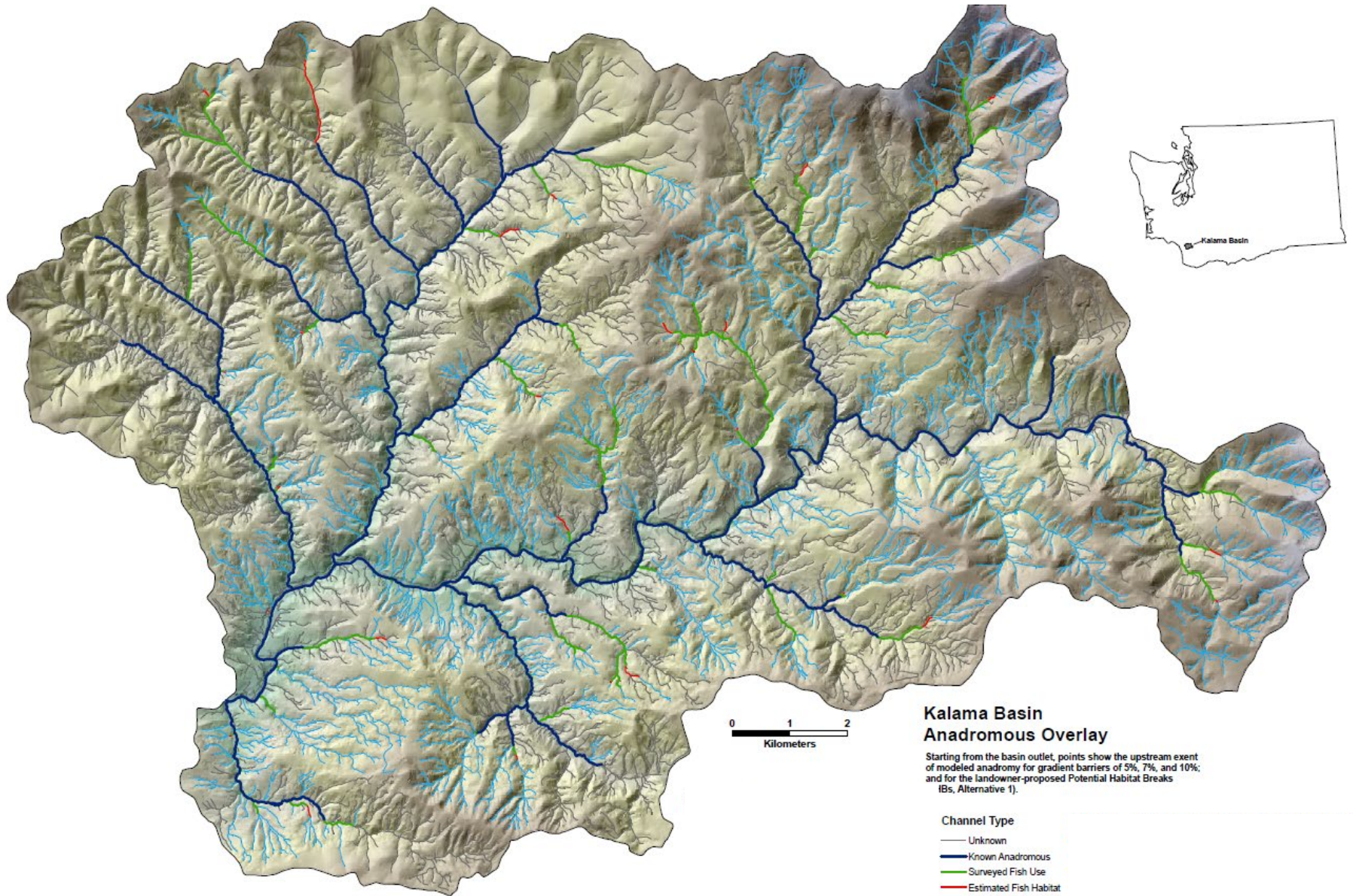


WFPA Anadromous Overlay Evaluation



Rationale for Landowner Anadromous Overlay Alternative

Our data support a conclusion that protocol surveys conducted under the FHAM will reliably identify the upper extent of habitat used by fish or likely to be used by fish.

