CHEHALIS BASIN BOARD SUMMARIZED MEETING AGENDA AND ACTIONS

Date: March 3, 2023
Time: 9:00 AM, PST to 3:00 PM, PST
Location: Hybrid meeting – Fairfield Inn and Suites by Marriott, Grand Mound, Washington

AGENDA ITEM	FORMAL ACTION	FOLLOW-UP ACTION
1. Approval of current Agenda and February 2 meeting summary	Decision: Current agenda approved; February 2 meeting summary approved	No follow-up action.
2. 2023-2025 Budget Planning	Discussion /Direction	No follow-up action.
3. Director's Report	Discussion/Direction	OCB will continue tracking NMFS' response to ESA petitions and keep the Board apprised of updates.
4. Local Actions Non-Dam Alternative	Discussion/Direction	OCB will share Board comments and feedback with the MIG team and LAND SG.
5. Chehalis Basin Flood Control Zone District	Discussion	FCZD will learn more about distribution options for the final Traditional Cultural Properties (TCP) report and let the Board know what it learns. OCB will note the dam alignment sites as a possible field tour for the Board later this spring/summer and coordinate with FCZD and Weyerhaeuser (property owner) as needed.
6. Aquatic Species Restoration Plan	Discussion/Direction	OCB will coordinate with Kristin Harma to share the funding opportunities presentation at a future Board meeting. Nat Kale will contact ASRP Board Subcommittee members in coming weeks to schedule their next meeting. Ray Beamesderfer will review his documentation to determine whether the FRE impact estimate reflects mitigation measures or not and report back to the Board.

AGENDA ITEM	FORMAL ACTION	FOLLOW-UP ACTION
		OCB staff will consider how and when to revisit the salmon slider tool with the Board.
7. Chehalis Basin Strategy Process Refinement	Discussion/Direction/Potential Decision	Revisit during April Board meeting to get input from excused Board members
8. Skookumchuck Dam	Discussion/Direction	No follow-up action.
9. Next Steps and Closing	Discussion	No follow-up action.

Attendees

Chehalis Basin Board Members

NAME	APPOINTING AUTHORITY	ATTENDANCE
Vickie Raines	Chehalis River Basin Flood Authority	Present
Edna Fund	Chehalis River Basin Flood Authority	Present
Jay Gordon	Chehalis River Basin Flood Authority	Present
Tyson Johnston	Quinault Indian Nation	Present
Glen Connelly	Confederated Tribes of the Chehalis Reservation	Excused
J. Vander Stoep	Office of the Governor	Present
Steve Malloch	Office of the Governor	Excused

Chehalis Basin Board Ex-Officio Members

NAME	AGENCY	ATTENDANCE
Michael Garrity	Department of Fish and Wildlife	Present
Alex Smith	Department of Natural Resources	Present
Mark Gaines	Department of Transportation	Present
Josh Giuntoli	Washington State Conservation Commission	Present
Rich Doenges	Department of Ecology	Excused

Board Staff/Board Guests Present:

- See Attachment A.

Welcome, Introductions

Chair Vickie Raines called the meeting to order at 9:05 a.m. and welcomed the Board, staff, and audience.

Agenda and Meeting Summary Review

Ken Ghalambor provided an overview of the meeting's agenda; the Board did not have additions or revisions. Ghalambor also described a new approach the Office of Chehalis Basin (OCB) is taking for Board meeting summaries: Starting in February 2023, Board meeting summaries will include a greater level of detail than in the past and, particularly for the Board Process Refinement discussions with Sam

Imperati, include some Board comment/question attribution. Ghalambor also described a revision on page five of the February 2, 2023, meeting summary: The *Basin Perspectives: City of Centralia* section now includes a clarification that Mayor Kelly Smith Johnson expressed support on behalf of the City of Centralia for a basin-wide solution and that she trusts the Board's process and their experience. The Board did not comment on the new meeting summary approach and did not have additions or revisions to the February 2, 2023 meeting summary.

BOARD DECISION: Both the February Board meeting summary and March Board meeting agenda were approved by consensus.

Public Comment

The synopsis below represents the opinions of the speakers, not the Board, OCB, or affiliated staff. For exact wording, please refer to the meeting's recording.

Teri Wright expressed concern about a February 23, 2023 Seattle Times article that describes the Department of Natural Resources recent sale of forestlands in Lewis County near Cannonball Creek, a tributary of the Chehalis River. Wright's concern stems from the relationship between forest management and stream flows and temperatures (as described by Kevin Hansen, a hydrogeologist with Thurston County Stormwater Utility, during a November 30, 2022 OCB webinar on assessing flood risk, and the resources and assistance available for residents to protect themselves and their property from flooding). Wright requested that the Board reach out to the Board of Natural Resources and ask them to withdraw this sale. Wright added that withdrawing a sale is not unprecedented and that the mature forests store carbon, which can mitigate the impacts of climate change.

Lee First seconded Wright's comments and requested that the Board ask DNR to withdraw the sale, and added that the article states the funds will be divided by Lewis County and public education programs—something Washington should decouple, as state trust funds would be better used to protect wildlife, habitat, and industries that will feel the effects of a changing climate. First also requested that the Board's EZview website (hosted by the Department of Ecology) be updated with all meeting materials ahead of the meetings.

Ghalambor clarified that Board meeting materials are also posted on the public Box website: https://app.box.com/s/9y40ftu4j674t0l8kyiplc06bsxbyj90.

2023-2025 Budget Planning

OCB Director Andrea McNamara Doyle provided updates on budget requests, legislative outreach, and policy bills OCB is tracking in the current state legislative session:

State capital budget. The state revenue forecast is expected later this month before the House and Senate release their proposed budget. There will be no news or updates regarding the state capital budget until then, but OCB expects to know more about what's included in the budgets before the April Board meeting and will keep members updated as information becomes available.

