THE OSPREY

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Last Chance to Save Olympic Peninsula Wild Winter Steelhead?

ALSO IN THIS ISSUE:

SIMPSON SNAKE RIVER DAMS REMOVAL PLAN • FRASER RIVER CRITICAL ESTUARY HABITAT • HATCHERIES AND FIRE

PROPOSED CHEHALIS RIVER FLOOD CONTROL DAM

REMOVE THE ENLOE DAM

Contents

Columns & News

Features

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Some Good Dam News

by Jim Yuskavitch

One of the four "Hs", dams, even those whose purpose is not for hydropower, have bedeviled wild fish advocates conservation efforts for decades. While dams have certainly benefitted human societies over the centuries, they have also had significant — and sometimes devastating — effects on wild fish ranging from water quality and habitat degradation to the outright extermination of entire salmon and steelhead runs by blocking their historical migration routes.

For many years the idea that dams might be removed to benefit fish was considered out of the questions, even when cost-benefit analysis argued for taking them out. That has changed considerably, and in recent years we have seen a number of dams removed or breached on the Olympic Peninsula and White Salmon River in Washington State, as well as dams on the Sandy, Hood and Rogue rivers in Oregon, on the Carmel River in California and more. In addition, many small dams and diversion have been removed or retrofitted with fish passage facilities. According to American Rivers, 69 dams were removed last year in 23 states, reconnecting 624 miles of upstream habitat.

And there is continued momentum in Pacific salmon and steelhead country. After some administrative and bureaucratic complications, plans to remove the four lower dams on the Klamath River in California and Oregon — Iron Gate, COPCO 1 and 2, and J.C. Boyle — is moving ahead. And particularly interesting is Congressman Mike Simpson's (R-ID) plan to remove the four lower dams on the Snake River — a longtime goal of wild fish advocates struggling to save Idaho Chinook and sockeye salmon and summer steelhead from extinction. Although it has some controversial provisions that has some wild fish advocates concerned, the proposal is significant in that for the first time the idea of removing those lower Snake River dams is being seriously considered.

There are also lesser-known dams that need more scrutiny, such as the outdated Enloe Dam located in the US, but blocks salmon and steelhead passage into British Columbia. This is one *The Osprey* will be looking into in more detail in a future issue.

And of course, the idea of building new dams has not gone away. Witness a proposed flood control dam on Washington State's Chehalis River conservationists are in the process of fighting.

Nevertheless, over the decades the concept of taking out dams has gone from a crazy idea to a reality, and we can expect to see more removals of problem dams for the benefit of wild fish in the future.

In the years ahead, we can expect to see more dams come down to benefit wild fish and free-flowing rivers. Photo by Jim Yuskavitch

How The Osprey Helps Wild Fish

T*he Osprey* has been bringing the latest science, policy, opinion and news stories to its readers supporting wild Pacific salmon and steelhead conservation and management for 31 years. But we are much more than a publication that you subscribe to because of your own interest in wild fish conservation. The funds we receive from our subscribers allows us send *The Osprey* to wild fish conservation decision-makers and influencers including scientists, fisheries managers, politicians and wild fish advocates.

Sending The Osprey to decision makers is key to our wild fish conservation advocacy. Your support makes that possible.

So when you subscribe/donate to *The Osprey*, you not only receive a subscription yourself, but you also help us put *The Osprey* into the hands of the people we need bring to our side to save our wild fish.

Please go to the subscription/donation form on page 23 or on-line at https://www.theconservationangler.org/osprey and donate whatever you are able. Thank you.

Jim Yuskavitch
Editor, The Osprey

The Osprey's 100th Issue, Klamath and Snake River Dams, Fraser Steelhead, and Hatcheries

By Pete Soverel

This issue's Hits & Misses column notes a major upcoming anniversary for *The Osprey*, looks at positive developments for wild fish on the lower Columbia River and Klamath River, and concerns about the Simpson plan to remove the four lower Snake River Dams and plans for increased hatchery production in Washington State.

HITS

100th Anniversary Issue of The Osprey

The next issue of *The Osprey* will be the 100th issue of our publication dating back to 1987 — a remarkable record of sustained salmon and steelhead conservation news, publication of cutting edge scientific papers, advocacy for wild fish and wild places, and legal issues relating to conservation and recovery. Over that long stretch, *The Osprey* has established itself as the "go to" publication on wild steelhead conservation and management issues. *The Osprey* has consistently highlighted WILD fish issues: wild fish know what to do, let them do it; hatcheries have a 100-plus year history unbroken by success and massive harm to wild stocks; dams are bad and should be removed; recovery strategies should result in producing wild fish at much greater levels than current natural production; ESA, Clean Water Act and related state and federal environmental reviews should be based upon natural production; reproductive potential of almost all of our watersheds for fish recovery; the law is generally on the side of fish — let's use it. In the forthcoming 100th anniversary issue, we will revisit some of these key issues, highlighting our many successes. We welcome reader suggestions for topics to be included in the 100th anniversary issue. Send your ideas to the editor.

Lower Columbia River Fish Traps

After several years of evaluation and proof of concept, the Washington Department of Fish and Wildlife has authorized limited commercial use of a fish trap program on the lower Columbia River pioneered by *The Osprey* partner, Wild Fish Conservancy. We will publish an end-of-season report on this exceptionally effective, non-lethal selective fishery made all the more urgent by the continued precipitous declines of wild Columbia/Snake spring Chinook salmon and summer steelhead, which are rapidly approaching extirpation while exposed to non-selective commercial and tribal harvest fisheries.

Over its long history, The Osprey has established itself as the "go to" publication on wild salmon and steelhead conservation and management.

Klamath River Dam Removal

After a checkered on again, off again history over the past decade or so, it looks like the program is back on track for removal of four upper dams on the Klamath River. Pre-dam populations of wild steelhead (more or less continuous separate runs throughout the year) and spring/fall Chinook numbered in the millions. Much of the habitat in the catchment area is in very good condition, with the exception of the headwaters, which should be able to sustain very large populations when re-populated with wild stocks. Let's hold our fingers crossed and look forward to breathing life back into this wonder river.

MISSES

Fraser River Summer steelhead

As readers know well, Fraser River summer steelhead are on a direct path to near-term extirpation with current returns to their principal tributaries, the Chilcotin and Thompson rivers, reduced to a few score of fish — down from tens of thousands in the 1950s. Like threatened populations everywhere, the fish suffer from a thousand cuts — some deeply injurious in and of themselves; others while perhaps minor themselves, cumulatively pose serious conservation concerns.

The most immediate and life-threatening activity — commercial, especially tribal, interception for the sockeye and chum roe fisheries. These activities are under the direct and immediate control of Canadian federal Department of Fisheries and Oceans. DFO is fully aware of the catastrophic impact of these fisheries. Their responses:

A. Pretend there is no problem

B. Actively suppress scientific evidence of harm

C. Pillory critics

For flavor, see:

DFO ignored science on threats to Fraser River steelhead, docs show (thenarwhal.ca) at https://thenarwhal.ca/dfo-steelhead-scientists-emails/

How Ottawa thwarted efforts to help an endangered species – The Globe and Mail at https://www.theglobeandmail.com/canada/british-columbia/article-how-ottawa-thwarted-efforts-to-help-an-endangered-species/

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Gone, probably forever, the admonition of knowledgeable steelheaders for the past 75 years, "Wherever you fish steelhead for the other 11 months of the year, be sure to be on the Thompson in November…." For far too long, I ignored that advice, wasting my time driving the 5 hours from my home north of Seattle to search for early winter runs on the Olympic Peninsula. Nice enough steelhead but not the super fish finning in the Thompson 4.5 hours from my house. Finally, at the urging of buddies Sean Gallagher, Greg McDonald and Howard Johnson, I took the plunge in November 1987 with Howard. On the first run in Murray Creek, perhaps tenth cast, a huge boil on my skated "Big Daddy" followed by an explosive run by a 18- to 20-pound hen.

For the next twenty years, I followed the advice — November on the Thompson camping on the "Y Bar", Thanksgiving dinner with up to 15 guests in my modest motorhome. Over that twenty-year period, I landed dozens of 20-plus pound steelhead —more than the combined total from all the other 45-50 rivers I have fished, including one fish well over 40 pounds. Now, gone forever, I trust a merciful steelhead god will send those managerial idiots to their just desserts.

After hitting a few potholes, the plan to remove four lower dams on the Klamath River is back on track. Photo by Jim Yuskavitch

The failed conservation strategy of barging salmon and steelhead smolts around the Snake River dams would no longer be needed with the dams out. Photo by Jim Yuskavitch

Simpson Snake River Dams Removal Plan

The Snake River recovery plan currently being circulated has drawn mixed reviews, including differences among *The Osprey* partners, all of whom are united in their calls for removal of the four lower Snake dams. The main points of divergence center on suspension of bedrock environmental law (ESA, Clear Water Act, right to seek legal redress), auto-extension of FERC licenses for all Columbia/Snake basin hydro programs, and payments to industries which are harming salmon/steelhead.

Partners speak for themselves on this proposal. The Conservation Angler thinks it is a fundamentally bad, imbalanced proposition. So far, Congressional reaction has been negative or lukewarm, with little movement towards an actual bill and budget authorization.

Washington Fish Hatcheries

The Washington Fish and Wildlife Commission continues its headlong march to increase hatchery Chinook production threefold above levels approved by NOAA under the ESA — all without any environmental or legal review for the purported purpose of feeding starving Orcas. Of course, Orcas don't need 5- to ten-pound hatchery Chinook. They need 25- to 50-pound Chinook. It's been a long time since anyone has laid eyes on a 50-pound Chinook salmon in Puget Sound, the Columbia River or anywhere else in Washington, Oregon or California. Selective harvest targeting big Chinook eradicated this life history from the lower 48 states' Chinook populations. A similar end game is on the immediate horizon in Alaska — just ask any Kenai Chinook angler with more than a decade or two of experience.

There is virtually no evidence that tripling hatchery releases will result in more adults or, especially, any large adults. Indeed, 60-plus years ago Washington Department of Fisheries scientist Royal found the exact opposite to be true — more hatchery releases equals less and smaller fish.

Don't hold your breath waiting for more and larger hatchery Chinook — it isn't going to happen.

Pete Soverel is Chair of The Osprey *Management and Editorial Committee and founder and President of The Conservation angler: www.theconservationangler.org.*

Sorry About That!

Our apologies to long-time supporter of *The Osprey* Jay Beckstead, whose name we misspelled in the 2020 Honor List. Also, we inadvertantly left out long-time supporting club, The Osprey Fly Fishers of British Colombia. Sorry about that! We greatly value all of our supporters who make it possible for *The Osprey* to continue its advocacy for wild Pacific Salmon and steelhead!