- Alignment of proposed PHB's with concurred survey point locations.
- Repeated surveys by season and year found minimal fish movement above F/N breaks.

We argue that changes in stream size, gradient, and natural barriers - acting alone or together – most consistently identify points associated with meaningful changes fish in habitat suitability.

We recognize concerns expressed that some streams potentially classified as “N” based on a size PHB alone may be used by anadromous fish seasonally or at high population abundance.

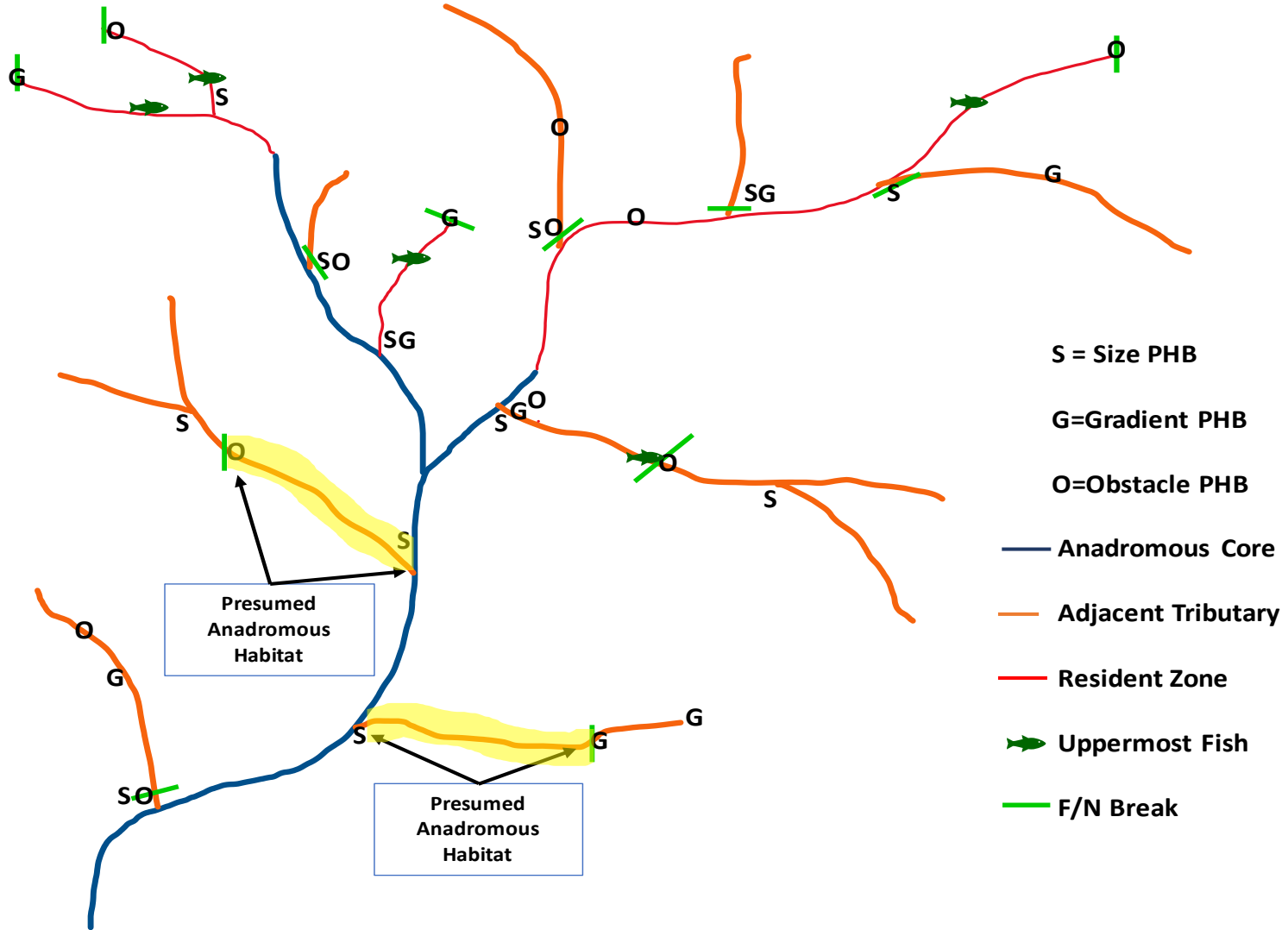
Our anadromous proposal was developed to provide for extension of Type F Water into “Lateral” tributaries not found to support fish at the time of survey, where seasonal or intermittent anadromous fish use is most likely to occur:

- ✓ Low gradient tributary streams lacking a significant gradient break or a permanent natural obstruction to upstream movement by fish.
- ✓ Adjacency with larger streams known to be used by anadromous fish for spawning and rearing.
- ✓ Field study to validate and refine criteria as necessary.

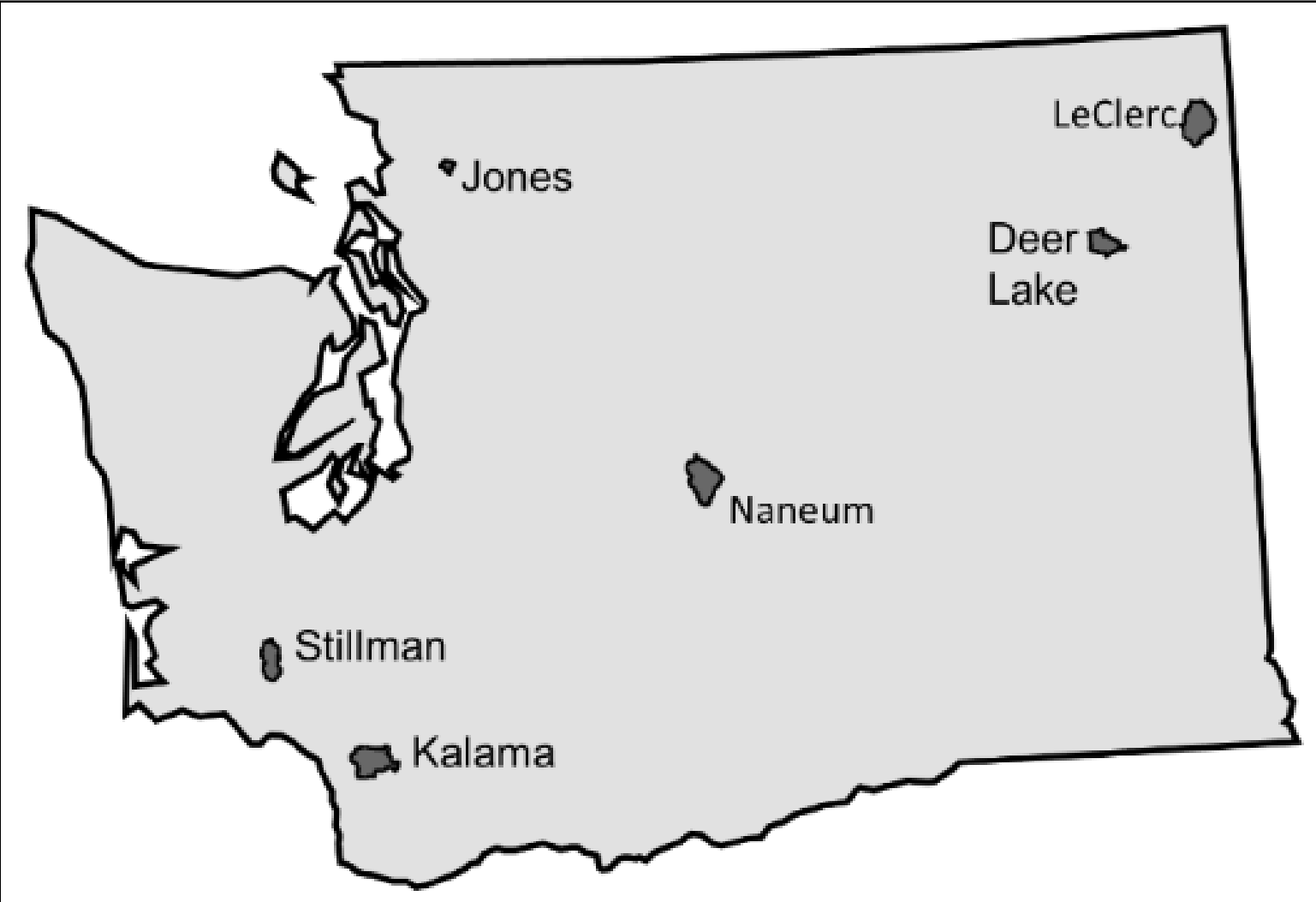
Our expectation is that our proposal will be analyzed and considered in rule-making.

