Commissioners:
RONALD E. SKAGEN
MOLLY SIMPSON
AARON J. VIEBROCK

General Manager:
GARY R. IVORY

Public Utility District No. 1 of Douglas County

1151 Valley Mall Parkway · East Wenatchee, Washington 98802-4497 · 509/884-7191 · FAX 509/884-0553 · www.douglaspud.org

Via Electronic Filing – mfischer@lowimpacthydro.org

Maryalice Fischer
Certification Program Director
Low Impact Hydropower Institute
68 Harrison Ave. Ste. 605 PMB
Boston, MA 02111-1929

August 22, 2025

Subject: **Wells Hydroelectric Project – FERC Project No. 2149**
Douglas PUD's Response to the Second Round of Stakeholder Comments regarding Wells LIHI Certification Application

To Whom It May Concern:

Public Utility District No. 1 of Douglas County (Douglas PUD) appreciates the opportunity to engage in the Low Impact Hydropower Institute's (LIHI) review of the Wells Hydroelectric Project and to respond to recent public comments submitted by Trout Unlimited, Columbia Riverkeeper, and other advocacy organizations. While we value the important role these organizations have in advancing the dialogue related to the health of the Columbia River ecosystem, we feel that it is important to clarify and correct several of the mischaracterizations and overly general narratives put forward in these comments. The primary concern expressed by these groups does not appear to be related to the operational performance, fish enhancement or water quality performance of the Wells Project, but instead are focused more broadly on their concern that if Wells Dam were to be certified as a Low Impact project that it would set a precedent, potentially paving the way for other hydropower projects to receive a similar designation.

> *"While we are supportive of public and private utilities that operate hydroelectric dams, while working to improve operations and conditions for aquatic species (such as steelhead and salmon) and the ecosystems they rely on, we believe that a LIHI certification for any dam within the Columbia River basin could set a concerning precedent"* – Trout Unlimited

> *"An additional concern is the precedential impact of certification of Wells Dam as low impact. If Douglas PUD were to succeed in its application, Chelan PUD and Grant PUD*

seem highly likely to follow suit and seek low-impact certification for Rocky Reach, Rock Island, Wanapum, and Priest Rapids dams." – Save Our Wild Salmon

"…this process (certification) *could set a precedent for certifying many other old mainstem dams that have, individually and collectively, devastated salmon, steelhead, lamprey, sturgeon and other economically and culturally significant fisheries."*
–Columbia Riverkeeper

"Certifying Wells Dam for low impact status would set a dangerous precedent for the Columbia Basin. Four other mid-Columbia dams downstream of Wells (Rocky Reach, Rock Island, Wanapum, and Priest Rapids) operate under very similar HCPs or settlement agreements. Granting certification to Wells Dam would open the door to further certification based on inadequate compliance-driven, not outcome-driven, standards." – Yakama Nation

Precedent is a curious argument here, as it is our understanding that the decision to certify a project as Low Impact Hydro or not is intended to be established based on a case-by-case analysis of the unique operations, programs, and attributes of each hydropower project, "*LIHI certifies hydropower facilities that demonstrate a commitment to minimize the impacts of their operations as compared to other hydropower facilities based on objective criteria*…and… *A LIHI Certified® hydropower facility is one that is sited, designed, and operated in a manner that actively addresses its impacts on environmental and social resources* (LIHI 2025)". It is not intended to be determined by the status of the hydropower industry or by the operation of neighboring projects. We respectfully assert that the Wells Project is unique, not only in its design, but in its long-standing environmental performance, willingness to enhance anadromous fish resources outside its FERC license obligations, and Douglas PUD's collaborative governance. While not an exhaustive list, below are a few of the qualities that provide separation between Douglas PUD's Wells Dam, and other mainstem Columbia and Snake River projects and owners.

1. Wells Dam is the only "Hydrocombine" facility in the United States, uniquely integrating generation, adult fish passage, juvenile fish bypass, and hatchery infrastructure into a single structure.
2. No other mainstem project has non-turbine passage efficiency greater than 90% for spring and summer migrating salmon (Skalski et al., 1996).
3. Its design has enabled Douglas PUD to meet and, in many cases, exceed performance standards required under the Wells Anadromous Fish Agreement and Habitat Conservation Plan (Wells HCP), a long-term agreement developed with federal and state fishery agencies and Tribes, and upheld by years of rigorous monitoring, salmon-centric operations, and mitigation.
4. Many projects on the Columbia River have survival and performance standards that are measured only at the concrete structure only and only measure direct passage mortality through that structure. Douglas PUD's Endangered Species Act (ESA) Section 10 No Net Impact survival requirements include measuring juvenile fish survival through the

reservoir, forebay, concrete, and immediate tailrace making it a true measure of all of the project's impacts on juvenile fish.

5. The Wells HCP is the only hydropower HCP that has a performance standard to measure direct, indirect, cumulative, and delayed fish passage losses as part of its HCP performance standard. Other projects only measure juvenile survival to a point, a short distance downstream of the dam. The Wells HCP looks at the impacts of the project throughout the entire life-cycle, including any delayed or cumulative loss that can be associated with delayed Wells hydro-related mortality in the ocean.
6. The Fish Water Management Tool success[1] story is a unique recovery story and one that critical commentors failed to discuss. This Okanagan Basin Sockeye story was described in our previous response submitted to LIHI. We are unaware of a more positive and impactful fisheries recovery story in the Columbia River Basin.
7. Outside its FERC license obligations, Douglas PUD is allowed WDFW to use PUD hatchery infrastructure to support Southern Resident Killer Whale recovery by rearing 1,000,000 summer Chinook Salmon intended to supplement killer whale food supply. This work is being done in close cooperation with NOAA, WDFW, and the Washington State legislature. Outside its FERC license obligations, Douglas PUD has been rearing juvenile fish, collecting and facilitating the transport of adult salmon, assisting with data collection and fish health screening, and identifying and capturing returning adults from the Phase II Reintroduction Program. The goal of the program is to reintroduce salmon to their historical range upstream of Grand Coulee and Chief Joseph dams. Douglas PUD has no obligation in licensing documents to support this effort. This work is being done in close cooperation with Colville Tribes, CDL tribes, Spokane Tribes, Upper Columbia River Tribes United, USFWS, and NOAA.
8. To our knowledge, only two other mainstem Columbia River dams have developed and obtained Section 10 ESA coverage: The Wells Anadromous Fish Agreement and Habitat Conservation Plan provides no net impact for all plan species (ESA- listed and unlisted). Unlike ESA Section 7 consultations (like almost all other mainstem operators have), the Douglas PUD Section 10 is more comprehensive and collaborative than conventional ESA consultations.
9. Douglas PUD has an Off-license Settlement Agreement, which provides annual funding to Washington Department of Fish and Wildlife (WDFW) to manage over 6,600 acres of land immediately adjacent to or near the Project area that is specifically designed to support wildlife, sportsmen and woman, birdwatchers, and other outdoor enthusiasts. Moreover, Douglas PUD provides 20,000 rainbow trout annually raised at the Wells Fish Hatchery to an average of 1 pound to be stocked in lakes found in Okanogan County and near the Project area. The trout program supports recreational fishing and WDFW objectives. The Off-license Settlement Agreement is not required by FERC license conditions.

[1] https://douglaspud.org/about-us/wells-dam/fish-water-management-tool/

The presence of ESA-listed species in the Mid-Columbia River Basin is a serious concern for all stakeholders, and Douglas PUD shares the responsibility to support the recovery of these populations. However, it is both biologically and policy-wise inaccurate to imply that any single dam, or operator, can or should bear sole responsibility for the fate of these complex fish stocks. It's also categorically false to state that Douglas PUD is simply aiming to meet ESA standards and thresholds. As an example, juvenile survival standards at Wells are required to be 93% and yet the Wells Project has shown 96% project-wide survival consistently over the past 20 years (Bickford et al. 2011; Gingerich et al. 2020). Douglas PUD has never advocated or proposed to retest survival rates using reduced bypass operations or spill to maximize power generation. Instead, Douglas PUD has held to the policy of minimizing take of all five HCP Plan Species, whether they are ESA listed or not, to the maximum extent practicable while still enabling electric power generation. The Wells HCP's No Net Impact standard for all five Plan Species is not a take maximization strategy but instead a take minimization program. From an ESA incidental take perspective, the PUD could reduce spill and bypass operations but this would be inconsistent with its commitment to minimizing its project's impact on natural resources to the extent practicable. Any characterization by commenting agencies or tribes stating that Douglas PUD is simply meeting minimum Biological Opinion requirements is false, misguided, and inaccurate.

