Draft Meeting Notes

TRINITY MANAGEMENT COUNCIL

September 13–14, 2023
9 a.m. – 4 p.m. (2:45 p.m.)
9 a.m. – Noon (1:00 p.m.)
Yurok Tribe Office
Weitchpec, CA
MS Teams Video Conference

Wednesday, September 13, 2023
(scheduled from 9 a.m. – 4 p.m.)

Trinity Management Council (TMC) Members in Attendance (9/13 and 9/14/2023)

Name	Representative Seat
Don Bader	Bureau of Reclamation (USBR), Chair
Mike Dixon	USBR, Trinity River Restoration Program (TRRP) Director
Liam Gogan	Trinity County (TC) Core
Tim Hayden[1]	Yurok Tribe (YTFD) Core
Justin Ly	National Marine Fisheries Service (NMFS) Core
Mike Orcutt	Hoopa Valley Tribe (HVTFD) Core
Radley Ott[2]	California Natural Resources Agency Department of Water Resources (CNRA-DWR) Core
Keli McElroy	U.S. Forest Service (USFS) Alternate
Bill Pinnix	U.S. Fish and Wildlife Service (USFWS) Alternate

Others in Attendance (in-person): Kiana Abel, TRRP/USBR; Justin Alvarez, HVTFD; Todd Buxton, TRRP/USBR (9/13); Kyle De Juilio, YTFD; Patrick Flynn, TC; Yadao Inong, YTFD (9/13); James Lee, TRRP/USBR; Ken Lindke, CNRA-DFW; Seth Naman, NMFS; Eric Peterson, TRRP/USBR; Zac Reinstein; YTFD (9/13); Oliver Rogers, TRRP/USBR.

Others in Attendance (Microsoft Teams): Lauren Alvares, TRRP/USBR; Amber Carman, Trinity Watershed Alliance; Todd Buxton, USBR (9/14); Heidi Carpenter-Harris, TC; Greg Courtice (Presenter); Josh Cozine, Trinity Journal; Beverly Fickes, Clear Creek Community Services District (CSD); Patrick Flynn, TC; Erik Grijalva, Public; Elizabeth Hadley, USBR; Cassandra Holmes, Hoopa Valley Tribal Fisheries Department (HVTFD); Yadao Inong, YFTP (9/14); Deanna Jackson, TRRP/USBR; Morgan Knecthle, CNRA-DFW; Brett Kormos, CNRA-DFW; Chris Laskodi, YTFD; Jeanne Mcsloy, TRRP/USBR; Roman Pittman, (NMFS); Zac Reinstein; YTFD (9/14); Karl Seitz, HVTFD; Shane Quinn, YTFD; Elliot Sarnacki,

[1] Kyle De Juilio (YTFP Alternate) filled this seat until Tim Hayden arrived a bit later on 9/13.
[2] Brett Kormos (CNRA-DFW Alternate) filled Radley Ott's seat virtually on 9/14.

TRRP/USBR; Tom Stokely, Pacific Coast Federation of Fishermen's Associations (PCFFA); John Vorpahl, Public.

Notes: Gwen Ernst-Ulrich (Chloeta)

List of Motions

Motion: Mike Orcutt made a motion to bring on Dr. Tonina to fill the hydrologist vacancy on the SAB.
Second: Radley Ott seconded.
Amendment: None.
Outcome: The rollcall vote was unanimous.

Motion: Justin Ly made a motion to approve the IDT's recommendation to implement winter flow variability for WY24, to timely complete the NEPA process prior to implementation, and to inform the public at least two weeks prior to moving forward with winter flow. In addition, a monitoring plan will be provided to the SAB for their review prior to winter flow variability implementation to assess the effectiveness.
Second: Bill Pinnix seconded.
Amendment: None.
Outcome: The motion failed with six votes in favor and two opposed. The opposing votes came from Hoopa Valley Tribe and Trinity County. (TMC bylaws require 7/8 affirmative votes if 8 members are present.)

Motion: Justin Ly moved to recommend that TMC approve beginning October 1, implement 450 cfs baseflow through October 15, then reduce baseflow to 300 cfs from October 16 to April 15.
Second: Mike Orcutt seconded.
Amendment: None.
Outcome:
The motion failed with Yurok Tribe in favor; California Natural Resources Agency, National Marine Fisheries Service, and U.S. Forest Service opposed; and Hoopa Valley Tribe, Trinity County, U.S. Bureau of Reclamation, and U.S. Fish and Wildlife abstaining.

Welcome and Introductions

Attendees on one or both days are listed above. Any omission of attendees outside of the TMC is accidental and regretful.

Approval of Agenda

Concerning the 9/13 agenda, Chair Don Bader proposed moving one or more afternoon topics because of one morning presenter's illness. The TMC approved the agenda after agreeing to a revised order of items. The Max Ramos topic, Modeling the Re-establishment of Coho Salmon

in Klamath River Tributaries following Dam Removal, will be presented during the December TMC meeting.

Approval of June Meeting Minutes

Justin Ly noted a discrepancy between information on pages 2 and 6 (later discovered to be page 16) on the topic of the Trinity River Restoration Program's (TRRP) bylaws. The original Brett Kormos motions were summarized with friendly amendments (Liam Gogan and Seth Naman). Naman's friendly amendment summary on page 2 is worded differently than on page 16. Chair Bader suggested addressing the discrepancy right after lunch with no disagreement from the TMC.

Comments on Non-Agenda Items

Public Comments

Amber Carman expressed concern with introduced fish being released into the Trinity River. TTRP Executive Director (ED) Mike Dixon noted a social media post of a fisherman with a bullhead catfish in shallow water. An internal TRRP conversation led to the conclusion that there is no significant risk to fish in the Trinity River from the introduction of the catfish. Bullheads are routinely introduced into the Trinity River (even though they are not a native species) because they were introduced as a sportfish and reproduce naturally in Trinity Lake. They don't have a robust population in the river. James Lee (TRRP) confirmed that one bullhead was picked up at the Pear Tree Gulch rotary screw trap. Prior to construction, the pond was thought to not have these fish because it becomes highly anoxic in the summer. Mike Orcutt asked whether the State has a policy regarding non-native gamefish. Morgan Knecthle said he does not know of a state policy regarding non-native/game fish and believes anything classified as a game fish might be outside of an action. Gogan asked about the catfish's population in the Trinity River. Dixon said it was not high; these fish don't like the conditions in the upper Trinity. Kyle De Juilio added that the Klamath does have a population; they can make it through the dam, but the species doesn't persist in the Trinity. Carman appreciated the information and was satisfied with the response to her query.

Reports and Comments of TRRP Entities

Chairman Bader provided a personnel update. Tanya Sommer is on a year-long detail and no longer available to serve as TMC Chair. Nick Som is now the U.S. Fish and Wildlife Service primary but not available for this meeting. Bill Pinnix is present. Chair Bader will move into the Chair position according to TMC bylaws. The TMC will be asked to replace the Vice-Chair position with a blind vote later today. As Chair, Bader has researched Roberts Rule of Order and wants to proceed as follows: a motion that is presented and seconded should be voted on without competing motions suggested. He did not want to allow competing motions on a motion but only act on individual motions made and seconded as they come in. He said competing motions are getting in the way of moving forward with original motions. Discussion on a motion will be allowed, and members can entertain a friendly amendment if desired. Ly questioned whether this aligns with Roberts Rule of Order in not allowing competing motions. Gogan would like Chair

Bader to check the Roberts Rules interpretation. Orcutt would like to have Chair Bader check as well and agrees that competing motions are getting in the way. Motions should be considered. Chair Bader would like the TMC to be clearer. Ly agrees motions need to be clear. Chair Bader will get back to the group regarding Robert's Rule prior to TMC first decision items.

Program Updates (Mike Dixon)

Recognition of Staff and Partners

Mike Dixon recognized TRRP staff members Kiana Abel and Ken Lindke for their excellent service. Concerning Abel, he said the following:

Abel has been with TRRP for nearly a year as secretary, but almost immediately began taking on a leadership role in TRRP's outreach program. In the recent past, that work has been formalized into a developmental detail even though Reclamation was unable to secure her a temporary promotion. She has been doing her secretary's job along with a fulltime public affairs job. Abel is doing fantastic work. In addition to keeping the TRRP's routine outreach efforts going, she has been generating a lot of content for things like Facebook and promotional materials, and she took the annual report from a print form to a dynamic and compelling electronic format. Abel took the already successful Science on Tap series on the road; two great events were held. The River Riffle is another example of her great work. In addition to all the very visible public affairs work, every day, multiple times daily, she takes time to talk with people who walk into the office or call, being a patient listener and a positive face for the TRRP mission. Her efforts have done wonders for being able to keep open lines of communication with the public who otherwise might have been openly hostile. Abel also helped design the TRRP challenge coin, and Dixon presented one to her as he thanked her again for all she does.

Of Ken Lindke, Dixon said Lindke has been with the TRRP since 2017. He is a fish biologist representing CDFW and the technical work of the program. He has routinely shown a dedication to the mission of the broader partnership beyond the responsibilities of a fish biologist. He is currently the fish work group coordinator and the flow work group coordinator. He has shown a remarkable resilience to challenges and continues bringing the right proposals forward that are supported by science. He has an intuitive way of seeing the heart of the problem and communicating it directly. He is not afraid to speak truth to power. Lindke recently presented at the Science on the River event, leading the primary delivery of some very technical material on how flow influences river processes, making the information accessible to the diverse audience. He was not condescending but did not oversimplify either. He easily responded to some tough questions.

Dixon spent a lot of time this summer on military leave, Eric Peterson stepped up as Acting ED in Dixon's absence while still handling the data steward role and other traditional responsibilities. Please share any exceptional employees or partners with Dixon so they can be recognized.

Director's Report

Dixon gave the ED's report accompanied by a PowerPoint presentation available on the TRRP website at https://www.trrp.net/calendar/event/?id=11776.

Major TRRP activities between June 2023 and September 2023 include the following:

Construction at the Oregon Gulch project is in the home stretch. Construction will be wrapped up in the next three weeks, and re-vegetation has begun. A future TMC field trip may be in order. An administrative draft of an EA regarding gravel processing and augmentation is in cooperating agency review; Dixon hopes to have it available for public comment in October.

Contracting packages are in the works for two new Science Advisory Board (SAB) members, and they should be on board sometime in the first quarter of fiscal year (FY) 2024. The TMC will re-visit the last SAB slot later in this meeting.

A major TRRP-funded watershed restoration project, the removal of East Weaver Dam, is underway and has been in the works for a couple of decades. TRRP's watershed grant funded the installation of a new water intake structure that can operate at both low summer and high winter flows. CSD is happy with the intake, which is the first phase. The second phase is underway with equipment and materials staged and survey work done. Next week, downstream grade control work will begin to catch sediment resulting from the dam removal. The action will open up several miles of steelhead and non-natal Coho salmon habitat. It has taken a long time to get this finished.