Last Chance to Save Olympic Peninsula Wild Winter Steelhead?

By John McMillan

December is when winter steelhead season is officially underway across much of the Pacific Northwest. While this is normally the time to share a touch of holiday cheer and offer congrats to those who have already landed a steelhead, the past year has been a bittersweet for anglers on the Olympic Peninsula (OP).

Near year's end, the Washington Department of Fish and Wildlife (WDFW) enacted new regulations coastwide that fundamentally change the way we pursue steelhead, with the stated goal of reducing our encounter rates on these last, best wild runs here in Washington. The new regulations include a ban on fishing from boats and the use of bait, requires the use of single-point barbless hooks, and bans retention of rainbow trout.

It's a disappointment for the 2020-2021 season to be sure, but those who can think beyond the brim of their hats will know it's the best call for the fisheries and communities that depend on them.

WDFW held a virtual town hall to inform anglers that returns of wild and hatchery winter steelhead were forecast to be very low for the OP, Grays Harbor, and Willapa Bay regions. The situation isn't pretty, and it's more dire for some populations than others.

Unfortunately, a series of very poor ocean years has further depleted the stocks of wild steelhead and things are unlikely to turn around soon based on expected smolt survival out in the big blue. At this townhall, WDFW proposed a series of potential regulation changes that ranged from full closure of all river systems to more conservative measures that would reduce angler efficiency but also allow a longer fishing season, with a goal of ensuring more steelhead make it to the spawning grounds.

We Saw This One Coming

These small run sizes and forecasts shouldn't be a surprise to those familiar with the OP. The situation has been building over the past 10-20 years. Declining stocks were first brought to attention with a status review of steelhead stocks and their management by the Wild Steelhead Coalition in their 2006 report. (https://wildsteelheaders.org/wp-content/uploads/2020/12/2006-Status-of-wild-steelhead-in-W.-WA.pdf) Then came Shane Anderson's, movie Wild Reverence in 2014, which underscored the seriousness of the declines and warned of a potential listing under the Endangered Species Act (ESA). And, as we have written about over the past six years in Trout Unlimited's Science Friday series, wild winter steelhead populations have been in long-term decline since 1980 in the Queets, Hoh, and Quinault rivers. While the Quillayute population has overall performed better, it too has declined steeply since the late 1990s (Figure 1).

The unfortunate reality is that emergency wild winter steelhead conservation measures are needed on the Olympic Peninsula.

The declines are why Trout Unlimited, and other organizations and anglers, including a 2015 WDFW North Coast Steelhead Advisory Group, for years have advocated for a more measured approach to modifying sportfishing regulations and considered ways to minimize our impact on catch and release fisheries for winter steelhead.

These declines are also why coastal tribes, the Coast Salmon Partnership, The Nature Conservancy,

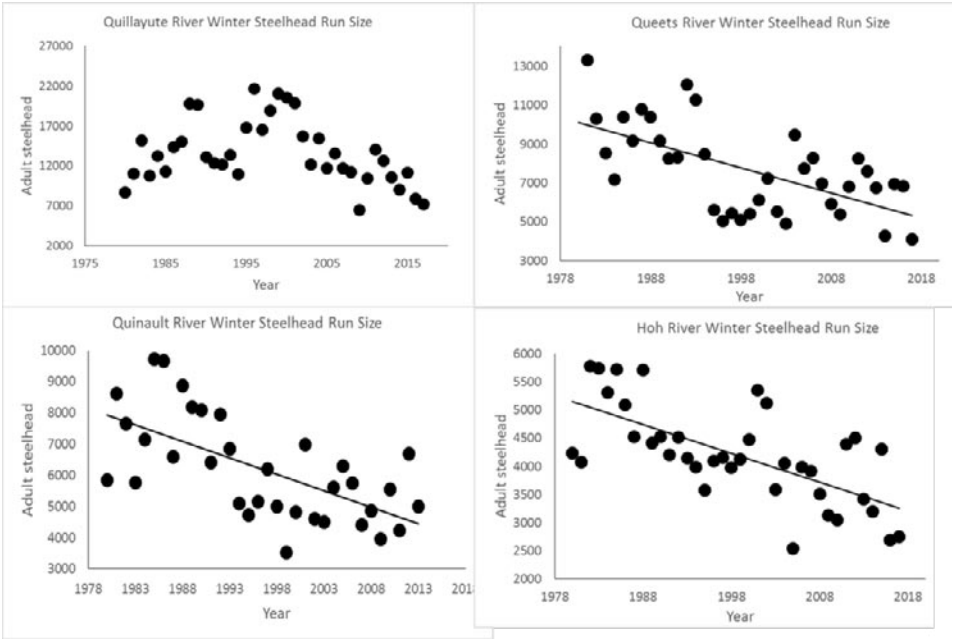

Figure 1. Trends in annual run sizes of wild winter steelhead in the, a.) Quillayute, b.) Queets, c., Hoh, and d., Quinault River basins. Black lines represent best fit linear regression model.

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Wild fish advocates may be looking at their last chance to save wild winter steelhead on Washington's Olympic Peninsula Photo by John McMillan

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TU, Wild Salmon Center, Regional Fishery Enhancement Groups, and Conservation Districts have invested heavily in habitat restoration in several of these watersheds. Even though many of these basins have a high proportion of their watersheds in the Olympic National Park, a lot of important winter steelhead habitat is found outside of the park. Restoring that habitat is critical to a sustainable future for wild winter steelhead.

Although the regulations have raised some controversy, we believe the evidence overwhelmingly supports implementing more conservative sportfishing regulations on the OP.

This was not an easy decision for WDFW, and it is bittersweet for anglers. Worse, these changes to the way we pursue steelhead on the OP by themselves will not turn around these declining runs. While we still get to fish and will have to adjust to these new regulations, the populations are still on the decline.

Still, if we are serious about fishing for OP wild steelhead into the coming decades, we will focus less on what we get this year and more on how we can develop a plan that will address the threats and help rebuild the depleted populations.

While we recognize these new sportfishing regulations fundamentally change the way we fish for steelhead, we see several clear benefits to WDFW's approach, including keeping the best advocates of the fish on the water, us anglers.

The Trends Are Clear to Anglers and Scientists

To execute the OP steelhead fishery at the status quo and not take emergency actions would have increased the likelihood of an ESA listing, which means game-over for anglers. As mentioned earlier, most of our famed OP winter steelhead populations are in decline (Figure 1). Hoh River steelhead have frequently missed their escapement goals for the past fifteen years and many of the lowest run sizes on record have come in the past five to ten years. Further, there is strong evidence that the early-timed component of wild steelhead in the Sol Duc River, which returned from November through early January, have been greatly depleted (Bahls 2001).

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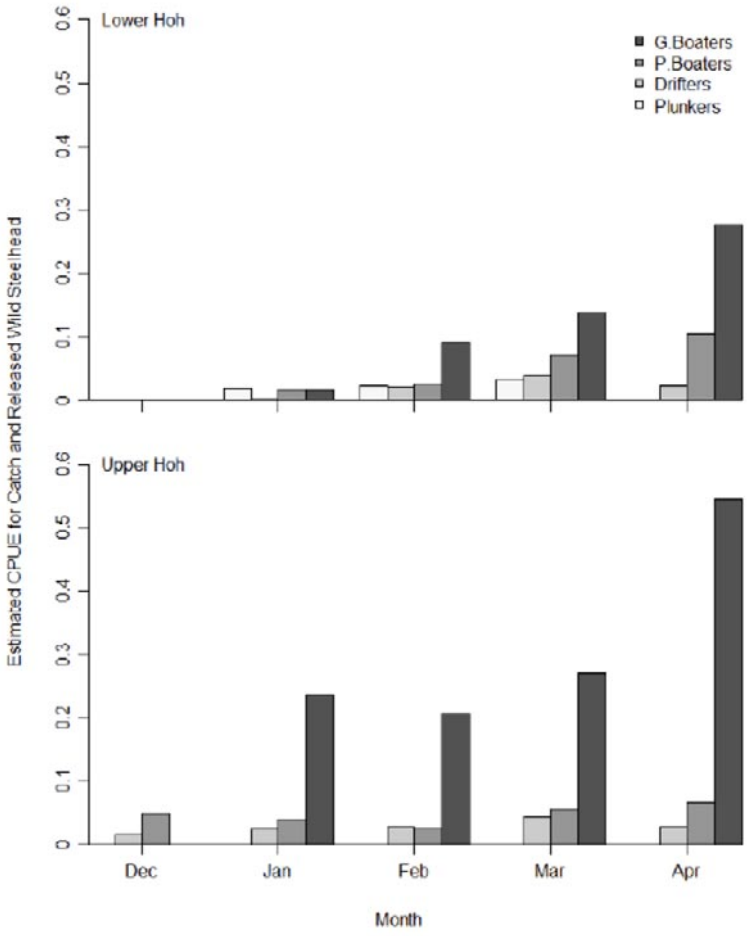

Figure 2. Estimated catch-per-unit-effort (CPUE) by month in Lower and Upper Hoh River 2015 steelhead fishery for boat anglers (guided (G) and private (P) and bank anglers (drifters and plunkers) (Bentley 2017).

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If these trends aren't reversed soon the entire OP Distinct Population Segment (DPS) will be listed under the ESA and the fisheries will close for an indefinite time period. This same thing happened in 2007 to the winter steelhead fisheries in Puget Sound, so avoiding that outcome should be a priority.

It took about two years from petition to decision for the listing of steelhead in Puget Sound, which means we need to act meaningfully and swiftly to stave off a listing. Adopting these more conservative fishing regulations is the only action steelheaders can take with potential to immediately help wild steelhead.

A wild winter steelhead digs a redd on an Olympic Peninsula stream. Photo by John McMillan

It's on Foot from Here

While the ban on fishing from a boat is the most controversial change, this is the WDFW's most effective tool to reduce encounter rates and provide a longer fishing season. We understand the strong opinions on either side, but WDFW's own data shows that more steelhead are being caught and released by boat anglers.

In a WDFW study on the Hoh River in 2015 it was estimated that boat anglers had a catch-per-unit-effort (CPUE) that was 3-5 times higher than bank anglers (Figure 2). Similarly, high rates exist in the Quillayute system (Figure 3). Owing to the high CPUE, WDFW estimated that every steelhead that escaped to spawn in the Hoh in 2015 was caught and released, on average, 1.4 times by anglers. After discussions with numerous other scientists, the OP encounter rates appear to be very high relative to other populations on the West Coast with similar creel data, perhaps even higher than any other population. Although we expect encounter rates to increase for bank anglers, the overall encounter rates should be greatly reduced, resulting in lower mortality rates and sublethal effects such as less stress associated with handling and fighting, which in turn equates to more productive fish on the spawning grounds.

