

Siskiyou Streamside Protections Review: Policy Options

1. Introduction

As directed by the Board in March 2018, the monitoring review of Forest Practices Act (FPA) streamside rules (water protection rules) for small and medium type F (fish-bearing) streams in the Siskiyou geographic region (OAR 629-635-0220) focuses on goals for protecting stream temperature (per OAR 340-041-0028) and desired future condition (DFC) of streamside stands (OAR 629-642-0000). This review is specific to the general vegetation prescriptions for type F streams (OAR 629-642-0100). For DFC, the Board chose to focus rule review on meeting goals for shade and stand structure.

More specifically, the following questions were posed to review the sufficiency of streamside rules in the Siskiyou region:

Sufficiency Question 1. *Stream Temperature*

For small and medium fish-bearing streams in the Siskiyou region, what is the effectiveness of FPA buffers to meet DEQ water quality standards for temperature¹?

Objective: Assess if stream temperatures within or adjacent to forest management meet DEQ water quality temperature standards in the Siskiyou region's small and medium fish streams.

Sufficiency Question 2. *Desired Future Condition (DFC)*

For small and medium fish-bearing streams in the Siskiyou region, what is the effectiveness of FPA buffers in achieving the desired future conditions of streamside forests?

Objectives:

- Assess the range of shade and streamside stand structure of mature forests in the Siskiyou region.
- Assess the effectiveness of near-stream forest management on achieving FPA desired future conditions (shade and stand structure) of streamside forests in the Siskiyou region.

2. Department response to Board's June 2019 direction

In June 2019, Board members expressed various requests, both technical and policy-related, in approaches to inform their sufficiency decisions. The department divided up the Board's direction into two sets of decisions:

1. Policy options; these include possible formation of an advisory committee; if and how to address climate change; and if and how to broaden the scope of a supporting literature review.

¹"DEQ water quality temperature standards" refer to OAR 340-041-0028 (4) & (11).

Policy in this instance refers to matters concerning current (not new) policies (statutes, rules) and how they are implemented through procedures and guidance.

2. Monitoring options (to be decided in early 2020); The Board provided examples of technical approaches they would like the department to explore, and these are discussed in Attachment 2.

This separation of decisions was made for a variety of reasons. First of all, the policy decisions discussed below affect the subsequent decisions on technical monitoring options in the following ways:

- The advisory committee would provide important perspective for the Board's considerations of which approaches to use to gather additional information.
- The decisions on climate change may expand the scope of the work of this rule review. As such, it would be most efficient if this decision were made before selecting the other approaches since it may impact those choices.
- If the Board decides to include literature from western Oregon and similar regions (e.g., western Washington), additional work on stream temperature may be unnecessary.

This will also allow the department to consider the range of technical monitoring options and the ramifications of their implementation.

This document describes the basic elements of each of policy-related decision. Outreach with stakeholders and tribes, as well as preparation of Board materials, are incorporated into duration and cost estimates of each approach.

3. Policy Options

3.1 Increase stakeholder engagement through an advisory committee

The department encourages the development of an advisory committee to provide input on both policy-related and monitoring option technical decisions, in the effort to fill in information gaps on rule sufficiency (see Attachment 2 on the approaches to fill these gaps). The purpose of the advisory committee is to collaboratively discuss and provide feedback on proposed policies and methods to implement the sufficiency review of small and medium fish streams in the Siskiyou region.

The advisory committee's role is to 1) discuss and provide feedback on issues that need further clarification / decision by the Department or the Board; 2) provide feedback to assist ODF in developing a clear and transparent rule sufficiency review process. Committee objectives would be established by the Board and incorporated into a charter describing expectations and decision making processes. Note that this committee would not provide input on the ODF-DEQ collaboration, although they would remain apprised of this work.

The robust discussions and variety of perspectives offered by an advisory committee can be a tremendous aid to the Board, providing a forum to vet project details and ensure stakeholder engagement. Note that tribes would not participate in this process, and we would work with them through other means. Using a committee process will not ensure consensus but will provide the Board with a regular feedback mechanism on project acceptance and support.

Anticipated Products

Regular committee feedback, including level of consensus on approaches.

Duration, cost, staff:

This committee would meet regularly during the remainder of the Siskiyou review (the length of which is yet to be determined). It is estimated this will require approximately 1/8 – 1/4 FTE on average during the review.

