



April 19, 2022

Via Email, c/o Carollo Law Group

Oregon Fish and Wildlife Commission
4034 Fairview Industrial Drive SE
Salem, OR 97302
ODFW.Commission@odfw.oregon.gov

Re: North Umpqua Summer Steelhead

Dear Commissioners,

Please accept the following comments of Douglas County, the Umpqua Fishery Enhancement Derby, Inc (the “UFED”), and the Oregon Angler’s Alliance (“OAA”) in opposition to requests by the “North Umpqua Coalition” (“NUC”) to suspend the hatchery summer steelhead program on the North Umpqua River. These comments are supported by the attached report (Courter & Loomis 2022¹) from Ian Courter, M.S., lead author of the Clackamas River study (Courter 2019²) analyzing the effects of removing hatchery fish on wild fish, and Dave Loomis (retired ODFW). The County, UFED, and OAA strongly urge the Commission to adopt **Option 2** in ODFW’s staff report, which would make no changes to hatchery releases but increase hatchery fish removal efforts at Rock Creek. The alternative options of eliminating (Option 1) or reducing the smolt release to 30,000 fish (Options 3 and 4) would all result in the actual or functional elimination of the hatchery summer steelhead fishery, which violate statutes and rules, including mandatory rulemaking procedures that have not been followed, and thus must be rejected by the Commission.

Introduction and Summary

It is widely known and recognized that 2021 was a record-low year for adult summer steelhead returns across Oregon and the entire Columbia basin, reaching into Idaho and Washington. The North Umpqua was, unfortunately, no exception. However, neither was it an

¹ Courter, I., and D. Loomis. 2022. Scientific review of the influence of hatchery summer steelhead releases on natural production of summer steelhead in the North Umpqua River. Technical Comments prepared for Carollo Law Group. 7 pp

² Courter, Ian & Wyatt, Garth & Perry, Russell & Plumb, John & Carpenter, Forrest & Ackerman, Nicklaus & Lessard, Robert & Galbreath, Peter. (2018). A Natural-Origin Steelhead Population's Response to Exclusion of Hatchery Fish. Transactions of the American Fisheries Society. 148. 10.1002/tafs.10140.

anomaly. As ODFW's 2022 Assessment³ correctly explains, the low return in the North Umpqua in 2021 was "consistent with downturns in other summer steelhead populations," including river systems that do not receive hatchery summer steelhead plants. Likewise, the 2022 Assessment found that there is no evidence that the hatchery summer steelhead program on the North Umpqua River "has negatively affected naturally produced summer steelhead." Consequently, discontinuing the hatchery program is not a logical response to a disappointing 2021 summer steelhead return, caused predominately by a period of poor ocean conditions that have more recently improved.

Now is not the time for reactionary and piecemeal management decisions, based on one year's poor return, that would further reduce and eliminate essential and cherished fisheries in Southwestern Oregon. In order to protect and preserve Oregon's angling opportunities and traditions, the Commission must reject NUC's narrow-minded and misguided request that the Commission eliminate or reduce the North Umpqua hatchery steelhead program. The Commission should choose Option 2 from the staff report, which would retain existing hatchery smolt release objectives but increase trapping efforts at Rock Creek to reduce hatchery strays.

Interests of Douglas County, UFED, and OAA

Douglas County

Sportfishing is a cornerstone of both Douglas County's culture and rural economy. Unfortunately, however, restrictions and elimination of hatchery salmon and steelhead programs have caused many local residents' cherished fisheries to decline and, in many cases, be destroyed. For example, thousands of hatchery coho returning to the North Umpqua River once provided a popular fishery in the Umpqua Basin, until that program was terminated in 2005. This was a very successful program, with more than 17,000 hatchery adult coho passing over Winchester Dam in 2001-2002 season. Meanwhile, there is no evidence that terminating the hatchery coho program has tangibly benefitted wild coho recovery. Unfortunately, the termination of the hatchery coho fishery is just the tip of the iceberg. People in Douglas County are tired of the loss and decline of their fisheries, particularly those caused by misinformed anti-hatchery policies.

While the upper North Umpqua River is world famous for the fly-fishing opportunities it provides for summer steelhead, the hatchery summer steelhead program is regionally popular and vitally important to the local community and fishing guides. These fisheries have coexisted for decades and there no good reason they cannot continue to persist. Returning hatchery summer steelhead support a unique and popular drift boat fishery in the lower North Umpqua, as well as the only bank angling opportunity of its kind in Douglas County in the Swiftwater area below Rock Creek. Indeed, the North Umpqua offers the only hatchery summer steelhead fishery in the entire Umpqua Basin. Suspending or eliminating the summer steelhead hatchery program would be devastating to Douglas County and its citizens and local economy. Anglers and fishing guides in Douglas County want to keep this fishery.

