

Conservation Plan for Lampreys;

Draft Plan Public Review Period

(Science Reviews, Public Comments, and Responses)

Science Reviews

From: Dunham, Jason [mailto:jdunham@usgs.gov]

Sent: Monday, October 14, 2019 7:18 AM

To: Clemens, Benjamin

Subject: re: Review of CPL

Hi Ben,

I got a chance to review the document, though I will say my coverage is a bit spotty as I didn't have time to go through the entire document in sub-atomic detail. I did go through the whole thing however. It's a really impressive compendium of knowledge on what we know of the four species of lamprey covered and I think is the best you can do at this stage, given all of the uncertainties and limitations that you are confronted with. There is no getting around these at this stage and simply acknowledging them as future needs to address is important. You've done that. Most of my questions regarded future directions. What you have is a substantial and important contribution. Thanks to you and the team for such an amazing effort!

My main comments, which may be outside of the purview of the current assessment are as follows:

1. You might consider adopting the format of Crozier et al.'s recent [vulnerability assessment](#) for Pacific Salmon in the next assessment. This is how NOAA is evaluating all species in regard to climate vulnerability, and it is a process that seems to work pretty well in my personal experience.
2. I know ODFW is using the [PROSPER model](#) to look at vulnerability of native fishes in some regions of Oregon. Stream drying is a significant issue for lampreys in some parts of their distribution - worth at least mentioning here I think. PROSPER is a first-generation product and will be refined over time.
3. Coordinating recovery of lamprey with other species. At some point we are going to run into too many native fish to consider and not enough time for taxa-specific plans for climate adaptation and recovery. A [multi-species approach](#) and plan to address all species could change how we approach any individual species or species group. Again an explicit acknowledgement of this somewhere would be good and maybe it is there and I missed it. I was also wondering why you didn't use more of the [data provided by Mims et al. 2018](#), but maybe that is for a future effort?
4. Overall I would consider the 4 lamprey species to be in the "fact-finding" stage of the recovery process. We do know a lot about Pacific lamprey - an impressive increase in knowledge over the past 2 decades - thanks in a very significant part to your efforts. As is mentioned in the CPL, however, there are other taxa where we're not sure about the basic systematics, autecology, or potential specific threats. Further the efficacy of actions such as translocation is not well understood. I would be very cautious about the latter given my experience in working with bull trout and translocations of other species. The basics of managing water, connectivity, heat budgets (temperature), and sediment regimes will probably go a long way.
5. Formatting - I didn't go through the entire document in detail, but where I did I noted some spelling and punctuation errors - maybe get a good copy editor(s) to go through this so they are caught and corrected.

6. Divide and conquer - Finding some ways to serve the information in this report in a more compact form will be key to getting folks to use the information. Few will read the whole report in it's entirety. For example, you might consider some way of serving the information via an ArcGIS story map, Tableau, or other visualization tools so end-users can access and visualize results. I've found this to be particularly helpful for bull trout. More broadly I suspect the lamprey process might benefit from lessons we are learning with bull trout and forging a multi-partner assessment tool. We'll keep you posted when that becomes more functional.

In closing I want to thank you and the team who did all of the work to assemble this. It is a huge effort and a significant contribution to where we are with lampreys in one of the most diverse areas in the world for this ancient lineage of species. That's pretty special.

THANKS

--

Jason Dunham, Supervisory Aquatic Ecologist

U.S. Geological Survey

Forest and Rangeland Ecosystem Science Center

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To: Ben Clemons

From: Carl Schreck

The Lamprey Conservation Plan is exceptionally well written, scholarly, clearly organized, extremely thorough, and well thought-out. Given that four species were covered I really thought that the tables were extremely useful and clear. I really like the use of the table in the Executive Summary. It could actually serve as a standalone executive summary (I'm not suggesting that you do that). I also thought that the upfront clarity about where information was lacking was very appropriate.

There is a huge amount of material that was covered in the Plan. While I read the entire report twice, I didn't have time to check in depth the details of all of the facts presented. My comments are offered for your consideration to help the Plan achieve its goal. Because of all of this information I may have missed that you already had addressed some of the points I offer.

Here are a few general thoughts:

Limiting Factors:

Under "Limiting Factors" you could add the idea that environmental change in some factor, e.g., temperature may not be directly limiting but become so by affecting timing of life history events so that another factor becomes limiting. For example, early or later seaward migration could put the fish in the ocean at the wrong time relative to food resources.

You mention interaction of factors; you could also mention that cumulative effects may be greater than the sum of each effect alone. Do you feel comfortable with the assignments given in Table 5.2 (also Table A4.4 and A8.1)? I'm guessing it is based on opinion without much science behind it; if so, that might be good to mention in the legend.

Regarding turbidity, the min effect appears to be impaired vision of teleosts. That may not be so important for lamprey in freshwater. But, turbidity may affect larval food availability.

