

Washington State Department of Natural Resources

Adaptive Management Program

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Type Np Water Buffers

1. AMPA cover memo dated October 17, 2022,
2. Mediator's Final Report, Forest Practices Board meeting materials, November 9, 2022,
3. Joint recommendations of WFPA, WFFA and WSAC, Forest Practices Board meeting materials, November 9, 2022, and
4. Joint recommendations of the conservation caucus; Department of Ecology; Department of Fish and Wildlife; Eastern Washington Tribal Governments and Western Washington Tribes, Forest Practices Board meeting materials, November 9, 2022.



Type Np Water Buffers

Summary of Findings and Process

Forest Practices Board Meeting
August 9, 2023



Content:

- CMER Type N Studies
- Summary of Type Np Hard Rock/Soft Rock Study Findings
- Summary of Type Np Workgroup Recommendations
- Summary of Majority and Minority Recommendations to FPB



CMER Type N Studies

1. Buffer Integrity – Shade Effectiveness (Amphibian) - 2018
2. Westside Type N Buffer Characteristics, Integrity and Function (BCIF) - 2019
3. Extensive Riparian Status and Trends Temperature Monitoring –Type N/F (Westside and Eastside) -2019
4. Type N Experimental Buffer Treatment in Hard Rock Lithology –Phases I and II – 2018 and 2022
5. Type N Experimental Buffer Treatment in Soft Rock Lithologies - 2022



Summary of Type Np Hard Rock & Soft Rock Studies Findings

- Both studies evaluated the effectiveness of riparian buffer prescriptions on Type Np streams
- Hard rock tested effectiveness of current rules and alternative buffers (100%, 0%, unharvested reference) in competent lithology
- Soft rock tested current rules on incompetent (erodible) lithology
- Hard rock study: pre-harvest monitoring (2006-2008) and post-harvest monitoring (2009-2019)
- Soft rock study: pre-harvest monitoring (2012-2013), post-harvest monitoring (2015-2019)



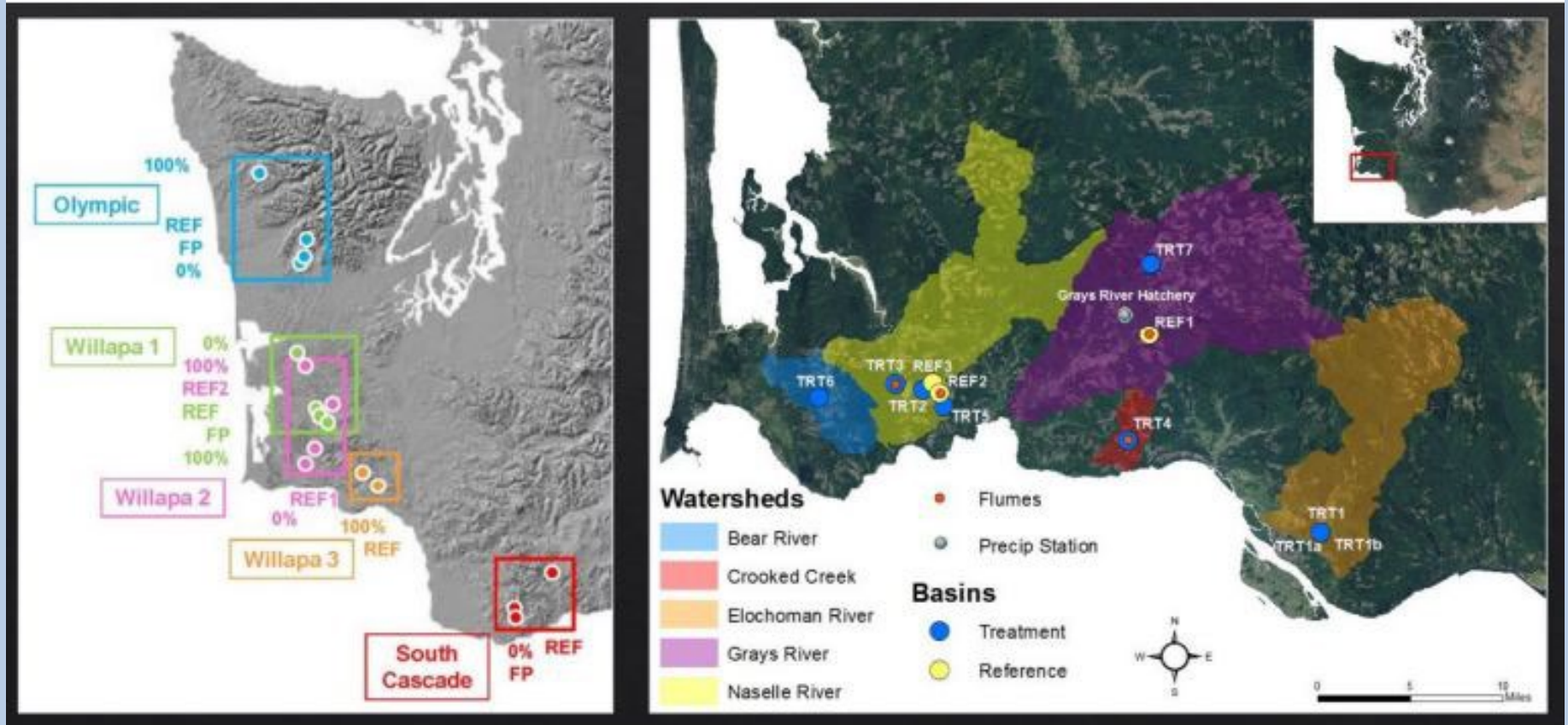
Summary of Hard & Soft Rock Studies Findings