Legislative outreach. OCB is rescheduling meetings with State Representatives Jim Walsh and Joel McEntire (19th District). Some Board members are participating in these meetings. The cities of Aberdeen and Hoquiam ask that, when speaking with legislators, Board members include information

about their support for the cities' $35.5 million separate legislative member request to help fund the North Shore levee (in addition to the Board's $73 million request).

Policy bills. Although OCB is not directly tied to any active policy bills, it is tracking the following:

- Senate Bill 5649 (proposed by Senator John Braun [20th District]): A residential floodproofing bill; it is on the Senate floor calendar as of 3/6/2023.
- House Bill 1170: A climate resilience bill that updates the state's integrated climate response strategy; it has been passed by the House and in Senate Committee as of 3/6/2023.
- House Bill 1728: A bill that would direct the military's Department of Emergency Management to administer a statewide resilience program that would include flood planning requirements; it has passed the House as of 3/6/2023.

Key comments and discussion topics included:

- Legislative meetings with Board members are particularly effective in demonstrating to legislators the breadth of diverse interests working together in the basin; the more opportunities to brief legislators and committees the better.

Director's Report

McNamara Doyle covered the following topics in her Director's report:

OCB staff. Stevie Colson is OCB's new office manager and executive assistant to the Director. Her email is stco461@ECY.WA.GOV.

Federal funding strategy.

- City of Centralia is moving forward as a finalist for the US Department of Transportation Thriving Communities grant. OCB signed on as a cooperating partner, along with the City of Centralia School District, and has provided additional information in support of the application. We expect to learn more later this spring or early summer.
- OCB is in the final stages of hiring a consulting firm to provide tiered and scaled services that focus on (1) developing a federal funding strategy in coordination with an advisory group comprised of basin partners and (2) supporting grant writing (services for which will vary depending on the nature of different grants).

Revisiting climate change issues.

- OCB is preparing a presentation on this topic for the Board (likely will be shared at the May or June Board meeting). This is also included in an issues list being compiled by Sam Imperati (ICMresolutions).
- Conversations with WA Department of Fish and Wildlife confirmed the recent Endangered Species Act (ESA) petition filed with National Marine Fisheries Service (NMFS) for spring Chinook in Northern California and Southern Oregon; there was another recent ESA petition filed for

steelhead trout on the Olympic Peninsula. OCB will continue to collect information on the NMFS filing timelines and pathways and keep the Board apprised.

Community Flood Assistance and Resilience (CFAR) program updates.

- A small works roster is in place so CFAR can begin home elevations for several landowners this coming summer.
- OCB is in the process of hiring a consultant to complete landowner negotiations and real estate transactional due diligence for a couple of CFAR property acquisitions.

Acquisition opportunities.

- OCB has an opportunity to work with a local government and fill a small funding gap to move forward with a property acquisition that is not within the ASRP or CFAR scope (a similar situation to last year's work with Lewis County) but could have multiple benefits. OCB is in discussion with the local government and another state agency to learn more and will keep the Board apprised, especially if negotiations move into final stages and parcel information becomes public.

Key comments and discussion topics included:

- Several Board members expressed support of OCB pursuing acquisition opportunities and notifying the Board once negotiations are done before the Board consents to enter any agreement. One Board member noted that this approach is consistent with what the Board and OCB have done in the past for other issues. One board member suggested the OCB Director should confer with the Chair during the due diligence process.

FOLLOW UP:

- OCB will continue to track NMFS' response to two Endangered Species Act petitions (one for Spring Chinook in Northern California and Southern Oregon and one for steelhead trout on the Olympic Peninsula) and keep the Board apprised of updates.

Local Actions Non-Dam Alternative (LAND)

Ken Ghalambor (Ross Strategic) updated the Board on the LAND Alternative work since the recent public workshop (January 19, 2023) and LAND Steering Group retreat (January 31, 2023):

Additional information and analysis. All potential LAND interventions are still being considered and the Steering Group has requested additional analyses and information from the MIG contractor team prior to their March 20, 2023, meeting to help inform their position, including refined cost updates for the proposed Safe Structures Program; information and locations of upstream and downstream impacts; economic impacts on urban and rural areas; additional analyses on equity, recreation, and ecosystem services; and a technical memo related to potential regulatory approaches for options that include levy and diversion options.

Community briefings. There have been several community briefings since January 2023 and several more scheduled through April. A goal for the community briefings is for at least one SG member and/or Board member to be present.

- The WA State Department of Transportation briefing in March is designed to update the agency's executive leadership on the broader Chehalis Basin Strategy, how LAND fits into the Strategy, and to help begin to address questions about how the LAND proposals might impact Interstate-5 and other state transportation routes.
- This executive-level agency briefing approach is being repeated for WDFW.

Preliminary recommended LAND alternative. The SG hopes to coalesce around a preliminary recommendation at their March 20, 2023 meeting before sharing with the Board at its April 6, 2023 meeting.

Public survey. Board members are encouraged to participate in MIG's current survey, as well as share with their constituents and any other interested parties.

