it. So it's always been my interpretation that if there was a fix of this, that there would be some refurbishment of the intake structure that it wouldn't simply just be opening it back up, which is, I think,

included in YWA's cost estimates.

MR. GRINNEL: Yeah, there's actually two, that's, thank you Beth, that's definitely part of the equation, but they're really two elements to this. One is -- for, you know, the Colgate Powerhouse pulls about 3,400 cfs. That's a lot of flow. So you do need submergence and a fairly amount. So what we did was we looked at what Beth talking about, and we also went back and did the Corps of Engineers submergence calculation requirements for that type of flow in this type of configuration. And so those two things kind of came together to identify the elevation at which the intake would not be, you know, the elevation in that intake would need to have at least that amount of submergence. So we kind of got it from two sources.

MS. LAWSON: And so, Erin, that brings me to a good point, though, I think in Paul's presentation, you saw that he said that .4 degrees was the difference between those two intakes, and that is one of the reasons that I believe that that intake is pulling from higher elevations. So I think that, you know, the temperature difference at the spot on the profile where the two intakes are is on average about three degrees Fahrenheit, but it can be a lot more than, at -- just on the profiles that I've seen it can be as much as 10 degrees Fahrenheit

and then really a lot of not understanding about what happens in the hydraulics of where that upper intake would be pulling from, because we don't have the data from the last few years to point to there. But we do know that the upper intake would be pulling warmer water, especially in spring once the reservoir starts to stratify.

MS. RAGAZZI: Steve, do you have information about what Beth was referring to in terms of temperature and --

MR. GRINNELL: Yeah, sure. For the model that we use for New Bullards Bar, it's CE-QUAL-2. There's a distribution profile you use as to how the intake draws water. So it's across the -- across the intake, it's the kind of parabolic distribution. And so you do get, you know, you're not just taking water right at the intake. It's, you know, you're taking, pulling water from below the intake and actually, you know, for quite a bit above. And that's actually why there's the problem with having to have submergence as well, because you do pull from a fairly, at that type of flow rate, which is, you know, quite high, you're pulling from a fairly wide range above and below the intake elevation.

MS. RAGAZZI: And then can I ask sort of a broader question, which is, just thinking about why

people construct things with two outlets instead of one. You know, just for operational flexibility in terms of maintenance as well as, you know, like if you need to fix something or something goes out. I was just wondering with the lower intake, what is the maintenance like and is there the potential for there to be an instance where that would become non-operable and use of the upper one would sort of be necessary in order to ensure there wasn't a issue at that point from an infrastructure standpoint?

MR. GRINNELL: Yes. So a couple of --

MS. RAGAZZI: If I'm not clearly stating that, let me know.

MR. GRINNELL: No, no. That's -that's very clear. Actually, there's kind of two things going on there. One is that the alternative release mechanism that has being used actually in recent past, when tunnel -- when there's a tunnel shut down or you know, penstock shut down, it is to use a -- there is a low-level outlet in the dam that can release about 1,200, its current configuration, about 1,200 cfs, which would support flows for the Lower Yuba River for -- temporarily. That was actually used in 2008, when there was some tunnel work going on. And when they do the tunnel maintenance, it's actually a completely separate

release facility. The you know, the problem with the dual intake as far as redundancy goes, yeah, if there's a problem with a lower intake, really the only thing that's going to happen there is something with the slide gate. There's a slide gate that goes over it. But they both, as that figure as both that Beth and I showed, they both come together inside the dam. And then there's just one outlet. And those are just, you know, just encased in the dam. So all the mechanical elements, I think, are for, you know, the same ones used by both facilities.

And then the last thing is, you asked about the cost. That low-level of intake again is just a just a grill and a, you know, a trash grill and a slightly to close it off. And so there's not very much maintenance. There is an inspection that's done. I think it's every five years, as part of the FERC inspection, and they have to send divers, you know, that's deep diving. They'd send divers down to inspect it, but that's about it.

MS. GANGL: Erin, you're on mute.

MS. RAGAZZI: Thank you. I just said thank you very much. I don't have any additional questions, but does any of the other Water Board staff have questions? Sounds like we're good to go, Kristen.

MS. GANGL: Yeah, I'm not seeing any, so let's move on.

Our next topic will be Condition 8 and 9, and we will hand it over to YCWA to start with their presentation on those conditions. And those presenters will be, it looks like Jim Lynch. I think it's just Jim.

MR. LYNCH: It is.

MS. GANGL: Great.

MR. LYNCH: Although that sounds very lonely. Thank you.

MR. LYNCH: If you could put the first

MS. RAGAZZI: Let's get your presentation pulled up, Jim.

MR. LYNCH: Thank you. We'll be talking about Conditions 8 and 9, and I've broken that into both 8 and 9, since they're two different conditions. One is with regarding to settlement and the other one is --

MS. RAGAZZI: Jim, give us one minute to get your presentation pulled up. Thanks.

MR. LYNCH: Oh, thanks. Okay. All right.

MS. RAGAZZI: Okay. I think we're good to go now. Thank you.

MR. LYNCH: Okay. So I was just mentioning that these are two conditions, and I combined this into one presentation, but I treat them differently. 9 is sediment. 8 is large woody material, and these are conditions that the CDFW has asked to be modified and

YCWA is opposed to that. And I'll talk about that as we move forward. Next slide.

Also, there were no questions to YCWA on either one of these, so there aren't any specific questions we had to answer. As we did before, the sediment management that CDFW proposes is basically the same as in their 10(j) recommendation. And for sediment, it would require that YCWA place roughly 5,000-ton pile of gravel in the river below New Bullards Bar Dam, do a bunch of monitoring, and replenish that pile periodically over the course of the license. And the reason the modification is needed, according to CDFW, is because New Bullards Bar Reach is nearly devoid of all the suitable gravel habitat for rainbow trout and because all the sediment is trapped behind the dam. Next slide, please.

The reach isn't devoid of spawn and gravel, but I absolutely agree that there's not much there. We found that there was gravel perched behind boulders in different locations, and certainly that's supported by the fact that we do find rainbow trout. So obviously they're finding gravel to spawn, but not in great numbers. The study, this really in my mind, hinges on the fact that we believe that any sediment that would be in that range gets flushed out relatively quickly. And under relicensing for our geomorphology study, we were

strongly encouraged to develop a transport model in this reach and in other reaches. We did that and that's reported in our geology technical, geomorphology tech memo.

And we found that basically the sediment input into the reach was around 52,000 tons per year, and this is using models. And again, this this tech memo was reviewed and commented on. And that's with or without the Project in place. And then without the Project in place, the transport capability of that reach is 500,000 tons of sediment, which is 10 times more than the input. With the Project in place because the Project captures, doesn't capture all the flow, obviously. The sediment transport is around 400,000 to 450,000. So the ability of sediment to get flushed out of that reach based on the sediment model, is very, very high.

And then also when you look at -- look at the mobilization of sediment, again from our geomorphology studies, you find that rainbow trout size spawning gravel, which is roughly 2.5 to 3 inches, we found was mobilized between 65 and 700 cfs. They're broad ranges because we're looking at 2.5, ¼ inch to 3 inches and they have a reoccurrence interval with the Project in place of two years, roughly. And also, we have a five-year reoccurrence interval of over 8,000, almost 9,000 cfs.

So basically, from our perspective, any sediment we placed in that reach would get flushed out very, very quickly. Next slide, please.

With that said, we would suggest that placing sediment here would be very costly. We did a very detailed cost looking at placing sediment both by helicopter, and we looked at truckloads of sediment. But we didn't go to the truckload option, primarily because given the size of the road that we would have to improve, the concern with the road for safety, just to do 5,000 tons would be over almost 280,000 truckloads of sediment that you'd have to bring down there, 280. Excuse me, that you'd have to drive down there, which doesn't seem feasible given that road. You'd also have to extend the road. And it's a high hazard dam. We're trying not to encourage people to go down there. So there's a lot of reasons. Looking at it from a helicopter standpoint, and again, we put in a pretty detailed estimate, everything from how many tons a helicopter could carry, to how many runs they'd have to make, to where they'd place it, to permitting, all of that cost. We figured, and the replenishment that again, based on the data sets, would be very frequently. We came up with almost $23 million over the 50-year life of the license to do this sediment transport. So we feel for that reason very, very high

costs, sediment will be flushed out very quickly, we didn't feel this was a reasonable thing to do. Moving on to the next slide.