- Hard rock study had 13 study response variables including shade, water temperature and amphibian response.
- Soft rock study had 9 study response variables including shade, water temperature and water temperature (did not sediment delivery, organic input, channel structure, and amphibian response).
- Site selection: followed a rigorous process including GIS screening, landowner information, and field verification. Once sites were selected, treatments were randomly assigned, where possible.



Hard Rock Study Locations

Soft Rock Study Locations



Summary of the Hard & Soft Rock Studies Findings (temp)

- Both studies were able to provide mean temperature changes due to treatments.
- Studies provided two temperature response metrics (measurements of predicted vs. observed difference):
 - Maximum Monthly Temperature Response (MMTR)
 - Seven Day Temperature Response (7DTR) - the maximum value of 7-day average temperature response values in July and August (accounts for natural variability)
 - Both reports use 7DTR to represent the measurable change standard.
- Studies reported highest annual 7-day average daily maximum temperatures (7DADM) (doesn't account for natural variability).



Summary the Hard & Soft Studies Findings (temp) - Hard Rock

- 7DTR increased in all buffer treatments:
 - 100%: initial increase of ~ 1°C but returned to pre-harvest conditions within 3 years
 - FP treatment: initial increase of ~1°C but remained elevated 1-9 years post-harvest
 - 0% treatment: initial increase of more than 3°C with a steady return to pre-harvest conditions at 10 years post harvest
- No FP treatment site exceeded 16°C 7DADM. 3 sites in 0% and 1 site in 100% did exceed 16°C 7DADM.

Year	F/N break		
	100%	FP	0%
Post 1	1.2 _{0%}	1.1 _{0%}	3.3
Post 2	0.6 _{0%}	0.9 _{0%}	2.7
Post 3	0.6	0.8 _{0%}	2.0
Post 4	0.6 _{0%}	0.5 _{0%}	1.9
Post 5	0.4 _{0%}	0.5 _{0%}	1.7
Post 6	0.4 _{0%}	0.9	1.3
Post 7	1.1	1.2	1.5
Post 8	0.5 _{FP}	1.2	1.0
Post 9	0.4	0.8	0.9
Post 10	0.1	0.2	0.6
Post 11	0.2	0.6	0.3



Summary the Hard and Soft Studies Findings (temp) - Soft Rock

- 7DADM exceeded 16°C at only one site. This site had the highest 7DADM pre-harvest and the lowest % of buffer.
- 7DTR was 0.3°C or more through fourth year post-harvest
- Immediate temperature response was lower in the soft rock sites than in the hard rock FP treatment sites (0.6°C vs 1.1°C).
 - Likely due to longer and wider buffers in the Soft Rock study
- Temperature returned to pre-harvest conditions sooner.
- As with Hard Rock, shade was the main driver of temperature response.



