BEFORE THE ORGON BOARD OF FORESTRY
Statement of Mary Scurlock
Oregon Stream Protection Coalition
Agenda Item 3: Siskiyou Streamside Protections Review Progress Report
January 9, 2019

I am Mary Scurlock, representing the 28 local, statewide and national conservation and fishing industry organizations that comprise the Oregon Stream Protection Coalition.

Our primary request today is that the Board direct staff to use a more inclusive and ultimately more credible approach to this project. It our view, given the topic and the available information, the more appropriate approach is to conduct a basic, general literature review and synthesis, where every relevant study is evaluated on its own merits, critical uncertainties are identified, and conclusions are drawn based on logical resolution of apparent contradictions and weight of evidence. I draw this recommendation from comments attached here made on our behalf to Terry Frueh by Dr. Chris Frissell on January 7 regarding the draft "Scientific Evidence Review."

Other specific concerns include:

- Exclusion of RipStream without a rational biophysical basis
- Exclusion of DEQ's Total Maximum Daily Load analyses about what is needed to attain stream temperature standards on unscientific grounds
- Exclusion of relevant contextual studies, including those relevant to climate change expectations, that shed light important relationships and processes on dubious grounds

We support and incorporate by reference the detailed comments of Rogue Riverkeeper submitted to Chair Imeson prior to this meeting.

1. A Traditional Literature Review and Synthesis, not a "Systematic Evidence Review" is the Better Tool for the Job at Hand

The draft results of staff's search and screening exercise has produced only 15 papers from 12 studies, which we agree provide useful information about a disparate number of relevant subjects. But there is simply too much highly relevant, useful information being excluded unnecessarily. We disagree with the implication that being more inclusive would sacrifice rigor or transparency.

In choosing the construct of a Systematic Evidence Review, we seem to be ignoring what we already knew about the nature of available information. As Dr. Frissell explains, a rigid systematic review is the wrong construct in this case because we are not looking for a means to cut across "multiple controlled, quantitative studies of the same general question" – as commonly occurs in medicine or pharmacology.

We urge you to consider instead a basic, general literature review and synthesis, where every relevant study is evaluated on its own merits, critical uncertainties are identified, and conclusions are drawn based on logical resolution of apparent contradictions and weight of evidence. We need to allow for refinement of the study question based on the discovered information, i.e it should be our goal to ensure that we are asking an answerable question.

2. Rationale lacking for exclusion of RipStream on the basis of "Geographic Scope" of study data.

At a very basic level this project is only happening because RipStream found that stream protection on small and medium fish streams is not adequate to prevent warming in violation of the Protecting Coldwater Criterion (.3 C). Yet, staff has stated its position that it must disregard RipStream to "align" with the Board's 2015 "policy decision" to exclude the Siskiyou from the scope of the SSBT rule "unless directed otherwise."

I repeat prior testimony in saying that exclusion of RipStream from this review was not technically have been part of any prior decision. Furthermore, as I have previously noted this Board was clearly authorized to include the Siskiyou in the rule decision on the basis of Ripstream, which was in fact presumptively included in the geographic scope of the Board's January 2012 degradation finding until the compromise decision was made to exclude the Siskiyou from the negotiated rule package almost four years later. (The very fact that this Board in 1994 chose no-cuts and RMAs for the Siskiyou of the same dimensions as other parts of the state is itself evidence that a presumption of similarity with respect to essential stream-riparian relationships is justified).

For reasons further detailed in Dr. Frissell's attached comments on the draft review and in prior submittals, we urge the Board to clarify that RipStream can and should be considered here, as should any information relevant to whether and how RipStream findings are or are not probative to the question of stream temperature and shade in the Siskiyou. The only defensible presumption given the totality of available information is that the RipStream findings are relevant to the question of current buffer efficacy to prevent stream warming. It is appropriate for this literature review to seek and synthesize any ecological information that justifies exclusion or calibration of this information, but knee-jerk reliance on the Board's SSBT rule decision is not defensible.