Largely material is similar. CDFW proposed placing large woody material, basically 129 pieces of large wood, which are 25 feet in length. And they also wanted us to place other pieces throughout the reach in piles, secured piles. Same thing. Monitor and periodically replace these throughout the life of the license. And the reason CDFW said that is needed is that basically the large woody material is needed for a suitable habitat, to improve suitable habitat, and other aquatic species, and if there's no natural inputs of large woody material. Go to the next slide.

We don't believe the literature really supports the position. Two citations by CDFW, basically say, large woody material in steep bedrock, large bedrock boulder streams with high flushing flows, large woody material really isn't a form function. It gets moved. It gets perched high on rocks when their flows recede quickly. So this is, we feel, there's a question there whether it would do anything. And if you look at some of the photos in this presentation and also what we had in our application, you'll see you get a picture of what this reach looks like, which is a challenging reach with

very large boulders. Next slide.

There's been discussion whether this reach is steep or not. Having walked it, I can tell you it is steep. But with that said, it's certainly dominated by boulders, as you can see a number of the photos we've included. Also, it's very periodic, how it flows. As I said earlier, 8,000, 9,000 cfs every five years, and the highest flows, at least recently, were 40,000 cfs as our peak flow, which is relatively high flow given that canyon. And again, when you look at the photographs, you can see that 40,000 effect and those higher flows effect on that steep channel.

Steep gradient. There has been an argument made that it's really not that steep and there are shallow places, certainly at the downstream end, you can see that on the gradient plot on the on the right. As you get close to the bottom, it does flatten out a little bit. That is where we found large woody material. We didn't find very much large woody material anywhere else in the stream. And there are certain areas short sections of this to 2.4-mile reach where it does get less steep. But overall, it's a pretty steep gradient throughout, which keeps the velocity high and the material moving. Next slide. Thank you.

There's also an argument that there's no large

wood. We do not dispute that New Bullards Bar Dam catches large wood as it comes in. It certainly does. Some large woody material gets downstream very, very little over the spillway. But there are a lot of sources of large wood. There have been some pretty extensive fires. It's a very steep canyon again, looking at some of the photos in this presentation, and we do expect a lot of this wood to enter the stream. Again, I don't think you're going to find it staying there. You're going to see that it moves downstream. In fact, if you look at some of those photos, you'll actually see some perched large wood on boulders, but they're usually pretty high on the stream bank. And I'm getting close to the end here. Next slide. Thanks.

So for the same reason of the sediment, we do not believe that the State Board should adopt this, this condition. It's -- we don't believe it's going -- it would produce any significant environmental benefits or any. I don't believe it would produce any benefits at all myself, but any real benefits. And the cost is very high. We did the same analysis here, taking a look at how you would do this by helicopter and by vehicle. Vehicle doesn't really work here because CDFW wants some of the logs to be planted or to be secured throughout the reach. Can't do that with the vehicle, obviously, but we

included a very detailed cost estimate. I'd be happy to answer questions on. Again, how much -- how much wood can a helicopter carry? How much does it cost for the helicopter? How long would it take to place it? How long would it take to get it from the source area to where they're going? How long it would take to secure it? All of that type information, as well as the permitting, and the monitoring, and the reporting. And we came up with around $9 million for that. So when you look at these two conditions together for the, I would say, dubious benefits of the wood and the sediment in this reach, you'd be spending at least $30 million, if not 33 to $35 million to do this over the course of the license. We don't think the benefits warrants that cost. And that's it.

MS. GANGL: Thanks, Jim.

MR. LYNCH: You're welcome.

MS. GANGL: And with that, I am going to turn it over to CDFW. And it looks like it will be Sean Hoobler and Beth Lawson.

MS. RAGAZZI: Let's make sure you're both unmuted while the presentation comes up.

MR. HOOBLER: Can you guys hear me? This is Sean Hoobler.

MS. GANGL: Yeah, I can hear you, Sean.

MS. LAWSON: And this is Beth. I think just Sean is speaking to this one.

MS. GANGL: Okay.

MR. HOOBLER: Yeah. Thanks, Beth. So.

MS. GANGL: All right, Sean. I can hear you.

MR. HOOBLER: Perfect. Thank you, the Water Board and Jim, for your presentation. I'm also here to talk to you guys about Condition 8 and 9. I'm talking to them jointly, as one presentation about large wood and sediment in the North Yuba River. And you know, I previously introduced myself as, you know, Sean with the Department of Fish and Wildlife. I've been working on the Yuba for over 10 years on this Project. So with that, next slide, please.

And so in August of 27 of last month, you know the Water Board provided us with three clarifying questions that they would like to better understand and to start with, I'll just start with the first question where the Water Board was seeking clarification on, you know, what are the quantifiable benefits to resident fish populations for doing this type of habitat enhancement?

And, you know, just to kind of give you some context, you know, habitat improvement projects are known for increasing habitat for adult fish, as well as larval and juvenile fish. You know, for example, when you add,

and gravel placements are put in, it increases habitat availability to adults for -- to build nests, or redds, and lay their eggs in, while also producing nursery backwater habitats for fish and, that emerged from those gravels. You know, the same could be said for large woody material as well. Next slide, please.

And so there's a long list of peer reviewed and great literature that demonstrate these quantifiable benefits of adding wood and gravel. You know, there's a list of references here that I provide. You know, not all of these are from California, but they do serve as a proxy for getting us to the point of how we understand what those quantifiable benefits are. And so I'd like to just discuss with you three recent examples that demonstrate this on a short-term, intermediate, and long-term benefit to habitat enhancement for salmonids themselves. Next slide, please.

So starting with something close to home, you know Yuba County Water Agency, has a Narrows 2 Large Woody Material Mitigation Monitoring Report that they put out for mitigation of a 2019 project. So one year post-installation, Yuba County Water Agency reported that large woody material placed at three locations in the Lower Yuba River, so these would be root wad and crowns, like that are pictured. This is taken during, the

picture is taken during implementation, and their reported results showed that the average overall density of juvenile salmonids were generally greater in wood treatment sites than at non-treatment reference sites. Next slide, please.

Moving on to Kratzer, 2018, he measured the response of trout biomass to habitat enhancements. Monitoring trout populations post-habitat enhancement was done from 2012 to 2017 and found that trout abundance and biomass tripled after the habitat enhancement measures were added. Next slide, please.

And lastly for, looking at the long-term benefits, White at al. studied the response of child populations two decades after habitat enhancement were completed. Trout abundance and biomass was measured annually from 1987 to 94. and then resampled again in 2009. And they found that the adult trout abundance increased rapidly after the initial habitat enhancement and that child biomass remained 53% higher in treatment sections than in the control sections 21 years later. Next slide, please.

So, you know, lastly, here's a couple photos. We've seen a few that Mr. Lynch provided that, you know, show the 2.4-mile New Bullards Bar Reach. So the picture on the left is below the New Bullards Bar Dam and the

picture on the right is just upstream of the confluence. And you know, what we see is a system that has lost most of its ecological function as a result of impacts due to reduced flows, no passage of wood, and loss of real sediment inputs. And so, you know, these pictures do tell us a lot, but the relicensing study also show that, you know, populations of fish are really kind of depressed in New Bullards Bar Reach, and that's likely due to the limitations and the quality of spawning gravel that they're able to find. Next slide, please.

And so the relicensing studies paint the same picture, you know, in the North Yuba River, as we heard, that there were 13 pieces of wood that were found in the -- in the reach itself. I mean, this is small compared to when you look at the Oregon Creek reaches and the Middle Yuba reaches, which do have similar average gradients itself. Most importantly, that those 13 pieces stuck in the -- in the river itself, and wish they were bigger. But they weren't. They were small pieces. But it does show that if you put wood in there, there's the potential for it to stick. And then also, you know, we talked about the sediment input you can see from the small table at the bottom of this slide that the Project completely holds back any new sediment from coming in. And that's why you have this like stripped out appearance

when you see the pictures of the New Bullards Bar Reach. Next slide, please.

So you know, that moves us on to the Water Board's second clarifying question. And, you know, you really wanted to understand how these cost estimates, for doing these augmentations, were reached in the North Yuba. And you know, for CDFW, you know our cost estimates were based on the individual measures of looking at wood and gravel separately. Next slide, please.

But the cost estimates proposed by Yuba County Water Agency only looked at one method for deploying wood and gravel at the New Bullards Bar Reach, and that was by helicopter, specifically. And additionally, Yuba County Water Agency did not scope synergy of future projects and current management actions that could provide alternative deployment options, as well as reduce the overall habitat enhancement costs.

So if you look at the three most commonly methods that the Department scoped and looked at were helicopter, which is obviously one of the highest ways of putting in these habitat enhancement to direct the trucking of logs in, as well as cable - cable lining, just like they do in the timber industry. And all of our cost estimates were derived from looking at how the

Forest Service is -- looks at these costs as well. Next slide, please.