Management Strategies:

You point out that ODFW alone does not have the resources to implement all of the actions needed. It is good that you refer to the goals for the actions as "strategies".

Many of the proposed management actions involve maintenance of ongoing tactics including ODFW and DEQ programs. While these are well intended, they have been insufficient to prevent the decline in lamprey or allow for increases in their abundance, in general. The same is true for many salmonid populations. What I think is needed is more intense and extensive efforts in these programs.

I did not note action plans relative to toxic substances. This is a tough area to deal with, but one that I think is very important. Table 7.2 mentions "addressing all unknowns". How will that be done for all

toxins, or even what we need to know about a single toxin? I suspect Table 8.1 would include water quality and toxics under “protect and restore habitat”; how would that be done? I didn’t see anything in the Appendix on toxins; that’s, I’m sure, because of the giant data gap in this area. It could be a vital area, however.

Timeline:

I think your timeline is good. What would be useful is a brief, but detailed discussion of what ODFW will implement in the next year or so and what is hoped to be accomplished relative to lamprey abundance there. Maybe even a list in bullet form. For example: Restore passage at the barriers on stream A, B and C; to restore X miles of good (or whatever quality it is) lamprey spawning and rearing habitat. If you haven’t figure this out yet, then what is the plan to do so?

Is it possible that several actions, though enhanced over what we’ve been doing, will not result in any benefit to lamprey because some other limiting factor is considerably more important or changing faster over time?

Couple of trivial edits:

Page 24, bottom- Change “stratum” to “strata”.

Table 3.3. The legend define “1” but there is no “1” in the table; suggest you delete it.

Carl

Carl B. Schreck, Professor

Department of Fisheries and Wildlife

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Public Comments

(received during the September 16 – October 16, 2019 public comment period)

From: Kenneth Law [mailto:k.law2004@gmail.com]
Sent: Wednesday, September 18, 2019 7:49 PM
To: Clemens, Benjamin
Subject: Re: Lamprey

Its is in response to the Conservation plan for Lampreys. I do believe this topic needs to be broadened to all fish and wildlife. The impacts of widespread herbicide use needs to be looked at more closely in my opinion.

On Wed, Sep 18, 2019, 8:01 AM Clemens, Benjamin <Ben.Clemens@oregonstate.edu> wrote:

Hi Kenneth,

Thank you for your email. You bring up an important topic.

Is this comment in response to the Draft Conservation Plan for Lampreys?

Best Regards,

Ben

Benjamin J. Clemens, Ph.D.
Statewide Lamprey Coordinator
Conservation and Recovery
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From: Kenneth Law [mailto:k.law2004@gmail.com]

Sent: Tuesday, September 17, 2019 6:38 PM

To: Clemens, Ben

Subject: Lamprey

Limit the use of herbicides on timber lands (private and public) that are harming our wildlife and fish.
Spot treat invasive weeds only.

From: Rob Dolton [mailto:rob@robertgdolton.com]
Sent: Wednesday, September 18, 2019 8:59 AM
To: Clemens, Ben
Subject: FW: Lamprey in Clear Creek (a tributary of the Clackamas).

Second try...

Robert G. Dolton
Attorney at Law
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From: Rob Dolton <rob@robertgdolton.com>
Sent: Wednesday, September 18, 2019 8:34 AM
To: Clemens@state.or.us; 'Michael Rosenbaum' <mike@rosenbaumlawgroup.com>
Subject: Lamprey in Clear Creek (a tributary of the Clackamas).

Hi Benjamin,

I have lived along the lower portion of Clear Creek for about the last 35 years. During the first decade of our residency, lamprey were an annual visitor to Clear Creek during the summer months. They were clearly spawning. Visible numbers in our stretch (about ¼ mile) were in the low hundreds. They preferred slow-moving, deep (4-6 feet) pockets with sandy bottom. Cutthroat trout (adults in the 14-16 inch range) followed them in, presumably dining on eggs.

In the winter months, lamprey larvae and juveniles were discoverable by digging in the sandy/very small gravel portions of the streambed.

Today there are none (at least none in observable numbers).

We have been in a Riparian Zone designation and have worked with the Clackamas River Basin Council to try to make our stretch of the Creek fish habitat friendly.

I have reviewed your plan. Is there any consideration being given to reintroduction of lamprey into systems where they once thrived? Your plan states as an implementation goal,

“• working cooperatively and using creative partnerships with all interested entities and individuals to implement education and outreach, direct management, RME, voluntary habitat restoration, and proactive habitat protection projects.”

Please consider adopting (or partnering with concerned landowners along Clear Creek) our watershed as a potential re-introduction/nursery stream for lamprey. Our local District biologists may be able to identify which specie of lamprey once flourished here. I assumed they were Pacific Lamprey but am not certain.

Please contact me if you have any interest in restoring lamprey to Clear Creek.