Links to the LAND presentation materials:

- PowerPoint presentation in Box
- Survey: bit.ly/ChehalisBasinAlternative

Key comments and discussion topics included:

- The Chehalis Basin Strategy has supported raising or moving threatened structures in the Basin for a long time, which is reflected in past and current efforts such as the Programmatic SEPA EIS and CFAR. It is important for LAND materials to clearly reflect that this policy approach is not new and will go hand-in-hand with LAND efforts as well as other efforts, so as not to leave interested parties with the wrong impression. Specifically, a LAND presentation slide for recent community briefings that says ~1,500 valuable structures will be protected under the LAND alternative but not under the proposed flood retention facility, which is not correct and needs to be revised (several structures have been elevated or moved under current Strategy programs).
- The LAND SG and the Skookumchuck Dam team will continue to coordinate and further examine the ability to influence the operations of the Skookumchuck dam reservoir to provide flood damage reduction, including the timing and volume of release. Note that, currently, Skookumchuck Dam is *not* configured or being operated to support salmon migration survival and dam refinements made specifically for flood control could create more pressure on the species.
- A consistent reaction to the LAND options is, "What is this going to cost?" and, "What is the timeline?" For example, the diversion/conveyance proposal which includes relocating Mellen Street bridge will take time to analyze and may face permitting hurdles, so it's important to identify major considerations about implementation and sequencing. More information on these topics will be helpful, as well as additional considerations, such as how Safe Structures would align with CFAR, to support Board decision making.

FOLLOW UP:

- OCB will share Board comments and feedback with the MIG team and LAND SG.

Chehalis Basin Flood Control Zone District (FCZD)

Erik Martin, FCZD District Administrator, and Matt Dillin (FZCD Project Manager) provided updates on recent FCZD work: Two alternative project alignments for the location of the dam site included in the Draft SEPA and NEPA EISs are still being evaluated that could minimize impacts on nearby Traditional Cultural Property (TCP) and allow for open fish passage during construction. FCZD has examined one approximately 1,000 feet upstream and one approximately 1,000 feet downstream, as a solution to minimize the proposed dam's impacts on the nearby TCP. Both new alignments are still being analyzed but likely meet safety and flood risk reduction standards and could allow for an open-channel fish passage during construction. FCZD has determined that the upstream alignment presents better opportunities to minimize TCP impacts and is planning further analysis on that option right now, while not entirely ruling out additional analyses on the downstream alignment.

Key comments and discussion topics included:

- A final TCP report is being reviewed by Tribes through the Section 106 process, which likely will not be widely circulated. It is unclear whether the report, or a version of it, will be distributed to the Board or just the Chehalis Tribe and Quinault Nation.
- FCZD came to its conclusions about TCP impacts based on best-available information to it: the downstream alignment is on a very straight stretch of river, which creates a larger visual impact, and it's within the inundation pool which will make the visual more prominent and further impact vegetation. The upstream site is around the river bend from the TCP and outside the inundation pool, so it would presumably have less impact on vegetation and, because it also has more mature trees, the visual impact would be less prominent.
- FCZD will continue to discuss the alignment siting through the Section 106 process and with Tribes.
- "Further analysis" for the upstream alignment includes examining new National Marine Fisheries Service (NMFS) fish passage guidance and ensuring the alignment meets those criteria, generating additional visualizations of what the dam might look like, and focusing geotechnical work on the new site.
- Artificial fish passage (i.e., a temporary tunnel dug during construction) is known to have significant impacts on fish; open-channel fish passage allows a portion of the river to remain free-flowing throughout the dam construction process so fish can migrate and/or access fish passage structures. The new dam alignment sites require additional analysis to determine if open-channel fish passage is feasible (as stated above).
- Erik Martin has resigned his role as Lewis County's County Manager, effective April 1, 2023. He will likely continue in a contracted administrative role with FCZD.

FOLLOW UP:

- FCZD will investigate whether the final TCP report can be more broadly distributed and let the Board know what it learns.
- OCB will note the dam alignment sites as a possible field tour for the Board later this spring/summer and coordinate with FCZD and Weyerhaeuser (property owner) as needed. Due

to group size constraints on the site, it may be possible to capture drone footage to share with the Board as well or in lieu of a site tour.

Aquatic Species Restoration Plan (ASRP)

The ASRP-dedicated portion of the meeting included two parts: (1) Nat Kale (OCB) shared takeaways from the recent ASRP Board Subgroup meeting and (2) Celina Abercrombie (WDFW) introduced Ray Beamesderfer, a contractor with Fish Science Solutions, Inc., who presented an overview and demonstration of a salmon analyzer tool that can help the ASRP Steering Committee and Board orient and inform its habitat investment priorities with respect to other limiting factors like hatcheries, harvest, hydropower, and predation. Board members were invited to try using the salmon analyzer tool during the meeting's lunch break.

ASRP Board Subgroup meeting. Board members, ASRP Steering Committee members, and staff met and discussed three topics:

- Funding opportunities and existing projects, which was informed by a presentation from Kirsten Harma, Chehalis Basin Partnership, that provided a background of funding opportunities and described those that are either already being pursued in the basin or that are new;
- The 2023 ASRP Steering Committee workplan; and
- How the ASRP can address fish and aquatic species that aren't directly connected to habitat restoration.

Subgroup follow up actions from the meeting include coordinating with and providing project direction to OCB's new federal funding strategy contractor (mentioned above in the Director's Report).