3.2 Climate change

The FPA and the riparian rules were developed before the implications of climate change were widely discussed by natural resource managers. DEQ's water quality standards also do not explicitly address climate change. Therefore there are no specific, climate-change informed goals against which to test rule sufficiency. Note that the Board has recently expressed a desire to develop more comprehensive policies on climate change. If such policies were developed, they would greatly enhance the ability to test rule sufficiency in light of climate change.

Climate change is anticipated to have a variety of impacts in Oregon that relate to achieving DFC along streams and meeting stream temperature goals: increasing air temperatures (Isaak *et al.*, 2016); shifts in species distributions; changes in the timing, form, and amount of precipitation, etc. Our certainty of specific changes increases with spatial scale (e.g., we are more certain of changes at regional as opposed to local scales; Maraun *et al.*, 2010). These climate change impacts, and their uncertainty, may be problematic for assessing the effectiveness of current FPA rules which are meant to achieve goals based on more steady-state climate assumptions.

With this in mind, two options for the consideration of climate change are offered:

Climate Change Option 1: Incorporate into current rule sufficiency analysis

A high-level linkage analysis between the current FPA sufficiency questions under review and anticipated climate change outcomes in the Siskiyou region would be conducted. Information sources could include but are not limited to the NorWest model (Isaak *et al.* 2016), science synthesis work conducted to inform the Northwest Forest Plan (Spies *et al.* 2018), and a climate science synthesis produced by the Southwest Oregon Adaptation Partnership (anticipated *in press* in fall 2019, Halofsky, J., US Forest Service, pers. comm.).

Anticipated products:

- Identification of climate-induced environmental changes that may affect stream temperature or DFC in the Siskiyou geographic region
- Identification of which changes can and cannot be addressed within current FPA policy
- Predicted environmental changes at a high level, such as directions and patterns of change (e.g., expected increases in stream temperature)
- Qualitative risk assessment of climate-induced environmental changes and achievement of goals for DFC and stream temperature

Addressing climate change on a project-by-project approach may result in repeated analyses of topics and unintended conflicts or inconsistent results between project-level outcomes as

opposed to a comprehensive review of FPA policies and procedures. In contrast, moving forward on climate change at a project level will more quickly advance its incorporation into department work.

Duration, cost, staff:

9-12 months of 0.5-0.75 FTE at a cost of ~\$50,000-75,000

Climate Change Option 2: Separate and comprehensive climate change policy review

The goal of this option is for the Board to develop a comprehensive and clearly articulated set of policies on climate change. Within that policy framework, the department would then conduct a complete FPA review using those policies as the lens. The Siskiyou Streamside Protections Review would continue without explicit consideration of climate change. After completing the full FPA review and any associated policy changes, subsequent FPA rule sufficiency reviews would incorporate those new climate-based policies into the regular adaptive management process as driven by the department's monitoring priorities.

Anticipated products:

A comprehensive list of climate change topics, areas of conflict and alignment with FPA policies and procedures, and proposed changes to address areas of conflict.

Duration, cost, staff:

TBD

3.3 Expanded literature review

In March 2018 the Board directed the department to take a look at published and unpublished literature (no new data analysis) targeted to the Siskiyou geographic region. That review was completed and presented to the Board in June 2019. The department recommended and the Board affirmed that there was insufficient information to either support or deny a degradation finding regarding FPA rule sufficiency for achieving goals for stream temperature or DFC.

In June 2019 the Board discussed expanding the literature review to a broader geography. The discussion was related to the previous Board finding of degradation of resources in western Oregon in January 2012 and the November 2015 decision to exclude the Siskiyou geographic region from this decision. The decision to exclude the Siskiyou region was based on concerns about extrapolating study findings, which had no sites in the Siskiyou, from regions with different climate, vegetative, and other conditions.

Some options for an expanded literature review, including but not limited to a broader geography, are provided below.

Expanded Literature Review Option 1: (a) Executive Summary of Existing Stream Temperature and Shade Reviews and (b) Combined DFC Review

For this option, the department would create two separate products:

- (a) Executive summary of existing stream temperature and shade reviews
- (b) Combined DFC review

The executive summary would combine the information on stream temperature and shade described in the 2013 (Czarnomski et al.) and 2019 (Cowan et al.) systematic reviews (SR) and add any publications or gray literature completed since the 2013 that meet the SR criteria. This literature review summary could be completed in a relatively short time frame.