The factors limiting recovery of ESA stocks are multifaceted, involving conditions in natal tributary habitat, ocean productivity, climate-related impacts, ocean and in-river harvest, predation, hydro-system effects, and hatchery practices. The Wells HCP was specifically designed to integrate with and support basin-wide recovery efforts, not to act alone in reversing decades of decline from cumulative factors. Trout Unlimited accurately stated that these declines began more than 150 years ago. The Wells Project has existed for just 58 years. The Wells Project provides low impact for all five Upper Columbia anadromous species fully achieving the "No Net Impact" standards found in the Wells HCP. Moreover, recent concerns about Snake River steelhead overshoots, as we described in the first round of comments, are more informed than even two months ago. Recent genetic stock identification and parent-based tagging genetic work presented to the Wells Hatchery Committee within the last two months confirms that only 1.6% of the Snake River run is overshooting the Snake River and interacting with Wells Dam (summarized from Galland et al., *in prep*). What the data does not show is the rate of return to the Snake River of those fish. Nor do they describe the multiple sources of mortality or outcomes that occur above Wells Dam including, natural and successful straying and spawning, hooking and angling mortality, and natural overwinter mortality in locations above Wells and not in association with passage at Wells Dam. What it also does not convey is the fact that a high proportion of the overshooting steelhead ultimately do make it back downstream of the dam and migrate back to the Snake River.

Washington Department of Fish and Wildlife (WDFW) and the Yakama Nation seem intent on assigning all overshooting steelhead as a mortality or "unpermitted take" rather than discussing openly that many of these fish are overshooting to seek cool water refugia in the Wells Pool, that many of these fish successfully return to the Snake River by the following spring, and other sources

of natural processes above Wells invariably contribute to their final fates. . We are troubled by the Yakama Nation's and WDFW's characterization of the Steelhead Overshoot "issue." Scientifically, it seems misguided and an attempt to prevent LIHI from making an informed decision on certification[2].

We also urge LIHI to consider the recent success of Sockeye Salmon in the Okanagan Basin as an instructive case. Through the coordinated application of the Douglas PUD-sponsored and funded Fish Water Management Tool and other habitat and flow improvements, Okanagan Sockeye Salmon returns have increased dramatically following the implementation of the HCP in 2002. These fish migrate past Wells Dam as juveniles in spring, much like Upper Columbia spring Chinook Salmon and Upper Columbia steelhead, yet recent returns show some of the highest numbers observed in the past near-century. The Okanagan Basin Sockeye Salmon success story is a testament not only to our operational performance but to Douglas PUD's wholistic approach to salmon recovery efforts; Looking beyond simple hydro passage and survival, attempting to address the root-causes of population decline, subsequently addressing those limiting factors where they existed, doing so outside the FERC license boundary to enhance fish returns well in excess of the 7% required hatchery mitigation in the FERC license.

Importantly, last but not least, the Wells Project enjoys strong regional support from the communities and stakeholders that live and interact daily with the Wells Project and reservoir. All three cities located on the Wells Reservoir, local recreation users, and the Colville Tribes whose reservation is located on the Wells Reservoir have all expressed their support for LIHI certification for Wells Dam. Letters of support from the Colville Tribes, Spokane Tribe of Indians, and Coeur d'Alene Tribe of Indians, the UCUT organization, Hurd's Guide Service, the Methow Fly Fishers Association, and the towns of Bridgeport, Brewster and Pateros all strongly support the LIHI certification for the Wells Project. The support of these user groups reflects Douglas PUD's demonstrated willingness to go above and beyond regulatory requirements to advance anadromous fish recovery, resident fish conservation, protection of water quality and quantity, cultural resource protection, and recreational use consistent with environmental conservation.

In contrast, many of the negative comments submitted came from geographically distant organizations or individuals who are not familiar with the project or are not directly involved in the committees established to protect, enhance, and conserve the resources within the Wells Project. Instead, they are regional players with regional political agendas focused on their ideological opposition to hydropower as a matter of principle. While these perspectives are not without value, they may not fully reflect the lived experience of communities and partners most closely engaged with the Wells Project.

[2] We have included a detailed response to the Yakima Nation's second series of comments as Attachment A to this letter. Because WDFW and Columbia River Inter-Tribal Fish Commission (CRITFC) raised similar issues in their letters, we have responded directly to the Yakima Nation's submission.

In summary, the Wells Project represents a model of how hydropower can operate in balance with environmental and community values. Low Impact Hydro Certification for this project would not lower the bar, rather it would affirm that LIHI's standards recognize and reward high-performing, well-governed, and ecologically, culturally, and socially responsible operations. The precedent set by certifying Wells Dam would be one of integrity, innovation, and accountability.

Thank you for your careful consideration of the facts and merits of the Wells Project. We welcome continued dialogue and stand ready to provide any further information LIHI may require.

Sincerely,

Shane Bickford
Assistant Manager – Natural Resources and Dam Safety

Attachment A. Douglas PUD's Response to the Yakama Nation's Comments on LIHI Certification for the Wells Dam

Cc: Gary Ivory – Douglas PUD
Andrew Gingerich – Douglas PUD

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WELLS HYDROELECTRIC PROJECT
FERC PROJECT NO. 2149-WA

ATTACHMENT A

DOUGLAS PUD'S RESPONSE TO THE YAKAMA NATION'S COMMENTS ON LIHI CERTIFICATION FOR THE WELLS DAM

Commissioners:
RONALD E. SKAGEN
MOLLY SIMPSON
AARON J. VIEBROCK

General Manager:
GARY R. IVORY

Public Utility District No. 1 of Douglas County

1151 Valley Mall Parkway · East Wenatchee, Washington 98802-4497 · 509/884-7191 · FAX 509/884-0553 · www.douglaspud.org

Douglas PUD's Response to the Yakama Nation's Comments on LIHI Certification for the Wells Dam:

The YN raised several new concerns, not previously discussed with Douglas PUD and that were not raised during their first LIHI comment period. Given that they have raised new issues, it is appropriate for Douglas to respond to their concerns by offering additional detail, adding context, important nuance, and including data selectively omitted by the commenting parties. CRITFC and WDFW's comments were almost entirely redundant to, but less comprehensive than, the YN comments and as such, Douglas PUD chose to respond to comments by walking line by line through the YN comments.

1. Anadromous Fish Agreement and Habitat Conservation Plan (Wells HCP) Performance

Claim: "*Populations are declining. Clearly, the measures have failed to support recovery. This is not a low-impact outcome."*

Douglas PUD's Response:

The YN's statement oversimplifies the complex factors influencing anadromous fish populations in the Columbia Basin, and suggests a spurious connection between recovery status and the measures implemented by Douglas PUD under the Wells HCP. We covered much of this concern in our initial response to the YN (and other commenting agencies including Columbia River Inter Tribal Fisheries Commission and the Washington Department of Fish and Wildlife) during the first round of comment responses. However, further discussion is needed.

The claim that because populations are declining and therefore the Wells HCP measures are clearly failing to support recovery is based on a false premise that fails under informed and objective reasoning, particularly considering that commentors provide no evidence for either the premise or the claim. First, despite continued ESA listing of Upper Columbia Spring Chinook and Steelhead, Plans Species protected under HCP have seen measurable increases in run strength since the onset of the HCP and as measured by Wells Dam fish ladder counts (Figure 1). Perhaps, Douglas PUD has not done enough to underscore these successes. Nevertheless, below are figures that show fish ladder counts at Wells Dam for all five plan species. Please note the HCP implementation began in 1998 but was adopted by FERC in 2004.