And so just looking at large woody material mitigation, you know, here I'm just presenting the cost of log truck deployment and helicopter flights, and you'll see that the cost comes down quite a bit when you're able to truck wood in. I mean, there are some costs in there that the Department couldn't estimate because, you know, we don't have the ability of scoping out the entire project. But, you know, we probably primarily estimate that it's going to be between 180 and 120 to put the wood in with a truck. You know, conversely, helicopters, as I mentioned, is a lot more expensive, and it does depend on the number of flights and the sizes of wood because that dictates how many pieces can be flown at any one time. And so, based on rough estimates of the trips to flights, you know, the Department estimated the cost at 175 to $250,000.

And you know, most importantly, this does not include the cost of sourcing the wood in any of our cost estimates. Similarly for gravel, which we'll talk about a minute. Next slide, please.

So you know, once again, gravel augmentation, Yuba County Water Agency is the only considered cost estimates by placement of helicopter, which is an

astronomical cost due to the number of trips you would have to take and the year and a half it would likely take if you did put gravel in through that method. They did not necessarily scope out the cost of placing gravel via other methods that are possible. For example, directly placing via trucks or even sluicing the gravel in, in a similar fashion that is done on the Lower Yuba River. So based on doing those two methods CDFW estimate that the cost of either trucking or sluicing would be between 245,000 and 260. Of course, these cost estimates would require some additional refinement. Next slide, please.

So you know, I talked about project synergies available to Yuba County Water Agency, Yuba County Water Agency has many planned projects, as well as are currently actively managing projects that could be utilized to reduce costs or provide a cost saving. So, for example, Yuba County Water Agency actively manages and removes gravel deposits in two diversion dams. So Our House and Log Cabin Diversion Dams are identified in the top right picture. And then just below that picture is actually a sediment deposit behind one of those dams. And so in 2017, Yuba County Water Agency removed the 10,000 tons of gravel at the Log Cabin Diversion Dam. And this year, they're estimated to remove up to 40,000 tons of gravel and sediment from the Our House Diversion

Dam on the Middle Yuba River. Also, Yuba County Water Agency has large wood stockpiles that are collected from New Bullards Bar Reservoir, and they're stored in several accessible coves that you see in the picture on the bottom left.

And then the last thing I want to point out is that, you know, Yuba County Water Agency will be building an auxiliary spillway that potentially could require a new, wider road to be developed in support of the construction. And so in the picture of the spillway, you see at the top left, you can at the bottom of the spill, you can see the tail remnants. There's a line there in the in the forest that shows you where that road currently is. So there is a road. It just needs to be enhanced or some fashion to be worked out to figure out ways of reducing those costs that they can implement gravel augmentations with other strategies. Next slide, please.

MS. RAGAZZI: Hey, Sean, you've used up your time, so if you can wrap it up shortly.

MR. HOOBLER: Certainly.

MS. RAGAZZI: That would be a greatly appreciated.

MR. HOOBLER: No problem. So go ahead and go to the next slide.

So you know, the Water Board wanted to understand how, you know, if the wood and gravel would stick somewhere. Next slide please.

And so that's a great question and one that relicensing participants really tried to work out during relicensing, and we had similar questions about the movement of the wood and how the occurrence intervals would interact with it. And so during relicensing, we worked with the licensee to develop a pilot study that would -- that would help identify, you know, the anticipated movement of gravel base. But more importantly, it would enable data driven, adaptive management of the New Bullards Bar Reach. And where there's no volitional passage of sediments, you know, to and, to inform future management actions, including a potential off-ramp for them at the time, was one of the actions. You know, similar mitigation measures have been adopted by the licensee, Yuba County Water Agency for Oregon Creek and Middle Yuba River. The only difference is between those, and North Yuba, is that there's no 4(e) authority in this location that would provide for that. So it's up to the Water Board to be able to really help this river reach. So next slide. Last slide. And next slide, please.

And so, you know, you've seen this picture a

lot in all of our slides. This is actually the North Yuba River above New Bullards Bar Reservoir. And what you see is, you see there's ecological function intact. There's plenty of available spawning marine habitat. There's a healthy recruitment of riparian canopy. With the help of the Water Board, we can start to make improvements to the long-neglected North Yuba River below New Bullards Bar Dam. With the addition of wood and gravel, we can transform this reach. And thank you guys for your time. I appreciate it.

MS. GANGL: Thanks, Sean. So now we'll move into our discussion timing. We have about 15 minutes to chat. YCWA, do any of you have any questions for CDFW on what we just saw?

MS. RAGAZZI: I'll ask, do any of the Petitioners have any questions? If you do, could you raise your hand?

MS. GANGL: It looks like Aaron Zettler-Mann has a question if we could unmute Aaron.

MR. ZETTLER-MANN: Yeah, thank you very much. Got a question for YCWA. So this is no doubt a narrow system, and we wouldn't expect the same channel forms here as in the Lower Yuba River, but without the dam, we're going to get gravel moving into the system. We're going to get wood moving into and through the system

during large pulses, high-flow events. You know, there's going to be a lot of movement, and then on that falling limb some deposition during lower flow events, maybe no movement at all, gravels or wood, generally stable forms. Of course, the addition of wood to the system is going to help trap gravel in these sort of micro-habitat features, which we see upstream of the dam, but not below.

And I guess my question is if you could talk a little bit about how the spatial and temporal resolution of the sediment transport model, which seems to indicate, according to your results, no benefit to the habitat, how that sediment transport model relates to the smaller sort of micro-habitat unit scale, which is what we would expect to see in this geomorphic context. And also wondering if that sediment transport model includes the positive feedback of our building, we would expect with additional wood.

MS. RAGAZZI: Jim, are you the one to unmute or is there someone else at YCWA that we should unmute?

MR. LYNCH: Okay, thank you. Thanks for that question. In terms of the model itself, I am not a geomorphologist. I did not develop the model. I'd encourage you to take a look at the Geomorphology Technical Memorandum. The study plan was developed in consultation with all the agencies and NGOs, as well as

other interested parties. We performed the study as designed. I couldn't -- I couldn't give you the details on the micro-habitat approach, something you'd have to take a look at.

And I will say, the idea, I wasn't quite sure when you said wood pass, more wood's going to be passing through. Were you referring to the North Yuba River or the Lower Yuba River? I wasn't quite sure at that point, Aaron.

Oh, I'm sorry, you're on mute. Aaron, thumb up for North Yuba River.

MS. RAGAZZI: We can unmute you. If you raise your hand, Aaron, it'll be easier.

MR. ZETTLER-MANN: Perfect. I just got it. Sorry. Thank you.

MR. LYNCH: Thanks, Aaron.

MR. ZETTLER-MANN: Yeah. I was specifically thinking North Yuba here.

MR. LYNCH: All right.

MR. ZETTLER-MANN: As that's sort of the condition.

MR. LYNCH: Sure.

MR. ZETTLER-MANN: Although, you know --

MR. LYNCH: Yeah.

MR. ZETTLER-MANN: -- wood movement, the stuff

in the upper portion, ultimately does work its way all the way to the ocean in a, you know, a truly natural system.

MR. LYNCH: Again, yes. In terms of the North Yuba River, the upstream area is significantly different. I think Sean did a nice job of showing that. It's also a much shallower gradient, very different in a lot of forms and a lot of ways, unimpaired entirely of all sorts of conditions. But it is quite a bit different gradient.

In our response to questions we had, I took that out of this one, we had a slide that showed the gradient upstream of the New Bullards Bar Dam Reservoir and the slide downstream, and it kind of looked like a cliff going off. So it's quite different. And as you know, the geomorphological processes are quite different. So I apologize, I can't answer your detailed technical questions. I would refer you to that tech memo.

MR. ZETTLER-MANN. All right.

MR. LYNCH: Sure. Yeah. If I could answer that, I'd, boy, I would know a lot more than I know now, that's for sure. Other questions?

MS. GANGL: Yes, I see Beth, I think. Go ahead. You can unmute yourself.

MS. LAWSON: Yeah. And I just wanted to point out that as Sean and I are talking about this reach,

we're not just talking about restoring this reach, which is the short reach below New Bullards, which is, I think, only 2.3 miles long. But that additional 5.8 miles, which is publicly accessible above Colgate Powerhouse, is a reach that we're looking to improve with the wood, the gravel, and the flow measures that would additionally be improved by all of these habitat benefits.

MS. GANGL: Thanks, Beth. Are there any other questions from the Petitioners?

MR. LYNCH: I'm sorry my screen froze. Was there a question in there from Beth?

MS. GANGL: I think she was just making a comment. Is that right, Beth?