The rivers of the Olympic Peninsula, such as the Hoh, represent the last best place in Washington State for wild winter steelhead. Photo by John McMillan

Additionally, a more conservative fishery provides a buffer in case the pre-season run forecasts are overestimated, which is common for OP steelhead. Pre-season forecast models are fraught with uncertainty because it is very difficult to predict how fish survived in the ocean, and higher encounter rates could lead to populations missing their escapement goals.

If allowed to fish out of a boat, the angling season would have to be substantially shorter to account for the increased efficiency and still provide a buffer for an inaccurate preseason run forecast. While the notice is short, we believe a longer season from the bank, even using less efficient methods, is a win for anglers, steelhead, and rural economies. It aligns conservation and angling opportunity and maximizes the season over which anglers will contribute to the economies in communities like Forks.

It Takes All of Us

Supporting these conservation measures is important if steelheaders want long-term collaboration with tribes to rebuild wild steelhead. Through hard work and communication between WDFW Region 6 staff and the tribes, co-managers were able to reach agreements that include serious concessions to improve escapement of wild steelhead. The Region 6 staff provided additional information about these regulation changes including the data used to support this decision, and the Steelhead

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Harvest Management Plans from both the Hoh Tribe and Quileute Tribe.

While we understand the frustration of sudden changes in angling regulations, solely blaming tribes for the decline of these runs and inciting division will not help solve the problem. The tribes have a right to fish. We have a privilege. Let's not forget either that the tribes have long carried the burden of protecting and restoring habitat. If their salmon and steelhead populations collapse, they can't pack up and move to another river.

While we as anglers have made some substantial changes for our upcoming season, it is only a one-year fix. A longer-term plan is needed to rebuild the populations and achieving that goal will require strong collaboration between co-managers. We won't get that by insulting a group of people who also cherish wild steelhead and salmon and the rivers they inhabit. Rather, we should be natural allies in an aligned effort to rebuild these magnificent populations.

We appreciate that the emergency response is a major undertaking for WDFW and the co-managers, and that these rules are controversial among some anglers, but that fact does not diminish their necessity.

To recap, the following are some of the concerns driving these new conservation-minded sportfishing regulations from WDFW:

- significant changes in the health and abundance of wild steelhead
- large public investments in steelhead habitat protection and restoration
- the surging popularity of steelhead fishing
- the swelling ranks of steelhead guides on the OP
- growing support for conservation of wild steelhead among all sport anglers

new scientific information emerging regarding what wild steelhead need to thrive

Western Washington is blessed to still have rivers including the Hoh, Sol Duc, Calawah, Bogachiel and Queets that have sizeable wild steelhead populations that can, if carefully managed, continue to support recreational and tribal fisheries.

The OP represents the best last place for wild winter steelhead in Washington state. We have one last chance to get it right for our state fish. If that means sacrificing some opportunity now to help steelhead in coming years, we at Wild Steelheaders United are willing to absorb that impact. We empathize with those that disagree, but these fish have given so much to each of us that we think it's time to put the fish first.

Plus, if we don't do it now, science tells us we likely won't even have the chance to later.

Author, John McMillan, with wild Olmpic Peninsula winter steelhead buck. Photo courtesy John McMillan.

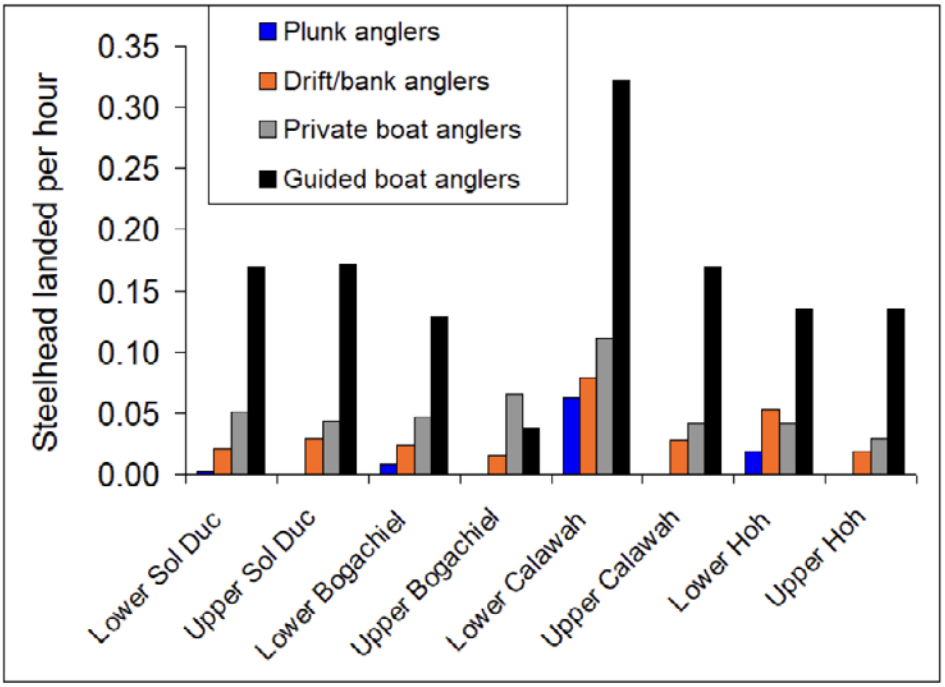

Figure 3. Number of steelhead landed per hour (Catch per unit effort) by different types of anglers in different sections of Sol Duc, Bogachiel, Calawah and Hoh Rivers. Plunk and bank angler fish from bank. Boat anglers use a boat to float the river and typically fish out of the boat. Based on data collected by WDFW in 2013/2014.

John McMillan is the Science Director for Trout Unlimited's Wild Steelhead Initiative, which is one of The Osprey's *supporting organizations. Find out more about their work on the Wild Steelheaders United website at https://www.wildsteelheaders.org, where this article was originally published.*

Idaho Congressman Mike Simpson's Plan to Remove the Four Lower Snake River Dams

By Mitch Cutter

In February, Idaho Republican Congressman Mike Simpson released his "Columbia Basin Initiative" concept for a $33.5 billion infrastructure package to save Idaho's salmon and steelhead and invest in energy, transportation, agriculture, and recreation in the Pacific Northwest. Congressman Simpson plans to incorporate his concept into the American Jobs Plan, President Joe Biden's $2.3 trillion infrastructure bill. This is a remarkable proposal for Idaho and the region.

Since the first federal hydroelectric dam was built across the Columbia River in 1937, our region has been split over salmon, steelhead, and what we need to do to keep them from going extinct. For many populations, especially those within the Snake River, the current situation is dire: recent analysis by the Nez Perce Tribe indicates that 42% of spring-summer Chinook salmon populations in the Snake basin have reached "quasi-extinction," and that share could rise to 77% if the current rate of decline continues. The same analysis shows better, but still troubling results for steelhead.

Fish aren't the only troubled population in the region. The Northwest's fish recovery program is largely paid for by the Bonneville Power Administration (BPA), which has spent more than $17 billion on the problem in the last 30 years. These aren't federal funds; BPA pays for its program via the rates it charges for electricity. That cost flows through electric utilities to the average household, whose electricity bills have risen 30% since 2009. Future declines in fish populations will mean more funding needed by this inefficient recovery program, and further increases in electricity prices. That status quo isn't sustainable; it will bankrupt the region and likely still would not recover salmon and steelhead. To stop this slide toward extinction and regional uncertainty, urgent change is needed.

The Proposal

Congressman Simpson's high-level proposal centers on that change. Under his framework, the earthen portions of four dams on the lower Snake River would be breached in 2030 and 2031, action that conservationists and Tribes have advocated for years. Analysis has shown that these actions alone would push Snake River salmon and steelhead toward recovery, and are essential for the restored, abundant populations that many in the region truly desire.

The framework is focused on keeping and making communities whole, and includes "guarantees" to stakholders their concerns will be addressed.

However, the lower Snake River dams play a role in the region's energy grid, transportation network, and agricultural economy. For this reason, only about 5% of the Columbia Basin Initiative's funding is allocated toward breaching. The rest is dedicated to mitigating the impacts of breaching on other industries and to improving the infrastructure of the Northwest. All of this mitigation would be completed before a single dam is breached, ensuring there'd be no gap in the services currently provided by the dams. The framework is focused on keeping and making communities whole, and Rep. Simpson includes several "guarantees" within his proposal, giving certainty to the dams' stakeholders that their needs will be met and their concerns addressed.

To understand these concerns, Congressman Simpson conducted more than 500 conversations with regional groups and leaders to determine the significance of both the region's fish and its dams. Beyond its significant action for salmon and steelhead, Rep. Simpson's proposal includes investments across several areas:

● Clean Energy: $16 billion would be used to construct new carbon-free electric sources (to replace energy services now provided by the lower Snake River dams) and to improve the Northwest's electrical grid. This new portfolio of resources would improve energy reliability, and bring jobs and new revenues to rural places that sorely need both. Solar, wind, battery storage, small modular nuclear reactors, pumped storage hydropower, and energy efficiency have all been included as potential sources of new power. Another $1.25 billion would be invested in research on batteries and energy storage technology in the Lewiston area. This development would advance our clean energy goals and make the Northwest's energy supply cleaner and more diverse.

● Agriculture: $5 billion to ease the transition away from barge shipping on the lower Snake River — which would no longer be possible — and toward rail shipping of agricultural products (mostly wheat). Included are funds to build infrastructure, adjust current storage and loading facilities, subsidize shipping prices, and modify irrigation systems.

● Water Quality: More than $4 billion for water quality improvements and waste management. Watershed partnerships for major Northwest rivers (including the Snake, Columbia, and Willamette) would work to limit agricultural runoff and other pollution.

● Fish and Wildlife: More than $3 billion to address a litany of other fish and wildlife projects in the Columbia River

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basin. This includes hatchery improvements, passage modifications for Pacific lamprey and white sturgeon at existing facilities, reintroduction of salmon and steelhead into blocked areas above Grand Coulee Dam and the Hells Canyon Complex, and funding for additional small dam removal projects.

● Communities: More than $2 billion to help the Lewiston-Clarkston and Tri-Cities communities in their economic transitions. Lewiston-Clarkston would become the center of a new whitewater recreational mecca at the head of the new Lower Snake River National Recreation Area. Tri-Cities would become an intermodal shipping hub, benefitting from new opportunities in the region as well.

● Lower Snake River Restoration: More than $2 billion to breach the earthen portions of the four dams, control sediment, and mitigate the impacts of reservoir drawdown on adjacent roads and railways. In addition, significant funding is included for protection of cultural resources that would be revealed and for restoration of more than 14,000 acres of riparian habitat next to the river.