³ ODFW (Oregon Department of Fish and Wildlife). 2022. 2022 assessment of naturally produced summer steelhead in the Umpqua River basin. Science Bulletin 2022-1. ODFW, Salem.

Umpqua Fishery Enhancement Derby (UFED)

UFED is a 501(c)(3) non-profit organization whose mission is dedicated to 1) improving fishery habitat within the Umpqua River Basin, 2) providing recreation fishing opportunities to the public, and 3) public education about fish life cycles and habitat needs. Over the past 22 years, the Derby has contributed over \$1.6 million in matching funds toward local fishery improvement projects.⁴ UFED also sponsors both a Student Day and Kids Day to provide youth learning opportunities at Rock Creek Hatchery and about the benefits of ODFW's fishery programs throughout the Umpqua Basin.

The primary participants in UFED's activities are recreational anglers and fishing guides in the Umpqua Basin. These are the people most impacted by reductions or elimination of ODFW hatchery programs. UFED members and partners have provided significant amount of input into this current ODFW process regarding the North Umpqua summer steelhead hatchery program, including participation in the online survey, attending a public meeting and input during Fish & Wildlife Commission meetings.

Oregon Anglers Alliance (OAA)

OAA is a 501(c)(3) non-profit organization, with a mission of uniting anglers and businesses with the common goal of enhancing habitat, hatcheries, and harvest in order to increase and maximize fishing opportunities in Oregon. OAA's members are made up of a collaborative mix of commercial, recreational, and Tribal angling organizations, business owners, public agencies, and natural resource advocates.

OAA is particularly concerned by the steady decline in much of Oregon's fish harvest opportunities throughout the State of Oregon, including the Umpqua Basin. OAA believes that the Commission should have a plan to restore prior harvestable fish abundance that recognizes the essential function and importance of hatcheries. OAA is opposed to eliminating more hatchery salmon and steelhead programs in Oregon, including hatchery summer steelhead on the North Umpqua River.

Collectively, Douglas County, UPED, and OAA are frustrated and tired of hatchery programs, and angling opportunities and traditions, being eliminated and restricted in this State. In the Umpqua Basin alone, the following hatchery fish programs and fisheries have been eliminated or severely reduced or restricted over the last 30 years:

North Umpqua River

Hatchery coho program- *Eliminated*

Hatchery spring chinook program- *Eliminated* above Rock Creek, *reduced* below Rock Creek

⁴ Over the years, UFED's has contributed directly to many ODFW programs. Since 2014, OFED has contributed more than \$90,000 to the Rock Creek Hatchery to support projects like the UV Pathogen Treatment system, a raceway rebuild, and a hatch house filter.

Hatchery trout program- *Eliminated*
Summer Steelhead hatchery program- *Eliminated* above Rock Creek
Summer Steelhead fishery- *Eliminated* wild fish harvest
Winter Steelhead fishery- *Eliminated* wild fish harvest (No hatchery releases)
Spring chinook fishery- *Restricted* wild fish harvest
Coho fishery- *Eliminated* wild fish harvest (No hatchery releases)
Trout fishery- *Eliminated* all harvest; *closed* tributaries (No hatchery releases)

South Umpqua River

Hatchery coho program- *Eliminated*, except for required mitigation in upper Cow Creek
Hatchery fall chinook program- *Eliminated*
Hatchery winter steelhead program- *Eliminated* upper river releases
Hatchery trout program- *Eliminated*
Spring chinook fishery- *Closed* to all angling
Fall chinook fishery- *Closed* to all angling
Coho fishery- *Closed* to all angling
Winter steelhead fishery- *Eliminated* wild fish harvest.
Winter steelhead fishery- *Closed* to all angling in upper river
Trout fishery- *Eliminated* all harvest

Smith River

Hatchery coho program-*Eliminated*
Hatchery fall chinook program-*Eliminated*
Hatchery winter steelhead program-*Eliminated*
Hatchery trout program- *Eliminated*
Coho fishery-*Closed* to all angling
Winter steelhead fishery- *Eliminated* wild fish harvest. (No hatchery releases)
Winter steelhead fishery- *Closed* to all angling in upper river
Trout fishery- *Eliminated* all harvest no harvest in lower section