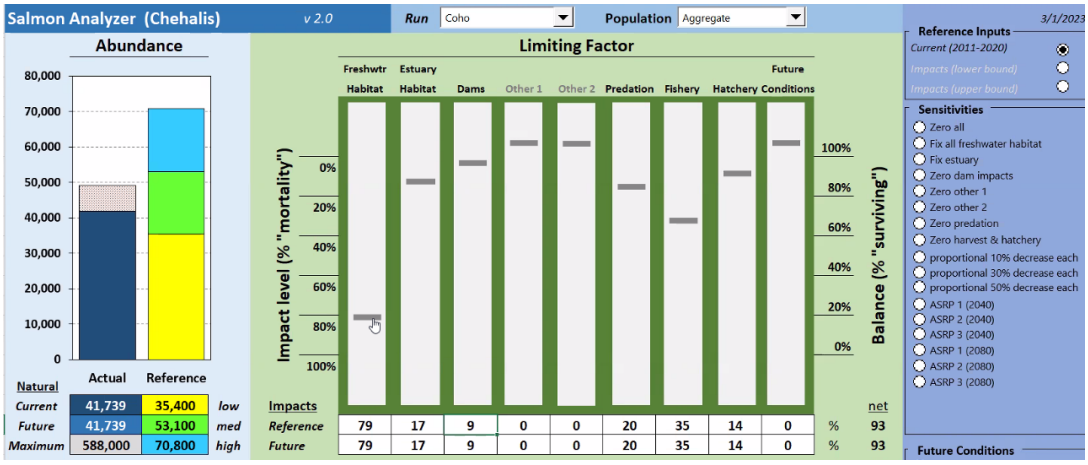
Integrated salmon analyzer tool (aka "salmon slider"). The salmon analyzer tool allows users to create different scenarios for salmon and steelhead in the basin by manipulating different elements relative to their survival (such as stream habitat or predation). The tool can provide guidance to decisionmakers who wrestle with recovery questions by providing a comprehensive picture of how elements affect one another in the system. It is helpful to think of the tool as a dial-turning exercise: fish survival elements are configured as dials with magnitudes relative to their impact on Chehalis salmon and steelhead health. Users can adjust the dials to understand the benefits of different actions. Beamesderfer described the three main components of his work that makes it an "integrated analysis" tool:

- *Stock assessment*: The tool relies on natural-origin salmon and steelhead abundance data because it drives the viability of wild fish populations, but it tracks hatchery populations as well. A forthcoming report describes the baseline condition the tool relies on to analyze various scenarios (dial settings) and answers questions such as, "Where are the salmon and steelhead populations in the basin?" and, "What do we know about hatchery and wild fish components?"
- *Limiting factor analysis:* Elements affecting Chehalis Basin salmon and steelhead are all quantified by *percent impact*, or survival rate affecting abundance, which allows them to be compared against one another. The percent impact measure can also be thought of as the percentage reduction in fish abundance due to negative impacts. For example, Chehalis coho

historical production capacity[1] is estimated to be reduced 79% due to habitat loss (see presentation slides 12, 14, and 16; note the pie chart percentages on slide 12 do not sum to 100% because they are individual estimates of each element's impact).

- *Life cycle analysis*: A sensitivity analysis of the impacts that drive fish abundance is conducted by "turning off" all the dials or elements except one to determine their individual percent change relative to current populations.

Below is a snapshot of the salmon slider tool (presentation slide 21):



Link to the salmon analyzer tool presentation: PowerPoint presentation in Box

Key comments and discussion topics included:

- Salmon analyzer tool estimates of fish abundance reductions due to habitat loss are independent of fishing – it reflects how many fewer spawning fish the basin can produce now compared to pre-development levels as a result of habitat loss or degradation.
- The salmon analyzer tool focuses on human-caused elements that are potentially manageable. It does not directly reflect marine water conditions or climate change, but current fish abundance estimates reflect these elements.
- The fact that salmon species historically existed in certain tributaries but no longer do is best captured in the tributary's habitat impact (difference between current spawner production and pre-development production); this is an example of a model limitation and variance between levels of confidence in reporting on different elements.
- The salmon analyzer tool will not parse *why* the impacts occur or to what extent they're caused by individual components such as stream temperatures. This came up in reference to slide 15, when a Board member asked about the reporting related to the Skookumchuck Dam and the potential cause-and-effect nature of its impacts on fish. Beamesderfer responded: Blocking fish

[1] The historical production capacity varies by model, such as EDT and the NOAA Life-cycle Model, which typically calibrate current conditions to quantities that align with pre-development conditions and produce projections based on that information.

passage and restricting access to habitat are the direct impacts the dam has on fish; indirect effects are caused by the reservoir and its operations which have altered the river's thermal regime (warmer stream temperatures) and reduced its suitability for fish.

- The FRE facility impact (slide 15) is estimated based on the State Environmental Protection Act Draft Environmental Statement; it is unclear whether it reflects any mitigation measures associated with the facility.
- It is likely that people will want to know, "If we turn X dial, how many more fish can we get than today?" This is a consideration for sharing this information with the broader public.
- The hatchery impact data generally reflects fitness and some ecological effects. Limitations include distinguishing effects of competition between different species and natural spawners and hatchery fish.
- A similar slider tool has been used by other entities to help with decision making, such as the Columbia Basin Collaborative

FOLLOW UP:

- OCB will coordinate with Kristin Harma to share the funding opportunities presentation at a future Board meeting.
- Nat Kale will contact ASRP Board Subcommittee members in coming weeks to schedule their next meeting.
- Ray Beamesderfer will review his documentation to determine whether the FRE impact estimate reflects mitigation measures or not and report back to the Board.
- OCB staff will consider how and when to revisit the salmon slider tool with the Board.

Chehalis Basin Strategy Process Refinement

Sam Imperati (ICMresolutions) led the Board through a series of higher-level process questions.

The Purpose of Higher-level Process Discussions

Sam reminded the Board that the purpose of these discussions is to agree to a more precise definition of the Board's charge, and understand Board members underlying perspectives and assumptions therein, in order to minimize the risk of conflict among Board members in their final negotiations around the long-term Strategy. In response, Board members offered the following observations:

- Edna Fund: The RCW governing this body calls on us to aggressively pursue both "fish" and "flood." There's no question that the Board is committed to both, and we've come a long way.
- Vickie Raines: The Board has operated historically with a 50/50 split for "fish" and "flood," though we've evolved to be flexible to best serve immediate needs (e.g., emergency funding allocated to the Satsop River). We want to encourage a spirit of asking questions.
- Michael Garrity: The Board is adept at making smaller-scale recommendations, but this exercise will assist with the more difficult decision-making ahead.
- J. Vander Stoep: An underlying assumption I hold is that the integrated nature of the Strategy (addressing "fish" and "flood") is what has enabled the degree of bipartisan funding support

we've secured for basin investments over the last several biennia, and what will continue to attract support in the future.