Thanks,

Rob Dolton

Robert G. Dolton
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From: Brown, Melissa [mailto:Melissa.Brown@portlandoregon.gov]
Sent: Wednesday, October 16, 2019 1:15 PM
To: Clemens, Ben
Cc: Lovell, Kaitlin
Subject: Oregon lamprey conservation plan comments

Ben,

Thank you for the opportunity to read and comment on the draft lamprey conservation plan. I've attached a copy of the plan with our comments embedded throughout. Notably, comments/suggested edits can be found on the following pages (if using the page navigator in Adobe, and not referencing document page number printed on pages):

9, 12, 15, 16, 21, 30, 33, 34, 36, 38, 40, 44, 58, 71, and 112.

And thank you for compiling such a comprehensive guidance document for lamprey conservation. This record is thorough - to the extent of our (yet) limited knowledge of Oregon lampreys - and should serve as a valuable tool with which to add future data, goals, and actions to our collective conservation efforts. We applaud your hard work, and look forward to a final version that we can use to further lamprey conservation here in the city.

Sincerely,

Melissa

Melissa Brown, CFP
Environmental Specialist
(she/her)



City of Portland Bureau of Environmental Services

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WORKING FOR CLEAN RIVERS

The Bureau of Environmental Services works with Portland residents and businesses to protect water quality, public health, and the environment through wastewater collection and treatment, sewer construction and maintenance, stormwater management, and stream and watershed restoration.



October 16, 2019

Mr. Benjamin Clemens
Oregon Department of Fish and Wildlife
4034 Fairview Industrial Dr SE
Salem, OR 97302

VIA EMAIL: Benjamin.J.Clemens@state.or.us

Re: Oregon Farm Bureau, Oregon Forest and Industries Council, and Oregonians for Food and Shelter Comments on Oregon Department of Fish and Wildlife's Draft Coastal, Columbia, and Snake Conservation Plan for Lampreys in Oregon

Dear Mr. Clemens:

The Oregon Farm Bureau Federation (OFB), Oregon Forest and Industries Council (OFIC), and Oregonians for Food and Shelter (OFS) appreciate the opportunity to comment on the draft Coastal, Columbia, and Snake Conservation Plan for Lampreys in Oregon (the Plan). While we respect the work the Oregon Department of Fish and Wildlife (ODFW) put into developing the Plan, there are significant data gaps and unsupported assumptions regarding limiting factors in the plan that must be addressed prior to the adoption of the Plan by the Fish and Wildlife Commission. As such, we encourage ODFW to adopt the recommended RME's to develop sound science around Lamprey populations before moving forward with recommended management strategies and revise the Plan to address current regulatory programs already addressing the identified limiting factors.

By way of background, OFB is a grassroots, nonprofit, nonpartisan organization representing the interests of the state's family farmers and ranchers in the public and policymaking arenas. As Oregon's largest general farm organization, its primary goal is to promote educational improvement, economic opportunity, and social advancement for its members and the farming, ranching, and natural resources industry as a whole. As the voice of Oregon agriculture, OFB works to find solutions that will benefit all of the state's agriculture producers.

The Oregon Forest & Industries Council is a statewide trade association representing forestland owners and forest products manufacturing firms. Its members own more than 90 percent of Oregon's private, large-owner forestland base. OFIC's core mission is to advocate on behalf of its members to maintain a positive, stable business operating environment for Oregon's forest products community that fosters long-term investments in healthy forests; to ensure a reliable timber supply from Oregon's public and private forestlands; and to promote stewardship and sustainable management of forestlands that protect environmental values and maintain productive uses on all forestlands.

Oregonians for Food & Shelter is a coalition that promotes the responsible use of pesticides, fertilizer and biotechnology. We represent communities of working Oregonians who are true stewards of our environment, our farms, and our forests.

ODFW Must Move Forward Promptly with the RME's to Address Key Unknowns for Lampreys:

A lack of knowledge and sufficient data on Lamprey population, distribution, and critical life stages exist throughout the entire Plan. For example, ODFW admits that there are considerable challenges in monitoring lamprey populations, which precluded assessments of measurable criteria and status for Western River Lamprey, Western Brook Lamprey, and Pacific Brook Lamprey. Additionally, as stated in the RMEs, distribution data is lacking for each type of lamprey, including the Pacific Lamprey. In terms of the limiting factors, there are considerable stated unknowns regarding water quality, water quantity, passage, habitat, predation, and other factors (see Table 7.2). The term “unknown” actually appears 86 times throughout the Plan.

Because of the lack of data and understanding of Lampreys in Oregon, ODFW should only move forward with the recommended RME strategies at this point and the proposed education and outreach management strategy. It is evident that Lampreys are vastly understudied in Oregon, and ODFW does not possess sufficient scientific findings to recommend management strategies for the population, beyond needed education and outreach on Lampreys. Notably, there are even stated unknowns with the efficacy of the proposed management strategies.¹ Moreover, as discussed in more detail below, ODFW's fear that limiting factors and threats will outpace the RME's is also unsupported. As such, ODFW should revise the Plan to only move forward with the RME's and the educational management strategy until more scientific data is available and the key unknowns are resolved.