Summary of Np Workgroup Recommendations

- A Board approved Policy workgroup that included Policy members and subject matter experts
- Reviewed the results of both rock studies and a long list of available literature
- Recommended and encouraged Policy to consider the adoption of a combination of the following three alternatives which the workgroup evaluated for stream temperature, economic impact and windthrow:
 1. A continuous 75-foot buffer with managed outer 25 ft
 2. A continuous buffer that varies from 25 – 75 ft based on stream orientation
 3. A site-specific buffer that retains that portion of buffer that provides effective shade



Summary of Np Workgroup Recommendations

- Workgroup also reported uncertainties. Key points include:
 - Harvest units rarely encompass entire watersheds, and streams and RMZs often form a harvest boundary. Experimental designs may create a study bias and that future examinations of more representative harvest layouts could reduce uncertainty.
 - Acknowledged that stream temperature increases are lower when more riparian vegetation is retained but that this pattern, across many studies, is noisy (isn't entirely clear). Responses are also variable because researchers use different temperature metrics.
 - Considered 7DTR as a reasonable measure of temperature response but didn't consider it as a direct assessment of the measurable change standard. Recommended: obtain larger samples and to evaluate sites that increased in temperature.



Summary of Minority Recommendation

Prescription A: A 75-ft wide, 2-sided, unmanaged continuous buffer when an Np basin greater than 30 acres is to be harvested 85% or more over a 5-year period

Prescription B: 1000-ft buffer: for all other circumstances:

- A 75-ft wide, 2-sided, unmanaged buffer for the first 500 feet upstream of F/N break and a 50-ft wide, 2-sided, unmanaged buffer for the next 500-ft
- Retain ELZ and sensitive site buffers
- Additional 50-ft buffers would be required if an operating area is 2000-ft upstream of F/N break and Np stream length is more than 2000-ft and if 50% buffer objective is not met with ELZ, and sensitive site buffers.

Small Forest Landowner Option: same as prescription A & B above except the buffer configuration is 50-ft wide, 2-sided buffer with the outer 25-ft manageable. Management in the outer 25-ft may remove half the available volume in a “think from above” approach.



Summary of Majority Recommendation

Option 1: A 75-ft, 2-sided, no-harvest buffer on all Type Np streams for the first 600 feet upstream of F/N break or for the lowest 600-ft for isolated Np streams.

Upstream from the first 600-ft, bankful width (BFW) determines the width of a 2-sided buffer:

- Two options for Np streams greater than 3-ft BFW:
 1. A 2-sided 75 ft buffer with the outer 25-ft manageable; or
 2. A 65-ft, 2-sided, fixed-width, no harvest buffer
- For Np streams less than 3-ft BFW, a two-sided 50-ft, fixed width, no harvest buffer
- All existing ELZ, sensitive site, hydraulic project, roads, yarding corridors and unstable slope rules will continue to be applied to the full length of the Np stream

Option 2: A 75-ft wide, two-sided, unmanaged continuous buffer when an Np basin greater than 30 acres is to be harvested 85% or more over a 5-year period



Board Action

- Majority and minority recommendations (required by WAC 222-12-045(D)) are caucus position papers when consensus can't be reached in stage 2 of a dispute
- The program administrator delivered majority and minority recommendations to the Board (October 2022 and August 2023)
- Alternative development process at Policy has now concluded
- WAC 222-12-045(D) states that the Board will make the final determination regarding dispute resolution





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