Lauren Alvares, who came from the Bureau of Land Management (BLM), started this past quarter, replacing Brandt Gutermuth. The BLM has funding for a new part-time position to be the TRRP touchpoint, and BLM and TRRP are working to mutually determine the best discipline choice for the position. The TRRP public affairs specialist position should fly soon; the paperwork has been completed. Peterson is finishing up his temporary promotion as the science coordinator. James Lee is the new implementation branch chief, and TRRP will be looking for a new science coordinator in the next few months. The U.S. Fish and Wildlife Service liaison to the TRRP is in the interview phase. This designated federal official (DFO) will be responsible for the Trinity Stakeholder Advisory Commission and for getting the new Federal Advisory Committee Act (FACA) group off the ground. Lately, candidates have been really good for all positions, which is really great to see.

Budget Updates

The current working budget for FY24 with updates to FY23 is available as an attachment to the ED report. TRRP forward-funded interagency agreements, cooperative agreements, and grants with existing multi-year agreements for FY24 out of FY23 dollars, as well as facies mapping and gravel processing. Dixon is happy to go over any questions about the budget. Orcutt asked whether the science coordinator position would be advertised and whether there will be oversight or involvement from FWS who in the past has hired this employee. Dixon said that is one of the TRRP key leadership positions, so the plan is to keep that position under Reclamation (USBR). TMC members will be invited to participate in the hiring of this position. Orcutt said the FWS

was unable to do the recruitment, which is something that Hoopa (HVTFD) would like to take up with them. Dixon clarified that the decision to have Reclamation house the employee was due to many other obstacles with this arrangement from past involvement and that the decision to move the position back to Reclamation was a mutual agreement with FWS.

Watershed Grants

Dixon said there has been no activity on the Watershed Grant since we last reported. NFWF should be getting funding soon, so we will be working on RFPs in the coming months.

Reclamation now owns a house at Junction City (391 River Acres Road closed in August) and are working with GSA to dispose of the infrastructure. We have now more of a buffer to not impact the house with our restoration flow releases; this house floods at 18,500-19,000 cfs and the maximum fisheries flow is supposed to be 23,000 cfs. Orcutt asked whether USBR could publish documentation showing that all permanent structures along the river that need to be addressed have been addressed. Chair Bader agreed to the idea. Dixon said a new fisheries flow map of the upper 40 miles included information from visits of those locations along with documentation of seep wells, wellhouses that were supposed to be mitigated during the Well Grant period, etc. Buildings still exist in the floodplain, but if they don't have a permit, it is at the landowner's liability. An example would be someone who closes in a deck built out over the floodplain area. Development permits are difficult to get, and the county needs to be a good partner in making sure that this is enforced. Patrick Flynn said the County enforces to the letter of the law using the 100-year floodplain as the decision tool, so there should not be any issues if landowners are following the county permit process. Chair Bader asked what will happen to the house. Dixon said the TRRP would like to auction it for relocation or provide it as a training exercise for local fire departments.

The Phase 2 Implementation Review report is done; however, it is not posted on the TRRP Data port because of 508 compliance. The report is complete and sharable, but the office wants it to comply prior to official posting. Chair Bader said Interfluve did the review and presented in June. He asked what the takeaway was and whether we might add this an agenda item for a later TMC meeting. Dixon said he would like to start from the bottom-up vs the top down, meaning that work groups (design and physical) should review the recommendations and bring those things forward to the TMC, giving the TMC something substantive to respond to. Chair Bader said the intent was unclear. Dixon suggested asking technical workers to study the recommendations, and we could prepare a presentation for the December meeting.

Implementation Branch Update (James Lee)

James Lee said he would update the group on three channel rehab projects along with three environmental assessments (EA)s.

Channel rehab projects are as follows:

Sky Ranch Channel Rehabilitation Site project (intersection of Sky Ranch Road and Highway 299). A Trinity Public Utilities District (TPUD) land transfer to the BLM is in process. Once

complete, then TRRP will address NEPA. The project is at a 60 percent design and could be a 2025 or 2026 project.

The Oregon Gulch Channel Rehabilitation Site project is a big one going on right now. Crews worked hard to get ready for the boat dance flows this year, which influenced the project. A big part of the project was removing a massive amount of tailings, lowering the floodplain along with constructing a pilot channel to maintain navigability and plugging the main channel. Most of that work was done before the boat dance flows. We saw some turbidity spikes prior to the flows. They are currently working on the plug and doing some re-vegetation. The low elevation and equipment are giving the re-vegetation teams a hard time. As of September 5, crews had hauled 358,000 cubic yards of rock were off hauled and taken to Eagle Rock Quarry. A total of 535,000 cubic yards in all will be moved prior to project completion.

Evans Bar Channel Rehabilitation Site is just upstream of Junction City. We have an existing conditions report with preliminary conceptual designs. There is a big high terrace (former floodplain on high ground) that the river does not interact with any longer. Residences that exist on the other side of the terrace only have boat access. These residents are understandably voicing concern over access; TRRP has shared the existing conditions report with them. Bill Rich, an archeologist that has subcontracted with TRRP in the past, has organized the neighbors and is working with a group of landowners as a point person. This is a State and Yurok design project, and TRRP have been meeting with them to discuss the group's concern and what can be done to assuage their concerns about continued access.

Concerning the Sawmill Gravel Processing Site, the Yurok-State Design team continues to work on the 60 percent design for this site.

TRRP plans on implementing the Upper Conner Creek Channel Rehabilitation Site in 2024. Located right across from the Junction City campground, there is a big terrace with a high and dry parking lot that is privately owned. The landowner is now ready to collaborate, which is really exciting, especially in this location. Kiana has been a positive influence in this situation. This may be a two-year project, but we are hoping for only a year. We are planning on moving the boat launch to BLM land, making it a public boat launch, and improving it with potential BIL funding.

Lee moved on to discuss the EAs.

TRRP is looking to combine the Upper Conner Creek and Sawmill EAs; our contractor is willing. We hope to finish by February or early March.

Concerning the Gravel Augmentation EA, we are just about there. The EA covers different methods of augmentation, incorporation of large wood, and a broader timeline. The EA scope has increased, and it is more efficient to include both gravel and wood rather than doing two separate EAs. We met with the BLM last month to discuss the EA; the document is currently under agency review with BLM, Caltrans, the Water Board, and Trinity County. The comment period closes on September 22. Depending on the nature of the comments, the draft EA will be released

for public comment in early October. We are hoping for a Finding of No Significant Impact (FONSI) in early 2024.

Watershed Programmatic EA - Early phase work on the Watershed PEA continues, and a lot of work has already been done. The contractor compiled the proposed actions into an analysis that summarized the potential effects. The TRRP hopes to put that information into a sharable document. The EA is still in its early phases and not close to completion.

Ly asked about the Watershed PEA timeline, and was told it would likely be early next summer. To address the non-native species concern raised earlier by a public member, Ly requested that the TRRP conduct species surveys for off-channel ponds prior to reconnecting to the Trinity River. Lee agreed and confirmed a couple of ponds at Sawmill might be good locations for surveys to identify invasive/introduced populations.

Lauren Alvares added that the Watershed PEA will cover projects that are not only funded by federal dollars (U.S. Forest Service, BLM, etc.) but for other income sources as well. Anyone who does work in the watershed can do the work under this PEA, which is one of the great things about the PEA.

Dixon said the same laws that protect those species and require analysis and disclosure of effects on the human environment apply whether you're building a Walmart parking lot or a restoration project. Other entities have these documents that provide that same NEPA coverage, making it easier for people to do restoration work in the Trinity Watershed.

Public Outreach Update (Kiana Abel)

Abel will have items from the ED Report available for people's reference.

Science Updates (Eric Peterson)

Peterson acknowledged all the work Ken Lindke and the entire Flow Work Group have been doing to bring preliminary results together from this last year for variable flows.

Concerning the Science Advisory Board (SAB) recruitment, two individuals will be presented for consideration as a TMC decision item today. We have one more on which to decide and are considering how to approach that.

Peterson discussed the Limiting Factors Analysis (LFA). The IDT put together a two-phased approach last winter, with phase one being study plan development and phase two being the actual implementation of the LFA. The IDT defined a quick timeline for the first phase. The program engaged NFWF as the contract vehicle that could bring in the external expertise. NWFP put out a request for qualifications (RFQ) in early August, and we chose to move forward with the one bid that we received from Cramer Fish Sciences. The study plan (phase one) should come together this winter from the IDT and Cramer. Phase two will take approximately a year after that, starting sometime in calendar year 2024, taking about a year from then to complete.

No synthesis reports are in edits at this time.

The 2022 Topography Model is in review, almost complete, and may be finished by the end of this week. Dixon asked Peterson to describe the data and how it is used. Peterson said we collect topography 40 miles across the channel every five years to see how the channel is changing geomorphically. The topography combines Lidar, terrestrial surface, sonar imagery, etc. We can use this for looking at how pools change through time, evolution of channel rehab sites, and so on. We do hydraulic medeling so we can see what various flow levels in the river expand out to, including the maximum fishery flow. As an example, the house near Junction City we spoke of earlier today was identified in 2007 modeling based on 2001 topography and has consistently been within that floodplain in subsequent models.

Several publications and reports have been posted this year. Two are synthesis reports; one involves water temperatures across 87 years in the Trinity Basin while the second is the Hoopa Valley Tribe and McBain Associates on course sediment strategy for the Trinity River. The Riparian Field Guide from John Bair has been updated. Peterson's statistical analysis on Trinity Lake levels and correspondence to Trinity River flows and those in the Central Valley has been posted, and the 2022 TRRP annual report has also been posted.

Several synthesis reports are still incomplete: The adult salmon spawning document is in final edits. Cohort Reconstruction Modeling Report needs to be brought into a more current computer system using TRRP system software (through Denver Technical Services Center); remediation is in process; analysis will proceed early next year. Large Wood Management Report is going through general strategy reviews and an outline to the IDT and other work groups for review is expected in about a month. An earlier draft is being reworked. The Flow Synthesis Report is regaining momentum. Peterson has no expected date for the Channel Complexity Report.

Redd data from the FWS will be in the next ED report.

Ly asked whether there are any complete reports that haven't been presented to TMC. Peterson said the retrospective analysis of flows has not been presented; he would be glad to do that sometime in the future. John Bair's Science on the River presentation would be good for the TMC, it would also be good to look into another presentation on the Course Sediment strategy.

Orcutt asked whether the Cohort Reconstruction Modeling would be done to be able to use it for the reinitiation of consultation (ROC) process. Peterson said the ROC process timeline would be a factor. The report will likely be ready by the end of FY24. Lindke said it would be hard to know how the timelines align with ROC. The LFA will also have a lot of results for ROC, but the timelines may not add up. Ly asked about the Flow Synthesis timeline. Justin Alvares said a draft should be available by July.