ODFW Must Revise the Plan to Consider Current Regulatory Efforts in Oregon:

As mentioned above, ODFW relies on the concept that despite the significant unknowns in the Plan, management strategies should be put into place because the limiting factors and wide scale threats will undoubtedly worsen in the immediate future and essentially outpace research and monitoring.² We strongly object to this reasoning as well as the characterization of many land management practices described in the limiting factors section of the Plan. Specifically, ODFW ignores any and all regulatory efforts currently addressing water quality, water quantity, and habitat, and describes natural resource industries as essentially unregulated entities continually causing environmental degradation. In reality, agriculture and forestry are highly regulated, and Oregon's farmers, ranchers, and foresters pride themselves in not only regulatory compliance, but going above and beyond regulatory requirements to ensure our industries remain sustainable, and up to date with the latest information on how to be good stewards of the land. This on-the-ground reality wholly runs counter to the dire trajectory the Plan projects for water quality, quantity, and habitat in the State. As such, the Plan must be revised to consider the following:

A. Oregon Has Strong Water Quality Programs:

The Plan fails to consider current water quality regulation in the state. Oregon has a robust statewide agricultural water quality program administered by the Oregon Department of Agriculture that has been in place since 2004, which addresses and regulates sedimentation, temperature, and agricultural runoff into water bodies. Since the

¹ Coastal, Columbia, and Snake Conservation Plan for Lampreys in Oregon at 29.

² Coastal, Columbia, and Snake Conservation Plan for Lampreys in Oregon at 29.

implementation of the plan, Oregon's agricultural industry invested considerable time and resources into the program, and as a result we have seen substantial improvements in water quality over time. Additionally, the Department of Environmental Quality has implemented a number of TMDL's to address water quality concerns Oregon, including an expected 15 Temperature TMDLs over the next few years.

Water quality on Oregon's forestlands is protected through the Forest Practices Act, which creates a stringent set of rules, based on the best available science, that forest managers must follow to protect water quality throughout all stages of their operation, from planting to harvest. The Forest Practices Act provides a one-stop regulatory approach for forest practices on non-federal lands; FPA implementation provides for meeting the federal Clean Water Act standards, fill and removal requirements, laws related to forest road construction and maintenance, and rules protecting water quality and public safety associated with shallow rapidly moving landslides. The Forest Practices Act has been successful in protecting water quality, and, when paired with the stewardship and diligence of private timberland owners, is the reason the forested areas have among the highest water quality in the state.

Beyond ignoring our current regulatory framework, the Plan unnecessarily highlights toxics, including pesticides and herbicides from agriculture and timber, as a limiting factor for Lamprey, despite the Plan also stating that the effects of pesticides and herbicides from runoff on lampreys is largely unknown.³ Additionally, the Plan states that "Larval lampreys may be affected by agricultural runoff — primarily pesticides and herbicides [and] [a]dult lampreys in coastal streams may be subjected to aerial herbicide spraying by industrial logging operations."⁴ However, the Plan fails to consider the current data around water quality and pesticides. Oregon has a robust program for tracking toxics in waterways, and a very successful program in place, the Pesticide Stewardship Partnership, for addressing any areas where pesticide levels are a concern.

Additionally, the data simply does not support there being a risk to lampreys from pesticide runoff from logging. As mentioned above, forested areas have the highest drinking water quality in the state. The FPA specifically highlights monitoring in areas of water quality, streamside forests, pesticide use and landslides and public safety at operational and watershed scales. Pesticide use and application on forestlands are strictly prescribed through the FPA to ensure compliance with the label and application restrictions. These operations only occur two to three times in a 40 to 60 year timeframe. Indeed, Lane and Lincoln County, two of the heaviest forestry counties in the state, have never had any detections of pesticides in their water. Years of monitoring effort on forestlands conducted jointly by DEQ, ODA, and ODF consistently conclude that pesticide use on forestlands falls in the lowest risk category. Statewide, DEET is the most consistently found pesticide in water in forested lands. DEET is not used in forestry, meaning that these detections came from recreationalists using federal, state or private land for recreational use. ODFW must accurately acknowledge these efforts and the Plan should be revised to consider a correct regulatory baseline.

B. Oregon Protects Water Supply for Fish Species:

Water withdrawals from a myriad of sources, including agriculture, are also mentioned as an impact to Lamprey populations. However, ODFW once again fails to present any concrete data that identifies water supply as an issue for lampreys across their range, and ignores existing programs that help protect and promote adequate water supply for fish populations. As an initial matter, ODFW makes a number of sweeping assertions about both water use and water supply that fail to account for the significant information the state has on projected

³ Coastal, Columbia, and Snake Conservation Plan for Lampreys in Oregon at 33-34.