● Tribal Commitments: Creation of a Northwest State and Tribal Fish and Wildlife Council to oversee salmon and steelhead recovery in the region. Composed of both state and Tribal representatives, the Council would be given funds and the authority to implement programs and projects that meaningfully advance fish recovery. The proposal has the potential to be a significant step forward in honoring our nation's commitments to Tribes.

Points of Contention

Dam breaching remains a contentious issue in the Pacific Northwest. Arguing that the investment would be "irresponsible," some groups, businesses, and elected leaders opposed the framework before it was even released, maintaining the posture of previous decades. Rep. Cathy McMorris-Rodgers (R-WA), a longtime opponent of dam breaching, called the lower Snake River dams "the beating heart of Eastern Washington" and any proposal to breach them a "drastic, fiscally irresponsible leap to take."

Much of this criticism focused on a recent analysis claiming that freshwater conditions have little impact on salmon and steelhead populations in the Columbia River Basin, and that the vast majority of issues lie in the ocean. Notably, this analysis, conducted by Dr. David Welch of Kintama Research, has since been roundly rebutted by the Fish Passage Center and dozens of fish biologists across the region, who've questioned Welch's methods and motivations.

Little Goose Dam is one of the four dams on the lower Snake River that wild fish advocates have been trying to remove for decades. Photo by Jim Yuskavitch

In the same vein, critics point to a single line in Simpson's announcement of the proposal, wherein he says he "can't guarantee" that this action will save Snake River fish. Again, this criticism ignores context as Rep. Simpson goes on to say that he "is certain" that keeping the dams in place will drive these fish to extinction. Considering recent population trends and the effects of climate change, Simpson's statement about extinction seems to be a foregone conclusion.

On the flipside, several conservation groups oppose the plan because of measures that would limit future litigation. To entice pro-dam advocates, Rep. Simpson's proposal delivers "certainty" around other dams in the region in two ways. First are 35-year litigation moratoria on most power producing dams in the Columbia Basin. Under these moratoria, lawsuits under the Endangered Species Act (ESA), Clean Water Act (CWA), and National Environmental Policy Act (NEPA) involving these dams would be halted for 35 years. Second are maximum 35-year extensions for most FERC-licensed dams in the Basin. Relicensing processes at such facilities are typically how conservationists, Tribes, and other interested parties negotiate with dam owners to mitigate their dams' effects on the natural environment. Extending licenses is an incentive for non-federal dam owners, even those without anadromous fish issues.

Conservationists are concerned about halting the nation's bedrock environmental laws. For many organizations, litigation is a valuable tool and can sometimes represent the last resort where other methods of negotiation fail. For decades, fish advocates in the Northwest have relied on lawsuits to advance their cause, and they've been enormously successful. Five successive Biological Opinions from the federal government have been deemed illegal by the courts, and the most recent is already subject to lawsuits. However, it's

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unlikely that any judge would order dams to be breached as an act of Congress is needed to deliver this significant change.

Therefore, for the Idaho nonprofit where I work, the Idaho Conservation League, Congressman Simpson's proposal represents the next phase in this dialogue. Lawsuits have split the region and delivered only scarce fish, expensive electricity, and an uncertain future for many. The concerns about undermining the ESA, CWA, and NEPA are well-founded, and should be heard alongside the concerns of all stakeholders. But calling for elected officials to generally oppose the proposal without any detailed discussions blocks the path toward a comprehensive solution.

The Columbia Basin Initiative needs more engagement, not less. It needs more elected officials and stakeholders to look at it critically, but with an open mind. There may be other ways to provide the certainty that farmers, electric utilities, and other industries desire for the region's remaining hydroelectric dams. Our goal is to push leaders to lead, represent their constituencies, and assemble a solution to this problem.

Building Support

Despite the criticism from both sides, many see the proposal for the bold idea that it is. We believe the Columbia Basin Initiative charts a new path forward for the Northwest, pushing the region beyond the current pattern of litigation and toward a new, prosperous future.

Even some traditional opponents of dam breaching are giving the proposal serious consideration. Northwest River Partners, a pro-hydropower advocacy group, is "encouraged" by the proposal, which "clearly reflects extensive input of tribal nations and hundreds of stakeholder groups." Other interests in energy, agriculture, and irrigation have stayed neutral by staying silent, waiting to see how elected officials weigh in.

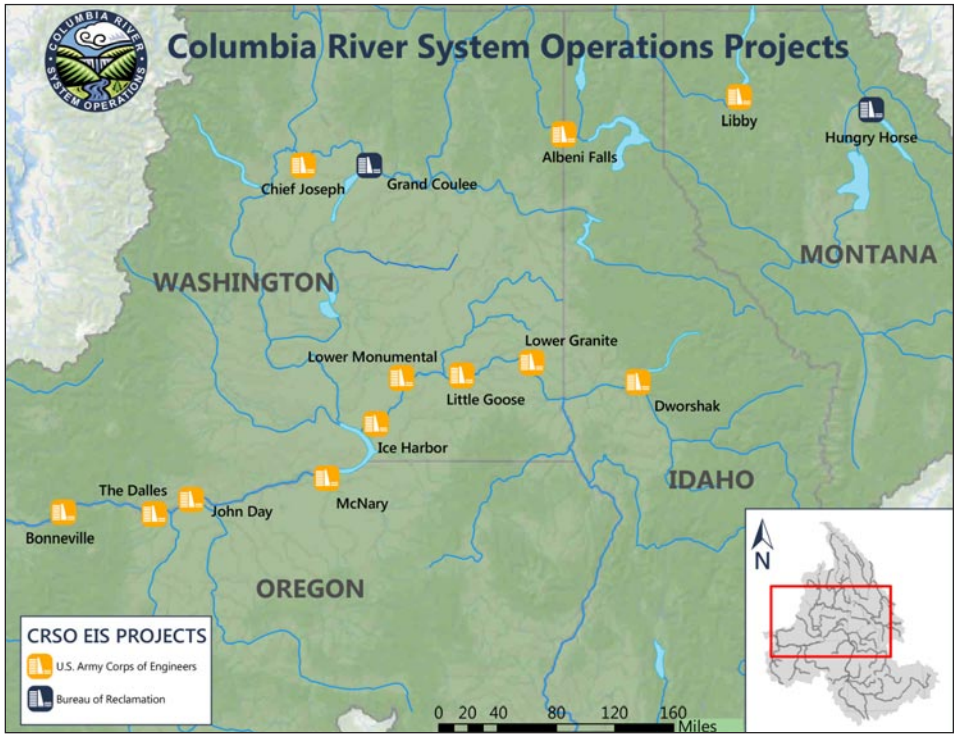
Some leaders already have. Oregon Governor Kate Brown was an early supporter, thanking Rep. Simpson for his efforts and welcoming the "clean energy future" brought by the proposal. Washington Governor Jay Inslee was more cautious, supporting the proposal's efforts to "think boldly" while pushing for a longer discussion within the Columbia Basin Collaborative, which is currently being assembled by the four Northwest states.

Most recently, Congressman Earl Blumenauer (D-OR) has stepped out in support of the proposal. Like Simpson, Blumenauer has carefully studied the Columbia-Snake River System, and has seen many of the same alarming trends. He shares grave concerns about litigation moratoria, but is still supportive of a comprehensive, consensus-based solution to this problem. Writing jointly in a recent guest editorial, the two Congressmen are realistic, but hopeful: "It will require unprecedented cooperation, innovation, and investment, but we are convinced that this is the time to convene the people of the Pacific Northwest to make this critical effort a reality."

Hopefully, with this rare instance of bipartisan partnership, the proposal will gain traction among both Democrats and Republicans. We hope this momentum shows stakeholders that this framework is real, and moving forward. It's time to confront this problem, move beyond the fights of the past, and push for that bright future that the Columbia Basin Initiative strives to create.

Far from the halls of Congress and the hubbub in Olympia, Salem, and Boise, young Snake River salmon and steelhead are migrating out to the Pacific along up to 900 miles of water, including eight hydroelectric dams. What kind of river will these fish return to in 5 years? What will the Northwest look like? The Columbia Basin Initiative begs that question of every person who calls this place home and those who care about salmon and steelhead.

Fish, for their part, are opportunity-seekers; give them a chance to thrive and they will do so. Through decades of overharvest, habitat degradation, impassable dams, predation, hatchery overuse, and climate change, the resilience of anadromous fish has been astounding. We must be opportunity-seekers as well, and prove our own resilience to the pressures of an ever-changing environment. We must grab this opportunity to increase the certainty of salmon and steelhead survival. Quasi-extinction and a slide toward full extinction will likely bankrupt the region. Rep. Simpson is handing all of us in the Northwest a lifeline not only to recover these fish, but to bring urgently needed change for a prosperous, regional future.



Columbia River hydro system, including the four lower Snake River dams. Map by Columbia River System Operations EIS

Mitch Cutter is the Idaho Conservation League's Salmon and Steelhead Advocacy Fellow. For more information about their work visit: https://www.idahoconservation.org

Fraser River Study Shows Estuarine Habitat Protection Critical for Salmon

By Lia Chalifour and Misty MacDuffee

Pacific salmon, especially Chinook and chum salmon, reside and feed in estuaries during downstream migrations. But our understanding of the extent to which they rely on estuaries, and which habitats within estuaries, is evolving. Estuaries consist of different types of habitats that span salinity and exposure gradients, including seagrass meadows, sand/mud flats, and tidal marsh. To enact effective conservation policies for these ecosystems, we must understand the detailed use of these habitats by salmon. This is especially important in urban systems where habitat loss is ongoing and occurs at different rates across the estuarine mosaic.

The Fraser River estuary, for example, supports a multitude of fish species, and is a crucial stopover for juvenile salmon from throughout the Fraser watershed. The Fraser is the largest delta and contributor of fresh water in the Salish Sea, and with its mainstem remaining undammed it is unparalleled among estuaries in the Pacific Northwest. However, the vast majority of its floodplain has been cut off to fish by dikes and jetties, and much of the remaining habitat has been degraded by coastal development. Despite these unique features, the use of the remaining important habitats by migrating juvenile salmon had not been investigated since the early 1980s.

Meanwhile, the Fraser estuary has become host to the fastest growing urban population in British Columbia, with many infrastructure projects following to support that growth. It is home to the most active port by freight tonnage in the Pacific Northwest, which has proposed a further expansion into the estuary, and it is actively dredged to maintain ship passage. Agricultural production in the region supports 30-40% of the revenue for BC's agriculture on less than 4% of the land base, and recent research has confirmed that hypoxia events in sloughs of the Fraser estuary are increasing, affecting rearing juvenile salmon.

The Fraser Estuary supports more than 100 species that are recognized as "at-risk" (threatened, endangered or of concern) either provincially or federally. The estuary is also rearing habitat for 21 salmonid populations in 4 different species that are listed as threatened or endangered by COSEWIC (Committee on the Status of Endangered Wildlife in Canada).