MR. LYNCH: Okay.

MS. GANGL: Yeah. She's nodding.

MR. LYNCH: Okay. Sorry.

MS. GANGL: No worries.

MS. RAGAZZI: In response to the information that folks had provided.

MR. LYCH: No problem. Thank you.

MS. RAGAZZI: So are there any other questions? Are there any other questions from the Petitioners? Any State Water Board questions?

MS. GANGL: I have one for Sean. You had mentioned the cost of doing some of the placement, I

think it was largely woody material and maybe the sediment too, of being like a $175,000 to $200. Given that I wasn't really totally sure if you said this would happen, you know, more than once, but do you anticipate that kind of cost every time you have to do large woody material placement?

MR. HOOBLER: Can you hear me?

MS. GANGL: Yep.

MR. HOOBLER: Perfect. So I mean, that's a that's a great question. So part of the pilot study would have answered some of those questions. So it's not sure particularly how long it would take some of that material to move out of the system downstream because in a normal river system, material would be continually moving down, including wood and gravel. So I can't answer that question directly, but the implied benefit is that it would stick. There may not necessarily be a need to constantly go in there and replenish it completely. But the idea was that if the pilot study showed something where it could just be topped off, that's a different story where it's like, Oh, we need to add five more pieces or another thousand tons of gravel to top off the pile. So, yeah.

MS. GANGL: Thanks. And just for my own curiosity, are they still anchoring large woody material

because you keep saying stick? And I'm not sure what you mean by it stick -- beside you referring to it staying, but is it because it's just --

MR. HOOBLER: Sure.

MS. GANGL: -- heavy or because it's anchored.

MR. HOOBLER: So sticking means like lodging between the boulders and becoming, the gravel, inundating, say, like the root wad, or the crown. You know, similar to those pictures we saw where if it's placed, they're likely anchoring it. But if it's being sorted by the river itself, by spills, then there are opportunities for the wood to be lodged in different areas that then serves a geomorphic purpose of, you know, keeping gravel, and sorting it, and everything else. And then once all the sorting of the gravel behind the wood is done, it sorts out fines, you get riparian establishment again. So again, that's what I mean by sticking.

MS. GANGL: Thanks. That's helpful. I think that's all I have in terms of questions regarding these two conditions. Are there any other questions from State Water Board, about Conditions 8 and 9?

I'm not seeing any so we can take a break, but before we do that, I just want to remind anyone who wants to speak at the end of the day for the public comment

period, please, please, please, you have to fill out a speaker card so we can get you the information that you need to be able to join us and make your comment. It's found, there's a link in the public notice for this workshop on the State Water Board Web page for the Yuba River Development Project, so make sure you get that in if you'd like to make a comment at the end of the day.

So with that, I think we'll take a 15-minute break and come back at 3:15. Thanks, everyone.

(Workshop recessed at 3:00 p.m.)

(Workshop resumed at 3:15 p.m.)

MS. GANGL: All right. Looks like it is 3:15, so we should go ahead and get started. Courtney, if you could quickly show the workshop notice that we sent over to you and I can show people where the link to the forms is in case they still need that. So this is the notice for the workshop today. Here in the middle, under participants that plan to comment, it says online form, if you go to our website and find this document, you can click that. Otherwise, you can also email this email address down at the bottom. It says WR401program@waterboards.ca.gov and if you'll notice, Water Boards is plural. Send an email there and we can help direct you to the form to fill out a speaker card so you can speak.

MS. RAGAZZI: And to make it easy to get to this form, if you go to the Board's calendar and you look at the same calendar you would go to for any Board meeting, you will see this on the Board's calendar for September 17th and it will have a link to this notice.

If you wish to --

MS. GANGL: Thanks, Erin.

MS. RAGAZZI: Yeah. If you wish to comment during our comment period later today, please, please, go now and fill out this online form so we can get you in the queue to provide comments.

MS. GANGL: So with that, I'm going to hand it off to YCWA and their Condition 20 presentation. And I believe their speaker is Tom Johnson. Thanks, Tom. Can we test your mic, Tom, make sure I can hear you.

MR. JOHNSON: Sure, how's that?

MS. GANGL: That's great.

MR. JOHNSON: All right.

MS. GANGL: And there's your presentation, so you're all set.

MR. JOHNSON: All right. Well good afternoon, everyone, and happy Friday. I'm sure this is we're all having fun on a Friday afternoon, so let's get right through this, next slide, please. I introduced myself earlier. Hopefully, you recall from this morning.

This water quality condition calls for a study and proposal for fish passage and indicates the potential for requiring implementation of some sort of passage by Yuba Water Agency. Next slide, please.

So the rationale attributes some responsibility for passage and reintroduction to YCWA because its operations rely on Englebright Dam for peaking. Let's put a pin in that and go to the next slide, please.

So I think we can all agree that Englebright Dam is the barrier to passage. It has been there since 1940. It is a solid, unpassable, concrete barrier in the river. Englebright Dam does have a specific purpose. It does sequester hydraulic mining sediment. Given the discussion this morning about how much sediment went downstream prior to the construction of Englebright, one could argue that perhaps it's a bit of closing the gate behind the horse, but that dam does still sequester over 30 million yards of material, and a lot of that material has mercury and other toxic materials.

So a couple of other things. Let's be clear that a full decommissioning and removal of all Yuba Water Agency facilities would not restore passage. There would still be Englebright Dam. There would still be no passage. Nothing would change. Also, it was stated this morning that, couple of comments in one of the earlier

presentations, about the dams that Yuba Water Agency relies on. Let's also be clear that the primary mission of Yuba Water Agency is water supply and flood control. If Englebright Dam were ever removed, Yuba Water Agency would still operate New Bullards Bar Dam. It would still do water supply and flood control. It would still produce most of the energy that it produces now, albeit admittedly not in as flexible a manner. And so there would certainly be changes to operations. But the fundamental mission of Yuba Water Agency would continue. So we just want to be clear about what the relationship is between Yuba Water Agency, the Corps of Engineers and Englebright Dam. Next slide, please.

So as has been documented in materials filed with the Board, not just by Yuba Water Agency, but I believe with CDFW and others, there has been studies of passage into the upper Yuba watershed for quite some time. I personally have participated since sometime in late 2000. I know that millions of dollars have been spent. A back of the envelope calculation totaled up something north of $13 million by state and local agencies that has been spent in looking at habitat, facilities, and so forth. I know of that $13 million estimate, Yuba Water has contributed quite a bit in terms of funding, direct funding consultants and staff time.

Yuba Water has participated in all of the initiatives.

And the one thing that I would say, based on the better part of 20 years of experience and participation, is that there is no silver bullet for the Yuba watershed. There is no clear single answer, if we do this, we solve it. And in fact, in one proceeding, there was a straw poll amongst all of the stakeholders after, oh, two and a half years of work and study and careful effort, and among those stakeholders, there was a divided opinion as to whether the North Yuba, Middle Yuba, or Lower Yuba would be the top tier of candidates for a focused restoration and reintroduction program. And I think in fairness, certainly CSPA's presentation, and perhaps CDFW, alludes to this as well. Next slide.

I think one of the problems that we have encountered in looking at passage on the North Yuba is that all of it, all of the alternatives are technically very difficult and therefore hugely expensive. And there's just a couple of examples here. We looked at, in one initiative we looked at fish ladders past Englebright Dam, and the technical challenges to constructing such a ladder. First and foremost, in a narrow, confined canyon with flood flows over the top of the dam, means your ladder, has to be armored to withstand a nuclear strike to be able to survive. Tailwater fluctuations of over 50

feet, headwater fluctuations of north of 30 feet. It's a very challenging location. We looked extensively at trap and haul into the North or Middle Yuba Rivers. There's very major collection facilities required, both in the Lower Yuba and in the upper reaches.

We are potentially getting past, close to a thousand vertical feet of concrete. There's a lot of -- there's a lot of dams up there, depending on where you're going to go. Collecting juvenile fish, either in reservoir or on stream is very difficult. Nothing that can't be solved. Don't get me wrong, we can put people on the moon. In fact, Jeff Bezos can put people in space. We can certainly solve all of these problems. It's expensive. Next slide, please.

There's a few other challenges in some -- in one of the modeling efforts, and I don't know if this is definitive or not, but they're NMFS in 2012 looked at total population model for the watershed and came up with a total of 3,000 redds per year. That was on average. Obviously it goes up and down with hydrologic year type. But with that sort of return, if that was indeed the limit of a successful population, that would be a challenge. And then finally, all of the passage alternatives, most of the facilities that have been looked at are outside of FERC boundaries, which

introduces another host of problems. Next slide, please.