Mainstem Umpqua River

Hatchery fall chinook program-*Eliminated* mainstem program. Reduced estuary releases
Hatchery trout program- *Eliminated*
Coho fishery- *Eliminated* wild fish harvest
Winter steelhead fishery- *Eliminated* wild fish harvest
Spring chinook fishery- *Restricted* wild fish harvest
Trout fishery- *Eliminated* all harvest

This list reads like a tombstone for Umpqua Basin fisheries of yesteryear. Make no mistake, today, Oregon's anglers are worse off without these fisheries and programs. Moreover, wild fish are no better off as a result. Piecemeal and ideologically-charged targeting of hatchery programs by groups like NUC has ingratiated a one-way ratchet on Oregonians' fisheries and angling opportunities, squeezing them smaller and fewer, year-after-year, with little, if any,

upside for promoting wild fish recovery and protection. The Commission must stop and reverse this trend.

The Commission should not only reject NUC's request to halt hatchery summer steelhead releases in the North Umpqua River but also use this as a springboard for directing ODFW to plan and design a state-of-the-art hatchery facility to replace the Rock Creek hatchery. Oregonians are tired of failed policies and ideological dogmas resulting in the reduction or removal of popular hatchery salmon and steelhead fisheries. It is long overdue for the Commission to not only strongly support existing hatchery programs but also find innovative ways to expand hatchery programs and fisheries using the best available science. With the tragic loss of the Rock Creek hatchery in the Archie Creek Fire, the Umpqua Basin is the logical ground zero for designing and implementing a new and progressive way of doing business in the realm of fisheries management in Western Oregon—one that embraces the essential role of hatchery programs in enhancing Oregon's beloved salmon and steelhead fisheries.

Comments

The County, the Derby, and OAA offer the following comments in opposition to elimination or reduction in the North Umpqua hatchery summer steelhead program:

1. The Best Available Science Rebutts the Hypothesis that Hatchery Fish Reduce the Productivity of Wild Fish.

As explained in the attached report from Ian Courter, the central premise of NUC's request is founded on the formerly unproven, and now largely disproven, assumption that removing hatchery fish will lead to higher productivity and, thus, higher adult returns, of wild fish. As Mr. Courter explains, his peer-reviewed and published study concluded that hatchery summer steelhead *spawning* did not have a negative effect on wild steelhead recruitment. Courter 2019. He also advises on additional data and studies supporting the findings of his Clackamas River study. See Courter and Loomis 2022, attached.

It is, at best, debatable to what extent, if any, hatchery fish impact the productivity or fitness of wild fish in general, much less in the North Umpqua River specifically. To that point, ODFW's 2022 Assessment found there is no evidence that hatchery fish are having a negative impact on wild summer steelhead. Likewise, Courter and Loomis 2022 concluded that spatial separation in spawning between hatchery and natural-origin summer steelhead, particularly exclusion of hatchery fish from Steamboat Creek, should mitigate genetic risks. For these reasons, the Commission should reject NUC's request to eliminate or suspend the North Umpqua summer steelhead hatchery program. Terminating yet another hatchery summer steelhead fishery in this State cannot reasonably be expected to have any positive effect on wild steelhead productivity but it is *certain* to harm socially, culturally, and economically essential fisheries and angling traditions in Southwestern Oregon.

2. The Department's pHOS Estimates Do Not Support or Warrant the Elimination or Reduction in the Hatchery Program.

As the Commission knows, the 2014 CMP⁵ is the plan that primarily guides fisheries management on the North Umpqua River. Unfortunately, though, the 2014 CMP was adopted five years prior to the Courter 2019 study being published and, thus, relied on outdated papers theorizing that increasing levels of hatchery fish in the wild may cause the productivity of wild populations to decline. CMP at 40. This concern led the Commission to adopt a policy in the CMP relying, in part, on “adaptively managing hatchery programs to achieve pHOS⁶ targets[.]” CMP at 41. Science that post-dates the 2014 CMP renders pHOS targets of questionable usefulness and meaningfulness in meeting the CMP’s “true management objective [to] ensure adequate productivity and viability of wild populations[.]” See Courter and Loomis 2022. However, it is important that the Commission recognize that the 9-year average pHOS (weighted basin-wide) did not change or increase in 2021. Rather, ODFW has determined that pHOS has consistently ranged from 12%-21% between 2013-2021, for an average of 16%. 2022 Assessment at 33. This pHOS level is more than adequate to protect the productivity and viability of wild summer steelhead in the North Umpqua River. Indeed, Courter and Loomis 2022 determined that, in the case of the North Umpqua River, “pHOS can be as high as 30% and the population will still exceed accepted regional management standards for genetic fitness.”

