EASTSIDE TYPE N RIPARIAN EFFECTIVENESS PROJECT (ENREP)

PROJECT CHARTER

Washington State Cooperative Monitoring, Evaluation, and Research Committee (CMER)
Protocols and Standards Manual (PSM)
Chapter 7, Section 4

Project Charter 1[1]: Issue/Problem Statement, Purpose Statement, Project Objectives, Critical Questions, Program Rule Group and Program, Project Tasks and Timeline, Budget, Project Team Roles and Responsibilities, Communication Structure, Authorization, Recognition of Support, References

Oversight Committee: Scientific Advisory Group – Eastside (SAGE)

Project Team Members: Timothy Link, Charles Hawkins, William Ehinger, Paul Robinson, Ian Hellman, Donald Benkendorf, Eastside CMER Scientist (TBD), Emily Hernandez

April 23, 2019

Issue/Problem Statement

The ENREP is needed to determine if, and to what extent, the prescriptions found in the Type N Riparian Prescriptions Rule Group are effective in achieving performance targets and water quality standards, particularly as they apply to sediment and stream temperature in eastern Washington.

Importance of the Issue

Headwater streams make up a large portion of the total stream length and are important sources of sediment, water, nutrients, and organic matter to downstream fish bearing streams (Gomi et al., 2002). Type N Rule Group prescriptions are intended to protect functions provided by the Type N network, yet the effectiveness of the rules remains largely untested. Given the scientific uncertainty of the Type N rules, Cooperative Monitoring, Evaluation and Research Committee (CMER) ranked the Type N Riparian Effectiveness Program first in importance among 16 research programs in the 2014 Work Plan:

[1] The purpose of the Charter is to describe the project and give the PM and the Project Team the authority to begin spending allocated project funds. In general, Project Charters should be brief and updated as needed as the project is implemented to accurately, reliably and concisely communicate projects' basic elements and objectives. (PSM Ch. 7 CMER review5 06_19_2017 final draft) When substantive changes are considered necessary, which amend the scope of the project (i.e. study design, budget, or schedule), the charter should to be updated (version #2, #3, etc.) to communicate those changes.

> *"The effectiveness of the Type N riparian management prescription package is uncertain because there are many gaps in the scientific understanding of headwater streams, their aquatic resources, and the response of riparian stands, amphibians, water quality, and downstream fish populations to different riparian management strategies. Consequently, prescriptions are based on assumptions that have been neither thoroughly studied nor validated".*

Scientific Uncertainties and Complexity

Headwater basins exhibit a particularly large amount of natural variability because they are the landscape elements where hillslope processes transition into stream networks (Montgomery, 1999; Gomi et. al., 2002). The discharge regime of headwater streams exerts fundamental control over a number of functions including water temperature and sediment transport. Although the effect of forest management on discharge has been studied for more than half a century, it is still not possible to fully predict management-related changes in discharge timing or magnitude, because of the large variability in headwater attributes and functions. In addition to the large variability characteristic of all headwater streams, many eastside Type N streams contain varying lengths and configurations of dry channel, and some have no surface connection to the downslope stream network. These hydrologic characteristics introduce added variation and complexity into the relationships between forest practices and aquatic functions including the transport of wood, sediment, thermal energy, nutrients, and detritus, as well as the maintenance of aquatic habitat quality.

Purpose Statement

The purpose of this project is to test the effectiveness of eastside forest harvest prescriptions contained in the Washington State Forest Practices Rules (Title 222 WAC) and to determine the extent to which those prescriptions are effectively achieving performance targets, particularly as they apply to sediment and stream temperature and their effects on aquatic life in eastern Washington. As an effectiveness monitoring project, the ENREP is also expected to inform whether the current rule is effective in meeting these targets.

As with the Westside Type N effectiveness studies, the ENREP incorporates a Multiple, Before-After/Control- Impact (MBACI) experimental design. Spatially blocked sets of treatment and reference sites will be identified and data collection will be conducted for at least two years pre-harvest and two years post-harvest, with a one-year harvest window in between. After this project is completed as currently designed and approved by CMER, Timber, Fish and Wildlife (TFW) Policy, and funded by the Forest Practice Board (Board), additional monitoring beyond two years post- harvest may be considered.