I'm watching. I'm not at ten minutes yet. There are three FERC licensees and the federal government, all of whom operate major impoundments or diversion facilities in the watershed. There's a number of powerhouses, conduits, tunnels this, that, and the other, none of the, or very few of the passage facilities that I'm aware of that have been evaluated to date in any of the initiatives are necessarily within FERC boundaries. In other words, if you look to build the most efficacious and efficient projects, there's a very good chance that you would be locating facilities largely on either Forest Service or private lands. And as you all are aware, that would introduce a number of challenges, many approvals or commissions, multiple entities. And when you have that many stakeholders, as we've certainly seen in other reintroduction efforts in the San Joaquin and above Shasta, you run into the potential for a single obstinate stakeholder to take down the whole program.

And so the conclusion that Yuba Water Agency has reached, is it really a collaborative approach that doesn't necessarily seek to attribute, fall toward, or direct obligation, but rather tries to engage stakeholders in a positive way, bring people to the table

and find a solution that works for everybody and could be a successful reintroduction solution, is really the only way forward. Next slide, please.

So conclusion, we've covered all these points. Passage is blocked by Englebright Dam, not Yuba Water facilities. We have studied extensively the number of different options for reintroduction. And I think, given the challenges and the number of stakeholders that would be involved in any sort of a reintroduction, really collaboration is the only way forward. And hats off to NMFS and CDFW because I think, as you'll hear in a subsequent presentation, they are leading in a new initiative to try and forge such a collaboration.

That's all I have, with 20 seconds to spare, and thank you, and we look forward to any questions.

MS. GANGL: Thanks, Tom. I think next up, we have CDFW's Condition 20 presentation. And our speakers will be Briana Seapy.

MS. SEAPY: Hi, can you hear me okay?

MS. GANGL: We sure can, so once we get the presentation up, go ahead and begin.

MS. SEAPY: Thanks, Kristen. I'll introduce myself in the meantime. I spoke briefly earlier. My name is Briana Seapy and I'm Water Program Supervisor for the North Central Region for the Department of Fish and

Wildlife. So next slide, please.

We chose to answer the questions fairly narrowly, that the Board had proposed, so I'll read the questions and then and then provide our feedback. So the Board asked, given all the prior work related to the evaluation of potential fish passage alternatives in the Yuba River, what passage alternatives does CDFW think is most feasible and preferable and why?

So currently, we feel the most practical path towards identifying a fish passage project with the best chance of success on the Yuba, is to do so in a stepwise process and a collaborative process that starts with pilot studies. So this, this is kind of echoing what Tom spoke about earlier. And we seek watershed-specific information that will help inform the design of what the most feasible and preferable fish passage project would be when fully scaled up. And the upper Yuba River watershed pilot project and field studies would answer fundamental scientific questions to inform a logical progression towards the goal of an implementable, full scale passage project in the upper Yuba River watershed. Next slide, please.

The second question the Board posed is, what is the current status and the next steps for fish passage in the Yuba River?

So currently we are working alongside NOAA Fisheries, YCWA and other water providers, other state and federal agencies, and NGOs in what we call the Yuba Reintroduction Working Group. We investigate the biological, technical, and funding feasibility of reintroducing spring-run Chinook salmon to their historical habitat in the upper Yuba River watershed. And the development and implementation of a pilot program is our fundamental and preliminary first step towards establishing any sort of viable, reintroduced population.

And this Working Group, the Charter for the Working Group, is currently pending finalization and technical teams are beginning to meet to scope key questions and methods for designing pilot scale projects. And like Tom alluded to, there's been a long legacy of work, and so we're trying to be, you know, cue off the previous work, but pick a path that is practical and attainable and that where we can find kind of cooperation and consensus among the many parties that have an interest in the outcome of this process.

And that's it for us today, thank you.

MS. GANGL: Thanks, Briana. Next, we'll do the NGO presentation, and I believe that is Melinda Booth and Ashley Overhouse.

MS. BOOTH: Good afternoon, soundcheck.

MS. GANGL: Yep, I can hear you, Melinda. Ashley, can we do a mic check real quick?

MS. OVERHOUSE: Good afternoon. This is Ashley. Can you hear me?

MS. GANGL: Yes, we can. Great. So your presentation is up. I'll hand it off to you all.

MS. BOOTH: Wonderful. Thank you so much. Good afternoon. Melinda Booth, I'm the executive director for the South Yuba River Citizens League. I'm joined for this presentation by my colleague Ashley Overhouse, Resilient Rivers Director with Friends of the River, and we'll be addressing questions on Condition 20 Fish Passage. Next slide.

So Condition 20 requires YCWA to develop a report that includes a proposal regarding fisheries reintroduction to reduce Project-related effects to listed salmonids. Despite FERC mandated studies and efforts by other parties, including NMFS and CDFW to inform fish passage efforts, there's still no tangible plan for fish passage at this time. Next slide.

Historically, these fish had access to all three forks of the Yuba River and tributaries and were only impeded by natural barriers much higher in the watershed. Today, Daguerre Point Dam and associated diversions at River Mile 11 and a half terminally block

passage for green sturgeon and function as an upstream and downstream bottleneck, impeding passage for steelhead and Chinook salmon. And then Englebright Dam at River Mile 23.9 terminally blocked passage of Chinook salmon and steelhead. Englebright was built to address historical mining debris and done so without fish passage facilities. Despite later reauthorization to include hydropower and recreation, fish passage was again not considered. Englebright cuts off access to spawning grounds in the upper Yuba watershed, reducing salmon habitat by 97%.

NMFS lists the lower Yuba River as designated critical habitat under the Endangered Species Act for all three species. Essential fish habitat for salmon, mandated under the Magnuson-Stevens Act, is identified above Englebright, and even above New Bullards Bar. NMFS Recovery Plan explicitly states that listed runs of salmon and steelhead in the Central Valley cannot be recovered without passage upstream of rim dams and climate change is making this issue even more urgent. Additionally, the upper Yuba River is identified as having the greatest potential to increase populations of salmon and steelhead than any other Central Valley watershed. Next slide.

Englebright Dam impounds the Yuba River and

Englebright Reservoir. Yuba Water Agency stores and reregulates flows in Englebright Reservoir under its rights and contracts. Consequently, Englebright Dam is used and useful to the Yuba River Development Project, and as a terminal barrier to essential upstream fish habitat, this fish passage barrier must be mitigated as part of the YRDP license. Next slide.

So pre-gold rush, it's estimated that 150,000 spring-run Chinook return to the Yuba River watershed annually. Today, the numbers are grim. Recent data suggests that from 2015 to 2019, an average of only 439 spring-run Chinook salmon ascended the fish ladders annually. And similar trends are observed for steelhead. Historic estimates range from 7,500 to 300,000 a year, and during the drought years from 2012 to 2016, only 91 on average were counted annually. Next slide.

The U.S. Fish and Wildlife Service's Anadromous Fish Restoration Program identified a goal to double the natural production of Chinook in rivers across the Central Valley. And in the Lower Yuba River, this goal is 66,000 fish produced annually. So you can see that the numbers have not reached the doubling goal, as indicated by the black line across the top. And in fact, there's a general negative trend, suggesting that business as usual is not sufficient to recover salmon.

Most importantly, for the biology of the fish, is how wet years create a stronger returning run three to four years later. These wet years are when Englebright spills, creating more natural connectivity to the river, and YRDP's operations reduce the spilling of Englebright, further compounding negative effects to passage, that must and can be mitigated. I'd like to turn the presentation to my colleague Ashley Overhouse. Next slide.

MS. OVERHOUSE: Thanks, Melinda. Good afternoon. I'm Ashley Overhouse with Friends of the River. I would like to reiterate CSPA et al.'s concerns with the condition both for the formal record and for all stakeholders present. The open-ended and essentially duplicative Condition 20 creates technical problems of interpretation, legal ones as well, which we will not address today. Condition 20 also doesn't actually achieve any mitigation for the lack of fish passage at Englebright or New Bullards Bar Dams or improve fish passage at Daguerre. It further delays action that will move the needle. Next slide.

CSPA et al. believes the Water Board must identify a reasonable range of options specific to improving fish passage at Englebright, New Bullards Bar and define YCWA's contribution to improve fish passage

based on the administrative record. Next slide.

The Water Board sent CSPA et al. clarifying questions on this condition on August 27th. We will review those now.

Question 1. Given all the prior work related to the evaluation of potential fish passage alternatives, what alternatives does CSPA et al. think are the most feasible and why? Slide 10, please. Next slide.