We urge the Board not to accede to staff's position that it must exclude Ripstream to comport with your prior policy decision by remaining silent. Rather, you can provide further direction on this matter by: 1) clarifying that the geographic scope of the SSBT rule did not pre-determine the scope of the subsequent Siskiyou monitoring project, and/or; 2) directing that RipStream be considered along with any other information that suggests the core shade/stream temperature relationship established by Ripstream should not be presumptively considered valid in the Siskiyou.

3. TMDL Analyses should be considered for both science and policy reasons

Analysis conducted by DEQ to develop load allocation for stream temperature can be used to evaluate the adequacy of current FPA rules to meet these targets and applicable ambient water quality standards. However, ODF does not give these model-based analyses any weight in this process. Giving DEQ a Board agenda item and putting "TMDL findings" "in the record" for the April decision are not the same as integrating these analyses into this monitoring project and acknowledging that Load Allocations establish watershed-specific water quality objectives in the Siskiyou (and elsewhere).

TMDL Analyses are Cognizable as "Science." We refer you to Dr. Frissell's comments to staff opining that TMDL analyses should be considered scientific evidence and call for their inclusion

absent scientific reasons for exclusion. We note that the Washington Department of Ecology describes a TMDL this way on their website:

> "Total Maximum Daily Load — a **locally-focused scientific study** that calculates the pollution a water body can receive and still meet water quality standards. It provides information about existing conditions and a watershed's sensitivity to additional development impacts." (emphasis added) [i]

TMDLs Set Important, Legally Enforceable Policy Benchmarks. I remind the Board that the numerous TMDL analyses applicable to streams in the Siskiyou region do more than elucidate key relationships of interest such as that between riparian conditions and stream temperature. These analyses provide important watershed specific benchmarks against which to assess the adequacy of the stream protection rules to meet water quality standards throughout the stream network – i.e. these analyses provide valuable information about what is needed to meet standards on all waters of the state (i.e. regulated waters) not just to the small and medium fish streams that were the focus of Ripstream.[ii]

The Board may be interested to know that the applicable TMDL documents demonstrate the great extent to which ODF monitoring efforts to date have been utterly, and inexplicably, disconnected from the water quality standards attainment framework established by TMDLs. For example, th**e** Lower Sucker Creek TMDL states that *"The information contained in the Lower Sucker Creek TMDL, as well as additional monitoring data, will be an important part of the body of information used in determining the adequacy of the FPA,"* refers to the largely inoperative interagency MOU, and says that *"information from these efforts, along with other relevant information provided by the DEQ, will be considered in reaching a determination on whether the existing FPA BMPs meet water quality standards within the Lower Sucker Creek Watershed." (p. 89) (emphasis added)."* To my knowledge no such cooperative determination of adequacy to meet load allocations has ever occurred.

4. Information relevant to Rule Efficacy to Provide Large Wood Must be Considered

ODF notes that the Board excluded large wood as out of scope for economic reasons, but logically this critical aspect of the forest-water interface drives stream morphology effects on stream temperature and because the connection between "desired future condition" of streamside stands and protection of aquatic resources is squarely on the table.

As the Rogue Riverkeeper comments note, the critical functional outputs -- large woody debris, root masses, snags and litterfall -- of functional riparian stands are also important characteristics of stream health and shade. This is explicitly recognized in the description of the characteristics of mature stands that DFC is supposed to represent at OAR 629-642-0000(2). These riparian functions are also clearly part of the OFPA's statutory commitment to the "overall maintenance" of water resources, fish and wildlife. If not included here, large wood source potential in the Siskiyou must explicitly be covered by the Western Oregon project.

5. The Department should include climate change literature so it can establish working expectations around climate change for this and future monitoring efforts.

Recent literature is increasingly offering up predictions about the changes in weather and disturbance regimes we can expect with climate change. This information should be considered

in-scope on the basis that it is directly relevant to any coherent concept of attaining desired future conditions of riparian forests "over time" and "on average across the landscape."