Break

Election of New TMC Vice-Chair (Chair Don Bader)

Comments of TRRP Entities

Chair Bader learned that according to Robert's Rules of Order, competing motions are known as substitute motions, and substitute motions are allowed under Robert's Rule.

Public Comments

None.

TMC Decision (Blind Vote Results)

Dixon noted that Nick Som did not want to be considered for the Vice Chair position. Keli McElroy agreed to be considered. Because the Vice Chair needs to be a DFO, the choices are Ly, McElroy, and Som. Lindke was asked to tally the vote.

Orcutt asked about the basis for the requirement that the chair and vice-chair be a federal official.. He knows it is written in the implementation plan and the bylaws; however, it limits participation. Chair Bader agreed to research the origination of the requirement.

Through a 5-3 blind vote, Justin Ly, NMFS, was elected as Vice Chair.

FY23 Outreach Accomplishments and Early FY24 Outreach Plans (Kiana Abel)

Kiana Abel spoke about FY23 TRRP outreach accomplishments and plans for FY24, including information on analytics. She wanted to do a SWOT analysis (Strengths, Weaknesses, Opportunities and Threats) at the end.

She began working with TRRP in September of last year, bring with her a lot of outreach and marketing experience as far back as 2009. For example, in Oregon she has taken products from design to completion; she worked for a community health center in Wisconsin when they increased the number of clinics from four to 13 during her tenure. She has been a marketing manager for a coop and has also worked for a consultant in Weaverville.

One important tool TRRP uses for outreach is a relationship with the Trinity County Resource Conservation District (RCD), using a five-year grant. The RCD supports TRRP's educational outreach concerning the ecology of the Trinity River with numerous events, including school activities. Communication tools include a newsletter; Facebook with over 3,000 followers; Instagram; individual mailings; flyers; brochures; and posters.

The RCD is an educational arm while the TRRP exists to increase river knowledge; restoration activity awareness; introduce restoration principles; and improve land stewardship within the communities of the Trinity River.

Outreach includes preparing, producing and distributing watershed informational material; planning, coordinating and implementing watershed related experiential events for adults and students; planning, coordinating, developing and maintaining public displays (e.g. interpretive signs) and informational kiosks that emphasize TRRP-project benefits for fish, wildlife habitat, recreational opportunities, and the community; and providing outreach support to the Program through such activities as mailings, internal meeting support, electronic and social media updates, and other appropriate outreach activities. Tools are created in cooperation with RCD, and science and implementation-based communication takes place through appropriate channels.

Abel spoke of Science on Tap, a monthly event to be scaled down in 2024; the annual Salmon Festival in Weaverville, scheduled in October; and a public float with a local rafting company

through some of the restoration areas. Volunteer cleanups also take place: pulling noxious weeds, taking nature hikes; the great backyard bird event; and the wild and scenic film festival (alternated every other year with the science symposium). She emphasized that while activities involve school groups in fun environmental activities—including after-school programs, a summer day camp, and a 6th grade environmental camp—adult education outreach is not neglected. She mentioned engagement with the Shasta-Trinity Fly Fishermen, the Rotary Club, and the North Coast Native Protectors.

Public meetings known as scoping are important in informing about proposed restoration and learning what the public thinks about project proposals. Ongoing meetings to which the public is always welcome are TMC meetings and work group meetings.

TRRP communicates in several ways. Abel mentioned the River Riffle, Facebook, newsletters, press releases, etc. She acknowledged earned and word-of-mouth media, which are not necessarily controlled. She said ongoing analytics, surveys, and feedback forms help TRRP improve its outreach.

Dixon noted the importance of TRRP and RCD coordinating who is responsible for what to avoid overlap.

Abel's favorite event was this year's Science on Tap included 11 events and 994 (not unique) attendees, with 60 to 100 people at every event. On September 27, Lenya Quinn-Davidson has been invited to talk about fire ecology.

Abel mentioned the need to draw different audiences rather than attract the same attendees at different events and said analytics helps determine the success of these efforts.

Science on the River was a new event added last year. The event at Lewiston had 63 attendees and the one at Douglas City had 75. Flow variability on the Trinity River generated some great questions and answers. Last year's Wild and Scenic Film Festival had 178 attendees and 15 volunteers. RCD was able to raise money for kids' camp programs.

A new program called Adopt-a-Plot generated 16 out of 32 plots adopted, using opportunities to engage with RCD, BLM, and Hoopa Tribal Fisheries. People would drive by and ask what was happening. The activity involved a lot of weed removal with a planting event planned in October. Peterson and Abel walked in the July 4th parade with Trinity County RCD.

Concerning TRRP's online presence, TRRP uses Google analytics. TRRP's Homepage is top ranking. In July the River Riffle newsletter ranked 14th; it was 24th in August. Abel is sending information in different ways in an effort to generate more traffic. For example, the Outreach page leads to other places. The typical webpage attention span is eight seconds, so it was gratifying to see that TRRP's average page was much longer (a minute to a minute and a half).

Abel developed an in-office social media strategy where TRRP staff answers questions through social media posts, bringing in issues and sharing information in more comprehensive ways. The effort addresses stakeholder concerns, such as the recent issue of gill lesions in higher numbers.

RCD provides analytics from events annually with responses captured from June 1 to August 31 concerning attendance, feedback, surveys, and email lists. Most responses are in the strongly agree area; there is a need to diversify audiences.

A Facebook survey comes out in January, and it includes demographics, location, relationship to the river, river knowledge, etc. Only 35 respondents are repeaters and Abel would like to see that increased. Follow-up comments are valuable.

Concerning the FY24 outreach plan, TRRP has lofty goals and has come a long way in last few months. TRRP is seeking a larger audience. We need to win hearts before minds by taking time to listen and passing along questions for the right people to answer. It is important to build community trust. Abel hears lots of misconceptions and wants to improve word-of-mouth stakeholder communication. All TRRP staff needs to be involved in outreach.

TRRP has begun picking a monthly theme based on ecology(September was variable flow). With RCD cooperation, events are based on this theme. Abel has a strengths, weaknesses, opportunities, threats (SWOT) analysis. Abel believes communication is the first path to solving problems and asks everyone to engage as they would like—verbal, written, using the SWOT analysis, etc.

Abel's presentation is available on the TRRP website at https://www.trrp.net/calendar/event/?id=11776.

Public Comments

None.

Reports and Comments of TRRP Entities

Abel was asked how we know if we're succeeding. She said we can look at analytics; doing so can reveal lots of misconceptions in general, but success is measured in how people respond to us as we move forward.

Tracking community understanding of restoration is important. Abel ponders how we get to the spot where we are addressing people's concerns and reaching them. How will the Trinity Stakeholder Advisory Committee change things? It is not TRRP's purview to manage that, but the committee will give stakeholders a voice and allow them an avenue to organize.

TMC Discussion and Comments, as Appropriate

Gogan asked how the FACA selection process will go to stakeholders. Abel was unsure, but Pinnix said people will be nominated for the selection process. Dixon added that positions are in categories representing specific groups and interests with a designated nominating process.

Lee asked about the status of the Trinity River Guides' Association. Gogan answered that it is uncertain, but the committee will include lots of different personalities and needs to include the diverse interests of the rafting community, business owners, hotel owners, etc. He believes the Secretary of Interior approves the nominees. Dixon agreed and stated that a nominee receives

more traction if he or she represents a group rather than as an interested individual. Gogan opined that the nominee needs to be Trinity County-centric.

Abel repeated her request for the group's individual input and Dixon and Chair Bader suggested people take time to reflect and get back to Abel.

Approval of June Meeting Minutes (Tabled item re-visited as agreed)

Earlier, Ly noted a discrepancy the June 2023 TRRP meeting minutes between motion information on pages 2 and 16 (originally reported as page 6) on the topic of the TRRP bylaws. Ly said Naman's friendly amendment summary on page 2 is worded differently than on page 16. Ly proposed an edit to the page 2 summary to match the language on page 16. Using track changes, Ly edited the document to resolve the inconsistencies. The page 2 language in the June meeting minutes now reads as follows:

> **Brett Kormos moved for the TMC to insert the following language to the T'RP's Bylaws in the appropriate locations:**
>
> **The TMC retains unilateral authority to set the agenda for all quarterly meetings and maintains the authority to vote on any decision items set forth in said agenda. Members of the TMC will attempt to resolve matters of dispute during TMC proceedings with the understanding that any recommendations made to DOI as a result of a TMC vote can be disputed with DOI outside of the TMC process. The TMC is an advisory body and as such does not hold the authority to implement certain decisions where the authority lies with DOI.**
>
> **Kyle De Juilio seconded the motion.**
>
> **Nick Som made a competing motion to table to insertion pending DOI review of the Program Document.**
>
> **Liam Gogan seconded the competing motion.**
>
> **Motion failed with three votes in favor and five votes against. NOAA Fisheries, Hoopa Valley Tribe, Yurok Tribe, State of California, and Trinity County voted against**
>
> **Naman offered a friendly amendment to the original motion to add th"t "by individual TMC memb"rs" befo'e 'with "OI" [emphasis of insertion added]**
>
> **Kormos and De Juilio approved the amendment.**
>
> **Som added a friendly amendment to a"d "pending DOI Review of the Program Docume"t." Kormos and De Juilio approved the amendment.**
>
> **Motion passed unanimously.**
>
> **The approved motion with the friendly amendments is to insert the following language to the T'RP's Bylaws in the appropriate locations, pending DOI review of the Program Document:**
>
> **The TMC retains unilateral authority to set the agenda for all quarterly meetings and maintains the authority to vote on any decision items set forth in said agenda. Members of the TMC will attempt to resolve matters of dispute during TMC proceedings with the understanding that any recommendations made to DOI as a result of a TMC vote can be disputed by individual TMC members with DOI outside of the TMC process. The TMC is an advisory body and as such does not hold the authority to implement certain decisions where the authority lies with DOI.**

Chair Bader confirmed the motion still stands as presented. The June meeting minutes were then unanimously approved.

Selection of Science Advisory Board (SAB) Membership (Eric Peterson)

Eric Peterson led the discussion concerning the SAB selection for the hydrology position. The IDT made a recommendation to the TMC concerning hiring two positions. The IDT was unable to come to a consensus on the hydrology position concerning two candidates: Dr. Brian Bledsoe of the University of Georgia and Dr. Daniele Tonina of the University of Idaho. Both are strong in hydrology and geomorphology. Dr. Tonina has a stronger emphasis in stream ecology, with which TRRP has been wrestling recently. Dr. Bledsoe is especially strong in channel rehabilitation design. Both the IDT and TMC have had trouble choosing one over the other. Two options for moving forward include choosing one through a vote or hiring both, in which case one will fill the empty hydrology position and the other would potentially fill Dr. John Buffington's geomorphology position, as he has indicated a desire to retire in the near future, which would mean some beneficial overlap.