The coal terminal on Roberts Bank lies in the distance behind healthy brackish marsh channels in the Fraser River estuary. Photo by Lia Chalifour

The concern about increasing human pressures on this important estuary, coinciding with declining productivity of several Fraser River salmon populations (particularly Chinook salmon), led us — Lia Chalifour from the University of Victoria's Baum Lab and the University of British Columbia's Martin Lab, and Misty MacDuffee and David Scott from Raincoast Conservation Foundation — to launch a long-term research study within the estuary. We have surveyed brackish marsh, eelgrass meadows, and sand flat sites at high tide while they are equally accessible to fish, and have recently added low tide fyke net sampling in additional marsh channels.

The Fraser River estuary supports a multitude of fish species, and is a critical stopover for juvenile salmon from throughout the Fraser watershed.

Beginning in 2016, we have studied how different fish use these distinct but connected habitats within the Fraser estuary to help understand their relative importance for different fish species. We catch on average more than 30,000 fish from 40-plus different species annually, including about 1,000 juvenile salmon in each of our first two years, and upwards of 8,000 now that we have expanded our methods to include fyke net sampling. The Fraser estuary is an expansive, silty ecosystem, which makes it difficult to study fish movements. Using modern techniques, our research program has now confirmed via two recent publications that juvenile Chinook salmon are using these habitats during their early life history. In particular, juvenile fry migrant fall (ocean type) Chinook salmon

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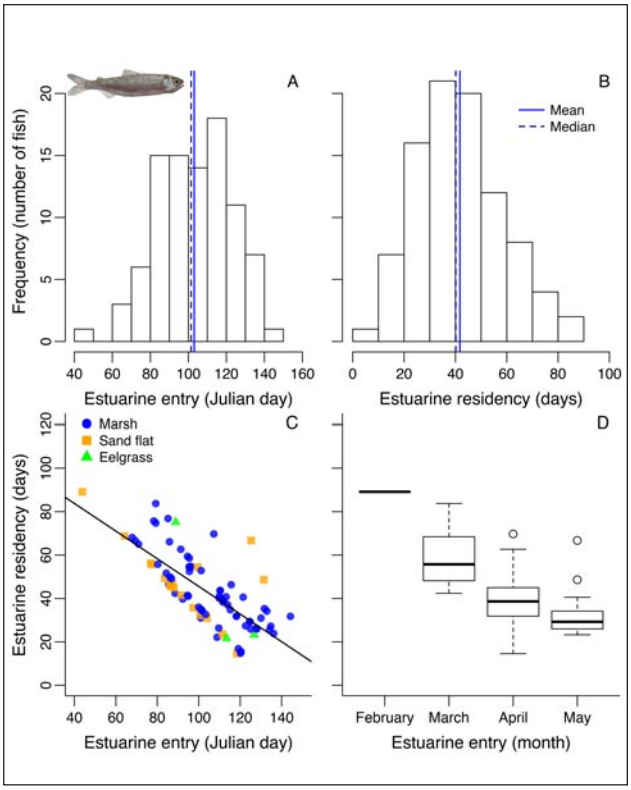
from the Harrison River rely heavily on the estuary during their emigration to the ocean, which is a critical period that influences their future survival.

We used genetic stock identification to clarify that Harrison River Chinook comprise the majority of emigrating Chinook in the estuary from March through June, followed by an increase of stream type (spring) juveniles from tributaries farther upriver and ocean type Chinook from the South Thompson River. Using the tiny salmon otoliths measuring less than 1mm across, we were able to demonstrate that Chinook salmon from the Harrison River rely on the Fraser estuary for at least one to two months on average while they feed and grow. Their daily growth of about 0.57 mm per day in fork length is comparable to ocean type Chinook in the Salmon River system in Oregon, indicating that fish that are surviving within the estuary are growing well. These findings underscore the critical nature of this habitat for the persistence and recovery of Chinook salmon.

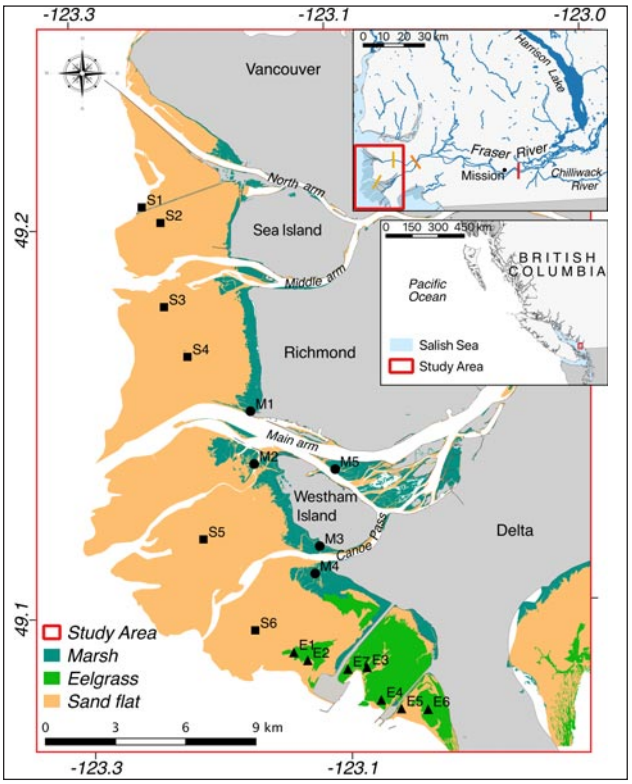
Harrison River Chinook were once a reliably productive ocean type Chinook salmon population in the Fraser and hold particular importance for Indigenous and recreational harvest in the Salish Sea. In the last three generations, however, this population has seen declines upward of 70% and is now considered threatened by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC). Knowing now that these Chinook salmon rely on estuarine habitat as juveniles, we are calling for further protection and restoration of key habitat in this estuary. The fresh and brackish marsh in the Fraser delta has been heavily impacted by dikes and channeling of the river, however our partners including Raincoast Conservation Foundation are working to improve connectivity in the estuary for juvenile salmon.

Our research shows that young Chinook salmon rely heavily on estuarine habitat, and in particular the fresh and brackish marsh on the Fraser delta, before they enter the ocean. Since the majority of these habitats have already been lost or degraded, this stage may be a bottleneck that reduces their productivity. This story is likely similar across other deltas in the Northeast Pacific. As climate change and cumulative effects begin to take their toll on salmon populations in our region, we need to consider what we can do to offer salmon the best possible chance for adaptation and survival.

For Harrison River Chinook salmon, we believe that includes restoring lost marsh habitat, providing space for marsh to migrate up the shoreline as sea levels rise, and preserving remaining intact habitat within the Fraser River estuary.



Juvenile Harrison Chinook salmon estuarine entry timing and residency prior to capture, based on otolith-derived estimates. Panel A shows the range of entry timing and Panel B shows minimum residency. Panels C and D show the relationship between residency and entry timing. Entry day explained 54.7 % of the variation in residency period (P = 6.1x10-16; C). Julian day 100 corresponds to April 9, 2016 (leap year).



Sampling locations within the marsh (M1-M5), sand flats (SF1-SF6), and eelgrass beds (E1-E6) of the Fraser River estuary, British Columbia, Canada. All sites were sampled each year, with the exception of E6, which was replaced by eelgrass site 7 (E7) in 2017. Gold lines in top inset show the maximum upstream extent of saltwater intrusion during freshet (highest river flows). The dark orange line shows the maximum upstream extent of saltwater intrusion during base river flows (i.e. earliest point of estuarine entry) at ~30 km from the delta front. The red line marks the furthest upstream point of observable tides ~90 km from the delta front.

Lia Chalifour is a PhD Candidate with the Baum Lab at the University of Victoria. Learn more about her research at: https://liac32.wixsite.com/research. Misty MacDuffee is a biologist and Wild Salmon Program Director at the Raincoast Conservation Foundation. Learn more at: https://www.raincoast.org/connectivity/.

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Taking the Long View: Opportunities Created by Fire Damage at Oregon's Fish Hatcheries

By Dave Moskowitz

In September 2020, a series of smaller wildfires astride Oregon's central Cascade Mountains were stirred by remarkably strong east winds that fanned the flames into masses of fire and cinder more akin to volcanic eruptions than late season forest fires.

These fires took lives and upended communities along the Clackamas, Santiam, McKenzie, North Umpqua, and Upper Klamath watersheds. State and federal fish hatcheries were threatened by fire — prompting staff evacuations and resulting in the release, transfer, and loss of tens of thousands of fish.

In the aftermath of these events, The Conservation Angler (TCA) and many other organizations are concerned about state and federal agency actions that have been taken and continue being taken with little apparent regard for the ecological short-term and long-term impacts to post-fire watershed recovery and wild fish management.

Oregon's response cannot be simply to just rebuild all the facilities that were lost and to continue business as usual. The September 2020 fires must be viewed as an opportunity for the Oregon Department of Fish and Wildlife (ODFW) to imagine the future and determine what the fish propagation program should look like in the next decade and in the decades after that.

TCA believes it is good stewardship to quantify the losses suffered during these wildfires and to meet required deadlines to qualify for insurance or disaster relief, there should be a community conversation to ensure that funds received or recovered from state, federal or private sources are judiciously conserved, carefully considered and wisely applied so they contribute to the broadest and most effective recovery — serving as the seeds of change — just as the first rains often begin rebuilding scorched soils and germinating seeds that do not without fire.

This is essential given the pace of climate-change related wildfire frequency and intensity as well as climate impacts to patterns of precipitation. Oregon's natural ecosystems and native fish and wildlife are better adapted to change than our hatcheries and human infrastructure — thus agency efforts to address climate change must support our fundamental natural infrastructure — wild fish populations, clean cool waters, and allowing habitat processes (including fire) to create the necessary elements that foster productivity, resilience, and abundance.

Sadly, even before the fall rains extinguished these fires, private, state, federal entities began cutting fire-damaged trees along the Santiam, McKenzie, and North Umpqua rivers, relying on hazard tree removal protocols, likely without necessary consultations with federal authorities (National Oceanic and Atmospheric Administration and US Fish and Wildlife Service) over the habitat modification impacts of the salvage timber harvesting on northern spotted owl and coho and spring Chinook salmon habitat along the Santiam, McKenzie, and North Umpqua rivers.

Oregon's response cannot be simply to just rebuild all the facilities that were lost and continue business as usual.

These actions will have substantial and long-term impacts on the recovery of riparian areas along the North Umpqua, including Rock Creek itself. Past stream restoration work in and along Rock Creek was also a complete loss — human-placed riparian wood burned completely — all a significant setback to improving the water quantity and quality for Rock Creek and the North Umpqua.