While the CMP set the target threshold for the North Umpqua River at 10%, the CMP also specifically states that the “adequacy of the pHOS targets” were to be “periodically assessed.” Given the 2022 Assessment’s determination that there is no evidence that current hatchery practices are negatively impacting wild fish productivity, coupled with new research that post-dates the CMP, it is clear that a pHOS target as high as 30% would be adequate to meet the CMP’s “true management objective [to] ensure adequate productivity and viability of wild populations[.]” Courter and Loomis 2022. Accordingly, as part of its duty to adaptively manage under the CMP, the Commission should follow the best available science and reject NUC’s request to reduce or eliminate a hatchery program that does not pose a tangible, much less significant, threat to the productivity and viability of wild summer steelhead in the North Umpqua River. In anything, the Commission should direct ODFW to reassess the efficacy of the pHOS targets in the CMP, which ODFW was obligated to do under the CMP, and associated statutes and rules, but unfortunately failed to do in the 2022 Assessment.

3. pHOS Can Easily Be Reduced Below 10% by More Effectively Segregating Hatchery Fish From Wild Fish in Rock Creek.

Even if the Commission were to interpret the 10% pHOS target rigidly, contrary to the flexibility of the CMP, reducing or eliminating hatchery releases is still not the answer to reduce pHOS. Here, as ODFW recognizes in its staff report, pHOS can be dramatically reduced from the levels observed from 2013-2021 simply by changing and improving the manner in which ODFW traps hatchery summer steelhead in Rock Creek (Option 2, ODFW Staff Report). This is because the pHOS in Rock Creek, at 77%, is the number one reason why the weighted basin-wide pHOS exceeds 10%. Assessment at 34. This one simple change, in how ODFW traps

⁵ Oregon Department of Fish and Wildlife. 2014. Coastal Multi-Species Conservation and Management Plan. June 2014. Oregon Department of Fish and Wildlife, Salem, Oregon.

⁶ “pHOS” means “proportion of naturally spawning hatchery fish on the spawning grounds.” CMP at 41.

summer steelhead in Rock Creek, is certain to reduce pHOS below the 10% target threshold, eliminating NUC's primary contention.

ODFW's estimate for pHOS is 77% in the Rock Creek subbasin compared to 0% in the Steamboat subbasin. 2022 Assessment at 32-33. This illustrates the differences in the spatial distribution of hatchery and wild summer steelhead in the North Umpqua basin. 2022 Assessment at 33-34 (Table 4; Figure 13). When ODFW accounted for all pHOS estimates weighed by basin, the most recent North Umpqua basin-wide PHOS average is 17% compared to the 41% average hatchery fish return counts at Winchester Dam. By trapping and removing hatchery summer steelhead adults returning to the upper river and allowing all wild summer steelhead to access over 98% of the available spawning habitat in the Rock Creek sub-basin, the pHOS for Rock Creek would be reduced to less than 10% (from 77%) and the overall North Umpqua basin-wide pHOS would be reduced significantly to 5% (from 17%), with a range of 3% to 7%.

This recommended change to the trapping operations at Rock Creek hatchery does not impact the availability of hatchery fish caught by anglers in the North Umpqua River, in direct contrast to the NUC's request to eliminate the hatchery smolt releases and subsequent adult summer steelhead returns that provide the only allowable steelhead to be harvested under current fishery regulations. On average, 95% of the hatchery fish retained by anglers are caught in the lower North Umpqua fishery (36 miles below Rock Creek) that targets primarily hatchery fish returning to the Rock Creek subbasin and the 112 miles mainstem Umpqua fishery that are both catch and release only for wild summer steelhead year-round. The loss of the hatchery fish program contribution would have a significant impact on catch rates, angler effort and overall economic benefits from these all-gear popular fisheries (HB 3489, 2010 Oregon Legislature). Only 5% of the hatchery summer steelhead returns are harvested in the 31-mile fly-angling only section of the North Umpqua and would have very little impact on catch rates and angling effort in this fishery that targets primarily wild fish returning to Steamboat Creek and upper North Umpqua sub-basins.

The trapped hatchery fish can be used for many purposes that provide social, cultural, educational, and ecological benefits. Local communities' foodbanks will be supplied with high-quality fish and Tribal members will receive fish to fulfill important cultural government-to-government agreements. Surplus carcasses could also be distributed in high intrinsic freshwater habitat sections for stream enrichment projects in the North Umpqua basin, especially when current overall spawner returns are below critical levels. Several fish would also be available for educational activities, genetic research studies, and disease monitoring.