⁴ Coastal, Columbia, and Snake Conservation Plan for Lampreys in Oregon at 34.

future changes to Oregon's hydrograph across each basin in Oregon, and which fails to account for the many ways water is used and stored across the state. For example, on the arid eastside, future projections indicate changing precipitation patterns that may actually result in more winter rainfall and less snowfall, impacting natural storage cycles and suggesting the need for additional storage projects for meet fish and human water needs. On the westside, the future projections suggest more intense storm events, followed by longer dry periods, which again suggests more storage projects are going to be needed to moderate changing weather patterns for humans and fish.

Further, ODFW fails to account for the significant work happening across the state to ensure that water needs are met for fish and wildlife and for communities. Indeed, ODFW has been hard at work the last several years applying for and pursuing new instream water rights for priority fish species, including the lamprey, across the state. OWRD, ODFW, DEQ, and others are working to implement the Integrated Water Resources Strategy to better plan for and meet water quality and water supply needs of fish and wildlife. OWEB and their local partners are funding significant streamflow restoration projects, and many water users are working voluntarily to conserve water and improve flows for fish. The dire picture painted by ODFW fails to account for the latest regional information on water supply and the myriad of state and local partners who are actively working to improve flows and habitat for fish. At minimum, ODFW's Plan must acknowledge these efforts.

C. Oregon Has Robust Fill and Removal Regulations:

The Plan sites agricultural and forest management practices as causes of physical habitat degradation for Lamprey, despite also stating that there is no research or data to support this conclusion. According to the Plan:

Floodplain simplification has occurred in many basins as a result of timber harvest, fire, expanding road infrastructures, draining and filling of wetlands and backwater sloughs, and in some cases, river channelization, through armoring and leveeing of banks. Fill and removal projects (including dredging) may negatively impact lampreys to varying degrees in time and space, although the actual effects have not been researched.⁵

While ODFW is correct that Oregon's landscape has changed over time, it does not have adequate data to support its assertion that these changes have all been negative for lamprey. Further, it fails to account for Oregon's robust fill and removal laws that protect wetlands and ensure that any in channel work is done in a manner that is protective of fish and wildlife. Specifically, OFB recently helped update Oregon's permitting system around agricultural drainage ditch maintenance in a manner that is protective of fish and wildlife. The maintenance of agricultural drainage ditches is critical to maintaining healthy, functional farmland in the wet parts of the state, particularly in the Willamette Valley and coastal regions. Recognizing the importance of this practice, the Oregon Legislature passed HB 2347 to provide a framework for maintenance of ditches with state oversight conditioned to protect environmental concerns. The bill moves the ditch cleaning program into the Oregon Department of Agriculture, requires them to consult with the Oregon Department of Fish and Wildlife before authorizing cleaning occurs, and allows for adaptive management over time as information is developed through an OSU study, which should help provide data needed to better understand this practice.

⁵ Coastal, Columbia, and Snake Conservation Plan for Lampreys in Oregon at 37.

As stated in the Plan, the effects of fill and removal projects on Lamprey have not been researched. Therefore, the Plan should be revised to take Oregon's fill and removal laws, including HB 2347, into consideration, and there should be no management strategies proposed regarding fill and removal projects until the aforementioned research (including the OSU study) is complete. As stated earlier, ODFW lacks significant knowledge and research regarding Lamprey, and are not equipped to move forward with any management strategies besides continuing education on lampreys in the State.

ODFW Should Work with Local Landowners to Update Its Assessment on Land Management Practices:

Land management practices have changed substantially over the last decade. ODFW's assumptions about timber, livestock, and agricultural practices are outdated and fail to acknowledge significant changes in practices over the past 20 years. We recommend that ODFW work with stakeholders to develop a current understanding of agricultural land uses across the state and the significant work that has been done over the last 20 years to improve water quality, water quantity, and habitat and revise the Plan's assumptions about land use impacts on Lamprey populations.

We appreciate the hard work of the biologist, researchers, and other staff who worked to develop the Plan. However, we believe that additional research and data is needed prior to moving forward with another draft of the Plan, because as written, the Plan lacks credibility and fails to provide accurate information needed to develop a meaningful action plan. Moreover, in developing a revised action plan, we encourage ODFW to work with stakeholders to develop a working lands approach to recommended conservation actions, including working with landowners on projects and investments that will allow working lands to stay in production while continuing the significant work already underway to improve water quality, quantity, and habitat.

We appreciate the opportunity to comment and look forward to engaging with you to develop a revised draft of the Plan. Please do not hesitate to contact us with any questions.

Sincerely,



Mary Anne Cooper
Vice President of Public Policy
Oregon Farm Bureau Federation
maryanne@oregonfb.org



Katie Fast
Executive Director
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katie@ofsonline.org



Kyle Williams
Director of Forest Protection
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From: Jim McCarthy [mailto:jim@waterwatch.org]

Sent: Wednesday, October 16, 2019 6:55 PM

To: Clemens, Ben

Subject: WaterWatch of Oregon comments on ODFW's Draft Conservation Plan for Lampreys

Hello Benjamin,

WaterWatch of Oregon appreciates the opportunity to comment on ODFW's Draft Conservation Plan for Lampreys. Below are our comments.