Breaking the Mold — Reacting Holistically to the September 2020 Fires with a New Vision

Climate change is clearly evident in patterns of precipitation and will affect streamflow and water quality throughout Oregon. Many of Oregon's hatcheries have questionable water supplies. The existing system is largely outdated and in need of major repairs. Past and emerging scientific understanding shows that the entire existing hatchery system needs to change. Water conflicts will also intensify and continue to arise between power generation, out-of-stream water demands and instream flows – for natural streams and hatchery water systems.

ODFW must take this moment to conduct a critical review of its hatchery system so it can create a blueprint for the next 30 to 50 years — one that considers new technology, is well planned in terms of risk management (genetic diversity, fires, and water), and considers the poor track record of the aging and failing current system.

Opportunity for Thoughtful Action by the Oregon Fish and Wildlife Commission

The Conservation Angler asks that the Oregon Fish and Wildlife Commission convene in a special session to consider a more holistic response to the 2020 wildfires along the Santiam, McKenzie, Klamath, and North Umpqua rivers. The Commission could join with the local communities and stakeholders on a broader conversation about rebuilding options and making changes to management priorities to support native fish assemblages and widespread community benefits that come from prioritizing sustainable, resilient, and naturally adapted wild populations.

In the interim, the Oregon Fish and Wildlife Commission should direct ODFW to pause on-the-ground work to repair, replace and restore the hatch-

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eries that were damaged in the fires until a comprehensive assessment is complete that examines the pros and cons of restoring the facilities that were damaged in the fires (Santiam complex, Leaburg, Rock Creek, Klamath hatcheries) before any further action is taken. There should not be any irretrievable commitments of resources prior to a comprehensive review of desired future conditions. (see sidebar)

ODFW should continue pursuing disaster funding through state and federal mechanisms for losses of facilities and fish caused by the wildfires but should do everything possible to maintain a broad perspective on the future use of such funds and their use in restoring fish and wildlife habitat and natural production.

When considering what the future holds in the North Umpqua, concerned regional and local organizations urge consideration by the Commission for a revised subbasin plan with a comprehensive and focused natural production priority rather than rebuilding the hatchery. The North Umpqua is uniquely suited to such a re-set.

The bottom line is that like with wildfires, all is not lost along several iconic Oregon rivers. While there are many losses of both natural and human treasures, it is critically important that the Commission and ODFW take a clear-eyed look at the opportunities that also present themselves in the aftermath of what is hard not to call a disaster on so many levels. We must see the forest not just the trees. The wild fish will continue to obey their duty to return and we must honor and allow that — keeping as many wild fish as possible in their natal rivers to spawn will be the best thing we can do.

David Moskowitz is the Executive Director of The Conservation Angler, which is a member of the North Umpqua Coalition that includes The Steamboaters, The North Umpqua Foundation, Native Fish Society, Pacific Rivers, Trout Unlimited and Umpqua Watersheds. The views expressed in this article are wholly those of the author. The Conservation Angler is one of The Osprey's *partner organization. Lean more about their work at: www.theconservationangler.org*

Workers process fall Chinook salmon at the Rock Creek Hatchery along the North Umpqua River, one of the facilities heavily damaged by last fall's wildfires. Photo by Jim Yuskavitch

Recent and On-going Agency Action that Requires Review and Reporting

The ODFW was proactive in protecting staff, infrastructure, and fish at ODFW hatchery facilities as the fires loomed. With staff and their families, facilities, and many fish in safe and stable condition, it is time to assess the actions taken regarding compliance with existing basin and species and hatchery plans. The Oregon Fish and Wildlife Commission should receive a comprehensive report on specific ODFW actions regarding the transfers, releases and any current plans for additional transfers and releases by facility and species. Any ODFW's post-fire report should include the following assessments:

1. Identify instances where the fire-related actions at ODFW hatcheries complied with the Native Fish Conservation Plan (NFCP) and Basin Plan requirements prohibiting basin stock transfers. This could include a detailed accounting of the species, number of fish, life-history stage of the released fish, facility of origin and the receiving waters.

2. Identify instances where the fire-related actions at ODFW hatcheries may not have complied with the NFCP and Basin Plan requirements prohibiting basin stock transfers. This could include a detailed accounting of the species, number of fish, life-history stage of the released fish, facility of origin and the receiving waters.

3. ODFW should detail the instances where hatchery-origin salmonids were stocked into waters they were not originally meant to be released, including species, stock, life-history stage, originally planned receiving waters and ultimate receiving waters.

4. ODFW must detail all instances where hatchery fish management actions were taken that were not authorized in approved or pending Hatchery Genetic Management Plans (HGMPs). Details should include species, stock, life history stage, ESA status of fish in the receiving waters and other relevant data.

5. ODFW should detail where it has been in consultation with federal, state and private entities regarding fire-remediation activities that has resulted in adverse habitat modification for ESA-listed species (Coastal coho, Willamette Spring Chinook, northern spotted owls and any other listed species).

Flood Control Dam Proposed on Washington State's Chehalis River

By Teri Wright

Imagine thousands of years ago a river runs through a valley. The waters are pristine as they make their way from the headlands to the sea, meandering through forests, floodplains, and into the estuary before finally flowing into the ocean. Riparian habitat includes cedars, fir, spruce, salal, grasses, and more. Steelhead, lamprey, and many species of salmon, swim in the river, all returning to their natal grounds to spawn and die, completing a cycle of regeneration while providing nutrients to the soil making this valley fertile.

The people who inhabited the surrounding lands understood that the river nourished the landscape and gave them a heathy life. They learned where it is best to place their villages, where to fish, harvest the plants and more

A few hundred years ago another culture arrives and marvels at the pristine conditions of this river basin, finding abundant clean waters, fertile soil for farming, large amounts of fish and other wild game, forests for logging to build housing and towns. The forests are cut, weakening the hillsides leading to mudslides. Animals lose their habitat and their abundance is diminished due to encroachment and hunting. Farms, houses, and towns are placed in the floodplains. Advice offered from the original inhabitants to the newcomers on how best to live in this basin in order to preserve its bounty and protect villages is ignored. The original peoples who have called the Chehalis Basin home knew of the flooding that occurred frequently.

Today, the 2,700 square-mile Chehalis River Basin in southwestern Washington State looks quite different from when European settlers first came to this area. Towns and cities have sprung up, the human population has increased, roads, highways, and freeways crisscross the landscape, farms and farm animals dot the landscape, forests have been logged, and levees have been erected with the hope that the normal flooding that occurs in the basin can be reduced.

Background on the Proposed Dam

Minor to major flooding in the Chehalis Basin occurs roughly every 2-3 years, with catastrophic flooding happening almost once a decade. Climate change is expected to worsen this, both in frequency and amount of flooding. As the planet continues to warm, atmospheric rivers in the region will increase releasing more precipitation. Due to the increased warmth, snowpack will be much shorter in duration leading to increased and more severe flooding throughout the basin.

Habitat around the proposed dam would be significantly degraded, water temperatures would increase and 90 percent of the trees on the site would have to be removed.

Solving the issue of flooding in the Chehalis Basin is a challenge and the proposed solutions have not been met with consensus. Through the years various government agencies have been created and tasked with this problem, beginning in the 1930s when the US Army Corps of Engineers started studying the problem of flooding. In 2016 the Washington Legislature created the Office of Chehalis Basin, which established the Chehalis Basin Board (CBB). According to the Department of Ecology website, the Chehalis Basin Board is actively pursuing the Chehalis Basin Strategy, adopted in 2014 which is a basin-wide strategy to reduce flood-related damage and repair aquatic species habitat. The CBB is looking at near- and long-term actions made up of small- and large-scale projects.

One large-scale project, proposed by the Chehalis River Basin Flood Control Zone District, is made up of a flood retention expandable facility (FRE) or dam which includes a temporary reservoir near Pe Ell, and changes to the Chehalis-Centralia Airport levee in order to reduce flood damage in the Chehalis-Centralia area. Per their application, "the purpose of the Proposed Project is to reduce flood damage in the Centralia and Chehalis area. It would not protect all basin communities from all flooding, and it is not designed to stop regular annual flooding from the Chehalis River or smaller floods." No official cost has been released yet, but estimates put the cost to taxpayers between 625 million to just over 1 billion dollars. Creating a solution that works for all affected is complex. Offering up only two solutions (an FRE and a bigger FRE that can be expanded) is not sustainable, nor fair to all who will share the burden of the cost without reaping the benefits.

Potential Impacts

Numerous environmental organizations, businesses, and concerned citizens provided comments and feedback during the National Environmental Policy Act (NEPA) and State Environmental Policy Act (SEPA) comment periods. Concerns raised included: did not use the best available science to thoroughly evaluate the impacts on the basin, habitat, and species, underestimated harm to fishing, did not provide a complete cost of the project (including if the proposed expansion is built), NEPA did not project an assessment of how climate change will impact the region and SEPA not far enough into the future, thereby it could allow for a structure to be built that will not protect against projected worsening flooding due to climate change, along with myriad other concerns, including the lack of a mitigation plan for all of the harm that will result being one of them.

According to the SEPA Draft Environ-

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mental Impact Statement the concerns raised above are valid. Per their overview, habitat around the proposed structure would "significantly degrade habitat". Water temperatures would increase by up to nine degrees, which is a significant threat to salmonoid species. 90% of the trees on the proposed site would need to be removed in order to build the structure, and every time the reservoir fills, 847 acres would be flooded, killing trees and vegetation repeatedly. The structure would also "eliminate spawning areas and reduce fish passage survivability". Fish runs severely impacted by this facility include spring and fall-run Chinook, coho, steelhead, lamprey, and freshwater mussels. These same impacts will also occur between the FRE and the south fork of the Chehalis. Currently no salmon species in the Chehalis are listed as endangered, though construction of the FRE is almost certain to change this. Both NEPA and SEPA estimate that the salmon runs in the Chehalis are projected to drop by 80% if the FRE is built. The WDFW has already closed steelhead fishing in the Chehalis for 2021 since fish in the Chehalis Basin are suffering from the development within the basin.

One stakeholder dependent upon the Chehalis salmon runs are the Southern Resident orcas. This Distinct Population Segment (DPS) has also lived in this area for thousands of years, evolving over centuries to become dietary specialists feeding primarily on Chinook salmon. Cindy Hansen, of the Orca Network stated, "The endangered Southern Resident orcas, currently at only 75 individuals, are declining due to a lack of salmon throughout their range. Chinook salmon from the Chehalis River are part of the Washington Coast stock which is listed as a priority stock for the Southern Residents, and data has shown that they feed off Grays Harbor where the Chehalis flows into the Pacific Ocean. Lack of salmon has also led to changes in social structure, an increase in stress hormones, and a miscarriage rate of almost 70%. The dramatic photos of J35 "Tahlequah" carrying her dead calf for 17 days were seen and felt around the world.