The ENREP is a successor to the eastside Forest Hydrology Study (FHS) which describes the spatial distribution of late summer flow and channel characteristics in eastern Washington Type N streams. As part of the CMER Type N Riparian Effectiveness Program, the ENREP study is a companion to:

- The Westside Type N Buffer Characteristics, Integrity, and Function (BCIF) Project;
- The Westside Type N Experimental Buffer Treatment Project in Hard Rock Lithologies;

- The Westside Type N Experimental Buffer Treatment Study in Incompetent Lithologies.

Project Objectives

The objectives of the project are to quantify the magnitude of change in stream flow, canopy closure, water temperature, suspended sediment transport and wood loading within eastern Washington riparian management zones (RMZ) following harvesting within current rule constraints; and to evaluate the effect of these changes on downstream waters where possible.

Critical Questions

The ENREP addresses the following non-fish-bearing (Type N) Riparian Prescriptions Rule Group critical question from the CMER work plan (CMER 2019-2021 Biennium Work Plan):

- *Are riparian processes and functions provided by Type (Np) non-fish buffers maintained at levels that meet resource objectives and performance targets for shade, stream temperature, large woody debris (LWD) recruitment, litter fall, and amphibians?*

- *Do different types of Type N channels explain the variability in the response of Type N channels to forest practices?*

- *What is the effect of buffering or not buffering spatially intermittent stream reaches in Np streams?*

Additional questions developed by the Study Design team:

- *What is the magnitude of change in water temperature, canopy closure, and stream cover of Type N channels in the first two years after harvest?*

- *What is the magnitude of change in stream flow and suspended sediment export from the Type N basins in the first two years after harvest?*

- *What is the relationship between aquatic life (and their supporting resources) and observed changes in hydrology, sediment, and temperature associated with forest management activity?*

CMER Rule Group and Program

This project is part of the CMER, Type N Riparian Prescriptions Rule Group and Type N Riparian Effectiveness Program.

Project Tasks and Timeline

The following table depicts the tasks, responsible team member for completing the task, and estimated completion dates for work associated with this project.

Task	Responsible Team Member	Estimated Completion Date
Task 1. Conduct initial survey of study basins		
Subtask 1.1. Begin initial survey of all study basins in the Northern Rockies Ecoregion and Eastern Cascades Slopes and Foothills.	Timothy Link (UI) & Charles Hawkins (USU)	Northern Rockies Ecoregion by November 2018. Eastern Cascades Slopes & Foothills by July 2019.
Task 2. Complete Installation of Monitoring Equipment of Biophysical Variables and Complete First Year of Pre-Harvest Monitoring		
Subtask 2.1. Begin installation of all biophysical and aquatic life variables monitoring equipment at all study basins in the Northern Rockies Ecoregion and Eastern Cascades Slopes and Foothills.	Biophysical variables - Timothy Link (UI) Aquatic Life Variables – Charles Hawkins (USU)	Northern Rockies Ecoregion by March 2019. Eastern Cascades Slopes and Foothills by August 2019.
Subtask 2.2. Complete first year pre-harvest and aquatic life monitoring of biophysical variables at all sampling locations in the Northern Rockies Ecoregion and Eastern Cascades Slopes and Foothills study basins.	Biophysical variables - Timothy Link (UI) Aquatic Life Variables – Charles Hawkins (USU)	Northern Rockies Ecoregion by November 2019. Eastern Cascades Slopes and Foothills by November 2020.
Subtask 2.3. Complete QA/QC and data management of first year pre-harvest sampling data.	Timothy Link (UI) & Charles Hawkins (USU)	April 2020
Task 3. Complete Second Year of Pre-Harvest Monitoring		
Subtask 3.1. Complete second year pre-harvest monitoring of biophysical variables at all sampling locations in the Northern Rockies Ecoregion and Eastern Cascades Slopes and Foothills study basins.	Biophysical variables - Timothy Link (UI) Aquatic Life Variables – Charles Hawkins (USU)	Northern Rockies Ecoregion by November 2020. Eastern Cascades Slopes and Foothills by November 2021.
Subtask 3.2. Complete QA/QC and data management of second year pre-harvest sampling data.	Timothy Link (UI) & Charles Hawkins (USU)	Northern Rockies Ecoregion by April 2021. Eastern Cascades Slopes and Foothills by April 2022.
Task 4. Basin Harvest Activities		
Subtask 4.1. Complete harvest period monitoring at all sampling location in the Northern Rockies Ecoregion and Eastern Cascades Slopes and Foothills study basins.	Biophysical variables - Timothy Link (UI) Aquatic Life Variables – Charles Hawkins (USU)	Northern Rockies Ecoregion by November 2021. Eastern Cascades Slopes and Foothills by November 2022.
Subtask 4.2. Complete QA/QC and data management of harvest period sampling data.	Timothy Link (UI) & Charles Hawkins (USU)	Northern Rockies Ecoregion by April 2022. Eastern Cascades Slopes and Foothills by April 2023.
Task 5. Complete First Year of Post-Harvest Monitoring		
Subtask 5.1. Complete first year post-harvest monitoring of biophysical variables at all sampling location in the Northern Rockies	Biophysical variables - Timothy Link (UI)	Northern Rockies Ecoregion by November 2022.