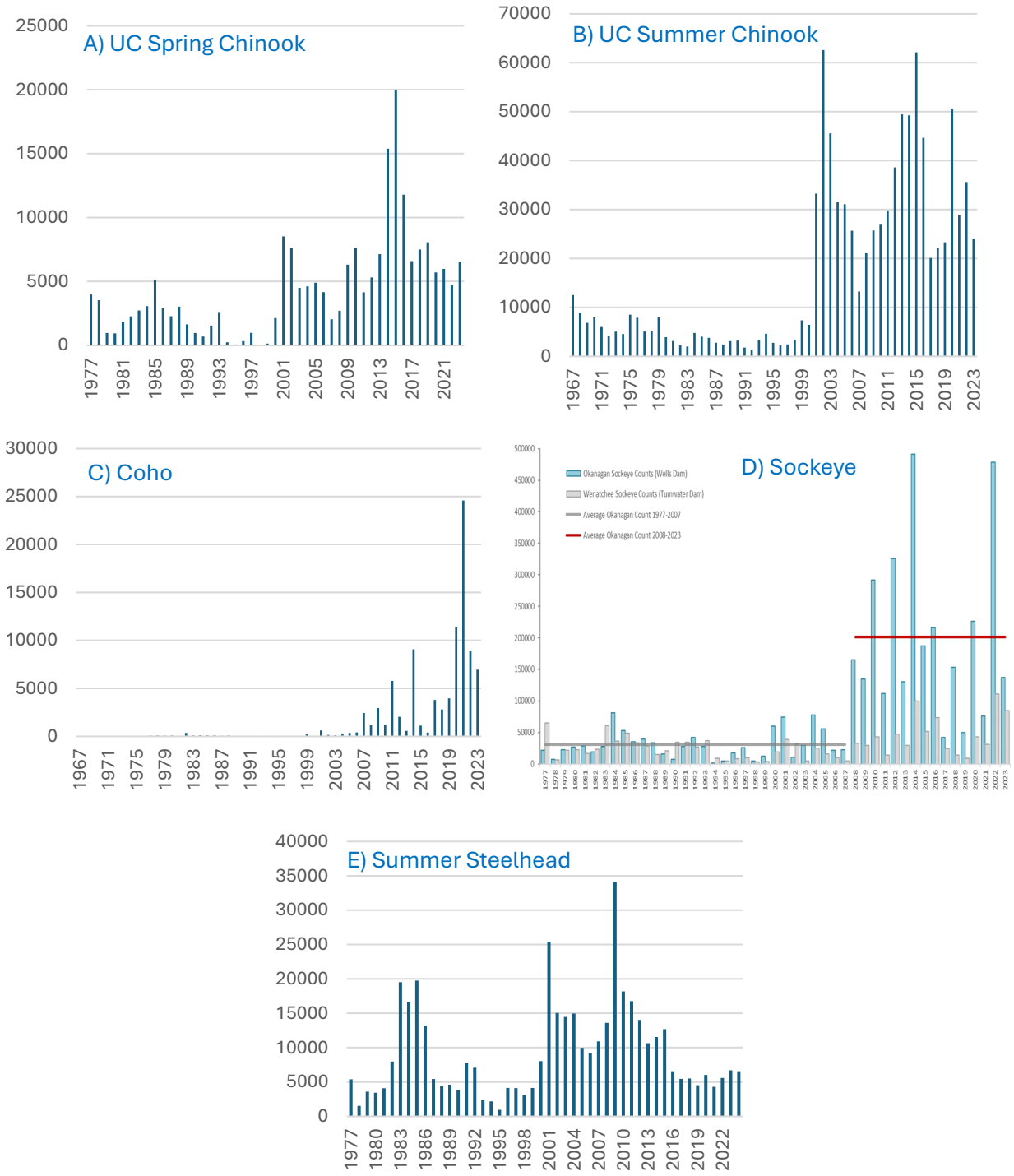

Figure 1. Wells Dam Ladder Counts of A) Upper Columbia Spring Chinook, B) Summer Chinook C) Coho (which were extirpated from above Wells Dam prior to Dam Construction and are a reintroduction program partially funded by Douglas PUD), D) Okanagan Sockeye, and E) Summer Steelhead. These data show that since HCP implementation began in 1998 and was approved by FERC in 2004 Plans Species have responded favorably. Data available from Washington State University's Data Access Real Time via Douglas PUD.

Secondly, despite the HCP successes illustrated in Figure 1, the Wells HCP was never intended to serve as the means by which Douglas PUD would single-handedly recover depressed stocks of Upper Columbia salmon and steelhead, because none of the Wells HCP signatories believed at the time of signing that Wells Dam was solely responsible for the depressed status of those stocks (Busby et al. 1996; Myers et al. 1998; Cooney et al. 2002). Instead, it is evident from the language within the Wells HCP and supporting documents that then-current species status was the product of multiple factors beyond the influence of Wells Dam and that the signatories to the Wells HCP understood that achieving "no net impact" (NNI) via Wells HCP measures would only "*contribute to the rebuilding of tributary habitat production capacity and basic productivity and numerical abundance of Plan Species*" (Douglas PUD 2002). Through Wells HCP measures, Douglas PUD has minimized impacts of the Wells Project on Plan Species, while one can find few examples of meaningful improvements to most other factors contributing to depressed populations.

The Wells HCP, developed under Section 10 of the ESA, is one of the most rigorous and long-standing habitat conservation plans in the nation. It was approved by negotiating parties in 1998, signed by signatory parties in 2002 following NEPA review and associated minor revisions, and approved and incorporated into the Wells license by the Federal Energy Regulatory Commission (FERC) in 2004. Despite the protracted FERC-approval process, Douglas PUD began voluntary implementation of the fish-protection measures of the Wells HCP in 1998, four years prior to the signing of the Wells HCP, reflective of Douglas PUD's commitment to resource protection. Since 1998, the Wells HCP has been implemented through a multi-agency, science-driven process that includes NOAA Fisheries, U.S. Fish and Wildlife Service, WDFW, YN and the Confederated Tribes of the Colville Reservation.

The Wells HCP mandates no-net-impact (NNI) on ESA-listed and unlisted species, combining 93% juvenile project-wide survival and 98% adult survival requirements with hatchery mitigation programs, and offsite tributary mitigation to fully mitigate for unavoidable project mortality. Multiple evaluations (survival verification studies), including NOAA's Biological Opinions, have verified that Wells Dam consistently exceeds survival standards for juvenile steelhead, spring Chinook Salmon, Sockeye Salmon, and Coho Salmon. Subyearling summer Chinook Salmon survival metrics have been calculated and inferred to be meeting standards consistent with Wells HCP requirements because their unique life history and protracted migration precludes survival study testing using conventional survival models. Within the Wells HCP-Coordinating Committee (Wells HCP-CC), Douglas PUD is actively working alongside Wells HCP signatories to resolve these limitations.

Although recovery has not yet been achieved for ESA-listed salmonid species that are affected by the Wells Project, declines in wild fish populations cannot be attributed solely to the dam. Rather, they are the product of cumulative pressures from climate change, ocean conditions/productivity, harvest (commercial, tribal and recreational), predation outside the Project area, habitat degradation outside the project area, hatchery practices, and myriad other influences (e.g. Couture

et al. 2024; Ohlberger et al. 2025; Zamon et al. 2024; Ruggerone et al. 2023; Mantua et al., 1997; Crozier et al., 2019; Schindler et al., 2010; Beamish and Mahnken 2001; Evans et al., 2012; Chasco et al., 2017; Naish et al., 2008). Limiting factors in the tributaries during spawning and rearing, especially for stream-type Spring Chinook Salmon and steelhead are two factors garnering more attention of late and are very poorly understood. Tributary issues are expected to have deleterious effects on the ESA status of Spring Chinook Salmon and steelhead. Both species spend a year or more in the tributaries before juvenile migration ("stream-type" life history). Therefore, assigning failure of recovery to the Wells Project is misguided and inappropriate.

Researchers have documented coast-wide declines of Chinook Salmon abundance, especially among interior spring Chinook Salmon populations exhibiting the stream-type life-history strategy in the upper Fraser, Columbia, and Snake rivers (Atlas et al. 2023). That declines of interior Fraser River stocks of stream-type spring Chinook Salmon match or exceed those observed in the upper Columbia and Snake rivers suggests that common mortality factors similarly affect the stream-type life-history in both systems, only one of which (Columbia-Snake) includes hydropower development. Indeed, Warkentin et al. (2022) identified summer low flow during juvenile rearing as the strongest predictor of population productivity (recruits per spawner) for stream-type spring Chinook Salmon in the Nicola River (upper Fraser), followed by stream freezing, summer low flows during spawning, and fall floods, all factors believed to similarly affect upper Columbia spring Chinook Salmon. Atlas et al. (2023) also observed that some "ocean-type" (short-term juvenile residency in fresh water) summer and fall Chinook Salmon stocks from interior Columbia and Fraser rivers exhibited increasing abundance trends, again suggesting common mortality factors for the ocean-type life-history that do not include hydropower development, and that ocean-type fish avoid those mortality factors associated with extended freshwater residency. Thus, while convenient to attribute low abundance and productivity of interior ESA-listed stream-type salmonids to hydropower effects in the Columbia River, Canadians lacking such a scapegoat as hydropower in the Fraser River Basin are constrained in their Species At Risk Act listing process to accept the remaining mortality factors in common between the two river basins, primarily habitat issues and harvest. Douglas PUD disagrees with the YN and asserts that the Wells Project is Low Impact given its well quantified effects to all Wells HCP plan species (anadromous salmonids born above Wells Dam) and despite the continued existence of two stocks of ESA listed salmonids migrating through the Wells Project area.