Hansen also noted that, "in 2018, Governor Inslee established the Southern Resident Orca Task Force and he stated that "if Southern Residents were to become extinct, we would suffer an unacceptable loss to our environment, economy, and way of life." The Task Force later recommended 49 actions and a $1.1 billion investment to recover the Southern Residents and the salmon they rely on. The Chehalis Dam, if built, will be in direct conflict with this outcome and it presents an unacceptable risk to our Washington State Marine Mammal. Flood mitigation can be accomplished through smart development and river restoration without further endangering salmon and orcas."

Artist's rendition of the proposed 250-foot-tall flood control dam on the lower Chehalis River. Photo Courtesy Washington Department of Ecology

When asked about habitat destruction, Brian Stewart, Cascades to Olympics Coordinator at Conservation Northwest (CNW), and a resident of the Chehalis Basin, had this to say, "CNW has concerns about any structure being built on the Chehalis River. Not only will there be significant habitat loss, but there will also be displacement of wildlife. More importantly, it will disrupt a natural linkage that wildlife uses to move in and out of the basin, which is important in normal times, but is critical in a changing climate. In addition, the roads and activity that will take place to operate a facility will disrupt species in the area and keep some from ever returning. For low-mobility species it could completely fragment movement corridors and habitat, while forcing larger species outside of the riparian corridor into developed areas or areas already at carrying capacity. Furthermore, neither SEPA nor NEPA adequately analyzes connectivity and offers no mitigation for the disruption of it should a facility be built. Although, SEPA does mention it, it does a poor job of analyzing and interpreting habitat and/or landscape connectivity. However, we do support the Aquatic Species Restoration Plan (ASRP), Community Flood Assistance and Resilience Program (CFAR), and the local actions alternative being developed, which CNW thinks could be the foundations for a restored and flood resilient Chehalis Basin" .

Tribal Perspective

The Confederated Tribes of the Chehalis and the Quinault Nation both publicly voiced opposition to the FRE. The Quinault Nation, in their NEPA comment letter, expressed among many concerns, that their Federally Protected Treaty Rights need to be honored, noting the "Treaty of Olympia (1856) by which it reserved, among other things, the right of "taking fish, at all usual and accustomed fishing grounds and stations". The harm to the salmon runs would violate treaty rights of the Nation. They note further in their comments, "The Chehalis River, its tributary rivers, streams, and wetlands, and the Grays Harbor estuary, provide the freshwater and marine habitat that supports Chinook, chum, and coho salmon and steelhead of critical importance to the Quinault Nation's treaty-protected terminal river fisheries within Grays Harbor. Grays Harbor,

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and the Chehalis River flowing into it, nourishes other species of importance to the Nation, such as white sturgeon and Dungeness crab, an economically vital fishery on the Washington coast." Tribes, concerned citizens residing in the basin, and environmental organizations have expressed valid concerns regarding the FRE and support developing alternatives that would offer better protection to more residents and businesses, while at the same time, supporting the goals of the ASRP including habitat restoration in order to safeguard other species within the basin.

Possible Flood Control Alternatives

Local actions alternatives being proposed include:

● Elevating homes, businesses, and utilities so they are above floodwater levels and people are out of harm's way;

● Replacing small culverts with bigger ones, to prevent dangerous backups and flooding where roads cross streams;

● Allowing uninhabited areas to flood, which slows down flood waves heading for settled areas, stores water in the ground for summer use, and restores soil for farming;

● Restoring streamside areas with trees and shrubs so they soak up floodwaters, slow flood waves and erosion, and provide better salmon migration and spawning grounds;

● Paying a fair price to property owners who are tired of living or working in the floodplain and want to sell their property and invest in real estate above the floodplain;

● Locating new businesses and homes in floodsafe areas, and using smart development in towns—like permeable pavement, rain gardens and intensive tree planting—to prevent runoff from contributing to floods.

Current status

Thankfully in July 2020 Washington State Governor Jay Inslee ordered a pause on the EIS reviews and sent letters to the Department of Ecology and the Department of Fish and Wildlife requesting that they focus their efforts on a non-dam alternative. These non-dam recommendations will be presented to the legislature at the end of June 2021.

What Happens Next

In September of 2020, the CBB created two advisory groups (Technical Advisory Group and an Implementation Advisory Group) tasked with providing "constructive input" regarding a Local Actions Program. In their response to Governor Inslee's request that they develop a "non-dam alternative," the board stated, "Collectively, the two advisory groups will help us evaluate the types and magnitude of different actions necessary to achieve the measurable reductions in flood damage we've agreed upon, and determine the optimal combinations of actions to include with the long-term strategy." The CBB at its last few meetings has been focused on environmental justice, including a presentation by ECONorthwest; local area structural flood damage reduction options; continued discussions on the Chehalis Basin Strategy (reducing flood damage and aquatic species restoration); and integrating habitat, harvest, hatchery, hydro, and predation management.

Unfortunately, at their May 6, 2021 meeting, the CBB did not request any funding for a Local Action Plan (LAP) in their 2021-2023 Biennium Budget and Workplan. The CRA, in its letter to the Office of Chehalis Basin (OCB) stated, "The failure to incorporate the development of a LAP in the scope of work and budget for the next biennium is an egregious error, and an affront to the work that numerous individuals put in to create a path forward for a basinwide coordinated approach. Participants worked under the assumption that their recommendations would be used as a foundation for further analysis and the development of a unified plan. With zero dollars proposed in the budget for development of the LAP, it appears that OCB has ignored those work efforts as well as calls from the community to address a comprehensive basin wide path forward."

In Summary

● The Chehalis River Basin is one of Washington's most important salmon producers. In some years, it is the leading Chinook salmon producer in the state. It is an important food source for endangered Southern Resident orcas. It is an important cultural resource for local tribes.

● The dam would flood and block access to important spawning and rearing grounds, including high quality spawning habitat above and immediately below the dam site and high-quality rearing grounds upstream.

● It will cost between $625 million and $1 billion.

● It will NOT solve flood problems, only moderately mitigate the height of worst flooding by two feet and shorten the closure time of Interstate 5 when it is flooded.

● It will worsen the river's ongoing water quality issues.

● It will NOT generate hydropower for local communities or water storage for local farmers.

How to Take Action

If you would like to know more about the proposed dam and the ASRP, check the Chehalis Basin Board website for meeting schedules, supporting documents, minutes, and opportunities to voice your concerns. Link to CCB at: https://www.ezview.wa.gov/site/alias__1962/37068/chehalis_basin_board.aspx Or consider joining the Chehalis River Alliance (CRA) to learn about upcoming proposals and actions you can take. The CRA meets monthly and "is a coalition of concerned citizens, sovereign tribes, and local organizations invested in protecting the Chehalis River Basin". We seek "to ensure a bright future for the Chehalis River Basin's invaluable natural resources and the people who call this region home". Information on the Alliance can be found here: https://www.chehalisriveralliance.org

Teri Wright is a volunteer environmental activist/advocate on behalf of salmon and the Southern Resident orcas, including working with the Chehalis River Alliance. To learn more about the Chehalis River Alliance, go to their website at: https://www.chehalisriveralliance.org

It's Time to Remove the Defunct US Dam on The Similkameen River

By Mark Angelo

Record low salmon returns, habitat loss, dams and a rapidly changing climate continue to impact British Columbia watersheds, as well as the communities that depend upon them.

Yet, there's an opportunity for BC's recently elected New Democratic Party majority government to reimagine how it works with stakeholders, First Nations communities and other levels of government to conserve, protect and restore BC's watersheds and salmon stocks while respecting indigenous values. Restoring and naturalizing our rivers is key to achieving these desirable outcomes.

The Outdoor Recreation Council of BC, an umbrella organization representing 60 conservation and outdoor recreation groups, recently called for the Province of BC to work with the US to help remove the defunct, century old Enloe Dam, located south of Osoyoos in Washington State, on the Similkameen River.

The Enloe dam was constructed in 1920 but has not produced electricity since 1958. The dam was also never equipped with fish ladders, so it eliminated Chinook salmon and steelhead runs from the Similkameen River and its tributaries in both the US and British Columbia.

There is now growing support on both sides of the border to remove the dam. With a clear mandate to develop new strategies to protect and revitalize BC's waterways, our provincial government has an excellent opportunity to work with its US counterparts to remove this non-functioning dam and embark on an inspiring transboundary project to restore the river's natural ecosystem.

As a university student in the late 1960s, I saw the Enloe Dam near Oroville, Washington for the first time. Spanning the river, the massive wall of concrete seemed so out of place in an otherwise pristine-like setting. While that alone bothered me, it was made all the worse by the fact the dam was inoperable.

Shortly after that experience, I had the opportunity to paddle the full length of the Similkameen on the Canadian side of the border. I was struck by the river's beauty and richness as it runs from its headwaters in Manning Park past the towns of Princeton, Hedley, Keremeos and Cawston before entering the United States.

Dismantling the Enloe Dam would help restore the river, benefitting salmon in both British Columbia and Washington State.

It is an amazing waterway in every respect and yet, its ecosystem has been significantly altered for over a century because of the dam on its lower reaches.

While there was previous interest in removing the Enloe Dam, those efforts didn't make much headway because the Okanogan Public Utility District, which operates the dam, stated its intention to upgrade the structure. However, that never happened, and the dam's owners now say that its renovation is no longer feasible due to costs. The dam is now in a complete state of disrepair and will likely fail, or collapse, in the years ahead. Such an event would be extremely damaging to the river.

There is historical and genetic evidence confirming that salmon, in past, did exist in the Similkameen River above the dam site. Salmon proteins deposited in sediments over a century ago have been detected, most recently in Palmer Lake more than 30 kilometers above the dam's location. In addition, in the early 1970s, I met with First Nations elders on the Canadian side of the river, in both Hedley and Cawston, who distinctly remembered salmon being in the river in the early 1900s before the dam's construction.

As governments in both countries begin to engage on this issue, it's essential to recognize that the immediate area around the dam's location, and the cascading nature of the river itself, is very significant to the indigenous people of the Okanogan. Hence, efforts to remove the dam must be done in concert with indigenous governments with a major emphasis on naturalizing the river and restoring its historic profile.

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Given the cross boundary nature of the river, British Columbia could clearly have influence in dismantling the Enloe Dam. Photo by Alex Maier

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Presently, the Colville tribal government in Washington is assessing the state of sediment that has collected behind the dam which, in turn, will help determine the best and safest way to remove the structure.

Dam removal strategies could range from notching the dam so that sediment can slowly move downstream on its own, to temporarily diverting the river enabling the physical removal of both accumulated sediment and the dam structure. If the latter, more expensive option is deemed best for the river, removal costs could reach 50 million dollars.