1. More Emphasis on Barrier Removal as Impactful Strategy with Multiple Benefits

As a general comment we would like to see far more emphasis on instream barrier removal as a high value, high priority strategy for addressing multiple key lamprey limiting factors at once. These multiple factors as identified in the plan are access, water quality, water quality, physical habitat, and predation.

All of these key factors are addressed (reduced) by barrier removal. For example, dam reservoirs can artificially concentrate juvenile lamprey in one area, significantly increasing risk of adverse event(s) decimating populations. This risk is best addressed by removal. Periodic drawdown or dam reservoirs for repairs dewater sediments holding significant populations of young lamprey, and kills large numbers of young lamprey. This risk is best addressed by removal. Dam reservoirs artificially heat up the water, which can kill lamprey eggs and young, while improving conditions for non-native predators, and possibly creating a barrier to adult movement during certain periods of the year. These multiple risks are best addressed by removal.

In contrast, the plan's emphasis on installing or improving passage structures at existing barriers narrowly addresses the single factor of passage. Again, the plan should contain a more robust discussion of barrier removal as an high value strategy. Emphasis on removal as a multi-benefit strategy alongside the acknowledgement of removal as a preferred approach would likely be more beneficial to lamprey in the short and long run.

2. Greater Emphasis/Specifics on Umpqua Basin Risks and Opportunities:

We appreciate that the plan does emphasize the importance of addressing issues within the Umpqua Basin. We believe this basin requires even more attention in the plan given the risks here as well as the likely potential for improvement. Page 136 does note that, "Within the Coastal stratum, the Umpqua Basin was the most vulnerable (ranked as "Extremely Vulnerable") to climate change of all of 15 river basins examined for vulnerability to climate change with respect to Pacific Lamprey in Washington, Oregon, and California (Schaller et al. 2017). Schaller et al. (2017) identified the limiting factors in the Umpqua to be dewatering and flow management (i.e., water quantity per Table 5.2), and stream and floodplain degradation (i.e., physical habitat per Table 5.2)."

Given this level of risk noted in the plan, the plan should go into more detail on how to address this river basin. Of particular value is further consideration of the high risk Winchester Dam on the North Umpqua River poses to lamprey in this basin. Reservoir drawdown at this dam for repair or inspection, which has

occurred an average of once every 3 years since 1964, causes mass mortality of lamprey ammocoetes in reservoir pool sediments. A 2013 press account with ODFW staff commentary describes thousands of reservoir pool area ammocoetes dying or being consumed by birds during repairs, despite apparently ad-hoc mitigation and salvage efforts. Roughly half of the 2,000 ODFW-salvaged ammocoetes were estimated to have died in the process. In addition, a November 4, 2013 ODFW memorandum of a post-repair interagency meeting indicates drawdown may impact ammocoetes in sediments as much as 2 miles upstream of the dam and that some gasoline-powered pumps used in the reservoir area during the repairs “were refueled without any kind of spill containment.” A February 4, 2014 ODFW memo contained characterization of the 2013 manual ammocoete salvage efforts at the dam as “futile.”

Additional lamprey-specific issues at Winchester Dam include:

- a. Winchester Dam’s reservoir artificially concentrates juvenile lamprey in one area, significantly increasing risk of adverse event(s) decimating remaining population.
- b. Dam owners have resisted efforts to require proper permitting, an HCP, or even basic engineering and agency guidelines during repairs to mitigate impacts to water quality and aquatic life. This resulted in a pollution spill and fish kill in October 2018, which included lamprey. We should expect further harm to lamprey and other aquatic organisms unless agencies require proper permitting for dam repair into the future.
- c. Winchester Dam’s degraded crib structure entrains large numbers of adult lamprey in the extensive false attraction holes along its face.
- d. Winchester Dam’s reservoir artificially heats up the water of the North Umpqua; this can kill lamprey eggs and ammocoetes, while improving conditions for non-native predators (smallmouth bass), and possibly creating a barrier to adult movement during certain periods of the year.
- e. Winchester Dam has been in generally poor condition and has had persistent holes and leaks for decades which could result in accidental loss of the reservoir pool and the catastrophic loss of seven generations of lamprey ammocoetes in the pool sediments.
- f. Winchester Dam drawdown for repair flushes sediment downstream, degrading habitat and contributing to the habitat limiting factor identified in the plan.
- g. Winchester Dam’s emergency action plan has not been updated since 1987 and therefore likely is without any specific measures whatsoever to address lamprey ammocoetes in case of dam failure or accidental drainage of reservoir.