While challenges persist basin-wide, the Wells Project continues to meet or exceed Wells HCP objectives for passage survival, which are among the most stringent in the nation. LIHI certification should not require reversing every basin-wide trend or de-listing of ESA-listed fish, particularly when most of the factors negatively affecting ESA-listed fish are unrelated to the subject hydroelectric project and beyond the influence of the owner/operator. Rather, LIHI certification ought to recognize where operations are measurably minimizing project-specific impacts. Clearly, ladder counts (Figure 1) are suggestive of Douglas PUD's HCP minimizing

project-effects. Wells Dam and the Wells HCP have supported ESA-listed fish protection through take-minimization and "No Net Impact" mitigation since 1998.

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2. Temperature Considerations and Environmental Protection Agency (EPA) Temperature Total Maximum Daily Load (TMDL)

Claim: "*Wells Dam exceeded water quality temperature criteria in 23% of days between June and October from 2011 to 2016. The lack of tailrace temperature data and limitations to prior modeling efforts hinder a comprehensive understanding of the impacts of Wells Dam and its operations on the thermal loading of the Columbia-Snake River System.*"

Douglas PUD's Response:

The YN's statement, drawn from the EPA's Columbia/Snake River TMDL (EPA 2021, here in "TMDL"), misleads readers about the Wells Project's role in water temperature exceedances. While temperatures within the Wells Pool do at times exceed Washington state water quality criteria, the almost exclusive source of this thermal loading takes place upstream of Wells Dam within the federal and Canadian storage system.

The EPA's Columbia River TMDL, the same document referenced by the YN, notes that exceedances originate as water crosses the Canadian border into Lake Roosevelt:

"*Water entering the Columbia and Snake Rivers at the Canadian and Idaho borders exceeds Washington's WQC* ***(water quality criteria)*** *for temperature during the summer*" (EPA, 2021, p. 2).

Grand Coulee Dam and other large storage reservoirs upstream of Wells have a documented and dominant influence on downstream temperatures. Grand Coulee alone has over 100 times the storage capacity of the run-of-river designed Wells Project. Its large reservoir retains summer-warmed water, which cools more slowly than run-of-river projects like Wells Dam. As the TMDL states:

"*…beginning in late September, Grand Coulee's large storage reservoir inverts this relationship. The impounded water, warmed by solar radiation and warm air temperatures in the summer, cools at a slower rate compared to downstream reaches*" (EPA, 2021, p. 27).

While exceedances occur in the Wells Pool, attributing them to Wells Dam operations without acknowledging the dominant upstream thermal inputs and reservoir effects provides an incomplete and misleading picture.

According to the EPA's RBM-10 model, which is used in the TMDL to estimate project-specific temperature effects, only during the month of June is the Wells Project a non-point source contributor to warmer water temperatures, and during the month of June the Wells Project contributes only a minor increase in temperature documented in the TMDL as an average of 0.1°C (See Tables 6-6 to 6-10; Column E; in EPA 2021). This occurs during a month when water temperatures are normally compliant with state water quality criteria (below 17.5° C DADmax). Average daily water temperatures in the Wells Project during the month of June are 13.6° C (Table 3-2 in EPA 2021), well below state water quality criteria and well within salmonid thermal maxima. Most importantly, in late summer and fall, the Wells Project provides a thermal benefit to water temperatures that are high because of the effects of large storage projects above Wells Dam (Table 6-10; Column E; in EPA 2021).

We would encourage LIHI to read the water temperature TMDL closely to identify the relative and "reach specific" effects of Wells Dam, rather than an "all hydro" impacts review. Such review

would show that EPA has determined that the Wells Reservoir's effect on water temperatures is a net positive especially in the late summer and early fall (e.g. Tables 6-10; Column E; in EPA 2021).

It is also true that the Wells Reservoir does not thermally stratify, due to its morphology and short residence time (~0.5 days). No complex modeling was needed to document this fact. Instead, the lack of stratification has been rigorously and thoroughly documented with 16 years of physical data collected from the reservoir at multiple locations and various depths, and reported on in the Wells Project's annual Water Quality Management Plan report. These annual reports are publicly available and included as part of our larger Aquatic Settlement Agreement annual reporting and Section 401 Water Quality Certification reporting requirements; found here https://douglaspud.org/environmental-stewardship/for-regulatory-agencies/aquatic-settlement-agreement/aquatic-settlement-agreement-annual-reports/. The most recent data from 2024 forebay thermistor readings and published figure from the referenced report is copied below (Figure 2). The YN's technical representatives have approved all 16 years of these reports without objection to the data or results.

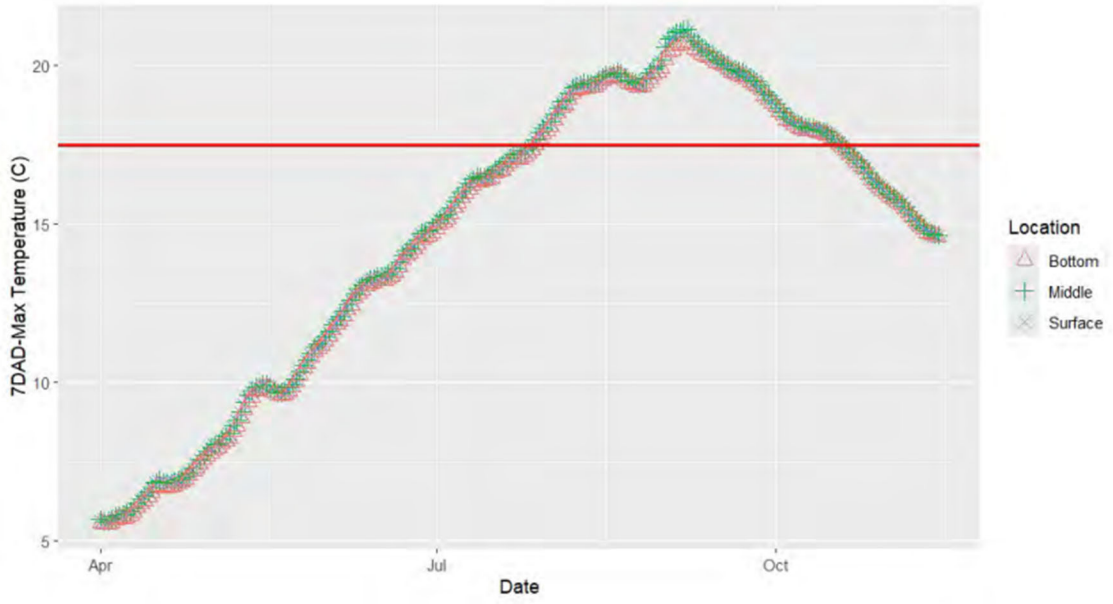

Figure 2. 2024 water temperature data collected in the Wells Dam Forebay at three depths. Temperature profiles show the lack of stratification in this location during this period. Horizontal reference line indicates the 17.5°C WQS. Recreated from Figure 12 of the 2024 Water Temperature Report reviewed and approved by the Aquatic Settlement Workgroup including the YN and available online.

Unlike many other mainstem impoundments, the Wells Reservoir is defined categorically as a "run-of-river" hydro project and as such precludes the opportunity for thermo-stratification.

The same series of reports shows that Wells tailrace temperature data is not only available but mimics forebay temperatures. EPA omitted Wells tailrace temperature data when completing their TMDL because their data series targeted 2011-2016. The DART data (Data Access Real Time; https://www.cbr.washington.edu/dart), from which EPA sourced the data for the TMDL, only had partial Wells tailrace data for that time series. This is no way devalued the TMDL. Further, publicly available data collected and reported over the last 16 years confirms that tailrace discharge data mimic forebay temperatures.

Finally, the YN failed to mention that the referenced TMDL also stated the effects of climate change,

"*…there is evidence of a warming trend in Pacific Northwest waters and in the Columbia River mainstem since 1960, as indicated by literature and the analyses conducted by EPA (Appendix G). Based on available information, the estimated increase in river temperatures since 1960 ranges from 0.2°C to 0.4°C per decade, for a total water temperature increase to date of 1.5°C ± 0.5°C (EPA, 2021 page 36).*"

Appendix G of the EPA TMDL specifically covers the effects of climate change on the Columbia River. Taken together, non-complaint temperature periods in the Wells Project are not only affected by upstream processes (border and storage projects) but are partly a result of climate change impacts rather than reservoir existence. Douglas PUD points out that the operations of Wells Dam combat climate change by generating electricity that leverages the renewable water cycle rather than carbon-emitting combustion sources.

Section Reference:

U.S. Environmental Protection Agency 2021. Columbia and Lower Snake Rivers Temperature Total Maximum Daily Load. Region 10 Seattle, WA.