However, this is still far less than repairing or rebuilding the dam and, given that outright removal of the structure would restore the river's ecosystem while opening up more than 500 kilometers (310 miles) of salmon habitat spanning both countries, the cost of dismantling can easily be justified.

We are now at a point where government action is required and, while this is an American dam, it is situated on a cross-boundary river. Hence, the BC government could have significant influence in getting to a positive resolution. Most importantly, removing the dam is a great opportunity for our two countries to work together to do something that would be incredibly positive for this great river.

In recent years, I have witnessed salmon jumping at the base of the dam in a hopeless effort to get through. It was a heart-breaking thing to see. But at the same time, it made me believe these amazing fish would one day return to the Similkameen on the Canadian side, if only given the chance.

Mark Angelo is the Rivers Chair of the Outdoor Recreation Council of BC and the founder and Chair of both BC and World Rivers day. He is a recipient of both the Order of Canada and the Order of BC for his river conservation efforts and is Chair Emeritus of the BCIT Rivers Institute. As a long-time river advocate and conservationist, he has paddled well over 1,000 rivers around the globe, including the full length of the Similkameen.

To learn more about the Outdoor Recreation Council of BC, visit their website at: https://www.orcbc.ca. Information about World Rivers Day can be found at: https://worldriversday.com.

NOAA Fisheries Seeking Comment on Ammendment to Limit Ocean Salmon Fisheries Impacts on Chinook Salmon

NOAA Fisheries is publishing a notice of availability (NOA) soliciting public review and comment for 60 days on whether to approve the Pacific Fishery Management Council's proposed amendment the Pacific Coast Salmon Fishery Management Plan (Amendment 21), which would limit ocean salmon fishery impacts on Chinook salmon availability as prey for endangered Southern Resident killer whales, during years of particularly low Chinook salmon abundance. The NOAA will publish in the Federal Register on June 2, 2021 and includes instructions on how to submit comments. The public comment period ends August 2, 2021.

Amendment 21 would set a threshold for annual Chinook salmon abundance, currently estimated at 966,000 in waters north of Cape Falcon, Oregon, below which the Council and NOAA Fisheries would take additional fishery management actions through the adoption of annual ocean salmon management measures. Above this abundance threshold, ocean salmon fisheries would be managed consistent with the existing Pacific Coast Salmon Fishery Management Plan.

The importance of spring Chinook as a prey species for Southern Resident orcas is a driving force behind Ammendment 21. Photo courtesy NOAA Fisheries/Vancouver Aquarium

NOAA Fisheries will have up to 30 days after the comment period to decide whether to approve the amendment. Amendment 21 does not include implementing regulations; therefore, there will be no proposed or final rule related to this amendment.

For the specific details associated with Amendment 21 and each of the required management measures, please visit the NOAA Fisheries website at: https://www.fisheries.noaa.gov, and scroll down to "Notices and Rules."

Commercial salmon fishing boats off the coast of Southeast Alaska. Photo by Gillfoto, Creative Commons Attribution-Share Alike 4.0 International License

FISH WATCH — WILD FISH NEWS, ISSUES AND INITIATIVES

Washington State to Legalize Fish Traps for Commercial Fisheries on Columbia River

Washington state is taking a historic step forward to legalize fish traps for sustainable commercial fishing on the Columbia River. In late April, Washington Department of Fish and Wildlife officially announced the agency has begun the process of designating an Emerging Commercial Fishery for alternative commercial fishing gear that will legalize fish traps (also known as pound nets). This decision will finally allow commercial fishers who strive to fish sustainably the choice to use contemporary fish traps as an alternative to gill nets in the lower Columbia River.

In 1934, legislators banned fish traps and many other methods of salmon fishing in Washington State, making the gill net the only legal method of commercial salmon fishing in the lower Columbia River and elsewhere. This 87-year-old legislative decision has shaped management of the state's salmon fisheries to this day.

The Wild Fish Conservancy experimental commercial fish trap in the lower Columbia River, Washington in 2019. Photo courtesy Wild Fish Conservancy

Under current management of Columbia River salmon fisheries, the gill net is the only tool available for mixed-stock commercial harvest of salmon. Fisheries managers attempt to direct harvest efforts toward hatchery produced salmon; however, gill nets inevitably entangle federally protected wild fish that co-mingle in the fishery. These wild Chinook and coho salmon caught in commercial gill nets are authorized for harvest regardless of their status under the Endangered Species Act due to the low likelihood that released fish would survive to reach spawning grounds. Threatened steelhead bycatch are discarded overboard with significantly diminished chances of survival.

The decision to legalize fish traps is the result of over half a decade of successful research by Wild Fish Conservancy biologists in collaboration with commercial fishers, processors, and state and federal government officials to evaluate the potential of fish traps to operate as a sustainable commercial fishing tool that can aid wild salmon recovery and help revitalize coastal economies. [*Editor's Note: The Wild Fish Conservancy is one of The Osprey's partner organizations. Read the article about its lower Columbia River pound net project in the January 2020 issue of The Osprey.*]

This research, published in prominent fisheries management journals, demonstrates the unique ability of fish traps to reduce bycatch mortality in commercial salmon fisheries. Utilizing a passive technique that addresses problems associated with conventional fishing gears, including net entanglement, human handling, air exposure, and overcrowding, fish traps are able to release wild salmon and steelhead with nearly 100% survival rates. Hatchery stocks produced for fisheries are selectively harvested for market, preventing the domesticated fishes from reaching spawning grounds where they compete with and harm the genetics of wild fish.

In March, a group of 58 prominent salmon, steelhead, and killer whale scientists and advocates signed onto a letter emphasizing the importance of selective fishing techniques for wild fish recovery and urging WDFW's Director to take action to legalize fish traps. This call to action was echoed by thousands of members of the public in letters, emails, phone calls, and a public petition to WDFW.

The Emerging Commercial Fishery process initiated by the agency will legalize the commercial use of fish traps at a localized-scale in the lower Columbia, allowing this promising gear to further improve as research continues, and demonstrate its potential as a sustainable, selective harvest and monitoring tool. The designation will begin with a rulemaking process that will lay the groundwork for the future fishery and develop a plan to support commercial fishers interested in transitioning.

The Washington State legislature has passed a 2021-23 budget that included provisions that would allocate $2 million for a gill net buy back program along the Columbia River and would also reduce the number of salmon the fishery can harvest. Another bill introduced this year in the Oregon legislature proposed a straight ban on gill nets.

High Juvenile Salmon Mortality on Lower Klamath River Due to C. Shasta

This spring, fisheries biologists with the Yurok Tribe documented a massive disease outbreak on the lower Klamath River that threatens the river's salmon with potential extinction.

Every year, the Yurok Fisheries Department monitors the Klamath River for the deadly pathogen, *Ceratonova shasta*. The monitoring crew uses a rotary screw trap to collect live fish for the annual disease assessment. During early May, more than 70 percent of the juvenile Chinook salmon in the trap were dead, which is extremely abnormal. Available scientific information leads to the conclusion that these fish died from *C. shasta*. Large numbers of dead fish were also encountered at upriver monitoring sites. On May 4, 2021, 97 percent of the juvenile salmon captured between the Shasta River and Scott River stretch of the Klamath were infected with *C. Shasta* and would be dead within days.

Fish are infected through their gills by *C. shasta* spores shed by freshwater polychaete worms that have themselves been parasitized by ingesting mature *C. shasta* spores that have been released into the water by decomposing infected fish.

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Drought conditions now unfolding in the region are a major contributor to the outbreak as low, slow-moving, warmer water produces ideal conditions for *C. shasta*. The stretch of river between Iron Gate Dam and the Scott and Shasta rivers are where most infections occur. One way to get rid of the parasitic worms is to flush them out with high water flows. However, the Bureau of Reclamation is not intending to release any water for that purpose.

It is a massive fish kill unfolding in real time. The juvenile fish kill will limit salmon production for many years to come. It will also negatively impact many other native species, ranging from orcas to osprey, because salmon play such an essential role in the overall ecosystem.

During the last five years, the Klamath River fish runs have been some of the lowest on record and the Yurok Tribe has not been able to harvest enough fish to meet its subsistence or ceremonial needs, let alone implement a commercial catch. This year's adult salmon forecast is also very low and the Yurok Tribe cancelled its commercial fishery for a fifth time to protect struggling fish stocks.

BC Steelhead Stocks in Widespread Decline According to PSMFC Report

A recent report by Robert Bison for the Pacific States Marine Fisheries Commission shows that steelhead stocks in British Columbia are in widespread decline. The report states:

In southern BC, abundance has declined dramatically in late-run summer steelhead populations which migrate to the interior parts of the Fraser River watershed and in winter-run populations which migrate to coastal rivers. Early-run summer steelhead populations, which also migrate to coastal rivers, have declined little in comparison. In the late-run summer populations and coastal winter-run populations, declines have occurred within the last 30-40 years. In coastal winter-runs, typical populations have declined from many-hundreds or low-thousands to tens or low hundreds. Along the east coast of Vancouver Island, declines occurred over a relatively short period between the late-1980s and mid-1990s. More recently, a dramatic decline has occurred on the west coast of Vancouver Island in Gold River which was formerly one of the largest steelhead sport fisheries in the province in terms of catch. In late-run summer steelhead populations that migrate to the interior watersheds of the Fraser River, pre-fishery abundances have declined by about 20-fold, collectively from mid-thousands to low hundreds. Fishing mortality has also been reduced in these populations, but some fishing mortality continues as bycatch in salmon fisheries. Conservation units within the late-run summer steelhead group, that have been delineated to date, have been classified as Endangered but have not been formally listed under Canada's endangered species legislation.

The decline of steelhead in southern BC is also evident in the sport catch statistics. Sport catch in southern BC has declined about 6-fold from peaks observed in the mid-1980s. Catch of wild fish has declined about 5-fold whereas catch of hatchery fish has declined by about 9-fold. The decline in catch of hatchery fish coincides with about a 2-fold decline in the number of smolts stocked, along with about a 3-fold decline in the catch hatchery fish relative to the number of smolts stocked.

The longest and most consistent monitoring of abundance is in the Skeena watershed. Gillnet test fishing near the mouth of the Skeena River has been ongoing for 63 years from 1958 to the present. Abundance shows no obvious trend over this time period, however abundance measured near the mouth does not account for a declining trend in fishing mortality in salmon fisheries over the past 20 years, fisheries that occur before steelhead reach the test fishing site. This trend in fishing mortality may be obscuring a possible declining trend in Skeena summer-run steelhead since the late 1990s. For the full report see: https://www.psmfc.org/steelhead/2021/BRITISH_COLUMBIA_BISON_Steelhead_Stock_Status_Update_2021.pdf

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