First and foremost, there is no consensus within CSPA et al. on what is the most feasible option. However, we have listed a suite of feasible options on this slide, and there's additional technical analysis of these options available in the administrative record. Additionally, CSPA et al. believes that Condition 20 should be rooted in the data and information already available on the record. And if the Water Board requires additional information or technical analysis on a particular option, we request they make that determination.

Finally, we encourage the Water Board to be engaged in different conversations with all relevant stakeholders on these fish passage alternatives moving forward when considering potential amendments and decide what is most feasible rather than asking different entities. Next slide.

Question 2. Petition suggests YCWA be assigned a percentage of responsibility for fish passage. What percent of the fish passage effort should YCWA be assigned, or how should this percentage be determined?

Again, this is a policy and legal question, one that CSPA et al. does not feel this workshop should or can address effectively, due to time and legal constraints.

Back to you, Melinda.

MS. BOOTH: Thank you so much. Next slide.

So for question three, it was what is the current status and the next steps for fish passage in the Yuba River? Next slide.

So to understand what's happening today, I think it's helpful to review some of the efforts to date. Convening in 2010, the Yuba Salmon Forum was a multi-stakeholder effort to develop and implement a collaborative process to address anadromous fish restoration and water management issues in the Yuba watershed. The forum was effectively suspended when several Yuba Salmon Forum partners formed the Yuba Salmon Partnership Initiative to focus on a trap and haul project to reintroduce Chinook into the upper watershed. SYRCL and Friends of the River were not participants, in YSPI and thus have little to share on any details of that

here. Reintroduction efforts have resurfaced, as you've heard, with the Yuba Reintroduction Working Group, and I'll discuss that in more detail shortly. Next slide.

So since 2002, there's been active litigation in the Yuba River watershed over key federal actions and infrastructure that impede or completely block fish passage, including Englebright and Daguerre Point dams, both operated and maintained by the Army Corps of Engineers, but necessary to YRDP operation. After Friends of the River and SYRCL won a lengthy court battle, NMFS issued a landmark Biological Opinion in 2012, finding that the Corps dams, and other actions on the Yuba River, including permits to YCWA, jeopardize the survival and recovery of the river's threatened fish species. This Bi Op advised the Corps that to comply with the Endangered Species Act, they should implement significant fish passage measures, including potentially modifying or removing the dams. However, after intense opposition and pressure from the Corps and YWA, NMFS reversed course.

And in 2014, NMFS issued a new Biological Opinion in concurrence, finding that the Corps was not responsible for the harm caused by its Yuba River dams and removing any requirements for fish passage improvements to those dams. In 2016, Friends of the

River filed a lawsuit challenging that 2014 Biological Opinion and concurrence. And in 2019, Friends of the River won a really important court ruling in the Ninth Circuit Court of Appeals. The Court found that that 2014 Biological Opinion and concurrence were arbitrary and capricious because the fishery service failed to explain why, after more than a decade, considering Englebright and Daguerre to be part of the Corps project subject to the Endangered Species Act, that the fishery service abruptly reversed course.

So as a result, NMFS must make a choice now whether to further explain its 2014 Decisions or start over, reinitiate consultation with the Corps, and issue a new Biological Opinion. NMFS told the Court that they'll make their decision about which course to pursue by this November.

If the agencies decide not to issue a new Biological Opinion and instead stand by that 2014 decision, the lawsuit will resume, and Friends of the River's other claims challenging the Biological Opinion, and the Corps take of the threatened fish, will once again be before the Court.

So Friends of the River can keep the Water Board informed as appropriate. And additionally, specific legal filings are available online on Friends of

the River and SYRCL's websites. Next slide.

So as the Yuba Salmon Partnership Initiative effort did not result in any fish passage project, NMFS and CDFW joined together to try again, inviting many of the same partners and stakeholders from YSPI and the prior Yuba Salmon Forum to the table to work towards a pilot reintroduction project for fish in the Yuba River above Englebright Dam. In December 2020, NMFS moved forward, designating an experimental non-essential status for Chinook salmon for said reintroduction efforts. That designation's currently pending with an unknown time frame for a decision. But in the meantime, the collaborative Yuba Reintroduction Working Group has been meeting with the goal of agreeing on a pilot reintroduction effort for getting fish above Englebright. Generally, this group meets monthly and technical subgroups meet as needed on topics such as broodstock, fundraising, communications, etc. No decision as to the what of reintroduction has yet been made. Next slide and last slide.

From personal communication with Nisenan's tribal spokesperson, Shelly Colbert, salmon were and remain an essential part of the Nisenan's culture and their historical diet. Salmon were transited by hand throughout the watershed by the Nisenan to get above

waterfalls they otherwise wouldn't be able to, or at least not in every water year. Human intervention with fish passage into the upper reaches of the watershed is not a novel idea. So while the reintroduction efforts being discussed today are much more sophisticated than past methods, precedent exists to intervene. These species are on the brink of extinction, and timely intervention is needed to ensure their long-term survival, especially when climatic stochasticity is considered. We believe the ultimate goal is to restore access to historic to -- historic spawning habitat through volitional means, allowing these fish their best chance at survival. Thank you.

MS. GANGL: Thank you. So now we're in our discussion period, we have about 15 minutes to chat. Do any of the Petitioners have any questions for each other. If so, please raise your Zoom hand. Looks like Ryan has one, if we can unmute Ryan.

MR. BEZERRA: Yeah, thank you. Ryan Bezerra for Yuba County Water Agency. I just want to briefly object to Ms. Booth's rather extended and editorial description of the ongoing Friends of the River litigation. I understood this to be a technical workshop. That was obviously not particularly technical. So I want to object to that as any sort of basis, and if

we want to get into the legal issues associated with all of this at some future point in this reconsideration process, we certainly can do that, but today is not the day for that, as I understand it. Thank you.

MS. GANGL: Thank you. Any other Petitioner questions or anything? I'm not seeing any hands, so I'm going to turn it over to State Water Board participants if there's any questions there.

MR. THALER: I mean, before we go in any questions, it's Parker. I was just, again, want to thank everybody for being here throughout the day and providing their presentations on these topics and clarifications on, you know, comment or questions we had from the petitions. It's been really helpful. Thank you, everybody.

MS. GANGL: Any other thoughts, State Water Board representatives?

MS. RAGAZZI: Thank you, everybody, for your presentations today. I know it took a lot of time and effort to pull the information together, and it is greatly appreciated. I really think that it's been beneficial to get all of this information and to have this exchange of information.

I wanted to check in with folks. Sorry, I have a cat in front of me right now, so I will turn on my

camera, but I did want to check in. I think the next thing we had on the agenda for today is to go to additional discussion. I wanted to check in with the Petitioners to see if there's any other topics that folks thought about as we were having this conversation. Any other items based on the conditions we spoke to earlier that folks feel like they have questions about, or they have thought of something in the period of time between 9:00 a. m. this morning and now. If you do, you could raise your hand. This is the time we allotted to have that additional conversation.

I see Aaron.

MR. ZETTLER-MANN: Sorry. This is a brief question. Can -- I'm having a hard time finding the tech memo on sediment transport. If somebody could, from YCWA could help let me know what that title is, then I can pull it off the FTP site.

MS. GANGL: Go ahead, Willie.

MR. WHITTLESEY: Hey Aaron, no problem. We'll figure that out and send you an email on that.

MS. RAGAZZI: Anything else that folks want to check in on?

Okay. Well, thank you, everybody, for being so timely and again for preparing for today and providing all the information.

I think we'll move on to the comment section of our agenda right now. And Jeanine, I assume you have the order of speakers and will be calling on them, but if you need us to do that, let me know.

MS. TOWNNSEND: No, I can go ahead and do it. Currently right now, the first two speakers are not on the platform. I have a Kaneeta Brown or a Michael Maher. Neither one are on the platform. Thomas Berliner was on, but I don't believe he is on any longer. The next one would be Danielle Blacet-Hyden, and she is not on the platform as well. So the next one I have is Andrea Abergel.

I'm going to go ahead, Andrea, and ask you to unmute.

MS. ABERGEL: Thank you so much, can you hear me?

MS. TOWNSEND: Yes, we can.

MS. ABERGEL: Okay, great, and Danielle Blacet-Hyden, if she does come on, I'm -- we're presenting the same comments. I'm just here if she wasn't able, so I'll be taking her spot.

MS. TOWNSEND: Thank you for letting us know.

MS. ABERGEL: Yes, thank you. So my name is Andrea Abergel. I'm a senior regulatory advocate with the California Municipal Utilities Association, and we

represent both publicly-owned electric utilities and public water agencies, including Yuba Water Agency. CMUA appreciates the opportunity to comment on the State Water Board Staff Water Quality Certification issued in July 2020 because we believe the certification poses substantial risk to Yuba Water's hydroelectric generating assets, which are a key contributor to the stability and reliability of the State's energy grid.