Defining the Final Long-term Strategy Selection

Sam posed the question to Board members: "What is your final long-term Strategy selection? (A recommendation? A conditional recommendation? A binding decision? Other?)" In response,

- Michael Garrity: The default is for the Strategy to be a binding decision; the reality, however, is that conditions and contingencies will be built into the implementation plan. The Yakima Integrated Plan had this conditional element.

Sam offered that the public perception of the Board's charge does not include this nuance – that the final recommendation is likely to be conditional or contingent upon future opportunities or constraints – however, garnering that understanding from the public will be necessary for continued support from jurisdictions, partners, and the legislature.

Refining the Board's Charge: "Umbrella Question"

Sam then led Board members through an exercise to further refine the Board's charge (i.e., "umbrella question") that more precisely defines the Board's charge, building on revisions made in the February Board meeting. The Board started with this revised draft, to which Board members provided further proposed revisions between meetings:

> ***Recognizing*** *the clear urgency to take effective, integrated actions that are timely, practical, politically viable, and cost-beneficial;*
>
> ***How can we*** *work with and incentivize basin residents and partners to voluntarily restore and protect native aquatic species and natural habitat, enhance tribal and non-tribal harvest levels [or: support self-sustaining, abundant, harvestable fish populations throughout their historic ranges], and protect cultural resources in the face of a changing climate and population growth;*
>
> ***While at the same time*** *significantly prevent, reduce, and minimize basin-wide flood and drought damage from a changing climate to human and natural infrastructure, before the next catastrophic event [sense of urgency – from fish, flood, and funding perspective];*
>
> ***Thereby*** *creating a balanced, sustainable, and implementable long-term strategy that supports the net-interests [recognition of personal, socioeconomic toll on people/communities] of all those who live, work, and recreate in the Chehalis Basin while simultaneously avoiding, minimizing, and mitigating any associated negative consequences as seen through the eyes of ASRP SC for aquatic species and as seen through eyes of FA for flood damage?*

In discussing members' additional proposed revisions, the Board landed on the following revised version (terms discussed in detail are underlined below for easy reference):

> ***Recognizing*** *the clear urgency to take effective, integrated actions that are timely, practical, politically viable, and cost-effective;*

How can we *work with and incentivize basin stakeholders to voluntarily support protecting and restoring natural habitat and native aquatic species, support self-sustaining, abundant, harvestable fish populations, and protect cultural resources in the face of a changing climate and population growth;*

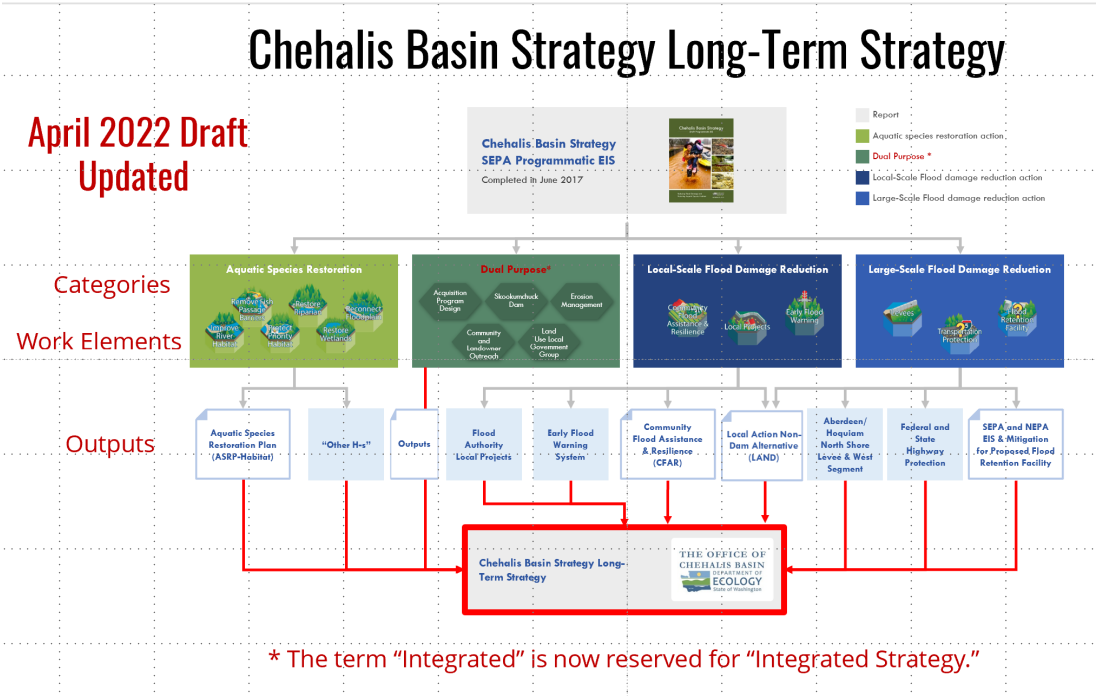
While at the same time, *reducing basin-wide flood damage to human infrastructure and aquatic habitat before the next catastrophic event and in the face of an increasing threat of flooding due to a changing climate;*

Thereby *creating an equitable, balanced, and sustainable long-term strategy that supports a net improvement for all those who live, work, recreate, and have an interest in the Chehalis Basin while simultaneously avoiding, minimizing, and mitigating any associated negative consequences?*