In sum, the Commission should selection Option 2 from the staff report and direct ODFW to increase its hatchery fish trapping efforts in Rock Creek.⁷

⁷ In the staff report, ODFW states that Option 2 "cannot be immediately implemented to reduce pHOS. The ability to achieve pHOS reductions through removal of hatchery origin steelhead in Rock Creek is dependent on: 1) timing of restoring complete operability of the hatchery's trap and 2) sufficient staffing for operation of the trap." However, the County and Derby are prepared to immediately assist with funding the trapping program to ensure its timely and effective implementation. Therefore, particularly with these added assurances, there is no downside or

4. Eliminating or Reducing the Hatchery Program Would Violate Legally-Enforceable Plans, Rules, and Statutes.

OAR Chapter 635, Division 500 provides the “legally enforceable elements of fish management plans,” including for the CMP. OAR 635-500-0002. OAR 635-500-6775 specifically governs implementation of the CMP. Important here, OAR 635-500-6775(6)(b) explains that hatchery fish programs are to be managed in accordance with Figure 13 and Table 13 in the CMP, which specifies planting 165,000 summer steelhead smolts in the North Umpqua River. This same rule also explicitly provides that “eliminating an existing hatchery program” specified in Table 13 of the CMP requires Commission approval. Likewise, ORS 496.138, which provides statutory authority for the Division 500 rules and CMP, requires that the “commission shall cause a public hearing to be held on any proposed rule or standard prior to its adoption.” Further, any final decision of the Commission, following a public hearing, must comport with the legal standards under the Oregon Administrative Procedures Act. See ORS 183.480-484; ORS 183.400; see also ORS 183.310(9) (Definition of “Rule” includes “any agency directive, standard, regulation or statement of general applicability that implements, interprets or prescribes law or policy, or describes the procedure or practice requirements of any agency.”). Rulemaking, or changes to agency rules, must follow the APA’s notice and comment procedures. See ORS 183.333-335; *Smith v. Dep’t of Corr.*, 276 Or. App. 862, 863 (2016) (agency policy manual constituted rule because it was generally applicable); *McCleery v. State By & Through Oregon Bd. of Chiropractic Examiners*, 132 Or. App. 14, 16–17 (1994) (generally applicable policy statement was rule requiring rulemaking procedures); *Brown v. Parks & Recreation Dep’t by & through State Historic Pres. Off.*, 296 Or. App. 886, 892, 443 P.3d 1170, 1174 (2019) (SHPO’s refinement of current law was a rule, not explanation of current law). Eliminating or reducing the hatchery program may only occur through rulemaking procedures because it involves a generally-applicable directive affecting the public at large, and refines the current law governing the North Umpqua hatchery program.

Under these, and related statutory authorities and rules, the Commission cannot reduce or eliminate the planned hatchery smolt release in the North Umpqua River without first following legally-required procedures, including rulemaking notice and comment procedures. As such procedures have not been followed here, in advance of the Commission’s meeting, stopping or reducing the planned smolt release would be unlawful. This is particularly true here, even under Options 3 or 4, because reducing the smolt release to 30,000 smolts is the functional equivalent of eliminating the fishery. These kinds of changes to the CMP and applicable rules require the Commission to follow rulemaking procedures that have not been followed here.

Similarly, as described above, ODFW undertook the 2022 Assessment to evaluate consistency with existing pHOS targets but, in doing so, failed to follow the CMP’s directive to “periodically assess” the pHOS targets themselves. A substantial body of science that post-dates the CMP (2014), as summarized by Courter and Loomis 2022, indicates that the 10% pHOS

risk associated with Option 2. It is clearly the “win-win” option for both protecting the fishery and achieving pHOS targets.

target is arbitrary and not supported by the best available science. Indeed, Courter and Loomis 2022 conclude that a 30% pHOS target would be adequate. Consequently, it would be arbitrary and capricious, and otherwise inconsistent with Oregon's Administrative Procedures Act, for the Commission to change the smolt release objectives and targets for the hatchery summer steelhead on the North Umpqua River, based solely on evaluation of performance with existing pHOS targets, without also assessing the adequacy and efficacy of the pHOS targets themselves.

The County, the Derby, and OAA have retained Carollo Law Group, a Roseburg law firm specializing wildlife and natural resource law, to advise on the Commission's consideration of the North Umpqua summer steelhead smolt release program and they are prepared to take immediate necessary legal action to enjoin or set aside any unlawful decision by the Commission to eliminate or otherwise materially modify the program.