3. Regulatory Compliance vs. Exemplary Stewardship

Claim: "*Meeting permit and license requirements does not justify LIHI certification... A project seeking 'low impact' status must go beyond the minimum required.*"

Douglas PUD's Response:

We have covered this topic in a previous submission to LIHI but are compelled to respond briefly. The Wells HCP exceeds mere compliance. It was voluntarily developed. Douglas PUD could have sought ESA Section 7 coverage for operation of the Wells Project, which would have dramatically reduced stakeholder involvement. Instead, NOAA fisheries and Douglas PUD charged forward on pursuing ESA Section 10 Incidental Take coverage, which resulted in a collaborative process and contribution from all signatories to the Wells HCP, including the YN.

The Wells HCP includes adaptive management language, survival studies, hatchery mitigation, a long-term funding mechanism for offsite habitat work, and real-time decision-making through the Wells HCP Coordinating and Policy committees. It was one of the first large-scale applications of Section 10(a)(1)(B) of the ESA, allowing continued operation of a hydro project while minimizing unavoidable project mortality and mitigating holistically for that measured loss. Because of our interest in preventing any additional ESA listings of upper Columbia River anadromous salmonids, during Wells HCP negotiations in the 1990s, Douglas PUD voluntarily proposed to extend Wells HCP fish-protection measures to unlisted species (Upper Columbia River summer Chinook Salmon and Okanagan Sockeye) and requested that NOAA Fisheries extend ESA permit coverage to those unlisted species. Consequently, the Wells HCP functions as an ESA take-minimization vehicle for both ESA-listed and non-listed anadromous salmonids. As stated above, Douglas PUD began implementing Wells HCP fish-protection measures four years prior to the signing of the Wells HCP, and six years prior to FERC approval. Moreover, many of the comment letters received by LIHI during the second comment period underscore programs where Douglas PUD is voluntarily going above and beyond – well outside the Wells HCP requirements.

At no point during Wells HCP implementation has Doulgas PUD approached the Wells HCP Coordinating Committee with a proposal to maximize allowable take and restudy passage survival under a shortened bypass operation period such that project-wide survival for juveniles would be 93% (minimum standard) and generation would be maximized. In such a case, "take" of plan species juveniles would be maximized while Douglas PUD would remain compliant with the terms of the Wells HCP survival requirements. Instead, Douglas PUD maintains a wider bypass operating period than required and since the onset of the Wells HCP has been providing greater than 96% Project wide survival for juvenile Wells HCP Plan Species (Gingerich et al., 2020). Clearly Douglas PUD is not simply "meeting permit and license requirements" but rather minimizing our impact.

It is both disappointing and discouraging that the YN and several other commenting agencies refuse to acknowledge where Douglas PUD voluntarily implements programs that support our collective value systems (e.g. Southern Resident Orca feeding program, and P2IP reintroduction studies). These programs benefit YN goals by providing stronger runs and better returns of harvestable fish and yet these points are absent in both rounds of comments received by these parties. Conversely, we are grateful that our contributions designed to support Wells HCP Plan species and work occurring in addition to the Wells HCP requirements are being recognized by the Upper Columbia United Tribes, the Confederated Tribes of the Colville Reservation (HCP party), the Spokane Tribe of Indians, and the Coeur d'Alene Tribe of Indians. Many of the FERC-license stakeholders, including the cities around the Project, recognize our success with summer Chinook Salmon and with Sockeye Salmon runs returning to the Okanagan Basin as a result of the Fish and Water Management Tool. At least one guide, Hurd's Guide Service, who makes a living from strong sockeye and summer Chinook runs acknowledged this effort too.

We could offer up many voluntary programs and expenditures where Douglas PUD is going above and beyond minimum standards and obligations. However, we will offer just one more example of Douglas PUD's voluntary initiatives for the responsible resource stewardship: the development of systematic detection of PIT-tagged fish at the mouth of the Methow River. Douglas PUD is pioneering an approach for establishing year-round PIT-tag detection uninterrupted by seasonal conditions (e.g., ice) and discharge variation, to provide data thus far unobtainable by traditional approaches. Douglas PUD intends that the railroad bridge detection array, scheduled for installation this fall, will enhance our common understanding of Methow Basin salmon and steelhead carrying capacity, natural production, run timing, limiting factors, and hatchery-wild fish interactions. Regrettably, this is another "above and beyond" activity that was not mentioned by YN or others in their critical comments to LIHI.

4. Adaptive Management and Accountability

Claim: "*Adaptive management has failed to address known shortcomings*."

Douglas PUD's Response:

This opinionated statement is recycled from the first appeal period comments. Douglas PUD acknowledges disagreement with the YN on bypass timing uncertainties, and steelhead overshoots. Douglas PUD also acknowledges and understands the frustration expressed by YN related to the lengthy process of developing subyearling Chinook Salmon survival studies. However, the state of the science and the progress being made on these topics have been fully disclosed in earlier responses to comments received during the appeal process. We look forward to continued work on these topics while celebrating where adaptive management changes have already been made. For example, bypass operations began on April 2nd in 2025 after more than a decade of beginning on April 9th each year as the result of Douglas PUD applying a novel analytical method to evaluating emigration timing of underrepresented emigrants. With respect to the other topics introduced by the YN during the appeal period; "Active tag" biotelemetry research using Entiat River steelhead overshoots is currently under development (Douglas PUD suggested a condition tied to this measure in our LIHI certification response). Further, the Coordinating Committee is engaged with Douglas PUD on development of a study plan to investigate tagging and handling effects of subyearling Chinook Salmon tagged at different water temperature towards better understanding these tagging uncertainties. Frustration with the pace of scientific discovery supporting adaptive-management decision-making is not an indication that "adaptive management has failed to address known shortcomings."

5. Treaty Right and Mitigation

Claim: "*Outcomes have been inadequate for listed fish and Treaty rights*."

Douglas PUD's Response:

The concerns around Treaty rights and fish population status are deeply important and deserve continued dialogue. However, the legal standards for Wells HCPs and LIHI certification are not the same as full species recovery or meeting federal Treaty obligations. While recovery of ESA listed fishes is a shared long-term goal, LIHI certification assesses whether project operations demonstrably reduce site-specific impacts. We believe Wells Dam is a strong candidate based on collective approach of Douglas PUD, Wells Dam operations, and our various agreements and collaborative committees.

LIHI may be interested to know that Douglas PUD maintains a multi-decade Facility Use Agreement with the Yakama Nation (YN). Through this agreement, YN staff and members, along with other tribes, are provided access to the District's hatchery facilities for use and co-management activities including jointly rearing fish, access to various rearing ponds and hatchery infrastructure and including access to surplus adult fish for broodstock, tribal ceremonial and subsistence uses. Over the years Douglas PUD has made available pond space, acclimation facilities, and provided brood or eggs to programs (e.g. Yakama River Summer Chinook Program) led by the YN. These efforts by Douglas PUD supported YN program goals in areas not tied to Douglas PUD License requirements. These efforts, not listed in detail here, would also demonstrate examples where Douglas PUD has gone above and beyond and continually looks for ways to support Treaty goals and conservation efforts throughout the basin.

Douglas PUD has maintained open relationships with several stakeholders, including the Treaty protected tribes such as the YN, and remains willing to discuss improvements and opportunities for collaboration. We are disappointed that the YN view is Douglas PUD is not doing enough, but are grateful other tribes are recognizing our contributions both in and outside of our license terms.

6. Adult Upstream Survival

Claim: "*The conversion rate metric is primarily influenced by conditions in the Rocky Reach Projects forebay and reservoir, not the Wells Project*."

And

"Furthermore, the conversion rate data includes only fish originating from upstream of Wells Dam. This is problematic, especially for Steelhead, which are known to overshoot Wells Dam at high rates and later fall back in an attempt to return to their natal tributaries."

Douglas PUD's Response:

Indeed, Section 4.1.3 of the Wells HCP discusses the limitations at Wells Dam when evaluating adult survival through the Project area,

"*As of 2002, the Parties agree that adult fish survival cannot be conclusively measured for each Plan Species. Based on regional information, the survival of adult Plan Species is estimated to be 98-100%.*"

Much of the impetus for this determination was because Wells is the most upstream project on the Columbia River that provides anadromous fish passage and therefore there is no reliable source of PIT-tag detection (99% detection probability) for adult salmon above Wells. Said differently there are no other adult fish ladders above Wells Dam with adequate detection capability to provide a robust conversion-rate calculation for the entire Wells Project.