Chair Bader asked how many vacant positions are funded. Peterson indicated TRRP has funding set aside to bring in three new members. The IDT's secondary recommendation was for the TMC to agree through a motion to select a candidate by majority vote. Carrying out the second option would technically bring in four new members, meaning a short time with the geomorphology overlap. Chair Bader said it would be the first time in a long time with five members. Ott asked what the IDT recommends. Peterson said it was to hire both per the earlier scenario mentioned. Orcutt said he was unclear on the recruitment and selection process and does not want to break precedent by operating inconsistently. He was uncomfortable moving forward with voting on the option to hire both. Dixon said it is not uncommon to bring in another contractor before the previous contractor's agreement has expired.

Peterson explained there had been three open positions: aquatic ecology, riparian and watershed ecology, and hydrology. The first two have been filled with the hydrology position still open. Pinnix asked whether either candidate had applied for a specific position. Peterson said yes, but they are qualified for both and also indicated they would be willing to fill either position.

De Juilio asked how these positions have been filled in the past. Peterson said he has not been involved in SAB selections in the past, so he does not know, but he said they are subject to TMC approval. De Juilio asked whether this vote can this vote be informal or whether it is subject to the TMC bylaws.

Chair Bader said this decision could be tabled until next month if more time is needed. Otherwise, the TMC could do one of the other two options: (1) choose one of the two hydrology candidates for the open hydrology position through a majority vote and include a motion to invite the second candidate to fill Dr. Buffington's position as a December TMC agenda item or (2) make a motion to vote to place both people now (filling Dr. Buffington's position). The vote to choose a candidate would be a majority vote. The second motion (inviting the remaining candidate to fill Dr. Buffington's position) would be a traditional TMC vote.

Ly asked how the IDT voted. Peterson said there was an IDT "lean" toward Dr. Tonina with four votes for Tonina, one for Bledsoe, and three undecided. Dr. Bledsoe has a strong emphasis in channel form and rehabilitation and Dr. Tonina is especially strong in stream ecology, but both would be a good fit for the hydrology slot. McElroy asked who bends toward geomorphology. Peterson said it would probably be Dr. Bledsoe, but Dr. Tonina (more hydrology) has a lot of experience within that field as well and has worked with Dr. Buffington. If Peterson had to choose, he would place Dr. Tonina in the hydrology position and Dr. Bledsoe in the geomorphology position. McElroy asked whether we risk losing them if we wait on the second position. Peterson said it's an additional 10 percent of their time (not competing for a fulltime position), but they may lose patience with us and not reapply.

TMC Decision (The TMC will consider selecting new membership for the SAB)

Dixon confirmed there was no motion currently on the table. Gogan and Orcutt would like voting procedures to match the historic voting pathways, such as how the vice chair position was handled (majority vote). The remaining outstanding position should be handled in the same manner when the time comes. Orcutt made a motion to select the candidate the IDT recommended, but Peterson indicated the IDT vote was not conclusive. **Mike Orcutt made a motion to bring on Dr. Tonina to fill the hydrologist vacancy on the SAB. Radley Ott seconded. The roll call vote was unanimous.**

Comments of TRRP Entities

Chair Bader said at the next meeting the TMC will consider whether to add the additional candidate due to Dr. Buffington's pending retirement. The agenda item could include a discussion about whether to readvertise the position.

Pinnix said the TMC cannot initiate a hiring action until the current SAB member submits a resignation; this is a contract position. He suggested having Dr. Buffington submit a letter of resignation to quicken the hiring process for his position. Peterson said Dr. Buffington and Dr. Andrew Paul, the SAB fish biologist, will be retiring within the next year. Orcutt said the TMC should strongly consider adding to the candidate pool before hiring additional SAB members.

Public Comments

None.

Lunch

<u>Wildfire-Induced Fine Sediment Impacts on Stream Ecology (Dr. Greg Courtice)</u>

Dr. Greg Courtice of Applied Ecohydraulics, Alberta, Canada, gave a virtual presentation on stream ecology fine-sediment impacts, including implications for wildfire-induced sediment loading within the Trinity Watershed. Peterson said the TMC had requested a presentation on fine sediment turbidity, and the SAB recommended Dr. Courtice because of his expertise in this area. An engineer who dabbles in ecosystems, Dr. Courtice has spent much of the last decade studying suspended sediment effects on ecosystems. He has published and co-authored papers and journal articles for both civil engineering and fisheries publications. Dr. Courtice's PhD in

civil engineering from the University of British Columbia focused on "How can we improve environmental and economic outcomes from suspended sediment releases resulting from in-river construction activities?" He has helped with life history ecology models for inland recreational fisheries. Dr. Courtice served as lead river engineer for the 2013 Southern Alberta flood response that involved large-scale aquatic and riparian habitat compensation projects. He has influenced regulatory policy in Canada.

Dr. Courtice introduced the topics he intended to cover: (1) defining fine sediment and how it is transported in rivers; (2) too little or too much river sediment; (3) differences between turbidity and concentration; (4) suspended sediment exposure responses in fish; (5) ecological implications from wildfire-induced sediment loading; and (6) management-related applications for suspended sediment loading.

Dr. Courtice said fine sediment has three components: clay, silt, and sand. There is a scale of grain sizes with a range depending on a category, where grain sizes fall into a threshold. Primarily clay and silt are the fine sediments that typically move down river.

Sediments move based on particle size and velocity; the larger sizes are likely to be deposited while the smaller ones erode or remain suspended.

Eroded sediment runoff moves to rivers and is eventually deposited into deltas and alluvial fans, etc. Habitat characteristics are fundamentally formed by erosion and deposition. A common analogy for the sediment transport characteristic is a sediment conveyor belt where the sediment is transported through the river and ends up in mouth of the river. Three sediment transport components are the larger boulder-sized particles called a bed load (move along the bottom); intermediate-sized particles called a suspended load that move with the flow and are eventually deposited when flow decreases and could possibly be picked up again; and the wash load that includes small particles that remain in suspension even at lower discharges. Dr. Courtice said the wash load is the area of most concern for his presentation.

Sediment is important, and too little sediment can cause a well-graded bed with varying sediment sizes to become an armored bed with only large material. Heightened discharges can wash away fine sediment and reduce habitat suitable for spawning and egg incubation as well as reduce habitats for certain invertebrates.

Dr. Courtice clarified the differences between the terms turbidity and suspended sediment concentration (SSC or concentration). We describe and monitor SSC and flow through turbidity, but turbidity is actually measured as cloudiness of water whereas SSC is measured as total suspended solid.

Examples of effects related to turbidity are a reduction in aquatic plant photosynthesis or impacts to predator-prey dynamics. Effects related to SSC or concentration are fish physiological or lethal responses and habitat degradation.

Dr. Courtice used the difference between throwing ping pong balls around the room or doing the same with golf balls, saying the responses to both would be much different between this similar in size but not concentration white balls.

Turbidity can be measured in the field, but SSC cannot be measured easily in the field. Turbidity can be used to estimate concentration by first establishing a (site specific) relationship between turbidity to concentration.

Dr. Courtice moved on to explain SSC exposure response, breaking the concept into three categories: behavioral, physiological or lethal, and habitat degradation, which is dependent on river hydraulics and thus site-specific. A behavior response may occur at any exposure.

Behavioral examples include alarm reactions, avoidance, feeding reduction, and effects on predator-prey dynamics. Physiological/lethal examples include coughing, increased blood glucose and stress hormones, gill tissue damage, reduced growth rates, and even mortality. Habitat degradation can cause changes in substrate composition, affect egg incubation impacts, and is highly dependent on river hydraulics.

Dr. Courtice chose to talk about those related to ambient sediment exposures and noted his discussion considers uncontaminated soils while acknowledging that contaminated soils may have different risks, making straight-forward answers difficult.

Dr. Courtice shared salmonid exposure response observations that have been used in several science publications. He defined salmonids as a family of fish that includes salmon, trout, white fish, and a few others. The chart comprises a current academic understanding of studies (sets) where fish are exposed to suspended sediments for a certain amount of time with a certain concentration. Each observation represents one of these sets at the maximum or most severe response observed. In Dr. Courtice's graph, the circles symbolize behavioral; the triangles minor physiological; and the diamonds major physiological and lethal. It is safe to say that some level of behavioral responses may occur at any range.

Dr. Courtice said it is important to keep in mind a nuanced assessment of where acceptable effects are at acceptable exposures. For example, a small amount of turbidity can lead to difficulty in feeding because of lowered visibility. We can't always arrive at a specific management objective for all species.

Conceptually, when exposure is increased, we should get an increase in severity. But we have categorical responses and can't necessarily attribute a number to them. Dr. Courtice showed three hypothetical datasets with two categories on the Y axis and mixed laboratory variable on the X axis. In

In dataset 1, it is difficult to distinguish between the two variables; dataset 2 offers a perfect explanatory variable to describe the data; and dataset 3 has some overlap, leaving some uncertainty as to where the thresholds lie. But dataset three is still good because the overlap is small.

Using the following categories: lethal and major physiological; minor physiological, and behavioral, Dr. Courtice asked meeting attendees to decide which explanatory variable was being used to order the observations and whether it was providing a clear distinction of the response categories. The datasets were ranked with the worst on the left and the best on the right. Dr.

Courtice revealed the datasets to be (1) SS Concentration (SSC); (2) Duration of Exposure (DoE); and SS Dose (SSD = SSC X DoE).

Worldwide, most jurisdictions use concentrations to classify observations and develop thresholds, but it is the least effective in determining whether exposures are acceptable. Using the product of Concentration and Duration, known as SS Dose, is best because this parameter includes both sediment intensity and duration of exposure. Dr. Courtice offered to share work reported in a recent publication on this topic with those who would like a copy.

Dr. Courtice then moved on to discuss ecological implications from wildfire-induced sediment loading. A typical wildfire causes reduced vegetation and soil combustion that leads to water-repellant soils, decreased hillslope roughness, reduced soil permeability and an increase in readily-erodible soils. Any given precipitation event leads to more sediment in water and more water in the river, a compound effect. Storm events following wildfires can increase sediment transport by two orders of magnitude. To know the full impact to ecosystems, we have to consider intensity as well as concentration and duration.

Changes in sediment loading characteristics can impact responses. Dr. Courtice explained how the relation between concentration and duration plays out using hard data (see slide 34 in Dr. Courtice's presentation). Using an example of Trinity River construction data from August 26 and 27, 2020, and a gravel berm construction project near Calgary, Canada, Dr. Courtice introduced comparing exposure risk to help determine how many hours work can take place in a day where concentration is monitored.

An Interactive tool revealed that releasing more sediment with less intensity actually resulted in less work being completed. Unavoidable releases can be managed more effectively.

In conclusion, Dr. Courtice said that sediment is an important component of fluvial systems and their ecology, but too much or too little can be harmful. On their own, concentration or turbidity values are not sufficient to assess risk. Wildfire-induced impacts to sediment loading may increase ecological risk, and we don't have a predictable way to understand how much sediment is actually coming down. It is important to look at overall sediment loading. Making a flexible framework around construction use can potentially lead to lower stress on the ecosystem.