5. Rather than Focusing on Narrow-Minded Requests to Destroy Oregon's Fisheries, the Commission Should Focus on Rebuilding the Rock Creek Hatchery as a State-of-the-Art Facility that Expands and Improves Fisheries and Angling Opportunities in Southwestern Oregon Using the Best Available Science.

Before it burnt down in the Archie Creek Fire, the Rock Creek Hatchery contributed annual releases of nearly one million salmon, steelhead, and trout that were stocked into rivers and lakes throughout the Umpqua River Basin. Production at the Hatchery is based on over 100 years of site-specific experience, data collection and adaptive management. The hatchery has provided tens of thousands of catchable and harvestable salmon, steelhead, and trout with a high benefit/cost ratio every year for the past century.

Not surprisingly, the local community and anglers across the State want the Rock Creek hatchery rebuilt and hatchery programs expanded in order to enhance Umpqua Basin fisheries. The Commission should use this misguided attack on the hatchery summer steelhead program as a catalyst for directing ODFW to plan and develop a state-of-the-art hatchery at Rock Creek that will support Umpqua Basin fisheries for generations to come.

Importantly, maintaining Rock Creek Hatchery fish production is already approved in the CMP, ODFW's hatchery management plans, and Douglas County's Galesville mitigation agreement, all of which received critical scientific review. Its production carefully balances local fishing opportunities with wild fish conservation goals.

Rebuilding Rock Creek will allow ODFW to have a state-of-the-art facility utilizing the most advanced science available. Prior to the 2020 Archie Creek Fire, Rock Creek Hatchery had successful results in water filtration to mitigate water quality and disease risks to fish. That success can be replicated for all production at the facility. Extensive science-based post-fire monitoring and review of effects and risks to fish, water quality, and forest health will allow flexibility and creativity at the hatchery to ensure fulfillment and success in the foreseeable future.

ODFW, federal agencies and NGOs are investing massive amounts of resources to restoring watershed health and function in Rock Creek after the Archie Creek Fire. This is an

historic effort that should be coupled with a forward-looking vision of the role of a fully-functioning hatchery on-site.

The Rock Creek location has numerous advantages over other hatchery sites, including:

- Minimized mortality from fish transportation (to and from other hatchery sites);
- Optimized volitional release of smolts into the river, as opposed to the availability and timing of staff, liberation trucks, additional transportation-related mortality, etc.;
- Highest possible percentage of hatchery fish return versus stray rate;
- Minimization of disease spread across multiple basins;
- Reduced threat of wildfire destroying all SW Oregon hatchery production if concentrated at one location.

Douglas County, UFED, and OAA urge the Commission to support Umpqua Basin fisheries by directed ODFW to plan and develop a new hatchery at Rock Creek.

Sincerely,

DOUGLAS COUNTY



Tom Kress, County Commissioner



Chris Boice, County Commissioner



Tim Freeman, County Commissioner

UMPQUA FISHERY ENHANCEMENT DERBY, INC.



Paul Beck, Chairman

OREGON ANGLERS ALLIANCE

s/ Leonard Krug

Leonard Krug, President



TECHNICAL COMMENTS

Subject: Scientific review of the influence of hatchery summer steelhead releases on natural production of summer steelhead in the North Umpqua River

Date: 4/13/2022

Prepared for: Douglas County, Umpqua Fishery Enhancement Derby, Inc., and Oregon Anglers Alliance, c/o Carollo Law Group

Prepared by: Mount Hood Environmental

Suggested Citation: Courter, I., and D. Loomis. 2022. Scientific review of the influence of hatchery summer steelhead releases on natural production of summer steelhead in the North Umpqua River. Technical Comments prepared for Carollo Law Group. 7 pp.

BACKGROUND AND PURPOSE

A group of advocacy organizations recently petitioned the Oregon Fish and Wildlife Commission to issue a directive prohibiting the Oregon Department of Fish and Wildlife (ODFW) from releasing summer steelhead from Cole Rivers Hatchery into the North Umpqua River. Although the Commission denied the petition, the Commission is nevertheless considering whether to stop or reduce the summer steelhead release in its upcoming April 22, 2022 meeting. The Department planned the release of fish from Cole Rivers Hatchery in 2022 in lieu of releasing fish from Rock Creek Hatchery, which was destroyed during the 2020 Archie Creek Fire. Proponents of the North Umpqua summer steelhead hatchery program contend that steelhead translocated after the fire to Cole Rivers Hatchery should be released to continue supporting recreational angling, while opponents believe that hatchery summer steelhead are substantially reducing the abundance of natural-origin summer steelhead through introgression. We (Ian Courter, independent scientist and Dave Loomis, ODFW retired) were contracted by Carollo Law Group to provide a review of the scientific literature and available unpublished data for Douglas County, Umpqua Fishery Enhancement Derby, Inc., and Oregon Anglers Alliance. The comments that follow represent our perspective about the technical merits of arguments presented in the petition and the efficacy of the planned hatchery fish release.