Many fish counted in the fish ladder windows at Wells Dam return with injuries including those associated with gillnet fisheries and marine mammal predation escape marks (e.g. bites, dramatic descale, puncture wounds; Figure 3). Should these fish die in the project area above Wells but before reaching the spawning ground, the Wells HCP Coordinating Committee would have a difficult time distinguishing a "project effect" from a delayed mortality affect associated with a lower river stress or an injury event that occurred well below the Project Area. The authors of the Wells HCP understood the difficulty of separating Project effects from non-Project effects and therefore included the above quoted text (Wells HCP Section 4.1.3).

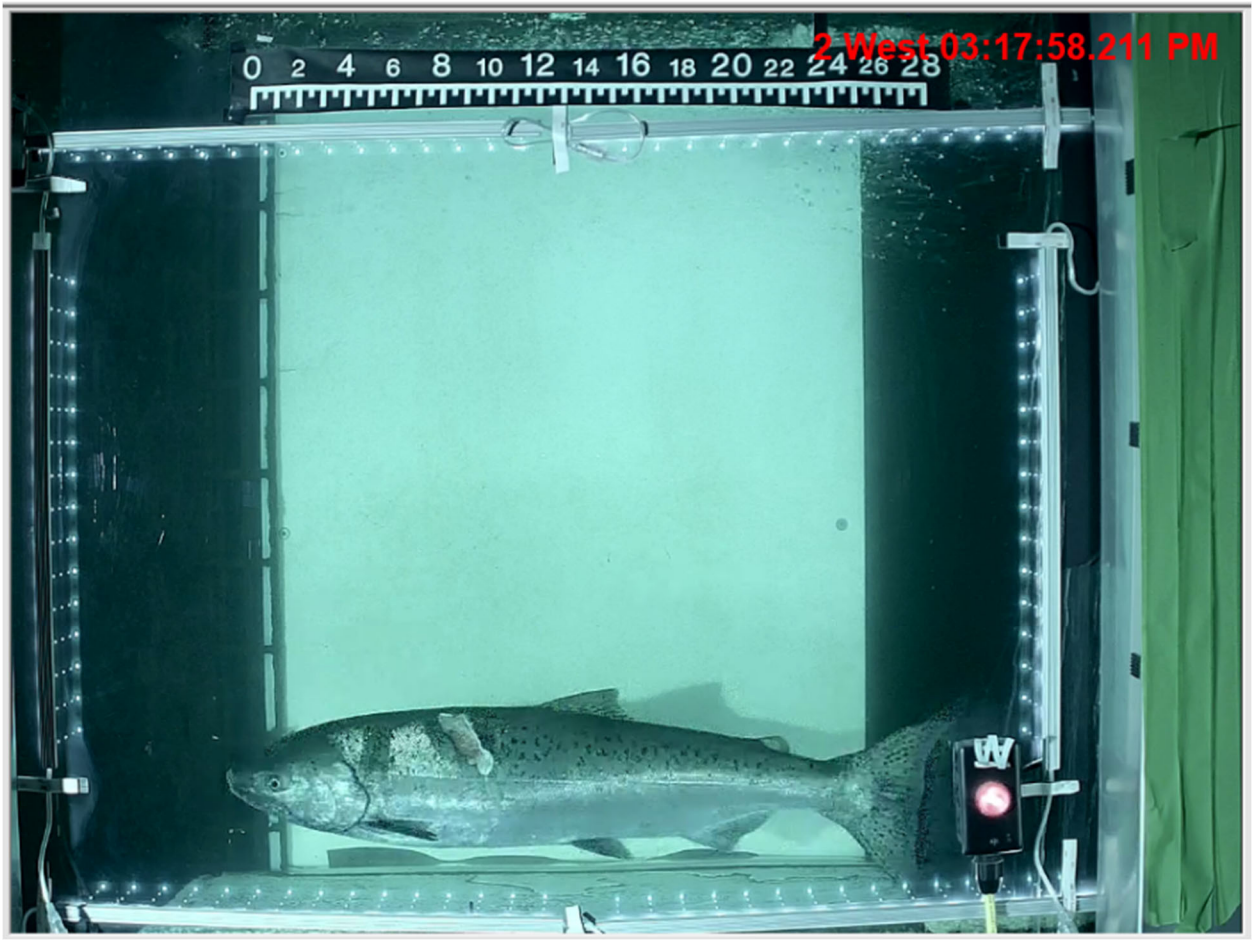

Figure 3. West Fish Ladder View at Wells Dam on May 16, 2025, showing an adipose present ESA listed spring Chinook with significant descaling immediately dorsal and anterior to gill plate, and a partially healed deep penetrating wound cranial to dorsal fin. These wounds are suspected to be associated with stressors unrelated to hydro-effects, especially those associated with Wells Dam operations.

Douglas PUD has used the PIT tag conversion approach between Rocky Reach and Wells as an interim tool to assess adult conversion because of the described uncertainty. It has served as a proxy for Project survival in all annual reports. While not perfect, it is currently the best tool we have to "check" our assumptions about the Wells Project effects on adult survival. Conversion through Rocky Reach to Wells Dam is not likely to be dissimilar from conversions through the Wells Reservoir. In fact, some literature shows that reservoir travel and survival for adult salmonids is higher than free flowing rivers (English et al. 2006). The data summarized in the Wells HCP Annual Reports are very encouraging. The YN has approved these annual reporting values and while they have commented on this section routinely, they have not objected to report approval because of them. Other Wells HCP Coordinating Committee members have not protested these evaluations. We suggest that the current evaluation tool is the best we can do at present even if imperfect.

With respect to steelhead overshoot comments in the section, since we addressed this is previous round of commenting we won't redundantly discuss Douglas PUD's position apart from 1) stating we look forward to further dialogue on this topic within the Wells HCP CC including study planning, and 2) the fates of overshooting steelhead above Wells Dam are poorly understood. Several outcomes are possible for these fish; natural straying, natural overwinter mortality, prespawn mortality associated with predation injury and escape (or other non-project injury), hooking and angling mortality (permitted or unpermitted fisheries above Wells, bycatch mortality), dam passage survival, successful return to lower river tributaries. All of these fates are poorly understood for steelhead in the upper Columbia. Assigning all of these outcomes to Wells Dam passage mortality or exclusion, which both the YN and WDFW seem poised to do, would be scientifically invalid absent a detailed study. In our view, these outcomes appear to be overlooked by YN and WDFW in their effort to prevent LIHI certification.

Section Reference:

English, K.K., D. Robichaud, C. Sliwinski, R.F. Alexander, W.R. Koski, T.C. Nelson, B.L. Nass, S.A. Bickford, S. Hammond, and T.R. Mosey. 2006. Comparison of adult steelhead migrations in the mid-Columbia hydrosystem and large naturally flowing British Columbia rivers. *Transactions of the American Fisheries Society* 135:739-754. DOI: 10.1577/T05-043.1

7. Pacific Lamprey Upstream Passage

Claim: "*Upstream passage for adult Pacific Lamprey at Wells Dam remains ineffective and inconsistent with best available science and Tribal recommendations*."

Douglas PUD's Response:

Douglas PUD responded to this concern in earlier comments returned to LIHI. Juvenile production because of passage improvement at Wells Dam and a dedicated translocation effort that began in 2018 are showing dramatic improvements in juvenile production in tributaries with over 16,500 ammocoetes collected at the Methow River Screw trap at Carlton, WA in 2023 (Figure 4). We believe this production is not only a record for Methow River lamprey collections but also a sign that Douglas PUD's Pacific Lamprey Management Plan implementation is headed in the right direction. Admittedly, correlation here is not proven causation but the trend is encouraging even if the mechanisms are still poorly understood.