Concerning strategic management objectives, it is important to consider the inferences provided are based off of data averages. Managers can improve understanding of these risks by studying system-specific ecological situations

Due to overall sediment loading, increased intensity may not be a risk factor. There is a need to consider both concentration and duration in risk assessments. Past construction-induced sediment releases likely fall within a relatively low risk tolerance. Relaxing concentration to allow for more efficient construction may be valuable to consider from both economic and environmental perspectives.

Dr. Courtice's phone number and email are on the PowerPoint that he will make available (now located on the TRRP website at https://www.trrp.net/calendar/event/?id=11776.

Public Comments

None.

Reports and Comments of TRRP Entities

Lee asked how Dr. Courtice worked with regulatory agencies to change to SSCs. Did Dr. Courtice petition that change? Did the agencies come to him?

Dr. Courtice said the process has been slow. The City of Calgary has provided a lot of support in the regulatory arena. A few projects demonstrated the construction companies would not be able to meet the targets because the intensity thresholds were too low for these large gravel-management projects. We provided an alternative way to help these companies remain in compliance and demonstrated that these releases were still low risk. We were able to help these companies stay within regulatory compliance. We would tell the contractor the number of hours they could work given their release terms. The contractors were satisfied with the short but intense work. The work got done and the regulations were met. Now that more data is available, more agencies are open to apply the concept more broadly.

Lee asked Dr. Courtice to explain the process for quantifying SSC.

For concentration, we take water turbidity samples from the target area. We create increasing concentrations using the material substrate from the area where we will be working. We take turbidity measurements of each sample. We send samples away for vacuum filtration measurements, and then we plot a graded curve. The process is quite effective, but there is some uncertainty around the results, and Dr. Courtice is working on methods to resolve some of that uncertainty.

Lee asked whether you would expect a different grading curve if you were working with different substrate within the same area, for example, adding sedimentation or excavating. Is it necessary to recalibrate every time a new substrate is encountered?

Dr. Courtice said the detailed differences among those activities are actually outweighed by other factors. Whether one has two or two and a half hours in a day to work won't change things that much.

TMC Discussion and Comments, as Appropriate

Orcutt said he saw an email from Dixon concerning wildland fire's contribution to sediment runoff. An earlier presentation discussed run-off in the North Fork watershed area that ultimately affects fisheries, etc., both juveniles and adults. Other aquatic species are also involved here. How do we do anything definitive in light of all this diversity?

Dr. Courtice said to answer questions in a meaningful way, a risk assessment tool is needed to answer pointed questions. For example, are juveniles more at risk than adults? Study on this river system is needed. But the number one thing is reducing the amount of sediment going into the river, focusing on length of time, not only sediment intensity. Data is needed that includes a high-resolution time-stamped series.

Dixon said the TMC could consider looking at way to capture system-specific data. Dixon noted that no one gathered any grab samples in the North Fork this year. We had some acute impacts to some very high intensity medium duration releases for fine-sediment releases because of slope failure related to wildfire. We don't have any way to quantify what happened. Grab samples would be important in the future. It would be beneficial to get ahead of that if we want to adopt a framework such as this, and it should be a priority for being able to mitigate incidents and manage for natural impacts.

Gogan asked Dixon how long it would take to get these tools. Dixon said there is a difference between turbidity and concentration. Dose is the relationship between concentration and duration. For us to be able to use telemetry on gage station to measure turbidity as an analog concentration, we would first need to compare the actual suspended solids to turbidity. We can't remotely monitor SSC. Adding turbidity would add a maintenance component that is manpower intensive. Setting up a new remote gage station would be expensive.

Gogan said it seems wise to have these tools. Dixon said before setting up an expensive remote multi-year remote gage system with no proven track record behind it, we should consider using grab samples to get a data set to learn what are the doses that we are seeing to determine how frequent problematic events are occurring. A sediment event that occurs in really clear water doesn't take much to look serious, but there is a difference to looking bad versus being bad. We don't have the data.

Orcutt said a lot of the key watersheds are under Forest Service management with wildland fire events, a climate-change focus, etc. The Forest Service might be gathering useful data or working on wildfire rehabilitation such as slope stabilization.

We need more information to know the scope of the problems. But we also know situations on the landscape are contributing to sediment problems. Are our efforts better spent developing gage stations to gain data, or are they better spend working on slope stabilization? Dixon asked McElroy whether the Forest Service has other funding besides Burned Area Emergency Response (BAER) funds for wildland fire rehabilitation.

McElroy said she is not aware of any Forest Service funding right now directly tied to wildland fire rehabilitation. There are other less traditional avenues to pursue, and she would need to research them to learn whether any would apply. a lot of funding. We are approaching the end of BAER for the recent fires in question.

Dixon said along with the known issues, we have the potential for unexpected situations. He wonders how we can support disaster supplementation. McElroy said he seems to be thinking of a one-off, and she will think more about what might be available to help under such circumstances.

Peterson said the IDT is tasked with the review of our core monitoring activities over the course of the next year. Maybe we should include turbidity or sediment concentration.

Dr. Courtice said it doesn't stop here; he is working with colleagues to create a general framework and platform where we can collect time-serious data and develop better water management objectives and strategies.

In closing out the day, Chair Bader said tomorrow's meeting is scheduled until noon and that we will begin with Synthesizing 87 years of Inquiry into Trinity River Temperatures with Seth Naman followed by a decision item concerning WY24 flow recommendations.

The meeting was adjourned at 2:45 p.m.

Thursday, September 14, 2023

(scheduled from 9 a.m. – noon)

Welcome, Comments on Non-Agenda Items

Public Comments

None.

Comments of TRRP Entities

Following roll call, Orcutt thanked the Yurok Tribe for hosting and providing lunch.

Synthesizing 87 Years of Inquiry into Trinity River Temperatures (Seth Naman)

Seth Naman of NOAA Fisheries began his presentation by saying this is one of the first synthesis reports to get underway. Between 2010 and 2015, a drought caused the Trinity Reservoir to become very low; 2015 was the second lowest level on record after 1977. There was a need to collect all the available temperature information and seek to make sense of it, documenting learning since that time.

The draft was completed a couple of months ago. Naman acknowledged authors Eli Asarian (lead author); Kyle De Juilio and David Gaeuman of the Yurok Tribe; Todd Buxton of USBR; and Naman.

The study area boundaries were some streams upstream of Trinity Reservoir; the Trinity tributaries including South Fork; other tributaries; all the way down to the mouth of lower Klamath River, essentially to the ocean.

The objectives were to construct and populate a comprehensive quality-controlled water temperature dataset; evaluate the patterns in the relationship between flow and temperature in time and space as well as temperature effects on biological objectives and temperature compliance with regulatory objectives; update conceptual models; and develop management recommendations.

Naman said we have very few years of temperature data for the pre-dam Trinity River. Part of the analysis involved filling those gaps by generating a dataset for years where we had flow records but no data sets using models. In the 1940s, 4 degrees Celsius was a a typical water temperature during the winter months for the Trinity River at Lewiston.

The methods for the synthesis involved separating time into four eras: the pre-dam era (1911–1961); the full diversion (1963–1978); the transitional (1978–1999); and the ROD (2000–2019) eras using datasets gathered from USFWS, USGS, USFS, the Hoopa and Yurok tribes, and others. The team used statistical modeling (GAM, LSR, etc.), river and ecological models (RBM10, FYFAM, etc.), climate change models, reservoir dynamics, gap filling, etc.— in other words, extensive methodology to come up with the data and report.

In an effort to obtain unimpaired temperature datasets generated for pre-dam years, the team selected pre-dam years for which flow and air temperature was available and then used existing data to generate air temperature from gridded models. The intent was to generate unimpaired flow and temperature record for all time periods.

Naman presented a visual description in the form of a graph to show flows for time periods, with the highest flows historically in January through March. Peak flows were in January and February. As a result of the dams and management, annual flows are lower in the winter now than they were historically, and the lowest of any time of the year.

Naman showed temperature results during five water-year types: critically dry; dry; normal; wet; and extremely wet. Historically (pre-dam), cooling begins in August as the day length gets shorter, and salmonids are adapted to that cooling period that begins in August and moves through the winter months. The middle graph shows results with the dam, recorded warmer temperatures in January and February almost doubled and much cooler in July and August. The current pattern is very flat. The bottom graph showed the difference. Naman said that the difference in Hoopa is not as pronounced as near the dam in Lewiston because of the effects of Trinity and Lewiston dams are reduced as distance from the dames increase.

Spring restoration flows from Lewiston Dam cool the river noticeably, creating a “kink” in the normal warming pattern. and has influenced juvenile growth. With the spring restoration flows of the last decade,, normal water temperature warning patterns in the spring from warmer air temperatures and longer day length are interrupted and water gets colder during restoration flows. The effect is most pronounced near Lewiston Dam. ROD flow management has changed the natural pattern through which fish evolved and made the water temperatures less suitable for juvenile growth.

Concerning salmonid growth, Naman showed a series of graphs with a dark bar representing optimal temperatures (12-16 degrees C) for juvenile growth. In the post-dam era using ROD flows, time within the dark bar is shorter than the pre-dam (natural flow) era). Naman then showed pre-ROD and post-ROD data from a juvenile synthesis report. Even though we have more juveniles, they are smaller, reflecting that the “kink” in the water temperature discussed earlier resulted in reduced growth of salmonid juveniles.

The team analyzed other biological metrics in the report. The take-home message is that colder temperatures affect a host of organisms and increase invertebrate re-generation time and frog metamorphosis time. The food upon which salmonids depend is also affected by these colder temperatures.

The Oregon Gulch Restoration Site is nearly completed. As an aside, Naman said NOAA Fisheries were recently the first two watercraft through the new channel. A section of the report discusses lateral thermal diversity. Fish and other river organisms are ectothermic, meaning they don't metabolically control their own body temperatures; instead, their body temperatures are determined by surrounding conditions. Several studies have shown that fish will actually choose warmer water temperatures to digest food faster and grow faster but will retreat to cooler areas where they can rest. Water that is too warm is not good for juvenile growth either, but water that is too cold can result in slower growth of juveniles. These interesting results give us new ideas for designing sites. The left side of Naman's graph showed pre-project homogenous temperatures. Post-project, noted on the right side of the slide graphs, which gives fish the ability to choose water temperatures that benefit them depending on their particular activity. Thermal diversity is better for the whole river ecology—fish, frogs, bugs, etc.

Trinity County residents are highly interested in Trinity Reservoir storage. Naman showed an actual reservoir storage graph that showed 2015 at 470,200-acre feet was the second lowest level on record.