COMMENT 1

The petition’s conclusion that the release of hatchery fish negatively impacts natural spawning populations of summer steelhead in the North Umpqua River is poorly supported because the assumed impacts are predicated on a subset of scientific findings from out-of-basin studies.

Much of the perspective presented in the petition relies on simple assumptions about the impacts of hatchery fish on natural-origin fish production. For example, the petitioners assume that hatchery steelhead pose a threat to the productivity of natural-origin steelhead in the North Umpqua River based on Chilcote (2003), Buhle et al. (2009), and Chilcote et al. (2011), but the accuracy and generalizability of findings from these studies continues to be debated within the scientific community. Our review of these productivity analyses, as well as analyses conducted by Lister (2014), Courter et al. (2019), Nelson et al. (2019) and Scheuerell et al. (2021) revealed inconsistent outcomes concerning impacts of hatchery fish on natural-origin salmon and steelhead production owing to the complexity of factors that influence hatchery fish effects, such as the size and type of hatchery program, rearing and release practices, broodstock source, fish trapping and sorting facilities, and size of the population being supplemented.

Similarly, the petition’s description of the genetic risks of hatchery fish reflects a one-sided view of the available science. The most commonly cited studies demonstrating that hatchery steelhead are reproductively inferior to their wild counterparts originate from the Hood River, Oregon (e.g. Araki et al. 2007); however, the same genetic analyses applied to Chinook Salmon in Johnson Creek, Idaho yielded a different outcome (Hess et al. 2012). Differences in study results, some which show lower fitness of hatchery fish in the wild while others do not, indicates that universally applied rules about negative impacts of hatchery fish on natural-origin salmon and steelhead fitness is inappropriate.

In our opinion, the use of broad-brush assumptions about hatchery impacts, without regard for substantial differences between hatchery programs, and without acknowledging cases where hatchery supplementation did not impact natural salmon and steelhead production, is a major shortcoming of the petition. Further, we agree with ODFW (2022) that spatial separation in spawning between hatchery and natural-origin summer steelhead, particularly exclusion of hatchery fish from Steamboat Creek, should mitigate genetic risks. Hatchery summer steelhead in the North Umpqua are “integrated” with natural-origin fish by incorporating a substantial portion of natural-origin broodstock each year. In this case, pHOS can be as high as 30% and the population will still exceed accepted regional management standards for genetic fitness (HSG 2014).

COMMENT 2

Metrics used to establish hatchery performance criteria, such as pHOS, are based upon assumptions about the genetic influence of hatchery fish on natural-spawner productivity, which may not be valid in this case.

The metrics used to establish hatchery performance criteria (i.e. <10% pHOS) are based upon assumptions about the influence of hatchery fish on population-level fitness. These assumptions rely on theoretical descriptions of the potential genetic interaction between hatchery and natural-origin spawners (e.g. Ford 2002). However, changes in fitness caused by captive rearing may not translate directly into population-level effects. For example, without inheritance and retention of maladaptive traits, loss of fitness in hatchery-origin fish would have limited consequences on the naturally spawning population. It should be acknowledged that hatchery fish, if they have reduced fitness due to captive rearing, may not transmit that fitness deficit to the natural population, potentially due to plasticity of gene expression across environments (Chittenden et al. 2010), independence of traits beneficial to survival in hatchery and natural environments, or balancing selection (Charlesworth 2006), which preserves traits that enhance or maintain fitness (Connallon and Chenoweth 2019). Captive-bred animals are phenotypically plastic and can quickly adapt once introduced back into ancestral environments (Ho et al. 2020). For example, robust naturally-reproducing fish populations derived from highly-domesticated hatchery-origin salmon and steelhead stocks can be found throughout North and South America (Crawford 2001; Pascual et al. 2001; Soto et al. 2007; DiPrinzio and Pascual 2008; Gomez-Uchida et al. 2018; Keefer et al. 2018), indicating that anadromous hatchery-origin fish retain sufficient phenotypic and genetic diversity to reproduce in natural environments, reestablish extirpated runs, and expand spatial distribution.