6. Relevance of Fish Status and Trends Information

We agree it is not appropriate for ODF to use fish status and trend information to "revisit the assumption that meeting FPA goals for water quality . . . would result in outcomes beneficial to fish" — that would second-guess the DEQ's setting of water quality standards. But although fish status and trend information is "contextual," the widespread ESA-listings of aquatic species should nonetheless be directly relevant to the Board's perception of the public interests at stake, baseline resource risk and urgency to act.

7. **Outstanding Questions:**

- *Information Lacking on Field Sites:* Where are the "field sites" ODF has been visiting and will continue to visit (p. 2 of update) and what data are being collected there?
- *Why not scrutinize all stream protection prescriptions – both the general and post-disturbance alternative ones -- given that we are not being limited to the prescriptions tested in RipStream?* Staff has said it considers the effectiveness of its "general vegetation retention prescription rules" with respect to disturbances such as fire, floods, insects and disease within the scope of its review, but that the effectiveness of the "alternative vegetation retention prescription rules" to be out of scope. The Board could change this. The alternative prescriptions allow harvest where the basal area of live trees is too low to allow management under the default rules, and their efficacy to meet water quality standards should be established.

8. Points of Agreement

We are in accord with staff recommendations that:

- Klamath region should be included, but so should Northern California and western Oregon.
- It does not make sense to restrict scope to studies that use Oregon FPA buffers.
- Characteristics of un-managed stands are clearly relevant to describing the characteristics of mature forest stands;
- Grey literature should be included.

ENDNOTES

[i] https://ecology.wa.gov/Regulations-Permits/SEPA/Environmental-review/SEPA-guidance/SEPA-checklist-guidance/SEPA-Checklist-Section-B-Environmental-elements/Environmental-elements-3-Water/Environmental-elements-Surface-water

[ii] For example, the 2002 TMDL for Lower Sucker Creek in the Illinois Basin of the Rogue allocates to non-natural sources including forestry the following load allocation: *"no measurable surface water temperature impacts,"* and this requirement applies to more than just small and medium fish streams; further states that ODF is supposed to have monitored its rules to ensure their effectiveness and make statewide or watershed specific rule changes to meet these load allocations and a "sufficiency analysis" was supposed to have occurred every 5 years. The 2003 TMDL for the Applegate states that: "For nonpoint sources in the Applegate Subbasin, the load allocation is system potential vegetation quantified as average percent shade." This allocation applies to all perennial or fishbearing streams. The 2008 Rogue River Basin Temperature TMDL (2008) indicates that the load allocation for nonpoint sources in the Rogue River corresponds to 0.04°C.

Comments on Siskiyou Systematic Review,

"Spreadsheet Sisiyou_Lit_Included_1218_v2.xlsx"

Chris Frissell 7 January 2019

leakinmywaders@yahoo.com. 406.471.3167

1. Overall comments

Inclusion of literature from the Klamath Basin and elsewhere in northern California is warranted on ecological grounds. However, inclusion of data from elsewhere in western Oregon is equally warranted, but is not adopted here. For example, exclusion of ODF's Ripstream research and publications is not adequately explained here, nor in my opinion can it be scientifically justified. In fact it is clear to me that the various publications from Ripstream research are far more directly pertinent and robustly informative to this review's goals and objectives than any of the INCLUDED studies listed in current table.

It seems no specific biophysical basis has been offered by ODF for why Ripstream research is excluded herein, leaving open the likelihood that its exclusion is a political choice, not a scientific one. That choice—or the lack of an explicit and persuasive scientific basis for it—compromises and taints the review irreparably and unnecessarily.