We appreciate that ODFW has worked to address the issue of lamprey passage at Winchester Dam by installing a lamprey ramp in recent years. But hopefully it is clear from the litany of remaining problems at the dam described above that this somewhat narrow approach to passage at barriers still leaves multiple major risk factors associated with these barriers un-addressed. The experience at Winchester Dam supports our above comments for a need for a greater emphasis on the comprehensive benefits of barrier removal in this plan and the need to implement strategies toward this goal. It also indicates that

the strategies of education as well as the creation of BMPs likely will not go far enough to adequately address the significant threats to lamprey. These strategies are of course highly worthwhile but should be combined with improved enforcement of state permitting. Improved permitting enforcement during dam operations and maintenance, particularly private dams such as Winchester, should be included in the plan's strategies.

Thank you for the opportunity to comment on ODFW's Draft Conservation Plan for Lampreys.

Sincerely,

Jim McCarthy

—

Jim McCarthy

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Responses

Response to reviews and comments

Who	Comment	Response	Action with respect to plan
Science reviews			
Dr. Jason Dunham, USGS	1. The plan has an impressive amount of information.	No response.	No change.
	2. In future, adopt format of a specific climate vulnerability assessment.	This is a consideration for future assessments called for in the plan.	No change.
	3. Mention use of model to predict lamprey vulnerability to stream drying.	This model is being refined. The model may or may not be useful for lampreys.	No change.
	4. Coordinate recovery of lampreys with other species (multi-species approach).	The plan addresses multiple lamprey species and notes synergy with other species' plans, needs, and implementation actions. Lamprey projects are already coordinated with other native fish projects.	No change.
	5. The efficacy of translocation is not well understood; recommend caution.	Agreed; hence proposed use of adaptive management (Table 6.3), including research to assess efficacy of translocation.	No change.
	6. Why not use published data in species distribution modeling?	These data were used and are cited.	Cited in Appendix 5.
	7. Noted typographical errors.	The plan has been carefully checked.	Errors corrected.
	8. Serve information in more compact form(s).	Dissemination and progress tracking of the plan will be addressed during implementation. A website for the plan has been developed already. ODFW is also working on improved data systems.	No action.

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	9. <i>[From inserted comments in plan]:</i> Table A8.2 is a list of conventional pollutants. See IMST's Urban report for other pollutants.	Agreed.	Added new table (Table A8.3) that includes pollutants in the IMST report and in a peer-reviewed study that found particular contaminants in lamprey tissues.
Dr. Carl Schreck, OSU	1. “[The plan is] exceptionally well written, scholarly, clearly organized, extremely thorough, and well thought-out”.	No response.	No change.
	2. Liked clarity about where information is lacking.	No response.	No change.
	3. Provide more information on potential interactions among limiting factors.	Limiting factors may interact in complex ways.	Added general information to the first four paragraphs of Chapter 5.
	4. Qualify the nature of the science backing the identification of key limiting factors in Table 5.2.	Identification of limiting factors is described at the beginning of Chapter 5 and relies on science and best professional judgement. Supporting information for Table 5.2 is included in Chapter 5 and Appendix 8.	No action.
	5. Describe how turbidity might impact lampreys.	Specific details are not known.	Added qualifying information to pg 34.
	6. Many management strategies propose continuing ODFW and ODEQ programs, which should be intensified.	This will be possible with increased staffing and funding.	No action.

Response to reviews and comments

Who	Comment	Response	Action with respect to plan
	7. No action plans relative to important topic of toxic substances.	Exposure risks and ultimate effects of toxins on lampreys are not known.	No change.
	8. How will unknowns for toxin effects on lampreys be addressed?	Research is needed.	Added research needed to understand effects of toxic pollutants on lampreys (pg 67).
	9. Nothing in appendices on toxic pollutants.	See response to Dr. Jason Dunham's comment #9.	See response to Dr. Jason Dunham's comment #8.
	10. Include brief, detailed list of what will be implemented in near term.	Agreed.	Added as new Appendix 11.
	11. Management actions might not result in benefits to lampreys because some other limiting factor is more important or is changing rapidly.	Agreed; however, this should not imply that nothing should be done, which would likely result in further declines in lampreys.	Added language to the last section of Chapter 8.
Public reviews			
Kenneth Law, citizen	1. Impacts of widespread use of herbicides on private and public lands needs to be examined and limited.	See response to Dr. Carl Schreck's comment #8.	See response to Dr. Carl Schreck's comment #8.
Robert Dolton, citizen	1. No lamprey currently observed in Clear Creek. Consider partnering with watershed for Pacific Lamprey reintroduction.	Surveys are needed to verify whether or not Pacific Lamprey exist in this location. Areas for consideration for translocation include locations where ecological, social, and institutional capacities and interests align (pg 56). Particular areas will be identified during plan implementation.	No change.