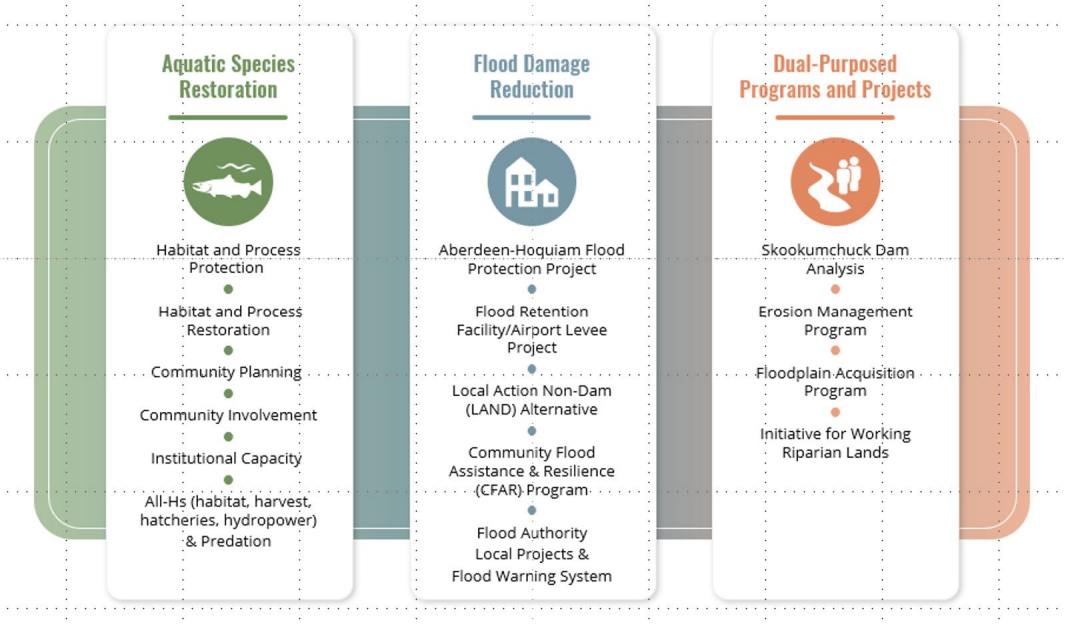
Given that not all Board members were present, the Board will revisit these revisions at the next meeting to confirm the final language describing the Board's charge. Sam suggested that, once final, the Board could share the "umbrella question" in external events to further develop a basin-wide understanding of the Board's charge.

Elements and Phases of the Long-term Strategy

Sam shared two graphics recently developed for use in OCB's forthcoming legislative report describing the long-term Strategy (as mandated by Section 3 of HB 1154). The first graphic proposes a new bundling of programs and projects, categorizing the elements of the Strategy into three groups – aquatic species restoration, flood damage reduction, and dual-purposed programs and projects (previously referred to as integrated) – a simpler visualization than previous ones describing the Strategy's elements. He noted that the word "integrated" will now be reserved to only describe the Strategy as a whole.



Sam presented the following new graphic (draft) that displays three categories with their component elements.

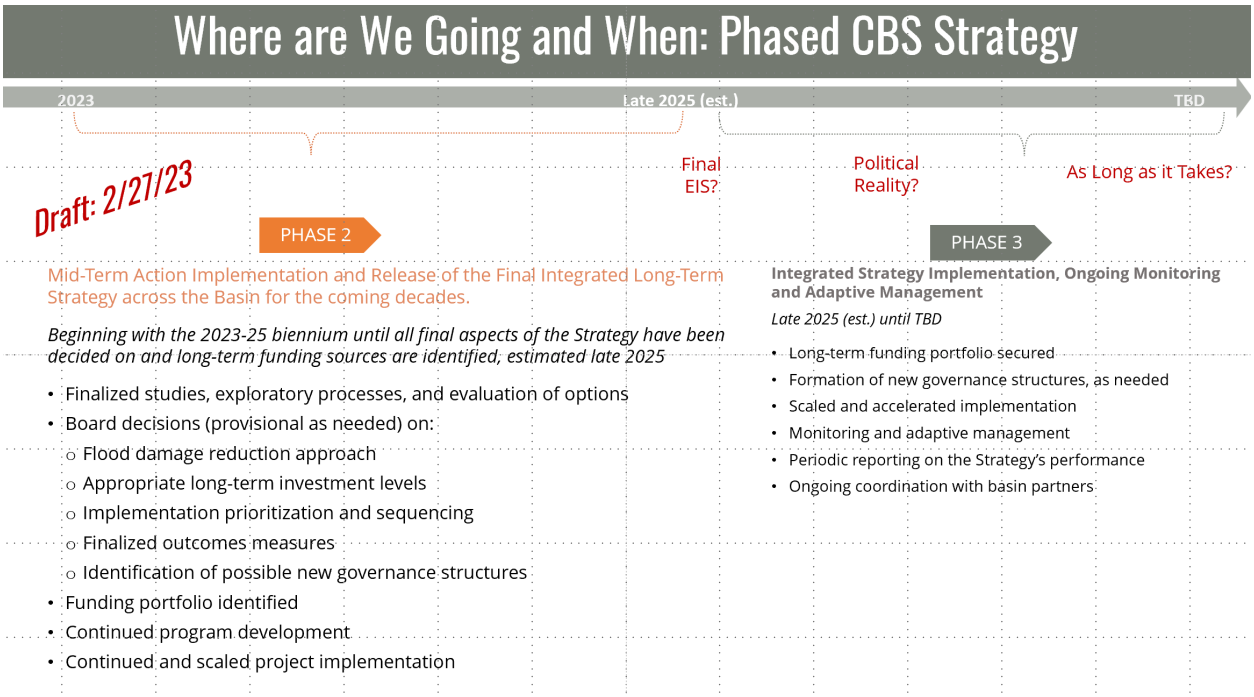


Sam then walked through the second graphic describing the implementation and development of the Strategy in three phases:

- Strategy Phase 1: Early Action Implementation and Initial Strategy Development, to include all progress from the formation of the Governor's Work Group in 2012 through the 2021-23 biennium. This phase is characterized by:
    - Early project implementation of near-term priorities
    - Pilot project learning
    - Launch of collaborative decision-making structures
    - Foundational science, exploratory processes, and evaluation of options
    - Preliminary outcomes measures
    - Program development in anticipation of scaled implementation
- Strategy Phase 2: Mid-Term Action Implementation and Release of the Final Integrated Long-Term Strategy, beginning with the 2023-25 biennium until all final aspects of the Strategy have been decided on and long-term funding sources are identified (estimated late 2025). This phase is characterized by:
    - Continued and scaled project implementation
    - Advancement of best available science, exploratory processes, and evaluation of options
    - Board decisions (provisional as needed) on:
        - Flood damage reduction approach
        - Appropriate long-term investment levels
        - Implementation prioritization and sequencing

        - Finalized outcomes measures
        - Identification of possible new governance structures
    - Funding portfolio identified
    - Continued program development
- Strategy Phase 3: Integrated Strategy Implementation with Ongoing Monitoring and Adaptive Management, beginning in late 2025 (est.) until TBD. This phase is defined by the following anticipated milestones:
    - Long-term funding portfolio secured
    - Formation of new governance structures, as needed
    - Scaled and accelerated implementation
    - Monitoring and adaptive management
    - Periodic reporting on the Strategy's performance
    - Ongoing coordination with basin partners

Subsequently, Sam presented a graphic that overlays a timeline on top of Phases 2 and 3.



J. Vander Stoep offered his support for this framing and the proposed timeframes, including the late 2025/early 2026 estimated timeline for the Board delivering its decisions on the long-term Strategy. He suggested emphasizing the substantial implementation progress the Strategy has accomplished.

Finally, Sam previewed a series of discussion topics and draft concepts for the Board's future process discussions for the development of the long-term strategy.

Link to the Board Process Refinement presentation materials: CBB Process Refinement Presentation

Skookumchuck Dam

Nat Kale (OCB) continued the presentation from the February 2, 2023 Board meeting on the four alternatives the Skookumchuck Dam Workgroup developed: (1) Improve fish passage only; (2) Improve flood storage only; (3) Combined fish and flood improvements; and (4) Dam removal. Kale described the tradeoffs associated with all four options in relation to benefits for fish, ability to control flood damage, and water availability (water rights).[2] Figure 1 is a snapshot of the alternatives (including a no-action alternative, "Current Operation") and their anticipated tradeoffs (slide 3):

COMPARISON OF THE ALTERNATIVES

ALTERNATIVE	FISH ABUNDANCE	FLOOD EFFECTS	WATER RIGHTS	COST
Current Operation	No change	No change	No change	N/A
Fish Passage Only	Steelhead **+** Coho **+** Spring Chinook **=** Fall Chinook **=**	No change	Small but increased risk of water rights curtailments in drought years	$8.3 million
Flood Storage Only	Steelhead **=** Coho **-** Spring Chinook **-** Fall Chinook **-**	Substantial reductions in flood extent and depth; less benefit in late-century	Small but increased risk of water rights curtailments in drought years	$42.2 million
Combined Fish-Flood	Steelhead **+** Coho **+** Spring Chinook **-** Fall Chinook **-**	Substantial reductions in flood extent in depth; less benefit in late-century	Small but increased risk of water rights curtailments in drought years	$50.5 million
Dam Removal	Steelhead **++** Coho **+** Spring Chinook **+** Fall Chinook **+**	Small increases in flood extent and depths	Higher risk of water rights curtailments in drought years	$25-$35 million (median) +$80 million (water rights)

CHEHALIS BASIN STRATEGY

Figure 1: Skookumchuck Dam Alternatives

Fish migration. Migration length and timing impact how much an individual fish species might benefit from any of the alternatives. For example, because spring and fall Chinook are primarily mainstem river spawners and can access a limited amount of habitat upstream of the dam and their fry and juveniles require a longer period of time to pass downstream (about 6 months), these species will benefit much less from any alternative that leaves the dam in place.

Water passage and current fish sluice. There are three ways for water to pass the dam: over the spillway, through the dam's pipe system, or through the fish sluice, which is a narrow cut in the side of the spillway. Overall, the dam is not designed to accommodate fish migration (either upstream or downstream) and the fish sluice is ineffective and typically harms the juvenile fish that use it. Improving the sluice and finding a way to ensure water passes through it *at the same time* as downstream

[2] Assessment limitations: Tradeoffs for fish were assessed using the Ecosystem Diagnostic and Treatment (EDT) model, which reports physical processes, such as stream flows or temperatures, based on its data inputs. This is to say, habitat-related outcomes are only as reliable as its inputs. Tradeoffs for flood storage were assessed using three hydraulic models that simulated the dam's reservoir, which is difficult because the Skookumchuck operation parameters are broad. Therefore, sometimes the model reports align well with actual flood events (e.g., January 2022) and sometimes they did not (e.g., 2007 or 2009).

migration (six months—mid-January through mid-July—to accommodate all species) is essential for benefitting fish.

Flood damage reduction. The current dam cannot be emptied quickly which limits its ability to reduce flood damage. There are two improvements that would increase the dam's ability to manage flooding: add bigger pipes to allow a higher volume of water to pass through and keep the reservoir lower during winter months (when the area is most prone to flooding) so it doesn't take as long to drain.

Tradeoffs between fish benefits and flood management. As mentioned above, the reservoir would need to be kept at least as high as the fish sluice to accommodate juvenile fish downstream migration in the winter, spring, and early summer. However, the region's most intense flooding occurs during the winter, so keeping a lower reservoir at that time conflicts with fish migration needs. This is why the combined fish-flood alternative benefits coho and steelhead (which migrate downstream later in the year) but not spring and fall chinook (which start migrating downstream earlier in the year); removing the dam is the only way to really benefit Chinook but this would lead to worse outcomes for flooding and water availability.