In my view, the studies tagged in the spreadsheet as included in the study do offer useful information to inform the study questions. However, the result is a very small set of studies that are disparate in goals, methods, metrics, and designs, and draw conclusions about widely disparate, mostly non-overlapping subjects. They also comprise only a small fraction of the available scientific literature that offers useful information to inform the study questions. Hence, my comments emphasize that the problems I see lie in the exclusion of some studies that have highly relevant information, and the adoption of a Systematic Review framework that leads to illogical and crippling exclusions. See my comments below, *Appropriateness of the Formal Systematic Review Method.*

2. Study Exclusion by Geographic Factors

Several excluded studies included field data from areas of southwest Oregon directly adjacent to the Siskiyou region, such as the Umpqua Basin (e.g. Hairston-Strang and Adams 1997, 1998) . By proximity and regional factors such as climate and snowpack rainfall distribution and annual hydrologic regime, these studies should be just as relevant to conditions within the study region as are studies from the Klamath region. In some cases geology and soils may vary somewhat from the Klamath Mountains terrain that dominates most of the Siskiyou Region, but the relationship is complementary, as some western and northern portions of the Siskiyou region include geology and soils more

similar to adjacent Coast Range sedimentary and Cascade Range volcanics terrain than they are to the Klamath-Siskiyou sheared metamorphic and sedimentary terrain.

As described above, the various published papers by Groom et al. from the RipStream study, derived from detailed field data on shade and stream temperatures in across western Oregon outside of the immediately adjacent Siskiyou Region, are highly relevant. No biophysical argument has been articulated and defended by ODF as to why these results are not applicable to streams in the Siskiyou Region, despite that I and others have pointed out in previous comment that nothing in the available record suggests as a scientific matter that streams in the Siskiyou Region respond differently in shade change v. temperature change relations than streams in any other region. In what data are available data indicate to me that streams in the Siskiyou Region lie in exactly the same domain in this regard as those in the Ripstream studies. Data are available for ODF to test this question directly, but instead, ODF has chosen to a priori discard all consideration of the Ripstream research. Exclusion of these studies is apparently justified by ODF on vague geographical grounds—but also is cited to political directive ODF suggests it received from the Board. Regardless whether that characterization of the Board's intent is accurate, when relevant scientific information is excluded from such a review on political grounds, that renders it overtly a politically compromised report, not a scientific review. I do not see any way around this fundamental conclusion

3. Study Exclusion by Topical Factors

I agree that many of the studies excluded from further consideration are appropriately excluded. Most of these pertain to specific project outcomes that aren't either directly or indirectly pertinent to riparian logging rules on private forest lands. However, some of the excluded studies appear to me to be highly pertinent to understanding the consequences and causes of stream response to riparian forest management practices and it's not clear at all from the offered information why they were excluded.

My greatest concern is that the opportunity for a useful review is fundamentally compromised by excluding studies that are directly pertinent to assessing the outcome of forest management in terms of stream water quality or fish habitat. Indeed some of the excluded research is likely *crucial* to elucidate causal relationships between logging in riparian areas and stream conditions. One example is Benda and Bigelow (2014). This paper includes directly relevant information on large wood in streams from Klamath Mountains, Cascade Range and northern California Coast Range regions that lie directly or virtually adjacent to the Oregon Siskiyou region, and share closely similar climate and vegetation. The study classifies riparian forests as "managed" and "unmanaged," and although it emphasizes the role of geomorphic settings and processes on wood recruitment to streams, it also documents specific trends associated with forest management in riparian areas. In my opinion it's irrational and crippling to this review's

objectives and goals to exclude studies such as this one from the scope simply because (as far as I can glean from the vague entries in the spreadsheet) they do not quantify site-specific aspects of forest stand conditions and treatments. At an absolute minimum this paper conveys crucial contextual and quantitative information about large wood recruitment processes as an "effects modifier" determining the long-term and cumulative instream effects of riparian zone management. That is just one example among many,

A dozen or so similar examples I identified on the Considered but Excluded list in ODF's spreadsheet include obvious geographically relevant literature on exotic weed encroachment, Port-Orford-cedar root rot, oak diseases in relation to logging disturbances--these are obvious factors that can directly and that hugely affect forest succession in riparian areas after disturbance by logging and other factors, including potentially strong effects on shade recovery, large wood recruitment, erosion resistance, fire severity and recurrence intervals, sediment retention, and nutrient leaching to surface waters with loss of key riparian species and their replacement by vegetation species with dramatically different phenology. Thus they pose potentially extreme consequences for future forest states and water quality and fish habitat in the face of riparian forest logging rules and other aspects of forest management. They are directly salient to the study questions and it would be illogical and crippling to exclude the information in these studies from explicit consideration in a science review.