I have two main points I wanted to make. First, that the State's energy grid benefits from Yuba Water's reliable, flexible, hydroelectric generation. The State Board staff issued the certification back in July 2020, and that same summer we saw record-breaking heat and wildfires that remind us all of what we already know, climate change is here. And in August, during an intense heat wave, an energy shortage resulted in rolling blackouts throughout the state. During this power emergency, Yuba Water played a key role in reducing strain on the State's energy grid. In fact, additional power provided by Yuba Water this summer, supplied energy for 20,000 homes and businesses and helped CAISO, which facilitates power transactions for 80% of the state, mitigate -- and mitigates additional rolling blackouts.

My second point is that Yuba Water is a key partner in ensuring the stability of the State's grid.

Unfortunately, the energy shortfall of the summer of 2020 was not an isolated event. And in fact, just a few weeks ago, on July 30th, the governor issued a proclamation of the State of Emergency that identified a previously unforeseen shortfall of up to 5,000 megawatts that is now projected for the summer of 2022. Yuba Water has already established itself as a partner in meeting the State's energy goals, in part because power generated by Yuba Water is sold directly into the CAISO market to enhance the reliability and stability of the State's grid.

In closing, the State Water Board's current certification, which would undoubtedly threaten Yuba Water's operational capabilities and negatively impact ability to help meet the State's energy and climate resilient goals. It would also compromise Yuba Water's ability to collaborate on a wide range of state, local, and federal efforts, including large scale fish and wildlife habitat restoration.

So we encourage you to withdraw the certification and work collaboratively with Yuba Water to resolve concerns in a transparent manner. Thank you very much for your time and your consideration of these comments.

MS. RAGAZZI: Thank you very much.

MS. GANGL: Thank you.

MS. TOWNSEND: So the next speaker would be Dr. Francisco Reveles. And I will go ahead and ask you to unmute.

MS. RAGAZZI: And while you're doing that, Jeanine, I just want to flag for people that there's a three minute timer that folks should be able to see, that's on the screen, since we didn't mention that for the first speaker, but she was very succinct, so thank you.

MS. TOWNSEND: Okay.

MS. RAGAZZI: Are you able to unmute, sir?

DR. REVELES: Is that better?

MS. TOWNSEND: Yes, it is, sir.

MS. RAGAZZI: Yes.

DR. REVELES: Very good, thank you so much. You know, first and foremost, people who know me, I'd first off start by offering my respect and my appreciation for the privilege of your time, for the State Water Board. Ladies and gentlemen, I am the Yuba County Superintendent of Schools, Dr. Reveles. I -- there's a number of perspectives I want to share with you, but I want to underscore the fact that they're not going to be clinical. They're not going to be policy oriented. Indeed, they're going to be human oriented, community oriented. But that's precisely the impact that

the Yuba Water Agency has had on our community. As Yuba County Superintendent of Schools, I've had the fortune and also the ability to look at our county, kind of from a balcony, from the big perspective here. And Yuba County, I won't lie to you, ladies and gentlemen, we have a lot of challenges, certainly with the COVID, but economically, we're very diverse culturally, linguistically, economically. And because of that, I mean, that is -- that is -- that is our diversity, and we embrace that. But that also brings very stark issues for us here in the county. Educationally, we have three out of five students are able to complete the A through G requirements for college. Okay.

We have issues to deal with career technical education. Three out of five families qualify for free lunch program. So we've got a number of challenges here. The -- at this point, what we're looking at is some very stark challenges and I'm happy to say I'm, indeed I am. It is -- it is indeed a pleasure to note our relationship with the Yuba Water Agency, what they've done for our community, ladies and gentlemen. Again, I'm speaking to you as county superintendent, but not in a clinical way. I'm appealing to you from the corazón, from heart. At this point, the impact that the Yuba Water Agency, with all of our stakeholders and we're talking about the Yuba

County Office of Education, all our partners, school districts, Yuba College, the South Yuba River Citizens League, we've all come together because we all collectively recognize the need, that we need to do something. And again, this is where Yuba Water Agency has stepped up. Indeed, they've created a synergy and I don't want to overuse that word or -- it's just a word that really fits, ladies and gentlemen. They've brought in a capital, a capital of talent from different stakeholders. We have modelled that. Certainly they've modeled it in terms of the next generation science standards. I myself, I'm a biology, chemistry teacher and I really appreciate that the work that Yuba Water Agency has done, certainly under the leadership of Willie.

The -- in terms of the standards curriculum, the standards that we've developed here. They're working with the school districts and we're facilitating that process right now. As you know, coming out of COVID, we need this. It's a breath of fresh air in terms of the curriculum, and the curriculum involves everything from creating lessons that educate our students about our watershed, atmospheric rivers, the history, hydraulic – of hydraulic mining, flooding in the area and more.

Until this program, a next generation science standard curriculum is something that was critically lacking in our schools, and that is not a knock on our schools. The fact is we have a lot of challenges. And right now, I've always said no one is as smart as all of us, including, this applies to Yuba Water Agency, the brainpower, the intellectual, but also the commitment that they bring.

If I sound that I am very enthusiastic, but also very passionate. That reflects exactly what the Yuba Water Agency has brought to bear here. That's what my presentation is not a clinical, a policy-oriented one, it is an appeal from my heart. Right now in terms of what we're doing here. It's it's specifically, we're talking about only the curriculum standards, but also in terms of health and safety, working collaborative with the County Office of Education. They've been able to bring to bear through grants, the ability to provide water fountains. Now you think, well, what's with the water fountain. Well the fact, given the COVID conditions, given the age of our structures or our facilities, we were able through, with the grant from Yuba Water Agency, to provide water fountains for the children, touchless ones. And that's the various -- very specific health and safety aspect of what they do. Not

only education, but in terms of the health and welfare of our community.

I think perhaps by way of closing, ladies and gentlemen, I don't want to run out of minutes here. I do want to stress that I noted earlier that the leadership that Yuba Water Agency has provided goes beyond its specific mission. Indeed, it's a commitment to the community by doing it. They have modeled that. I've been at presentations, so many presentations where people see what they're doing. People want to be a part of that. That's the kind of spirit we need here. The Yuba Water Agency has provided that. It's great and it's an honor to be working with them.

So specifically here, I want to conclude by sharing that at this point, my understanding is that -- is that -- of that water quality certification is that if it is allowed to stand as-is, that it would have a significant impact on Yuba Water Agency's revenue and limit their ability to fund these critical projects. So therefore, respectfully, I asked that the State Water Board to withdraw the certification issued last year, given the harmful and lasting impact it will have for our county, and instead, work with Yuba Water Agency to resolve our issues.

The Yuba Water Agency does not work in a silo.

It does not work in isolation. It works in collaboration with the other leaders, community leaders, and the community. That, ladies and gentlemen, is an unbelievable asset, an unbelievable energy source that we need here in Yuba County. So respectfully, thank you for the privilege of your time. I really appreciate it. And again, I ask the Board to consider my perspective. Thank you so much.

MS. RAGAZZI: Thank you.

MS. TOWNSEND: The next speaker is Brent Hastey, and I'm going to go ahead and ask you to unmute.

MR. HASTEY: All right.

MS. TOWNSEND: There you go.

MR. HASTEY: Great, thank you. Good afternoon. I want to first apologize. I actually had an emergency medical. I had a doctor's appointment I had to get to, so I'm calling from my car, and I apologize for that.

Good afternoon. I'm Brent Hastey. I'm a lifelong resident of Yuba County. A member of the Yuba Water Agency Board, past member of the Board of Supervisors, past president of the Association of California Water Agencies. I'm here today to ask you to please consider withdrawing the water quality certification so we can work together to find a constructive path through these issues. But first, I

want to share a little bit about the value of the Yuba Water Agency to the community that I love.

Yuba County has a long and troubled history of flooding. We've struggled with devastating floods since the gold rush, when hydraulic mining debris raised our riverbed by about 100 feet, bringing them higher than the streets of Marysville. I lived through both the 1986 and '97 floods. In 1986, I moved sandbags in my dump trucks and then mucked out my grandparents and great grandmother's home. In 1997 at 8:10 in the evening, a levee broke on January 2nd. I was in my mid-30s at the time, four children under the age of 10, and I was homeless. I canoed through my house that year.