Naman provided a few takeaways from Trinity Reservoir results. Between 1.2-million-acre feet to 2.4 million-acre feet, Trinity Reservoir water temperatures being released are generally the same. With storages less than 1.2 million-acre feet, water temperatures begin to increase. The auxiliary outlet change is less pronounced because water is being pulled from the bottom of the reservoir. Climate change is potentially raising temperatures at the bottom of Trinity Reservoir by about one degree C. A low reservoir leads to higher temperatures and should lead management to conserve storage to keep the reservoir at higher levels, and utilize the auxiliary outlet for access to cooler water and forgo power generations at low reservoir storage.

Naman said Coho salmon are the most sensitive to temperature. The highest Coho salmon survival rate occurs around 4 to 5 degrees C. Naman showed a figure of water temperatures from 1945 and 1946. At the time of year Coho salmon spawn in (November and December), their eggs would have been in the gravel at 4 degrees Celsius, the temperature at which fry have the highest survival and emerge from gravels at the largest size. At 12 degrees Celsius, Coho survival falls significantly at this temperature, to nearly zero. Low temperatures also lead to larger egg sacks for Coho, which provides nutrition before they start foraging for food, increasing their survival rate.

Naman showed a graph with a black line showing the temperature threshold for Coho salmon along with temperature data for the years 2020 and 2021. In 2021, low reservoir storage led to warming through the summer and fall, peaking in November instead of declining. Temperatures should peak in July, not in the fall. Upper river temperature patterns were totally unnatural, with higher temperatures in Lewiston than Douglas City in 2021. Salmon and steelhead are not adapted to this situation, where water temperatures increase in an upstream direction. They are adapted to the opposite. We need to work to see that this doesn't happen again.

Chair Bader suggested that there was no influx of water from the tributaries in 2021, and it was the second year with basically no precipitation. System-wide, we lost a bunch of storage. It's not surprising to see these results.

Climate change will lead to further declines in snowpack in future years. Snow melt makes the water a lot colder than rainwater. Coho salmon egg survival at the hatchery reveals the 12-degree Celsius time period led to essentially zero survival.

In terms of climate change, we will have further declines in snow water equivalent (SWE). SWE above 3,000 feet elevation is predicted to decline from 11.6 inches in 1981 to 2010 to 1.6 inches by 2070. Management needs to be prepared for this future within management.

Naman shared major findings: (1) 1999-2022 flow releases have unnaturally reduced spring temperatures; (2) flows and temperatures from Lewiston Dam cannot be manipulated separately in an effective manner; (3) Trinity Reservoir temperatures are warming overall; (4) Storage of less than 750,000-acre feet can threaten salmonids; and (4) climate change can exacerbate situations.

Naman went on to discuss recommendations (listed in their entirety here with Naman's discussion points following the list).

- ✓ *Monitor temperatures in the Trinity River upstream of Trinity Lake to more fully understand the natural temperature regime and its effects on water temperatures in Trinity Reservoir.*
- ✓ *Until a TCD can be installed in Trinity Reservoir and/or other infrastructure changes, flows in spring months should recede beginning in April of Dry and Critically Dry and in May of Normal and wetter years for optimal juvenile salmonid growth (13-16.5 °C).*
- ✓ *Reduce emphasis on meeting ROD temperature targets for smoltification at Weitchpec. Instead, balance between growth, encouraging timely outmigration, and mitigating temperatures in the lower river as they approach the thermal limits of juvenile salmonids.*
- ✓ *Infrastructure of the TRD should be modified to enable flow and temperature management actions to be implemented for the benefit of the river ecosystem, including:*
    - *Installation of a multi-level temperature control device in Trinity Reservoir;*
    - *Removal of Lewiston Dam, or a new type of conveyance through or around Lewiston; and*
    - *Ability to vary dam releases to the river at two-hour intervals without negatively impacting infrastructure at Lewiston Dam.*
- ✓ *End of September storage minimum of 0.75 million acre-feet (MAF) should be adhered to following the recommendations of Bender (2012), and multi-year drought contingency planning that specifies steps taken when reservoir storage is predicted to be less than 1.25 MAF in any year, assuming a multi-year drought is possible at any time.*

- ✓ *An assessment of multiyear drought effects on Trinity Reservoir storage levels, water temperatures, and the resulting ability to meet temperature criteria in the Trinity River should be conducted.*
- ✓ *Development of a tool for accurately predicting Trinity River water temperatures in summer at flows lower than RBM10's current limit of approximately 350 cfs.*

Naman said with Forest Service and other partnerships we should continue to monitor temperatures above the reservoirs to get data for flows into the reservoir. Until a temperature control device can be installed, flows in spring should be receding earlier than in the past, particularly in dry and critically dry years. We should reduce emphasis on meeting ROD temperature targets for Weitchpec smoltification. In order to meet Weitchpec targets from the flow evaluation study and the EIS, we have to cool the upper river significantly and we've found that to reduce the growth rate for juvenile salmonids. We recommend infrastructure review for the Trinity River Division with a potential temperature control device and potential removal of the Lewiston Dam or a new type of conveyance around to help with changes to fall temperatures caused by climate change. We could look at the ability to vary dam releases to 2-hour intervals. We recommend an end-of-September storage min of 0.75 million acre-feet and drought planning when storages are expected to be less than 1.25 million acre-feet. We need to plan for multi-year drought. We should also develop a tool to accurately predict Trinity River water temperatures in summer at flows lower than 350 cfs.

TMC Discussion and Comments, as Appropriate

Orcutt liked the end of document recommendations. He asked the TMC how the re-consultation in process could help advance climate change mitigation. He said we currently have a beneficial administration and can potentially do more now. How do we keep the momentum going? Is it the ROC?

Chair Bader confirmed the ROC alternatives consider multi-year drought scenarios.

Ly said a few weeks ago he attended a meeting that talked about the present study to address temperature concerns with the reservoir and Chair Bader had mentioned bringing it back to the Regional Office. Ly wondered whether Chair Bader had an update.

Chair Bader said BOR in Denver is going to take a look at scoping that they have. He said it's a difficult situation with the way the infrastructure is built. We are working off of the bottom of the lake, and the 100-foot stack has holes and is like a sieve. Temperature control mitigation may involve draining the reservoir. He said mitigation for the problem worked at Shasta (without draining the reservoir), but the infrastructure is different at Trinity. Chair Bader may have a presentation on this topic in December

Orcutt said he would like to understand the feasibility and timeline. Chair Bader said we are in the feasibility stage.

Public Comments

Amber Carman asked what options are on the table for temperature management. Chair Bader said every option is on the table with nothing ruled out.

Naman said there are two temperature control curtains in Lewiston; it is more complicated for Trinity for a curtain of that size.

Carman said monitoring what is going into the lake is important. She wondered whether there is interest to get more agency support for monitoring.

Naman responded that there are definitely opportunities for agencies and groups to work together to establish what additional monitoring is going to be. He said a monitoring-methods five-year review is coming up soon. He wondered whether the Forest Service has any additional funds for data collection.

McElroy said there may be some, but nothing substantial. She said we should talk. Naman concluded by saying TRRP just talked yesterday about reviewing monitoring.

Naman's presentation is available on the TRRP website at https://www.trrp.net/calendar/event/?id=11776.

Break

Water Year (WY) 2023 Initial Findings and WY24 Flow Recommendations (Ken Lindke)

Note: Comments of TRRP Entities are embedded in Lindke's presentation.

Ken Lindke of California Department of Fish and Wildlife working full-time with TRRP gave the technical recommendation presentation for water year 2024 (WY24) as flow work group coordinator. He stated he would outline the core components of natural flow regimes in Mediterranean climate streams with a focus on two components implemented last year and the intended benefits (ecological reasons) of that flow regime: the synchronized flood period and the elevated base flow period. He would then share preliminary results of WY2023 winter variable flows implementation along with WY24 technical recommendations.

Lindke said things we've known for a long time are taken directly from the 1999 flow study as to how these rivers work and the essential ecological services that each of these components provide. Summer is lowest flow time of the year with the lowest food availability. Fall base flows introduce leaf litter and increases nutrient loads in the river. Winter floods provide bed disturbance; these lower-level floods disturb the rocks in the river bottom and benefit the bug community by creating a re-set. When we put all these winter floods together, over a period of months we should have an elevated base flow in the winter, but we manage it oppositely in the Trinity River.

Lindke explained last year's events related to two components: synchronized flood peak period and elevated base flow period. He said it is important to understand this history because it directly relates to the WY24 winter flow recommendations.

We have a rule set and flow chart to guide us through that. The synchronized peak flow event replicates bed disturbance to and is intended to synchronize with a natural flood event. We leverage a forecasting tool at the North Fork Trinity River. Five days out, if the flow is forecast to hit 4,500 cfs or greater, we schedule a synchronized flow event. The intent is to time it with the actual event, so that the peak would hit the North Fork at the time the peak is forecast. This component was not implemented last year; the TMC-approved WY23 recommendation was not fully implemented last year. Even though we hit the trigger point multiple times for the first time in many years, we did not do this component. In the EA report, a trigger event would likely only happen in the North Fork once every three years, so this is not a component we would expect to implement annually.

Lindke moved on to discuss the elevated base flow period. He showed two graphs, one from mid-February through mid-April and the other from mid-March to mid-April. The tool used for actual water year determination is from the Department of Water Resources forecast on how much water is expected to come into the reservoir, which determines our volume and releases for a given year. This tool, called the Bulletin 120 (B120) comes out in April but is also available in February and March. The February B120 tells what volume to move. These forecasts are conservative and are built so the releases do not exceed the ROD water volume allocation. ROD states volumes are not touchable, but amounts and timing can be changed.

Chair Bader asked for clarification: in December, we start with the prior year volume and have the opportunity to bump it up in February and March. Lindke said that's correct. There is no way to overspend water. We looked back at the entire B120 record, and there was never a time where the 90 percent in February and March was greater than 50 percent of the ultimate volume we were allocated. That is accomplished in part by using the conservative 90 percent of the forecast; no way to overspend the ultimate volume that will be allocated in April. Everything we're talking about here is fully within ROD volumes since the ROD began in 2000.

Chair Bader said that is the most asked question. Lindke said the ROD is very explicit that volumes are untouchable, but release timing is not.

Lindke said the winter variable flows were intended to accomplish several objectives. A main emphasis is to improve juvenile salmonid growth due to food and temperature, in part by reducing the negative impacts of cold temperatures. Lindke emphasized an interest in seeking a temperature range that supports optimal conditions for aquatic life, especially salmon.

Orcutt asked for references to support the information being presented. He wondered whether additional support exists besides the Winter Flow Report. Lindke said the last two years of memos from the Flow Work group to the IDT (2021 and 2022) includes these recommendations. The IDT sent a memo to the TMC. The report, which was independently peer-reviewed by the SAB, is much more detailed than the memo.

Chair Bader said 2021 was first year the TMC had a motion to implement a synchronized peak flow event. Orcutt said it did not pass in 2021 but passed in 2022. Lindke said because we're recommending the same thing, we are essentially recycling the 2021 memo.