Landowner Proposal

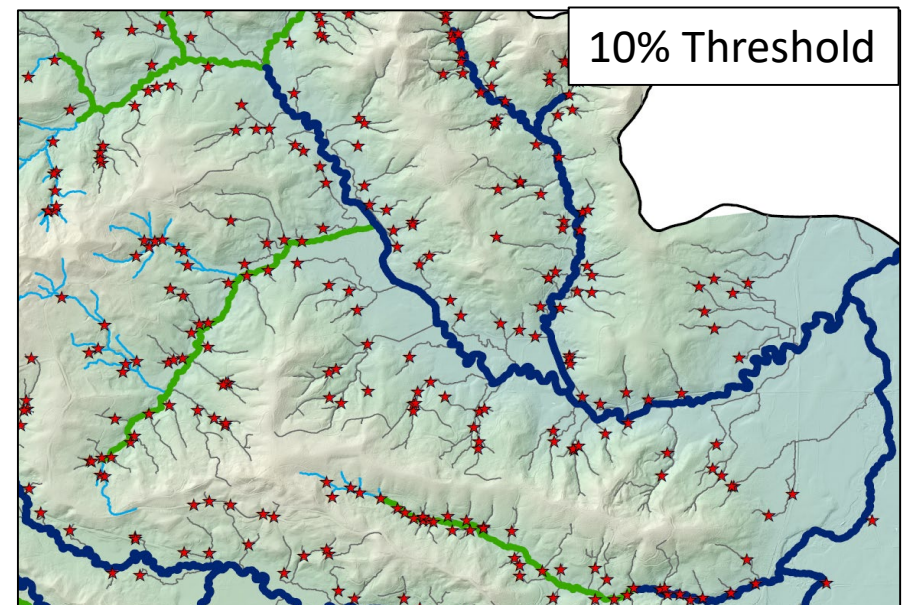
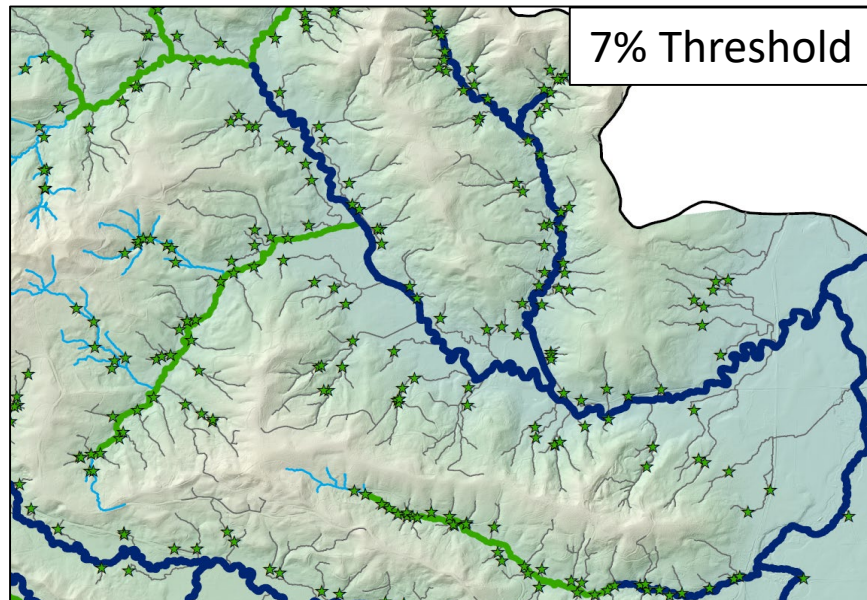
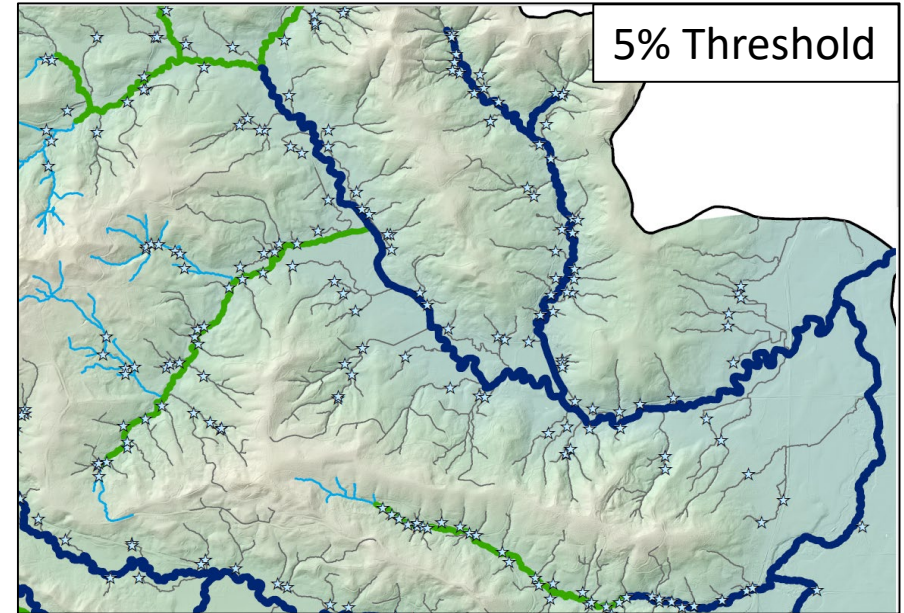
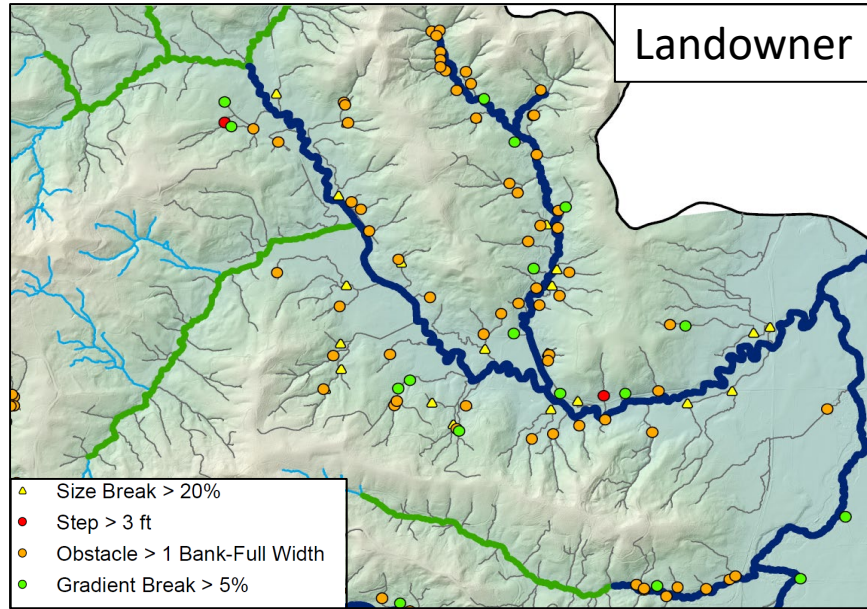
“Tributary streams connected to the core anadromous overlay streams will also be presumed to be anadromous fish habitat, unless a gradient PHB and/or obstacle PHB are present at the tributary stream junction with the adjacent core anadromous stream.”