COMMENT 3

There is strong evidence to suggest that North Umpqua River hatchery and natural-origin summer steelhead do not spawn in the same locations, and simple management changes could substantially reduce pHOS without terminating hatchery fish releases.

In lieu of a pHOS assessment being made from spawning surveys in the North Umpqua Basin, we concur with the analysis completed by ODFW for the Coastal Multi-Species Conservation and Management Plan and summarized on pages 31-33 of ODFW's Science Bulletin Number 2022-1, *2022 Assessment of Naturally Produced Summer Steelhead in the Umpqua River Basin*. ODFW estimated 77% pHOS in the Rock Creek subbasin compared to 0% in the Steamboat subbasin, illustrating differences in the spatial distribution of hatchery and wild summer steelhead in the North Umpqua Basin. Substantial reductions in hatchery-origin spawners within Rock Creek are feasible through removal of hatchery fish at an existing trap in lower Rock Creek. When ODFW accounted for all pHOS estimates weighed by basin, the North Umpqua basin-wide pHOS averaged 17%, while the proportion of hatchery fish passing Winchester Dam

averaged 41%. By trapping and removing hatchery summer steelhead adults returning to Rock Creek and allowing all wild summer steelhead to access over 98% of the available spawning habitat in the Rock Creek subbasin, the pHOS for Rock Creek would be reduced to less than 10% and the overall North Umpqua basin-wide pHOS would be reduced significantly to 5%, with a range of 3% to 7%. These are very low levels of hatchery fish influence for an integrated broodstock program.

COMMENT 4

Hatchery summer steelhead releases are not the primary risk to natural-origin summer steelhead production and should not be regarded as the reason for recent summer steelhead declines.

Competition with Winter Run Steelhead

From 1999-2013 the relative abundance of summer steelhead averaged 32% of the wild steelhead return. Since 2014-2020, this has decreased to 19%, indicating reduced productivity of the summer steelhead population when compared to winter steelhead. This may be explained by passage of both summer and winter steelhead at Steamboat Falls since 2014 when ODFW made a change in management of fish passing the Falls. Steamboat Falls was historically a blockage to winter steelhead because of high winter flows and colder water temperatures. Summer (July-October) was the only period that steelhead could jump over the falls. There is currently significant overlap in spawn timing for winter and summer steelhead upstream of Steamboat Falls and juvenile rearing habitat in the mainstem North Umpqua below Steamboat Creek is considered the major freshwater survival bottleneck for steelhead smolt production, especially for summer steelhead emigrating from Steamboat Creek, which represents 50% of the total wild spawner population (Dambacher 1991).

Hooking Mortality

ODFW estimated the same prespawning mortality of 2% for catch and release fisheries above and below Rock Creek. In our opinion, this is an underestimate of the actual prespawning mortality of wild summer steelhead, especially for spawners that are holding in the mainstem North Umpqua directly below Steamboat Creek. Hooking mortalities associated with catch and release fishing may be as high as 40.0 percent for summer steelhead in this section of the river during the summer months, when water temperatures are at their maximum (Taylor and barnhart 1997).

The fishery upstream of Rock Creek also targets primarily wild fish, whereas the fishery downstream of Rock Creek targets primarily hatchery fish returns. Loomis (2002) found that natural-origin adult summer steelhead migrating to Steamboat Creek tended to move rapidly through the lower mainstem North Umpqua and pass over Deadline Falls (RM 35.85) into the fly angling area, where they spent most of their time prior to entering the Steamboat Creek subbasin.

Results from a creel survey for the North Umpqua fisheries above and below Rock Creek would provide estimates of angler effort, catch rates for both wild and hatchery fish, and prespawning numbers of wild and hatchery fish based on actual harvest instead of statewide punchcard data. Survey results could be used to estimate hooking mortality in different sections of the North Umpqua River based on encounter rates and temperature conditions.

Winchester Dam summer steelhead counts

Counts from 1992-2014 are total counts from a video camera and were available within 10 days for monitoring wild and hatchery fish returning from May 1 to November 30. Due to budget and staffing cuts, the last census count was April 30, 2015. ODFW is now counting 200 days per year, which will give a count accuracy of at least 90%. ODFW staff are unsure how often future counts will be posted. Recent count estimates have not been available until after 60 days or more and can represent as little as 25-50% of the actual total run size. The importance of having up-to-date census counts to monitor the summer steelhead returns would likely outweigh the cost of restarting this valuable program. We suggest ODFW explore whether these monitoring activities should be restarted given recent management decisions, especially during return years of less than 1200 fish counted at Winchester dam.

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