Ecoregion and Eastern Cascades Slopes and Foothills study basins.	Aquatic Life Variables – Charles Hawkins (USU)	Eastern Cascades Slopes and Foothills by November 2023.
Subtask 5.2. Complete QA/QC and data management of first year post-harvest sampling data.	Timothy Link (UI) & Charles Hawkins (USU)	Northern Rockies Ecoregion by April 2023. Eastern Cascades Slopes and Foothills by April 2024.
Task 6. Complete Second Year of Post-Harvest Monitoring		
Subtask 6.1. Complete second year post-harvest monitoring of biophysical variables at all sampling location in the Northern Rockies Ecoregion and Eastern Cascades Slopes and Foothills study basins.	Biophysical variables - Timothy Link (UI) Aquatic Life Variables – Charles Hawkins (USU)	Northern Rockies Ecoregion by November 2023. Eastern Cascades Slopes and Foothills by November 2024.
Subtask 6.2. Complete QA/QC and data management of second year post-harvest sampling data.	Timothy Link (UI) & Charles Hawkins (USU)	Northern Rockies Ecoregion by April 2024. Eastern Cascades Slopes and Foothills by April 2025.
Task 7. Data Analysis and Report Writing		
Subtask 7.1. Complete data analysis.	Timothy Link (UI) & Charles Hawkins (USU)	TBD
Subtask 7.2. Participate with other collaborators on preparation of draft report for SAGE and CMER review.	Timothy Link (UI) & Charles Hawkins (USU)	TBD
Subtask 7.3. Participate with other collaborators on a presentation of all report components at a CMER meeting.	All team members	TBD
Subtask 7.4. Participate with other collaborators to revise draft report to address comments from SAGE and CMER. At a minimum, response to SAGE and CMER comments will include, preparation of a revised draft report and comment matrix.	All team members	Completed within 60 days of receipt of SAGE and CMER comments.
Subtask 7.5. If necessary, participate with other collaborators to address any remaining comments from SAGE and CMER re-review of revised report.	All team members	Completed within 30 days of receipt of SAGE and CMER comments.
Task 8. ISPR Review and Final Report		
Subtask 8.1. Participate with other collaborators to prepare a draft report for transmittal to ISPR for peer review.	All team members	Completed within 30 days of receipts of CMER approval.
Subtask 8.2. Participate with other collaborators to revise draft report to address ISPR comments. At a minimum, response to ISPR comments will include preparation of a revised draft report and comment matrix.	All team members	Completed within 60 days of receipt of ISPR comments.

Subtask 8.3. If necessary, participate with other collaborators to address any remaining comments from ISPR re-review of revised report.	All team members	Completed within 30 days of receipt of ISPR comments.
Task 9. Findings Report and Presentation at Policy		
Subtask 9.1. Participate with other collaborators on preparation of draft findings report for SAGE and CMER review.	All team members	Completed within 60 days of receipt of final ISPR approval of final report.
Subtask 9.2. Participate with other collaborators to revise draft findings report to address comments from SAGE and CMER. At a minimum, response to SAGE and CMER comments will include preparation of a revised findings report and comment matrix.	All team members	Completed within 60 days of receipt of SAGE and CMER comments.
Subtask 9.3. Participate with other collaborators in presentation at a TFW Policy meeting.	All team members	Completed within 30 days of CMER approval of the Findings Report.
Subtask 9.4. Transfer of all final reports, presentations, data (raw and QA/QC) and return of all DNR owned equipment to DNR Project Manager.	Timothy Link (UI) & Charles Hawkins (USU)	June 2026

Dates subject to change.