Six Watersheds Used In this Analysis

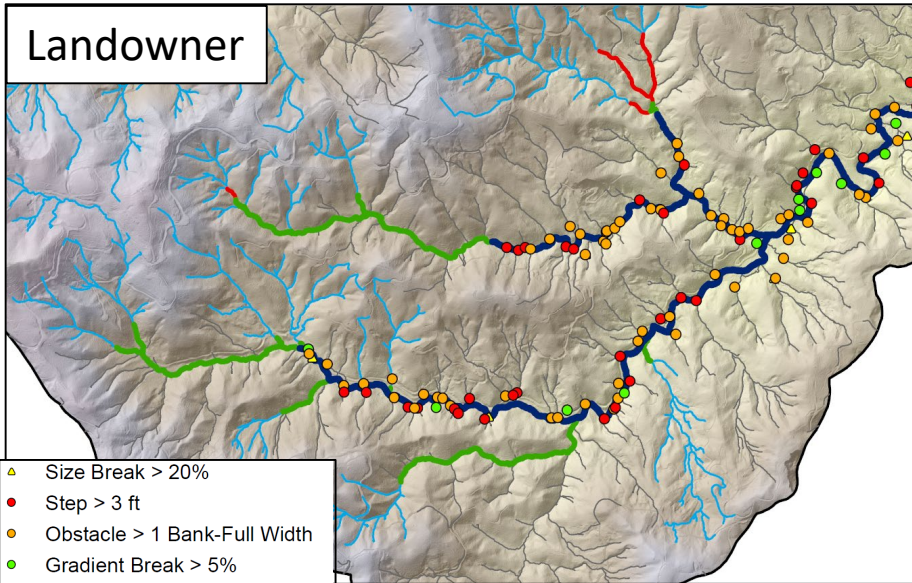


Low Topographic Relief Example

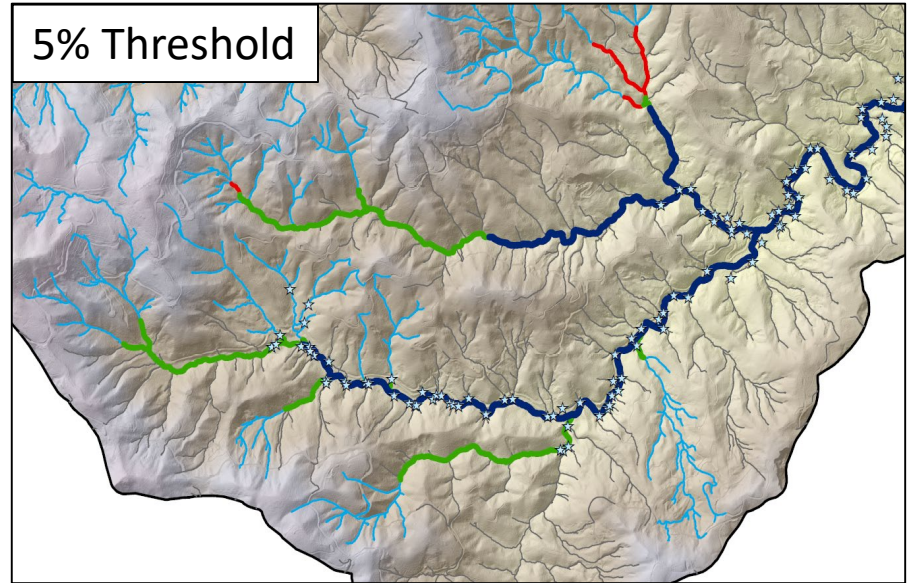


High Topographic Relief Example

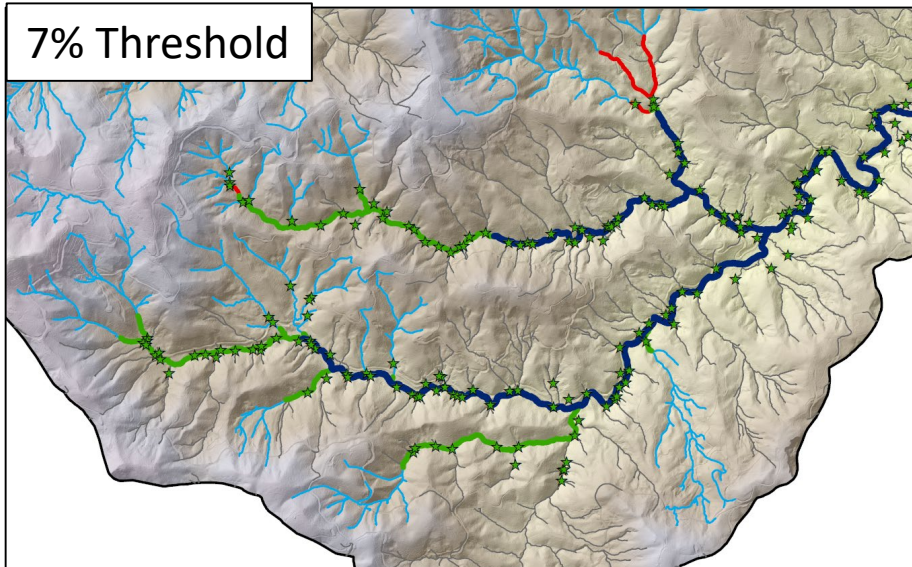
Landowner



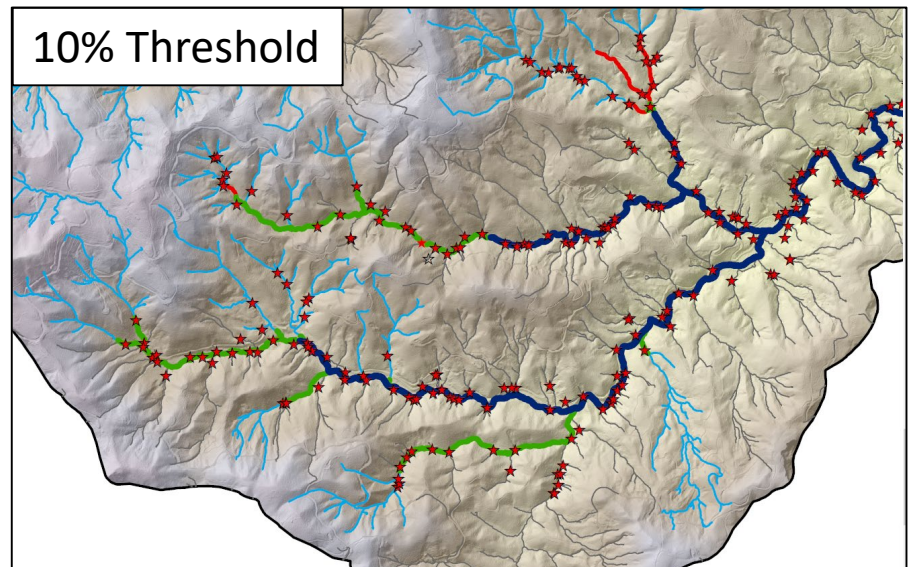
5% Threshold



7% Threshold



10% Threshold



Results

Extent of presumed anadromous fish habitat identified by StreamNet, and additional presumed anadromous habitat identified by the Landowner and 3 threshold gradient anadromous overlay alternatives.

Western Washington Overlay	Landowner	5% Gradient	7% Gradient	10% Gradient
StreamNet Presumed Anadromous (mi)	109.63	109.63	109.63	109.63
Additional Overlay Length (mi)	59.29	80.27	113.87	176.65
Percent Increase from StreamNet	54%	73%	104%	161%
Eastern Washington Overlay	Landowner	5% Gradient	7% Gradient	10% Gradient
StreamNet Presumed Anadromous (mi)	12.72	12.72	12.72	12.72
Additional Overlay Length (mi)	4.90	88.18	148.27	201.89
Percent Increase from StreamNet	39%	693%	1165%	1587%

Additional overlay length is an over-estimate of stream length affected. Most of the additional length is in streams with unknown fish habitat status:

- Some support fish use and would be Typed as “F” regardless of overlay.
- Some would be Typed as “N” based on downstream natural barriers.
- Additional work necessary to refine estimates for CBA/SBEIS/SEPA.

Conclusions

A targeted “anadromous overlay” could provide additional protections to address specific concerns about potential intermittent use of small, low gradient lateral streams by anadromous fish.

- Seasonal use of streams lacking fish use at time of survey.
- Intermittent use of streams during periods of high population abundance.

Results of our analysis suggest that supplemental anadromous fish protections could be provided in a more targeted manner by incorporating knowledge of known anadromous fish distribution.

Anadromous overlay PHBs based on distinct changes in stream characteristics facilitate identification of a reproducible regulatory water typing break.

Further work will be required to refine metrics and validate effectiveness of proposed PHB’s and anadromous overlay approaches in meeting FPB objectives.