Consequences of removing the dam. Reconnecting the two halves of the Skookumchuck River would lead to healthier river processes and improve habitat and migration for many species beyond fish. However, the extent to which the dam contributes to cooler water temperatures (a benefit for fish) is not necessarily accounted for by the models and, furthermore, removing the dam would eliminate the TransAlta water bank which is important to the local community (the Chehalis Basin is essentially closed to new water rights).

Off-channel storage. OCB developed a fact sheet about creating off-channel storage as an option to offset the water rights tradeoff because of high costs (estimates range from $96 million to $350 million) and the fact it would likely increase the risk of downstream flooding.

Board decision timeline. Key stakeholders will participate in a panel discussion at the April 6, 2023 Board meeting so Board members can directly hear their interests and concerns. OCB plans to ask the Board for direction at their May 4, 2023 meeting.

Link to the Skookumchuck Dam presentation: PowerPoint presentation in Box

Key comments and discussion topics included:

- Downstream flood damage reduction provided by the dam is difficult to describe because of its indiscriminate nature: it provides significant flood management benefits for some flood events but not for others.
- Data limitations: There is no available data related to fish survival through the reservoir or through the dam. If adult Chinook were moved above the reservoir (trap and release), they would likely spawn upstream but with the current fish sluice, migrating juveniles would not likely get back downstream. Steelhead would likely have a lower success rate navigating out of a reservoir. Furthermore, much is unknown about the river's water temperatures and relationship with groundwater. This can be researched further if the Board determines it would be useful.
- WDFW's involvement with the Skookumchuck Dam is unusual: It has a weak operational agreement because there are not ESA-listed fish, the amount of energy its hydropower facility generates is too small to warrant a Federal Energy Regulatory Commission (FERC) license, and it

is privately owned by TransAlta. The dam's operation and fish passage facility are atypically poor for the region, so the Department may be inclined to not support any proposed subsidies to Trans Alta for dam improvements.

- The Phase 2 report includes information on the baseline estimates for fish abundance and flood effects that can help quantify the plus and minus signs included in Figure 1, above. When OCB develops their May presentation, they will consider ways to package information to be useful for decisionmakers (such as by including a decision table).
- The Board's direction and ultimate decisions regarding the Skookumchuck Dam should take other Strategy actions into account. For example, steelhead and spring Chinook are two of the most impacted species by the proposed FRE. Although improvements to fish runs in the Skookumchuck may not be considered FRE mitigation (were the facility to be built), it could contribute to a net positive change for the species in the basin.
- Skookumchuck flood management benefits and its associated water rights are important for basin communities in supporting a broader Chehalis Basin Strategy and these issues need to be thoroughly addressed when considering changes to the dam.

FOLLOW UP: N/A

Next Steps and Closing

Ken Ghalambor (Ross Strategic) thanked Board members for their participation and adjourned the meeting. The next regular Board meeting will be April 6, 2023, as a hybrid (in-person/online) meeting in Montesano, Washington.

Attachment A

Board Staff/Board Guests:

Those that participated virtually are noted with an asterisk.

- Alex Dupey, MIG
- Alexandra Gustafson, Trout Unlimited*
- Andrea McNamara Doyle, Department of Ecology, Director, Office of Chehalis Basin
- Anthony Waldrop, Grays Harbor Conservation District*
- Arthur Grunbaum*
- Brenda
- Brian Blake*
- Brian Shay, City of Hoquiam*
- Carrie Sessions, Governors Office*
- Casey Hart, Ross Strategic*
- Celina Abercrombie, Department of Fish and Wildlife
- Cheryl Vincent, Chehalis River Basin Flood Authority*
- Cindy Bradley, Office of Chehalis Basin*
- Col. (Ret) Ronald Averill, Chehalis River Basin Flood Authority*
- Colleen Granberg, Department of Natural Resources*
- Dave Bingman, Quinault Nation*
- Heather Page, Anchor QEA*
- Heather May*
- Hope Rieden, Department of Natural Resources*
- Izzy Zucker, Pyramid*
- J. Paul Rinehimer, WEST Consultants*
- Jenn Tice, Ross Strategic*
- Kat Dickey, Department of Ecology, Office of Chehalis Basin
- Ken Ghalambor, Ross Strategic
- Kylin Brown*
- Larry Karpack, Watershed Science & Engineering*
- Larry Lestelle*
- Laura Foster*
- Laura McMullen*
- Lauren Dennis, Ross Strategic*
- Lee First, Twin Harbors Waterkeeper*
- Linda Orgel*
- Lizzie Jespersen, Pyramid Communications*
- Mark Gaines, Washington State Department of Transportation*
- Mark Glyde*

- Merri Martz, Anchor QEA*
- Mike Olden*
- Nat Kale, Department of Ecology, Office of Chehalis Basin
- Nicole Czarnomski, Washington Department of Fish and Wildlife*
- Nick Bird, City of Aberdeen*
- Owen Sexton, The Chronicle *
- Peter Regan*
- Phyllis Farrell*
- Renelle Smith*
- Rob Gordon, Mayor of Bucoda*
- Sam Imperati, ICM
- Scott Boettcher, Chehalis River Basin Flood Authority*
- Scott Robinson, Recreation and Conservation Office*
- Shelby Thomas, Ross Strategic*
- Stevie Colson, Office of Chehalis Basin*
- Stacy LaClair*
- Tammy Domike, Citizens for a Clean Harbor*
- Teri Wright, Wild Orca*
- Travis Casey, Department of Ecology*