Budget

Policy approved budget for Fiscal Year (FY) 18/19:

FY18	FY19	Total
$297,680	$632,886	$930,566

Budget spent to date (as of March 7, 2019):

FY18	FY19	Total
$45,344.01	$324,992.37	$370,336.38

Policy proposed budget for FY20/21:

FY20	FY21	Total
$907,968	$723,434	$1,631,402

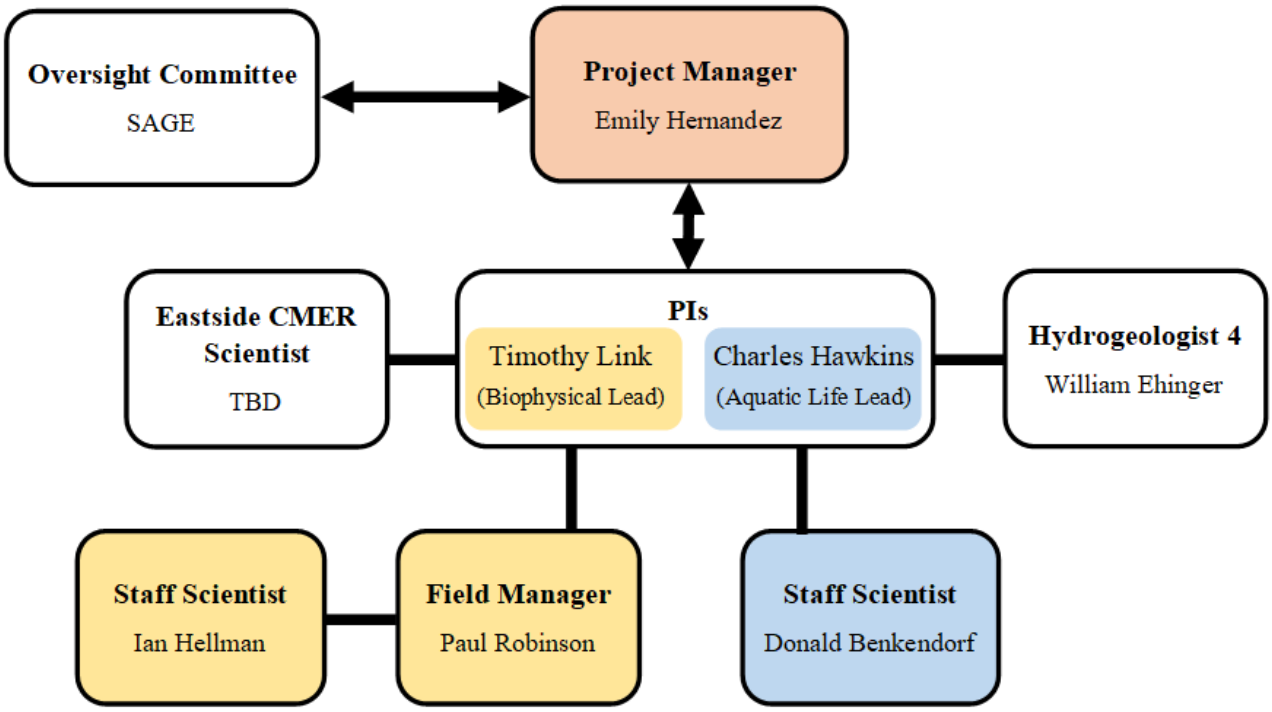
Project Team Roles and Responsibilities

Position	Roles and Responsibilities
Project Manager (PM): Emily Hernandez	• Monitors project activities and the performance of the Project Team • Communicates progress, problems, and problem resolution to the Adaptive Management Program Administrator (AMPA), CMER, and SAGE • Works with SAGE/CMER, and Project Team to help develop Project Charter and Project Plan, and keeps them updated • Works with the AMPA, SAGE/CMER, and Project Team to develop and review proposals, RFPs or RFQQs, review contractor proposals, monitor contract performance, and provide input on budgeting, schedule, scope changes, and contract amendments • Works with SAGE, CMER, and Project Team (including PIs, contractors, and other Team members) to resolve problems and build consensus • Works with PI and Project Team members to develop interim and final draft reports • Ensures communication between all team members is clear, concise, and consistent • Maintains contact and process access agreements, once site access is granted • Ensures coordination between SAGE/CMER, Project Team and landowners • Coordinates all technical reviews and responses in a timely fashion • Facilitates archiving of all data and documents • Ensures that contract provisions are followed • Provides direction and support to the Project Team to achieve clear and specific scopes of work, schedules, and budgets within approved contracts • Coordinates and/or authorizes communication with all project-related contractors. • Maintains sole responsibility for all aspects of project management even if other individuals are completing or helping complete parts of the project
Principal Investigators (PIs): Timothy Link, University of Idaho (UI) Charles Hawkins, Utah State University (USU)	• Executes the technical and scientific components of the project according to the Project Plan • Works with the PM and SAGE to identify additional technical expertise and time commitments needed • Provides materials need by the PM • Helps implement study design, including site selection, data QA/QC, managing field crews, and data collection and analysis • Oversees field crew training for implementation of data collection