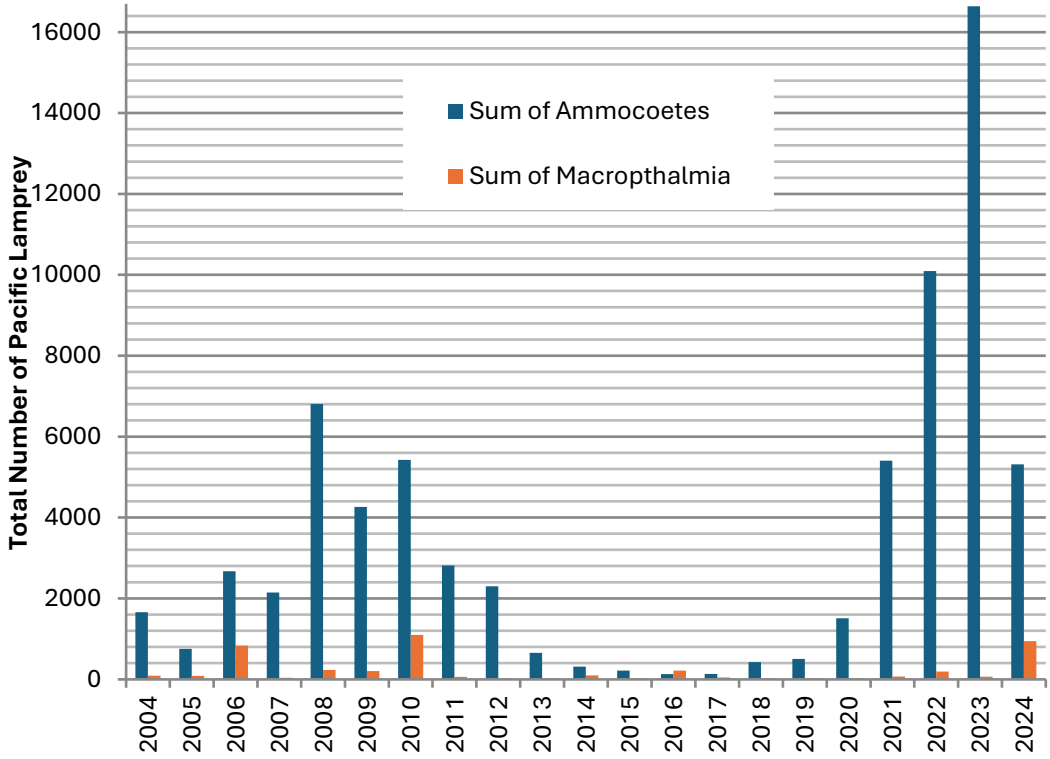

Figure 4. Frequency of Pacific Lamprey Ammocoetes and Macropthalmia collected as bycatch in the Methow River Rotary Screw Trap at Carlton, WA during salmonid (HCP) Monitoring and Evaluation funded by Douglas PUD. Data summarized and obtained by Washington Department of Fish and Wildlife's Twisp, WA office (unpublished). This data has not been corrected for trapping efficiency or stream flows and is raw uncorrected counts.

We are unfamiliar with the 2025 Tribal Pacific Lamprey Restoration Plan (TPLRP). Evidently, many of the features in the TPLRP including identifying problem areas in fishways originally designed for salmon are consistent with our Pacific Lamprey Management Plan. For example, Douglas PUD has already made considerable progress eliminating gaps passage routes within the fish ladders at Wells Dam. And we believe those changes led to big improvements in ladder passage rates within Wells Fish Ladders during the 2022 lamprey acoustic telemetry study. We discussed these improvements in our pervious response to LIHI.

We look forward to continued discussions within the Aquatic Settlement Workgroup designed to benefit lamprey ladder passage success at Wells Dam. Lamprey are expected to be uniquely challenging not just because of their unique passage requirements but because the species is panmictic, and not obligated to return to natal spawning streams, as are salmon. Therefore, evaluating passage behavior and intent and passage performance is challenging, while not impossible. Importantly, juvenile production in the tributaries above Wells has been improving

(Figure 4) and we are optimistic that this will continue. Finally, trap-and-haul translocation from Priest Rapids Dam to sites upstream of Wells has occurred since 2018 providing interim passage mitigation during fishway evaluations. This trap and haul effort appears to be yielding fruit with respect to juvenile production in tributaries above Wells Dam.

8. White Sturgeon Upstream Passage

Claim 1: "*Douglas County PUD does not sufficiently address potamodromous White Sturgeon upstream passage in its application for LIHI certification, incorrectly stating that there is no documentation of White Sturgeon successfully passing upstream through fishways".*

And

Claim 2: "*Dams disrupt genetic connectivity, truncate migratory corridors, and often result in isolated subpopulations with reduced viability, especially when downstream passage comes with high mortality and upstream passage is entirely blocked, as it is at Wells Dam. In the Columbia River Basin, White Sturgeon populations have become increasingly demographically and genetically fragmented due to barriers created by hydroelectric dams.*

Without upstream connectivity, population segments are denied access to a full range of habitats, which may compromise population resilience, genetic diversity and long term recovery potential."

Douglas PUD's Response:

Douglas PUD is in complete compliance with its White Sturgeon Management Plan including Section 4.4 Evaluation and Implementation of Adult Passage Measures. White Sturgeon have never been documented passing Wells Dam using existing fish ladders. However, several fish released below Wells as part of a Chelan PUD mitigation program have been recaptured upstream of Wells Dam during Douglas PUD Monitoring and Evaluation, suggesting that some infrequent adult passage at Wells Dam can occur despite the lack of facilitated adult sturgeon passage (Robichaud and Kyger 2025). Those fish likely locked themselves through draft tubes, scroll cases, and turbine intakes during quiet non-operating maintenance periods, which occur at least twice annually.

As required, Douglas PUD completed a White Sturgeon Passage Evaluation literature review (Robichaud and Crawford 2024) on the upstream passage topic, which was reviewed, edited and approved by all members of the Aquatic Settlement Workgroup including the YN.

Douglas PUD's requirement to provide upstream passage measures for White Sturgeon at Wells Dam is tied to several conditions including other Mid-C operators agreeing to implement similar measures. This is necessary because at the time of the White Sturgeon Management Plan development, fish managers and signatories to the Aquatic Settlement agreed that without

connectivity to the Hanford Reach (below Rocky Reach, Rock Island, Wanapum and Priest Rapids dams), the biological value of providing passage only at Wells Dam in the middle Columbia is likely de minimis (Aquatic Settlement Agreement, White Sturgeon Management Plan Section 4.4[3]).

Further, it is unclear whether facilitated passage either by ladder modification, or trap and haul, is necessary since wild recruits have been documented in the Wells reservoir as recently as 2011 and 2012 (Robichaud and Kyger 2025). Further, recent population strength following Douglas PUD's WSMP implementation that began in 2013 suggests rapid improvement in the resident White Sturgeon population.

The population of White Sturgeon in the Wells Reservoir prior to license renewal was estimated to be just 31±18 fish (range 13 – 218; 95% CI; Jerald 2007). Douglas PUD began implementing the White Sturgeon Management Plan in 2013 following license renewal in 2012. We released the first White Sturgeon supplementation group into the Wells Reservoir in 2014 and have released White Sturgeon every years since. In 2022 White Sturgeon Monitoring and Evaluation work completed by Douglas PUD and approved by the Aquatic Settlement Workgroupestimated the White Sturgeon population in the Wells Pool had grown to 2,432 fish (95 % CL = 1,466 to 5,426; Robichaud and Gingerich 2022). Today that number, exclusive of the 2023 and 2024 repatriation years, was estimated to be 2,568 fish (CL = 584 to 34,050; Robichaud and Kyger 2025).

Thanks to a Douglas PUD funded program of supplementation via repatriation of wild caught juvenile sturgeon, the White Sturgeon population within Wells Reservoir is arguably too high. In response to Douglas PUD's program success, in the Spring of 2025, Washington Department of Fish and Wildlife Region 2 staff presented results from Douglas PUD's Monitoring and Evaluation work to WDFW's Commission seeking the delegation of middle Columbia White Sturgeon Recreational Fishery Rulemaking Authority to the Director of WDFW[4]. The Commission approved this delegation. Fisheries managers at WDFW now have authority to develop harvest rules in the Wells Pool for the first time in more than two decades. Region 2 WDFW would not have sought this delegation of authority if the Wells Reservoir population of White Sturgeon had not had such a marked recovery. Douglas PUD expects that both state and tribal anglers will have an opportunity to harvest surplus White Sturgeon within the Wells Reservoir as early as 2026 at the rule making authority of co-managers (Tribes and WDFW).

What is more special about Douglas PUD's White Sturgeon supplementation effort is that the program uses repatriated wild produced sturgeon collected at night in drift nets within the

[3] White Sturgeon Management Plan available here: https://douglaspud.org/wp-content/uploads/attachments/Wells_Project_White_Sturgeon_MP.pdf (See section 4.4; Page 15)

[4] A link to the meeting, video & slides are available here March 20-22, 2025 Meeting agenda - WDFW Fish and Wildlife Commission | Washington Department of Fish & Wildlife and here https://wdfw.wa.gov/sites/default/files/2025-03/6-2025-white-sturgeon-rulemaking-direction-delegation-fw-comm-presentation-final.pdf

Columbia River near the U.S and Canada border. The wild-caught sturgeon larvae are removed from the Upper Columbia and transported to, and raised at, the Wells Fish Hatchery for a year. Following rearing, these Sturgeon are release into the Wells Reservoir. This "repatriation" program used to be one of only two programs in Washington state. Chelan PUD has recently adopted Douglas PUD's approach. Our White Sturgeon supplementation and repatriation program has unique benefits that prioritize genetic diversity (Jay et al. 2014), natural mate selection of spawning adults, early natural selection of 20 - 40 day old sturgeon larvae, and allows all spawning adults to contribute to the supplementation program. Other White Sturgeon programs in the State of Washington use a conventional broodstock program where adult sturgeon are removed from the wild, injected with hormones within a hatchery environment, and randomly assigned mates through traditional and artificial hatchery practices. In these programs only the smallest of the adults can contribute to the program since 8–10-foot sturgeons are too cumbersome and large to be brought into a hatchery. The Wells White Sturgeon repatriation program sets the bar for low impact hydro operations and sturgeon recovery within the Columbia Basin.