Lindke moved on to say winter variable flows are intended to promote earlier emigration out of the Trinity River to improve survival into the lower Klamath River. The earlier they enter the Klamath, (where it is suspected the juvenile survival rate is poor) the earlier they can exit before temperatures rise. A FWS published paper a few years back showed that elevated and variable base flows increases the amount of spawning habitat, supporting steelhead too. We're interested in supporting ecosystem integrity, and frogs and turtles are important component of that. Really cold water slows down frogs and turtles. We can also meet geomorphic objectives (moving the channel around) more efficiently. We accomplish that in the spring, and most of the work in the upper portion has been accomplished by our releases. Using a synchronized release, we can piggyback on natural flow regimes and accomplish that same work lower down on the river more efficiently. Lindke also said redistributing tributary sediments onto floodplains has become front and center to all of us in recent years. Lindke referred to Dr. Courtice's dynamic of erosion-transported deposition. A lot of tributaries deliver a lot of sediment to the main stem, where the reduced velocity causes heavy sediment deposition at tributary mouths. A specific reason to synchronize flows is to suspend that sediment and move it to downstream floodplains, which is good for riparian plant growth. This year, about a mile downstream of Deadwood, the main stem river was covered in sediment where there was likely extensive egg mortality in the gravel.

Orcutt said the second statement about promoting earlier emigration to improve survival in the lower Klamath is a thorny wicket. It is subject to litigation and the Bureau of Reclamation is running that project up there.

Lindke went on to describe fish food versus non-fish food. Insects, including flies, are good, and we can promote peak biomass to support insects that are good for fish. Lindke said the threshold for bed disturbance that supports good fish food is about 6,000 cfs in the upper Trinity River. Lindke went to data and selected the date of the first 6,000 cfs flood event. It takes about nine weeks after the event to get peak biomass for producing good fish food. Timing is important, and fish have fairly consistent timing of when they emerge. More fish are in the river as January moves toward May. It is no surprise that the timing of when fish come out coincides with traditional winter flood disturbance events to capitalize on what is a seasonal abundance of food in natural river systems. In addition to growing food, more animals in water lead to an increased demand for space, and elevated winter baseflows happen in every water year, even in critically dry years, lead to increased space for aquatic life at a time when it would historically be needed.

Lindke showed a graph representing actual implementation, with gray being a natural flow with the daily average a (CDWR estimate) and blue/red being a combination of what was recommended and what was implemented.

Starting in mid-February, the elevated base flow naturally mimics what the actual flow would have been. It's an indicator of applying a basic principle that actually works.

Orcutt asked when the river reached the 450 cfs base flow; Dixon said it was June 21, which is earlier than typical wetter years. Lindke said moving back the base flow peak would help get temperatures back into the optimal growth range. Temperatures this year in the upper river were not outside of normal; it got cold earlier and then got into optimal range faster and stayed there

longer; a lot of things were working against fish. A lot of spawning happens up against the dam, which means more fish have to move through the downstream space to survive and grow.

Lindke moved on to share preliminary data from this past year. He gave credit to Dave Gaeuman; Kyle De Juilio; grad student Ben King, who worked with Chris Laskodi; and Bill Pinnix and Ty Wallin from FWS; all who helped assemble a lot of data in a very short time. Lindke emphasized that nothing is final until we conduct analyses and write a report that is then peer reviewed (in a double-blind peer review).

A peer reviewed report is available on the TRRP website, a piece of which was to develop rating curves that relate flow magnitude to the percent of the bed that is disturbed in each of the maximum fishery flow reaches. The relevant one here is the one right below Lewiston Dam. It relates to the percent of the bed that gets disturbed. It is done by threshold.

On the slide in question, the black trace is the hydrograph; there was no synchronized release. It was a wet winter and mechanism did not happen this year. The hypothetical hydrograph is demonstrated to show what we would have seen in bed disturbance had we implemented the TMC recommendation.

The synchronized floods are to move sediment and deposit it on floodplains. Heavy sediment suffocates eggs. Intense thunderstorms falling on top of fire scars in June led to similar situations.

Gogan said we will have fine sediment coming into the river beginning in spring and throughout the summer from fire scars. He wondered what could be done about this.

Ken said we have been working on winter flow for at least 5 to 6 years. To attempt to deal with the other seasonal events would call for a specific prescriptive approach and involve a relatively short timeframe. These events in the main stem only lasted a few days. Speaking of three different levels of impacts from yesterday's presentation ranging from mild to lethal, the fish in the North Fork were more affected.

Lindke said we don't have direct evidence that the gill lesions noted earlier this year were from these events, but if they were, we saw that fish were healing; tissue was missing but healed over. Pre-spawn mortality is not unusual this year. At least this year in the main stem, the impacts were not great but acceptable. This is likely not true for the North Fork fish. As we learned yesterday, it's about duration of exposure along with elevated suspended sediment concentrations.

Spawning timing is critical. When this happens in winter, eggs covered with fine sediment die. Timing has extreme effects on population. Synchronized flows help mitigate this situation.

Lindke showed a slide that indicated what implementing the full proposal this past water year would have looked like. The 2019 data showed no increase in flat habitat until mid-April. Results are more natural in the North Fork area, but the bulk of fish are emerging near the dam.

One graduate student's project involved sampling bugs. He focused on length/weight and sampled monthly during the elevated winter baseload period. He used GIS to develop the relationship between inundation duration and macroinvertebrate biomass. There were four sites

in the study (two focused on here – one up by dam and the other near Junction City). He separated samples between fish food versus non-fish food. The contrast of inundation after 5 weeks is evident, with a significant increase in fish food availability. The same patterns were noticed in both settings.

Lindke addressed water temperature as it relates to fish growth. His data showed that fish can survive outside of the range, but the further from the range we go, the more difficult it becomes. Water temperature drops down and stays below, which suppresses growth. This year the temperature climbed into optimal growth range and stayed there longer. It involves how much water to move and when to time it.

Fork length data from the Willow Creek screw trap revealed that juvenile Chinook Salmon increased in size from previous wet years. Larger fish have a greater chance of surviving, and more fish got into the size range. The weights were not significantly different. Pinnix said the difference is so small as to be unimportant, but we are pointed in the right direction.

Orcutt asked whether the Pear Tree analysis had been done along with the Willow Creek analysis. Pinnix said the Pear Tree data is not up to date yet; it wasn't a complete look at the season. Orcutt said it relates to how close the supply is to the target area. Lindke said more data will be available later. This is one example. Pinnix said additional populations will be available too. We are on a fast track to get done before the end of the calendar year. FWS invested into a cloud-based database that can be used with tablets to augment a faster turnaround.

Ly asked about a larger effect with full implementation. Lindke believes so. The synchronized flow is based on extensive research and literature. We would have increased food availability had we had synchronized flows. Food development occurs over time. We have set up a system intended to give the best chance on average through time. We can't fix all problems through one change.

Pinnix said some changes to the slide discussing fish size could make the information more meaningful. Lindke showed a juvenile synthesis report relating to how many juveniles are being produced per adult (does not equate to adult returns). Pre-ROD (prior to 2004), we were not making a lot of juveniles. Post-ROD shows we are making a lot of juveniles but fish populations haven't changed.

Pinnix said spring modeling takes place at the trap site, but we don't have DNA for spring to fall. It's really a rough estimate to determine how many juveniles we are producing. Lindke said ROD flow implementation has increased productivity significantly.

Lindke reviewed the report summary and IDT technical recommendations (listed below from the presentation).

Summary

- ✓ *No synchronized flow despite a trigger event*
- ✓ *Elevated baseflow Feb-April {Inundation) grew food!*
- ✓ *Improved temperature conditions for growth*

- ✓ *Fish response! Larger fork length compared to similar previous years*

Recommendations

- ✓ *Repeat of WVF approved by TMC Dec. '22 and implemented WY2023*
- ✓ *Synchronized 6,500 cfs flow with 4,500 cfs forecasted at NF Dec-Feb*
- ✓ *Elevated baseflow Feb-Apr w/ volume based on Feb B120*
- ✓ *Additional baseflow Mar-Apr based on Mar B120*

The Trout Unlimited website supports the TRRP'stake on things: Most major river systems, of course, now have dams and water diversion infrastructure on them and cannot replicate unimpaired flow conditions. However, the science of river ecology and hydrology affirms that, in the absence of unimpaired flow conditions, *mimicking the natural variability in river flows is essential to support wildlife species such as salmon and steelhead* that have evolved to those ecosystems and to take advantage of the natural variability of those systems.

Chair Bader asked if the IDT is still asking for flow synchronization. Lindke said yes, even though it was not implemented this past year. Dixon said the conservation organizations are also on board.

Ly asked for clarification about the productivity curve. Lindke said each data point represents one year. It was from a FWS report. Gogan asked for clarification about the number of days after a forecasted event before the flow regime is activated. Lindke said operationally, someone watches the daily forecast, and when it hits 4,500 cfs, then we take that shape and shifts it to a date to coincide with that flow event with direction for a flow schedule release. De Juilio said the flow travel time is about 24 hours to the North Fork Trinity confluence.

Chair Bader said that they get a five-day projection, and we need three days to schedule it. Another day is needed for travel time. Lindke gave a hypothetical. North Fork is projected 5 days from now to be 4,500 cfs. In that scenario, the Lewiston release would start on day 4 so that it would hit the North Fork to coincide with day 5 of a predicted storm event.

Gogan is concerned that the further away you get away from the actual storm even, the less predictable it will be. Lindke said 4,500 cfs is a pretty significant storm; it's unlikely 4,500 cfs would be predicted and no storm would emerge. Gogan said the storm could miss the area.

De Juilio said it is a deterministic forecast; it is in a range of error. It may miss the area, but not by much. It will still rain in the area. Peterson said in January there were long-term predictions of over 4500 cfs, but as the date got closer and the forecast was refined the values shifted,but in one case like that, actual flow was 7000 cfs.

Lindke said we are obligated to stay below maximum fishery flow magnitudes in all reaches. If a storm is predicted to be way above, we need to move it to coincide with a lower anticipated storm event (not at the peak). A contingency is built in.

Lindke said the main objective is to trigger this ecological process in the upper portion of the river; it will ultimately provide additional benefit further downstream. More flow will do more. We can introduce something totally absent from the dam and increase activity downstream.

Lindke said we want to maximize productivity all the way up to the dam. We need to take advantage of the naturally occurring phenomena and maximize food production benefits.

Lindke said variations exist to what we're presenting. We would need a rigorous process to come to a different recommendation. He said if he could make a change, base flows in winter would always be higher than in summer. Base flows begin to be higher in mid-February, but naturally they would have occurred much earlier. A lot of variability exists between years; sometimes we see dry Januarys. Usually it picks back up, and elevated base flows come later. From 1912 to 1960, even without a high amount of water (a dry year), we see increasing winter base flow.

Orcutt asked who Lindke was representing today. Lindke said he was representing the flow work group. The flow work group took the recommendations to the IDT. Dixon said the IDT concurred to forward the recommendations to the TMC.