Product (b), which would have a different timeline, would expand the geographic extent of the DFC portion of the ongoing SR in western Oregon. The large wood recruitment portion of the western Oregon riparian review project would continue to exclude the Siskiyou geographic region.

The advantage of this option is that it capitalizes on existing and ongoing work, minimizing timelines and effort. A disadvantage is that the Board has already voted twice on the topic of the type, amount, and geographic extent of information relevant to and derived from the Siskiyou geographic region needed for determining sufficiency of rules (BOF November 2015, June 2019 meetings).

Duration, cost, staff:

4-6 months of 0.5 FTE, \$20,000 - 30,000 for the stream temperature portion, and 10-15 months of 0.75 FTE, \$75,000-125,000 for the DFC portion.

Expanded Literature Review Option 2: (a) Western Forests Stream Temperature and Shade Review and (b) Combined DFC Review

For this option, the department would create two separate products:

- (a) Western forests stream temperature and shade review
- (b) Combined DFC review

This option is similar to Option 1 in that it would combine the information on stream temperature and shade described in the 2013 (Czarnomski et al.) and 2019 (Cowan et al.) systematic reviews (SR) and add any publications or gray literature completed since the 2013 that meet the SR criteria. It would differ by adding two new elements: (1) expand the geography to include forests in eastern Oregon and the intermountain west and (2) exploration of scientific literature on other factors affecting stream temperature and shade including but not limited to disturbance, aspect, topography, gradient, and the transmittance of light through the forest canopy.

Product (b) would be identical to that described in Option 1.

This option provides the benefit of a more full exploration of mechanisms relating to temperature and shade outcomes with forest management and stand dynamics. It can also serve to highlight key gaps in the scientific literature. The drawbacks are that this will take considerably more time and resources to develop and also presents the risk that it may or may not provide specific enough information to determine sufficiency of the Oregon FPA protection rules for small and

medium fish bearing streams in the Siskiyou geographic region for functions related to stream temperature and DFC (stand structure and shade).

Duration, cost, staff:

10 to 15 months of 0.75 FTE, \$75,000-125,000 *each* for the (a) stream temperature and shade review and (b) the DFC portion.

Table 1. Proposed policy options for assessing sufficiency of streamside protections for stream temperature and the stand structure and shade components of DFC.

Policy Options	Policy Addressed	Certainty of method to address question¹	Considerations
Advisory committee	Supports methods to answer Temperature and DFC sufficiency	-	Regular feedback to Board on project acceptance and support
Climate change option 1	Siskiyou Temperature and DFC	TBD	Project-level climate change review
Climate change option 2	Comprehensive FPA Review	TBD	Full FPA climate change review
Expanded literature review option 1	Siskiyou and Western OR Temperature and DFC	Low	Maximizes existing information
Expanded literature review option 2	All Oregon regions Temperature and DFC	Low	Relationship between temperature and shade with other factors

¹Certainty of method to address stream temperature and DFC rule sufficiency questions for the Siskiyou region. Certainty is based on department staff’s professional opinion.

4. Department recommendation

The department recommends the Board direct ODF to create an advisory committee with development of a team charter, and implement Climate Change Option 2 (comprehensive policy work).

5. Next steps

The department will implement the Board’s direction regarding the decisions outlined in this document. Additionally, the department will create a decision framework for the Board’s choices regarding the monitoring options discussed in Attachment 2. We anticipate bringing this framework to the Board in spring 2020.

6. References

Cowan, A.D., Frueh, W.T., Allen, M., 2019. Siskiyou Streamside Protections Review: A Systematic Review on Stream Temperature, Shade, and Desired Future Condition: Report. Oregon Department of Forestry.

Czarnomski, N.; Hale, C.V.; Frueh, W.T.; Allen, M.; Groom, J.D. 2013. Effectiveness of Riparian Buffers at Protecting Stream Temperature and Shade in Pacific Northwest Forests: A Systematic Review. Final Report September 2013.

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Isaak, D.J.; Wenger, S.J.; Peterson, E.E.; Ver Hoef, J.M.; Hostetler, S.W.; Luce, C.H.; Dunham, J.B.; Kershner, J.L.; Roper, B.B.; Nagel, D.E.; Chandler, G.L.; Wollrab, S.P.; Parkes, S.L.; Horan, D.L. 2016. NorWeST modeled summer stream temperature scenarios for the western U.S. Fort Collins, CO: Forest Service Research Data Archive.

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