The mission and the responsibility of the Yuba Water Agency are real for me, my family, and all of the communities that are served by the agency. I cannot tell you how proud I am of the work and the people of the Yuba Water, that the Yuba Water is doing in our community. Our communities have waited 50 years to start the full benefits of the Yuba River project. And finally, the wait is over. We are working to transform our disadvantaged communities and help it thrive. Finally, we have hope. For decades, we've struggled with serious issues that challenge our disadvantaged communities, including a lack of funding to achieve the flood

protection necessary for economic development. An underfunded school system, and a lack of funding for sustaining protection of our drinking water.

The greatest compliment an institution can receive is that it's making a difference. We are really starting to hear that a lot in Yuba County, that the Yuba Water is making a difference in our community. Just a few of the examples include our work to lead Yuba County to the highest level of flood protection in Northern California. Our funding of critical forest restoration work to prevent the mega fires we're seeing ravage much of California, both to the north and south of us, and the funding and other support from Yuba Water that is benefiting every level of our school system. And I'm most proud of how we're changing the education system in Yuba County.

The certificate puts this critical work at risk. The water quality certificate is a threat to the future of Yuba County. It will cost hundreds of millions of dollars to implement and potentially even more than a billion dollars. That will rob the people of Yuba County of water and power revenues that are vital to our mission and to the future of Yuba County. The certification also limits Yuba's Water's ability to continue our work to advance statewide priorities, including the Yuba Accord

water transfers that help sustain the state's economy during droughts, and it’s like the one we're in.

The production of carbon-free energy to support the grid during heat emergencies, like much of the ones we've seen this summer, and forest best restoration efforts in the headwaters of the Sierras. I want to encourage you to withdraw the certification so we can work collaboratively to resolve the concerns. I don't think there's any doubt you can see through our partnerships that we work collaborative with many groups, and we know we can work through this. And I want to thank you for your time and consideration of these comments.

MS. RAGAZZI: Thank you.

MS. TOWNSEND: Okay, the next speaker I have is Ronald Stork, but he is not on the platform at this time. So the next one is Mr. David Guy. I’m going to go ahead and ask you to unmute.

MR. GUY: Yeah. Good afternoon. Thank you. Can you hear me?

MS. TOWNSEND: Yes, we can.

MS. GANGL: Yes.

MR. GUY: Excellent. Thank you for the opportunity this afternoon. Late in the day, I know, but I'd just like to offer two thoughts. I'm David Guy with

the Northern California Water Association.

The first is kind of a focus on process, and obviously there's been a lot of discussion about kind of the way this process has unfolded and the way that there's a final certification just kind of showed up without the opportunity for public comment, engagement, or collaboration. And I think that's why we join in encouraging the Board to withdraw the 2020 certification. And that, in our view, would really allow some opportunity to resolve the litigation that is currently underway. It'll allow the further opportunities for some better engagement, much like you're having today across the sphere. And also, really just to get very more precise with respect to the issues that are being raised with respect to the certification. And obviously, it'd just be a much more transparent and collaborative process. So in that respect, we encourage the withdrawal of the certification.

The second piece is really, I think, just what the impact the certification has upon Yuba Water Agency. And in our view, we think it will actually detract from the agency's ability to do what it does really well. And that is ridge top to river mouth water management. It's multi benefit water management. It's providing water for the citizens, as you've heard. It's providing water for

the farms. It's hydropower. It's all the green energy, the zero carbon, hydropower, the forest health. All the things that Yuba does, I think, are really exemplary. I think they're really amazing in California, and I think we ought to encourage that, not try to stifle that in any way.

And we think that the removal of the, or the withdrawal, of the certification would actually empower Yuba to be even better at what it already does well. Yuba has a great history of collaboration and collaborates with just about everybody who wants to solve problems surrounding the Yuba River, surrounding the Sacramento Valley. They're a great partner for just about everybody who likes to solve problems. And I think, just thinking forward, to me, that has a great feel to work together, to collaborate, much better feel than the certification that kind of appeared out of nowhere.

So thanks for the opportunity to comment today, and I appreciate your opportunity to hopefully make this process better going forward. Thank you.

MS. RAGAZZI: Thank you.

MS. TOWNSEND: And the last speaker I have is Chelsea Haines. Chelsea, I'm asking you to unmute your mic.

MS. HAINES: There we go. So recognizing I'm holding everyone back from the weekend. Good afternoon. My name is Chelsea Haines. I'm the Regulatory Relations Manager with the Association of California Water Agencies, ACWA represents over 460 public water agencies that deliver 90% of the water for residential, commercial, and agricultural purposes in California. And Yuba Water Agency is one of our members that when I think of walking the talk of water resilience, portfolio, implementation, and multi-benefit projects, coordination, we're so proud to have Yuba as one of our member agencies.

We appreciate the opportunity to comment to the State Water Board today on the water quality certification, and we had submitted comments last December and provided comments earlier this year. Consistent with some of the concerns raised, most recently by David Guy, ACWA also has procedural concerns related to the issuance of the certification process.

First, that the Project didn’t have a pending application with the Board. Second, that the certification was issued as a final document, which didn't allow for opportunity for public comment, and engagement, or collaboration. Water quality certifications can result in significant cost and

operational impacts to the public and to public water agencies.

And so in this case, it's our understanding that a draft of the certification was not made available for public comment prior to issuing the final. Yuba Water Agency has demonstrated the ability to advance forward-thinking solutions, and so we have a lot of concern that this could compromise their ability to move forward really beneficial projects. Public water agencies have limited resources and their ability to invest in infrastructure improvements and integrated habitat, and multi-benefit projects depends on certainty of their long-term operation.

We've seen Yuba demonstrate a good faith effort historically with the landmark Yuba Accord, and looking forward, Yuba's involved in some really great work that will address, help, you know, address wildfire management, climate resilience, flood risk, fish habitat. And so I think it's really important that we make sure that there's not unintended consequences here to other state goals that we recognize as essential as well.

So we urge the, ACWA group, State Water Board to withdraw the certification, engage with Yuba Water Agency collaboratively as we advance all of the state priorities. Thank you so much for the opportunity to

comment. Happy Friday.

MS. RAGAZZI: Thank you, Chelsea.

If there are any other speakers that we haven't called on at this time, could you please raise your hand? I see you, Willie. I just want to make sure we've caught all the people who were had designated that they wanted to comment. Okay, Willie.

MR. WHITTLESEY: Excellent, Erin. Thanks for letting me speak here at the end. Um, so as I said in my opening remarks, we don't understand the reconsideration process, and it seems as though it's being created as we go along, but we do understand that the reconsideration process exists so that the State Board members themselves can reconsider the staff certification. And like I said earlier, we've been told we can't talk to the State Board members. My question for staff is how and when will we be able to communicate with the State Board members?

MS. RAGAZZI: Thanks, Willie. I appreciate the question, and it -- I think it's a good, sort of next steps item to talk about right now. I'm trying to, I don't know if you guys can see me or not, because I can't -- okay, yes.

MS GANGL: Yes, we can.

MS. RAGAZZI: So in response to your question Willie, directly, the Petition for Reconsideration

process, you know, does put the Board Members in an ex-parte situation. And so the way that folks can engage is through the public process. The reason we had this workshop today is as an opportunity for all of the parties to be able to talk in an open forum where we could exchange information without having any sort of violation of that ex-parte communication ban. And I did see that some of our Board Members have participated in today's workshop. It's been recorded, so those that weren't able to participate today will be able to review the information as well.

This, ultimately, when we get a Petition for Reconsideration, if it's something that is not mooted or dismissed, which I don't believe this one will be, it's something that comes before the Board. And so the next steps that we anticipate moving forward at this point is for the Board staff to take all of this information into account, to talk with Board members and to brief Board members, and then to put out a draft order of where we think, how the petition might -- how that certification might be updated, in light of the petitions that were received. And then when we get comments on that draft order, we will talk with the Board members some more and then we will bring something before the Board for their consideration on adoption. So that's sort of where we're

at with next steps in how the petition process, Petition for Reconsideration process is typically handled. If anybody wants, anyone at the State Water Board, staff wants to weigh in or provide any additional feedback on that, I welcome that.

Okay. I don't see any hands or anybody coming on, so I just want to again thank everybody for their participation today. We recognize the immense amount of effort it took to prepare the presentations and to be here for the full day. And I think it was valuable information that was shared today. So I really, I do want to thank you. And with that, I will close today's workshop and hope you all have a wonderful weekend and stay safe.

(Workshop adjourned at 4:13 p.m.)

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**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 22nd day of October, 2021.

ELISE HICKS, IAPRT
CERT**2176

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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.

I certify that the foregoing is a correct transcript, to the best of my ability, from the electronic sound recording of the proceedings in the above-entitled matter.

MARTHA L. NELSON, CERT**367