	• Oversees and conducts data analysis and QA/QC of data provided by field staff
	• Prepares quarterly summary and progress report of project status
	• Leads in the development and writing of interim and final draft reports
	• Presents technical findings to SAGE, CMER, and TFW Policy as necessary
	• Works with the PM to coordinate the site selection process
	  ○ Acts as team/project contact with all landowners for communication associated with identifying potential study sites, access permissions, and key acquisitions necessary
	  ○ Completes field reconnaissance, analysis, and communicates the results of the selection of study basins in East slope Cascade Ecoregion to the Project Team
	  ○ Functions as POC with landowners for final agreement on use of private/state/tribal lands
	• Works with PM to acquire and maintain landowners (private, state, federal, tribal) permission to use specific sites for CMER research
	• Communicates project status and issues to the PM and Project Team

Hydrogeologist 4: William Ehinger, Washington State Department of Ecology	• Support role that provides technical assistance to the Project Team ○ Participates in the development of specific sampling plans • Participates in data analysis phase of project • Assists PIs with writing and reviewing reports
Eastside CMER Scientist: TBD	• Support role that provides technical assistance to the Project Team as directed by the PM • Participates in the data analysis phase of project • Assists PIs with writing and reviewing reports
UI Field Manager: Paul Robinson, University of Idaho	• Supervises field crews • Manages UI project budget • Conducts site assessments • Collects biophysical data • QA/QCs and manages field data • Installs, operates, and maintains field equipment
UI Staff Scientist: Ian Hellman, University of Idaho	• Supervises field crews • Conducts site assessments • Collects biophysical data • QA/QCs and manages field data • Installs, operates, and maintains field equipment
USU Staff Scientist: Donald Benkendorf, Utah State University	• Conducts site assessments • Collects aquatic life data • QA/QCs and manages field data • Installs, operates, and maintains field equipment

Communication Structure



The PM provides assistance to Project Team members by coordinating communication between project participants (e.g. one-on-one and group meetings, conference calls, etc.). The PM is responsible for ensuring that communication between all team members is clear, concise, and consistent. The PM also ensures that any communication resulting in a formal decision about the project occurs in a transparent and inclusive way (PSM Ch. 7, Sec. 6.3). For the purpose of the ENREP project, the PM is responsible for facilitating open and transparent communication between SAGE and the Project Team members.

Authorization

The Board has empowered the CMER and the TFW Policy to participate in the Adaptive Management Program (AMP) (WAC 222-12-045(2)(b)). CMER is responsible for completing technical information and reports for consideration by TFW Policy and the Board. CMER has been tasked with completing a programmatic series of work tasks in support of the AMP; these tasks are outlined in CMER's annual work plan already approved by TFW Policy and the Board. This project has been listed under ENREP in CMER's work plan.

Recognition of Support

Committee	Date of Acceptance	Reference
SAGE	April 9, 2019	April 2019 meeting minutes
CMER	April 23, 2019	April 2019 meeting minutes
TFW Policy		

References

Cooperative Monitoring Evaluation and Research (CMER) Committee. (2013), Fiscal Year 2014 Work Plan. http://www.ndr.wa.gov/publications/bc_CMER_WorkPlan.Pdf.

Cooperative Monitoring Evaluation and Research (CMER) Committee. (January 2019), 2019-2021 Biennium Work Plan. https://www.dnr.wa.gov/publications/fp_cmer_2019_2021_workplan_20190119.pdf?o9uq19w.

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Montgomery, D.R. (1999), Process Domains and the River Continuum, Journal of the American Water Resources Assocation, 35(2), 397-410.

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WAC 222-12-045. April 2013. http://apps.leg.wa.gov/wac/default.aspx?cite-222-12-045.