Response to reviews and comments

Who	Comment	Response	Action with respect to plan
Melissa Brown, City of Portland Bureau of Environmental Services	1. Plan is comprehensive guidance document that will be “a valuable tool with which to add future data, goals, and actions to our collective conservation efforts.”	No response.	No change.
	2. <i>[From inserted comments in plan]:</i> General comments; edits for clarity; citation needed.	No comment.	Edits were made where appropriate for clarification.
	3. <i>[From inserted comments in plan]:</i> Include human predation (harvest) as a limiting factor in the limiting factor Table 5.2.	Harvest is already considered as part of the “Direct interactions: Take” limiting factor.	No change.
	4. <i>[From inserted comments in plan]:</i> Why is the occurrence of balanced ecosystems not considered with regards to native Northern Pikeminnow bounty rewards?	This is outside the scope of the plan, which does not include a Northern Pikeminnow management strategy.	No change.
	5. <i>[From inserted comments in plan]:</i> Please include pollutants along with water quality in the listing of the top 5 limiting factors to lampreys.	More information and additional research needs were added to the plan about toxic pollutants, but the lack of specific information relative to lampreys resulted in this factor being designated as an unknown limiting factor.	No change.
	6. <i>[From inserted comments in plan]:</i> Would like ODFW to lift bag limits for warmwater fishes in the lower Willamette.	See Table A10.6 for recommended changes to bag and size limits for non-native, warmwater fishes.	No action.

Response to reviews and comments

Who	Comment	Response	Action with respect to plan
Mary Ann Cooper, Oregon Farm Bureau Federation	1. Significant data gaps exist in the plan.	There are always data gaps. This plan has the most comprehensive collection of lamprey data compiled across Oregon. Others acknowledged the comprehensiveness of the plan (Dunham, comment #1; Schreck, #1; Brown, #1). Schreck liked the clarity of the identification of unknowns (#2).	No change.
Katie Fast, Oregonians for Food and Shelter	2. Unsupported assumptions regarding limiting factors exist in the plan.	Identification of limiting factors is described at the beginning of Chapter 5 and relies on science and best professional judgement. Supporting information for Table 5.2 (which identifies limiting factors) is included in Chapter 5 and Appendix 8.	Clarifications were made in Chapter 5.
Kyle Williams, Oregon Forest and Industries Council	3. Plan should focus on education/outreach and research.	Education/outreach and research are important components called for in the plan. However, these alone will not be sufficient to conserve lampreys. The Native Fish Conservation Policy calls for specific elements to be included in conservation plans, including management strategies to address limiting factors.	No change.
	4. Supposition that limiting factors and threats will outpace research is unsupported.	The plan's status assessment identifies the need for conservation now, regardless of additional impacts to limiting factors into the future. Restoration is needed to remove them from the state sensitive species list.	No change.
	5. Plan should consider current state regulatory efforts in water quality and water quantity programs, and habitat regulations.	Agreed; however, the current regulatory efforts do not address restoration needs.	Text has been included at the beginning of Chapter 5.

Response to reviews and comments

Who	Comment	Response	Action with respect to plan
	6. Unnecessary identification of pesticides and herbicides from particular land use practices as limiting factors.	Agree that particular current practices cannot be linked to this limiting factor. Others call for increasing the identification of toxic pollutants (Dunham, #9; Schreck, # 7 – 9; Law, #1; and Brown, #5).	Modified language around particular land use practices and toxic pollutants in Chapter 5; re-characterized “Toxic pollutants” as an unknown limiting factor (Chapter 5) with the need for additional research (Chapter 7); added additional information on toxic pollutants (Appendix 8).
	7. Water withdrawals from particular land use practices are identified, but are not supported with data.	Water withdrawals leave less water in streams. Climate conditions do so as well.	Modified language around particular land use practices and water quantity in Chapter 5.
	8. Physical habitat degradation from particular land use practices are identified, but are not supported with data.	Physical habitat impacts are commonly understood.	Modified language around particular land use practices and physical habitat in Chapter 5.
	9. ODFW should work with landowners to update assessment on land management practices.	Land management practices were not assessed; language around them was revised.	No change.

Response to reviews and comments

Who	Comment	Response	Action with respect to plan
Jim McCarthy, WaterWatch of Oregon	1. Emphasize barrier removal (multiple benefits).	Artificial obstruction removal is one way to address passage and screening issues, which are identified as the most important limiting factor in the plan. However, artificial obstructions serve other purposes and multiple considerations exist when developing passage and screening solutions for a site.	No change.
	2. Greater emphasis and specifics on Umpqua Basin risks and opportunities.	Pacific Lamprey do not home to streams in which they were born (Chapter 2 and Appendix 3). Hence the need to prioritize management strategies across multiple watersheds, rather than focusing on only a few watersheds. Umpqua-specific work will occur during implementation.	No change.
	3. Identified a number of specific issues with operation of Winchester Dam and its effects on lampreys.	Specific actions regarding Winchester Dam are beyond the scope of this plan, and should be addressed during implementation.	No change.