If the factors listed above are to somehow be addressed as "effects modifiers" in the systematic review, it remains utterly unclear how that will be accomplished, when the primary literature relevant to them is excluded from review.

As you know, several Oregon DEQ TMDL studies are directly and immediately responsive to the study questions at hand, and they are available for numerous streams within the Siskiyou Region. Does ODF consider Oregon's TMDL studies—based on simulation models calibrated against select field data—to be science, or not science? In my opinion, they are science, just as much so as many other studies identified for inclusion, therefore ODF should offer scientific reasons for their exclusion from this review. Suggesting that testimony from ODEQ to the Board somehow substitutes for inclusion of these studies in a systematic review offers only a political rationalization for their exclusion, not a scientific one. Again, if relevant scientific information is excluded from such a science review on political grounds, that renders it overtly a politically compromised report, not a scientific review. I see no way around this fundamental premise.

Similarly. My and others' previous comments on the future importance of climate change in altering forest-stream state relations seems absent from the list of included literature.

4. Appropriateness of the Formal Systematic Review Method

In formulating the criteria for any effective literature review, one must balance the exclusion of science that sheds substantial light on the questions of interest against criteria that emphasize quantitative, geographical, or methodological comparability. The topical sweep of the "Accepted" list of studies is in this spreadsheet is very broad, and it's hard to find even two on that relatively short list that address the same study question or have data that are remotely comparable, or even that draw conclusions about the same practices and forest conditions. The upshot here, in my opinion, is that the available scientific literature pertinent to the question of riparian forest management effects on water quality and fish habitat in the Siskiyou Region is not appropriate for a formal systematic review of the kind ODF is attempting to implement here. The formal construct for Systematic Review was designed as a means to cut across multiple controlled, quantitative studies that may use somewhat different methods and designs, but bear on the same fairly narrowly–defined question, and usually with common or comparable metrics (as is commonly found in medicine or pharmacology). The approach is useful to evaluate science when multiple studies approach the same or closely similar research question, but appear to offer conflicting results or interpretations.

The inherent unsuitability of this approach for best available information at hand re. the Siskiyou region questions is illustrated by ODF's exclusion here of numerous publications with directly or indirectly relevant, even crucial information, in favor of a handful of studies that appear to meet narrowly defined criteria for acceptance, but which themselves are in fact so varied there is very little overlap among their objectives, designs, methods, data, and findings. A formal systematic review with a narrow scope is the wrong construct for review in this case.

ODF should instead support or conduct a traditional general literature review and synthesis, in which every relevant study is evaluated on its own merits, and assumptions are identified, critical uncertainties are evaluated, and general conclusions are drawn based as best as can be on robust logical resolution of apparent data contradictions and weight of evidence. That would be the appropriate framework to produce a robust, complete, and coherent review and synthesis of relevant science to inform the policy questions at stake. In such a review, for topics considered of high importance for which studies in the specific geographic area of interest are lacking of deficient, the review makes a concerted effort to synthesize the best available information from comparable areas of not dissimilar climate, geographical, and land use. Such a broad search is coupled with a careful and explicit consideration of whether and why any specific biophysical factors that vary between the regions may limit the certainty by which information from these other regions can be extrapolated to the study area. In lieu of such a transparent and rational scientific analysis, the approach exemplified here by ODF relies on seemingly arbitrary and apparently political, not scientific reasons for excluding much highly relevant science (e.g., the Groom et al. Ripstream literature).