Orcutt said the limiting factors analysis might be one area to delve into further. Other situations, including climate change and other water bodies affect populations.

Lindke said we don't have control over the Klamath River, but we do have control over the condition of fish once they leave the Trinity. We're making a lot more fish than pre-ROD conditions, but we need better, bigger fish.

Orcutt said groups have different objectives. Lindke agreed and said at this stage in their management, our objective is to make as many adults as possible. We have been nowhere near full capacity in fisheries in decades. We need to take advantage of full harvest opportunities by making adults as robust as possible.

Orcutt asked whether timing-wise for the 4,500 North Fork trigger, have we accounted for various life history developments, egg deposits, etc.? Lindke said if Orcutt was asking about redd scour, we're pretty sure it is not nearly a problem about which we've been concerned. Dave Gaeuman, in his work for the Yurok Tribe, created a small but revolutionary report in which he looked at the physical force applied to streambeds that causes redd scour. As flows increase, sheer stress in areas with redd concentrations either flattens or reverses.

Orcutt mentioned situations in tributaries. Lindke said redds get flattened, but they still survive, and they are using areas we wouldn't expect. He said in the report the risk of redd scour is in the single digits.

Peterson added that fish have evolved and adapted to our naturally spiky winter peak flows. De Juilio offered that the paper he and Gaeuman worked on is available. He said the physical principles make a lot of sense. If flows are high, they are scouring out these holes and depositing sediment on riffles.

Gogan wondered whether after studying generations of fish, we are throwing modern science at a de-evolving fishery. Are we asking fish to do something they are not evolved to do?

Orcutt said the main concept is to better emulate conditions under which fish evolved. We have 109 miles of habitat to manage. It might be a good concept to consider, but we have created a super river without that missing component. Hatcheries are never brought to the table to talk about these conditions.

Public Comments

Todd Buxton said salmon may have adapted to the effects of the dam; salmon coming from the Trinity River do not differ from salmon emerging from other systems. Salmon bump their noses on the dam as opposed to natural rivers. He noted spawning distribution over the years has not changed in terms of redd site selections. Fish behavior itself seems to have remained the same. The channel changes, and the fish adapt by choosing different spawning locations.

Tom Stokely said he was glad to hear that the winter flow results would be sent to some independent reviewers. He also recommends sending the results to the SAB for review and determination of what are positive results that need to continue. He also recommends that some type of NEPA be completed before doing another winter flow. He said one was started and never completed. There were some negative economic impacts on Trinity County at a minimum. The judge in the Hoopa case apparently clearly said that NEPA was required but that the Hoopa filing did not justify issuing a temporary restraining order. He made a proposal that he emailed this morning that comes from Pacific Coast Federation of Fishermen's Associations, who want more salmon. He offered to the TRRP to pay for biologist Joe Polos to review the data and assumptions from the winter flow to determine if there were benefits. He has a grant to pay for Joe's time to review what has been done so far, so it will be truly independent of the TRRP or any other interests. Polos was involved with the FWS flow study and has 32 years of experience. Pending Polos' review information, he would offer that Polos work with the Hoopa Valley Tribe, the Yurok Tribe, Trinity County, and TRRP staff to come up with a compromise flow plan before the next meeting to which potentially everyone would concur. His offer stands in the event approval (agreement) is not reached today.

The Water Year 2023 Initial Findings and WY24 Flow Recommendations presentation is on the TRRP website at https://www.trrp.net/calendar/event/?id=11776.

TMC Decision (The TMC will consider the WY24 flow recommendations from the Flow Work Group and Interdisciplinary Team [IDT])

Chair Bader said the time to entertain a motion had arrived. He reminded the TMC that this is a recommendation for next year's flows; we are only approving a one-year flow regime. Things could be modified the following year.

Justin Ly moved to approve IDT's recommendation to implement winter flow variability for water year 24, to timely complete the NEPA process prior to implementation, and to inform the public at least two weeks in advance of the workflow variability release.

Dixon said the two-week timeline prior to release would be problematic because a specific release would not be known that far ahead.

Ly modified his motion to read "to inform the public at least two weeks prior to moving forward with winter flow …"

Ly continued his motion by adding that in addition, a monitoring plan will be provided to the SAB for their review prior to winter flow variability implementation to assess the effectiveness.

Gogan said he believes there is sufficient public awareness about winter flow variability in place from December 15 to February 15. He said there are so many different weather events—warm rain on top of snow, first rain on top of dry ground—it's difficult trying to "guesstimate" five days in advance.

Chair Bader read the motion: **Justin Ly moved to approve the IDT's recommendation to implement winter flow variability for water year 24, to timely complete the NEPA process prior to implementation, and to inform the public at least two weeks prior to moving forward with winter flow. In addition, a monitoring plan will be provided to the SAB for their review prior to winter flow variability implementation to assess the effectiveness.**

Bill Pinnix seconded the motion.

Orcutt offered a timeframe caution about the NEPA compliance requirement. It may require an EIS, not a FONSI or an EA. It's also contradictory because if it an extension of an EIS, it does nothing for this year. He remains in opposition but will state his reason at the appropriate time.

McElroy asked how close we are to NEPA completion and how confident we are that it would happen before December. Chair Bader said the last direction he received from the administration said we didn't need NEPA. We won't be making the NEPA call. Dixon said a review of the NEPA process could reveal that we have sufficient NEPA now to sign a FONSI or that we need an EIS. It's an unknown.

Gogan said it would be hard to believe current NEPA would be sufficient in light of the economic impacts to Trinity County, especially going with a FONSI. NEPA needs to be completed. We heard about the millions of dollars in loss Trinity County alone suffered because of the winter flows.

Chair Bader said when we're talking about the sufficiency of existing NEPA or NEPA that tiers to existing NEPA, any existing impacts would be reviewed in terms of the existing EIS. We will be looking at additional economic impacts. Any further NEPA would tier to the existing analysis.

Gogan said we would be staying with the existing requirements that are archaic now. We have a totally different set of circumstances in Trinity County than the original NEPA spoke to.

McElroy asked whether if current NEPA isn't considered complete, we would not be able to move forward.

Chair Bader said this is still a recommendation to our leadership for this action. We're making a recommendation upon an action.

Orcutt made a few comments in opposition. The record that has been created here is understood. The core group of the problem for the Hoopa is not the science nor the methodology. It's the

procedure that has been used; it's the lack of clarity in terms of what hasn't heeded us in the past and how it's been removed. We have repeatedly reached out to the Interior at the Secretary's level. The word in the statute that has yet to be used is the word concurrence. We stood on the most sacred site of the Hoopa and signed with the Secretary of the Interior and said we're going to let the government do the right thing here. At some point, as least in the Hoopa's opinion, it constitutes a major shift in policy. We continue to vote in opposition.

Ly asked whether a request from the USBR Regional Director for concurrence suffice? Orcutt said it goes well beyond that.

Following a roll call vote, the motion failed with six votes in favor and two opposed. The opposing votes came from Hoopa Valley Tribe and Trinity County. (TMC bylaws require 7/8 affirmative votes if 8 members are present.)

Orcutt asked if there was any need to give guidance to the IDT in lieu of the motion. Dixon said if it wasn't clear from Lindke's presentation, this was the IDT's recommendation by the Flow work group for flow management in WY24. Right now, there is no other recommendation for flow management for WY24 starting October 1, including spring releases.

Orcutt asked whether we would then go back to ROD flows. Chair Bader said today's vote did not implement variable winter flows as part of next year's flow management, and we need to figure out something else for this year. We'll follow the 2000 ROD.

Dixon clarified that we have never released exemplar hydrographs from the 2000 ROD and would need to make a recommendation to the Regional Director to do that. The absence of a vote from the TMC means we are not giving guidance to the Department of Interior on next year's flows.

Chair Bader said his Regional Director wanted to know the outcome of the decision today and he will now have that discussion. Also, the TMC is not precluded from sending direction to the Flow work group to develop an alternative proposal.

Ly indicated an interest in making another motion and was told it would need to be totally different than the motion that just failed. Ly stated the TMC is not limited to making motions based only on the IDT's recommendation. He expressed a desire to make a motion related to the water flows.

With the absence of winter variable flows, we will go back to the 2000 ROD, which has always been an April 1 forecast. We have a pretty good idea in March.

Ly said he wanted to have a motion about the ROD. Orcutt suggested another motion would provide some direction and indications of people's interests.

Justin Ly moved to recommend that TMC approve beginning October 1, implement 450 cfs baseflow through October 15, then reduce baseflow to 300 cfs from October 16 to April 15.

Mike Orcutt seconded.

Chair Bader asked if there was any discussion. Ly said he wanted to establish a boundary as to where the TMC was in terms of recommendations. He was interested to see what the TMC's potential direction to the Department of Interior would be since IDT's recommendation did not pass. He expressed concern that failing to make winter flow recommendations to the Regional Director would send the message that an automatic return to the ROD is preferable.

Gogan indicated that if this motion passes there is no chance for negotiation. Ly said this doesn't preclude a substitute motion. Chair Bader called for a roll call vote.

Following a roll call vote, the motion failed with Yurok Tribe in favor; California Natural Resources Agency, National Marine Fisheries Service, and U.S. Forest Service opposed; and Hoopa Valley Tribe, Trinity County, U.S. Bureau of Reclamation, and U.S. Fish and Wildlife abstaining.

Following the vote, the TMC continued an informal discussion on the winter flow topic. Pinnix said this situation doesn't stop us from continuing to compile results from 2023 that could help future decisions. Ly said we need to work on a flow schedule that will address all parties' needs. A winter flow recommendation would not change flows until December 15.

Gogan asked whether Ly's interest is seeing ROD flows immortalized until a flow schedule to address all parties' needs could be determined. Ly said he wants all parties to work together and to indicate that the TMC does not favor moving back to regular ROD flows. He supports the IDT working with the County and others to address economic and other concerns and reach an agreeable flow schedule.

Topics for December TMC Meeting (Redding)

The December 2023 TMC meeting will be held at the Shasta-Trinity National Forest Supervisor's Office, 3644 Avtech Parkway, Redding, CA 96002 from Wednesday, December 6 to Friday, December 8, 2023.

In addition to standing items and reports, current proposed agenda topics are as follows:

Informational/Discussion

- ✓ *Modeling the reestablishment of Coho salmon in Klamath River tributaries following dam removal (re-scheduled from September 2023 meeting) (Max Ramos)*
- ✓ *TCD Update (perhaps with a Design Team)*
- ✓ *Update on Trinity TRD Recon (Don Bader)*
- ✓ *Phase 2 Implementation Review Report (Work groups [Design and Physical] review recommendations and present to TMC)*

Decision

- ✓ *SAB membership: Consider adding additional SAB member (contract position) in light of Dr. Buffington's potential retirement plans*

The meeting was adjourned at 1 p.m.