Douglas PUD expects that the need for passage evaluations and the biological merit of such programs will be informed by White Sturgeon spawning success studies (See WSMP section 4.2.3) completed in the Wells Reservoir once repatriated fish reach age of maturity in the next 5-10 years. One of these five required studies has already been completed, where no documented spawning occurred. Not surprisingly, repatriated fish released starting in 2014 had not reached age of maturity yet. The remaining four studies are likely to be completed once repatriated fish reach age of maturity pursuant to the Section language,

"*Several of these surveys are intended to be implemented during the latter part of the license in order to examine the natural reproductive potential of supplemented fish recruiting to sexually maturity. (WSMP 4.2.3; See footnote 3)*"

Reproductive potential in the Wells Reservoir is likely to improve simply by having more adults at large than the fewer than 31 adults estimated in the early 2000s.

Section References:

Jay, K., J.A. Crossman, and K.T. Scribner. 2014 Estimates of Effective Number of Breeding Adults and Reproductive Success for White Sturgeon. Transactions of the American Fisheries Society 142(5) 1204-1216.

Jerald, T. 2007 White Sturgeon Population Assessment in Wells Reservoir. MSc. Thesis Central Washington University.

Robichaud, D. and S. Crawford. 2024. Adult White Sturgeon Passage Evaluation. LGL Environmental Services, Inc.

Robichaud, D. and A. Gingerich. 2022. White Sturgeon Supplementation and Management Plan Implementation in the Wells Reservoir, 2020-21. Report for Public Utility District No. 1 of Douglas County, East Wenatchee, WA.

Robichaud, D. and C. Kyger. 2025. White Sturgeon Supplementation and Management Plan Implementation in the Wells Reservoir, 2023-24. Report for Public Utility District No. 1 of Douglas County, East Wenatchee, WA.

Aquatic Settlement Agreement. White Sturgeon Management Plan. 2009. Available here: https://douglaspud.org/wp-content/uploads/attachments/Wells_Project_White_Sturgeon_MP.pdf (footnote 3).

9. Downstream Passage: steelhead overshoots, kelts, juvenile salmon and steelhead downstream passage, subyearling Chinook Salmon

Claim: Various – consistent with previously submitted comments during the appeal period.

Douglas PUD's Response:

Various sections of the comments provided by the YN are repetitive or an elaboration of previous concerns submitted during the appeal process. Since Douglas PUD responded to these topics in earlier responses and reply comments to LIHI, we recommend that the technical board review those responses. Following that review, if the technical committee has additional questions, Douglas PUD welcomes an opportunity for further response, if needed. In many cases, we disagree with the data presented by the YN in their various passage and survival sections, or recognize they left out important considerations, some of which were discussed above (See #6).

10. Juvenile Lamprey Downstream Passage

Claim: "*Methods clearly exist to measure Lamprey passage survival and behavior as demonstrated by the U.S. Army Corp of Engineers (USACOE) and Pacific Northwest National Laboratory (PNNL) studies in the Snake and Columbia rivers (Deng et al. 2023; 2025a; 2025b). The results have provided robust estimates of passage survival of juvenile Lamprey along with needed information on passage routes and migration behavior relative to project operations. Developments in acoustic tag technology resulting in reduction in both tag size (Fisher et al. 2019) and sample size requirements (Harnish et al. 2020) make juvenile Lamprey project survival studies now feasible."*

Dougals PUD's Response:

Recent work by Pacific Northwest National Laboratory (e.g., authors cited by YN; Daniel [Zhiqun] Deng, and Ryan Harnish) represent research on the first ever downstream juvenile lamprey passage and survival evaluations. These reports and their studies pilot the use of electronic lamprey acoustic tags (ELATs). These new studies and tags are the most advanced in the world for juvenile fish survival. The ELAT tags are only now becoming commercially available, with tag availability expected in late 2025 or early 2026 (Acoustic Telemetry Systems – Sales Manager; Jamie Erickson *Personal Communication* August 13, 2025). Until these recent developments, no tag was small or light enough for juvenile lamprey (or for subyearling Chinook; relevant to #1, #4, and #9, above).

Douglas PUD's lamprey translocation program and fishway improvements are already increasing juvenile lamprey abundance in tributaries above Wells Dam. These successes are bringing us closer to the conditions needed to source fish and to complete a scientifically robust study with sufficient technology and sample size of study animals. We share the YN interest in conducting this work and expect to be able to do so within the next several years as tag technology, study design, and fish availability continue to improve.

However, several technical challenges remain. For example, ELAT tags currently have a maximum battery life of ~25 days. This means that any survival assessment must occur within that window. If a tagged lamprey does not pass Wells Dam within 25 days and instead fails to migrate, its expired tag will be treated as a mortality in mathematical modeling. In fact, survival estimates in the studies cited by the YN represent the joint probability of dam passage survival and survival of fish that remained in the study area after tag expiration (R. Harnish, PNNL, *Personal Communication*, August 6, 2025). We also are unaware of tagging studies that evaluate how lamprey swimming performance and survival are altered due to the handling and tagging event itself. Any statistically rigorous study must assume that tagged fish are representative of untagged conspecifics or "the untagged run at large." These studies have not been completed and are absent in Pacific lamprey literature. A robust survival study at Wells Dam needs to examine lamprey survival rather than tag and swimming performance effects.

Finally, it is important to note that neither the Pacific Lamprey Management Plan nor any Columbia Basin plan currently establishes quantitative performance metrics for juvenile lamprey survival. Moreover, no published studies have yet quantified natural juvenile Pacific lamprey survival in an undammed river. Without this baseline, it is impossible to determine how the Wells hydroelectric project survival compares to natural river survival.

Douglas PUD remains committed to advancing the science, meeting its license obligations, and ensuring that future studies are both methodologically sound and scientifically meaningful towards understanding Wells Dam's operational impacts on juvenile lamprey, if any. At this point, juvenile lamprey appear to be tremendously resilient to dam and turbine passage. Colotelo et al. (2012)

exposed juvenile brook and Pacific lamprey to simulated hydro turbine passage in the form of rapid decompression,

"*No mortality or evidence of barotraumas was observed following rapid decompression, nor up to 120 h after sustained decompression. In contrast, mortality or injury would be expected for 97.5% of juvenile Chinook salmon exposed to a similar rapid decompression to these very low pressures*."

While we share the YN interest to complete this juvenile study at Wells Dam as soon as technically feasible, the exiting literature on the topic suggests juvenile lampreys are very resilient to simulated turbine passage perhaps reducing the urgency stated by the YN.

Section References:

Colotelo A.H., B. D. Pflugrath, R. S. Brown, et al. 2012. The effect of rapid and sustained decompression on barotrauma in juvenile brook lamprey and Pacific lamprey: Implications for passage at hydroelectric facilities. Fisheries Research 129–130: 17-20.

Conclusion

The Yakama Nation a number of concerns about the future of Columbia River salmon and Tribal resources. However, in the case of Wells Dam, the criticisms mischaracterize or selectively omit data that demonstrates the achievement of No Net Impact successes of the Wells HCP and achievement of the management plan objectives outlined in the Aquatic Settlement Agreement Management Plan for Water Quality, White Sturgeon and Pacific Lamprey. The adaptive nature of these programs and the specific and unique resource-protection measures built through stakeholder consensus underscore their value and usefulness when considering whether to certify the Wells Project as Low Impact Hydro. LIHI certification for Wells Dam should recognize operational excellence (low impact), not perfection (zero impact). Much of what the YN provided in comments and complaints toward preventing LIHI certification, a) focuses on regional precedent rather than site specific achievements, b) sets the bar at regional salmon recovery before certification can occur rather than the achievement of NNI at the Wells Project and, c) neglects to include all the data, protective measures, and operational successes that Douglas PUD has achieved both within and in addition to our license requirements. Rather than a dangerous precedent, LIHI certification at Wells Dam can be a model for what meaningful, long-term collaboration and resource protection looks like alongside responsible hydropower.