

Water Temperature and Amphibian Use in Type Np Waters with Discontinuous Surface Flow Project

PROJECT CHARTER

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

Project Charter 1¹: 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: Landscape and Wildlife Advisory Group (LWAG)

Project Team Members: Welles Bretherton, William Ehinger, Stephanie Estrella, Heather Gibbs (PM), Aimee McIntyre (PI), Reed Ojala-Barbour (PI)

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Version 1.3

Issue/Problem Statement

The Forest Practices (FP) Habitat Conservation Plan (HCP) riparian strategy for Type Np Waters (i.e., perennial non-fish-bearing streams) outlines prescriptions that are intended to protect the most ecologically sensitive segments of Type Np streams and associated aquatic resources. High priority areas for riparian management zone (RMZ) protection include the lower reaches of Type Np Waters immediately above the confluence with Type S (i.e., shorelines of the state) or Type F (i.e., fish-bearing) Waters and designated sensitive sites including side-slope seeps, headwall seeps, headwater springs, Type Np intersections, and alluvial fans. However, at the time of FP HCP negotiations, data and/or published literature supporting the designation of high priority areas were limited. Both the *Type N Experimental Buffer Treatment in Hard Rock Lithologies* (Type N Hard Rock Project) and *Type N Experimental Buffer Treatment in Incompetent Lithologies* (Type N Soft Rock Project) evaluated the overall basin-wide effectiveness of current FP rules for Type Np streams. Although both included study sites having a discontinuous network of riparian buffers of variable length, neither study examined buffer effectiveness at the reach scale, specific to the placement of riparian buffers in high priority areas. Further, the distribution and length of intermittent stream reaches (i.e., perennial stream reaches with discontinuous surface flow) varied among Type Np study basins. Information about the effectiveness of retaining buffers on intermittent stream reaches is essential for assessing ecological outcomes and the relative costs and/or benefits of the HCP riparian strategy.

Importance of the Issue

This project will inform the Overall Performance Goals to meet or exceed water quality standards and to support the long-term viability of other covered species, which includes FP-designated stream-associated amphibians, by evaluating water temperature and amphibian use of intermittent stream reaches of Type Np streams. Type Np Waters are perennial streams that do not go dry at

¹ The purpose of the Charter is to describe the project and give the Project Manager (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. (Protocol and Standards Manual; PSM Ch. 7 CMER review5 06_19_2017 final draft). When substantive changes that amend the scope of the project (i.e. study design, budget, or schedule) are considered necessary, the charter should to be updated to communicate those changes (e.g., version #2, #3).

any time of a year of normal rainfall and include the intermittent dry portions of the perennial channel below the uppermost point of perennial flow (WAC 222-16-010). Hunter and colleagues (2005) found that, during periods of low flow, intermittent stream reaches frequently occurred near the origin of headwater streams (i.e., the Perennial Initiation Point (PIP)), and that they exhibited one of two spatial patterns of surface flow, i.e., a single dry reach located adjacent to the PIP or flowing sections interspersed with dry sections. While some existing and planned CMER research studies did/or plan to collect information relative to spatial intermittency and amphibian use, not all existing studies reported on these data. The frequency and distribution of intermittently flowing reaches of Type Np streams may affect stream physical characteristics and biota. Furthermore, the incidence, timing and locations of intermittently dry Type Np stream reaches in relation to the placement of riparian buffers has not yet been considered. These uncertainties motivate work in Fiscal Year (FY20), which includes a synthesis of existing data from CMER-supported studies and other published literature. This is a data and literature synthesis project and inference will be limited largely to the study sites included in previous studies. The intent is to provide valuable information for evaluating the need and/or desire for future evaluations of the contributions of stream intermittency to water quality and amphibian population viability. The topic of the frequency, distribution and effects of intermittent reaches on instream characteristics and biota should be of interest to those wishing to consider the ecological benefits and economic costs of the current riparian buffer prescription for Type N streams relative to potential alternatives. This project will inform the effectiveness of FP rules for riparian buffer placement on Type Np Waters, including insights on buffer placement to maximize resource protection to support the Overall Performance Goals of meeting water quality standards and the long-term viability of covered species. The literature/data summary will inform a Scoping Paper, which may be used by CMER and Timber, Fish and Wildlife Policy (Policy) to identify needs and priorities for potential allocation of funds in future biennia for implementation of a field study to evaluate the effects of intermittent stream reaches on stream temperature and FP-covered amphibian use on the FP HCP landscape. This work will also provide important context for informing possible future modifications of or additions to related critical questions in the CMER work plan.

Purpose Statement

The scope of work (SOW) in the current charter is to: (1) provide a synthesis and summary of existing data (from CMER-supported studies and information from published literature) and (2) develop a Scoping Paper using results from the synthesis. The Scoping Paper will further narrow the findings from these CMER studies and peer-reviewed literature to provide a focused summary and recommendations for possible future study context and development based on the current best available science (BAS). The Scoping Paper will be written according to CMER protocols with CMER and Policy as the intended audience. This is a Clean Water Assurance (CWA) Milestone project that was recently prioritized by Policy.

CMER and Policy will use the completed Scoping Paper, including an alternatives analysis, to assess the value of a field study. If interest exists, a Study Design would then be developed, for which funding has been allocated in the CMER Master Project Schedule (MPS) for FY21. LWAG and CMER anticipate that a study specific to intermittent stream reaches would include an on-the-ground field evaluation of intermittent streams, identification of spatial and temporal patterns of intermittency, and potential influence of these patterns on water temperature (to address the water

quality standards Overall Performance Goal) and amphibian use (to address the long-term viability of covered species Overall Performance Goal).

Project Objectives

We propose to:

- Extract and summarize data from CMER-sponsored studies that measured water temperature in or around, and/or stream-associated amphibian use of, intermittent stream reaches of Type Np Waters,
- Conduct a review of peer-reviewed publications focused on water temperature in or around, and/or stream-associated amphibian use of, intermittent stream reaches of Type Np streams,
- From our data summary and literature review we will inform the following related to intermittent stream reaches of Type Np Waters:
 - the frequency of occurrence,
 - spatial and temporal patterns of intermittency (i.e., both intra- and inter-seasonal variation),
 - stream temperature within and downstream of,
 - stream-associated amphibian use, and
 - how the incidence of intermittent reaches has overlapped with riparian buffers under current FP rules (i.e., buffers on sensitive sites and high priority RMZs).
- If possible, the review will include a summary of the relative impacts of stream-side harvest or buffer retention on water quality and amphibian use of intermittent reaches.

Critical Questions

Though a future study has not been prioritized or funded, there are critical questions related to the issue of stream intermittency in the current CMER Work Plan (CMER 2019-2021 Biennium Work Plan):

- *What is the effect of buffering or not buffering spatially intermittent stream reaches in Type Np streams? (Type N Riparian Prescriptions Rule Group and Type N Riparian Effectiveness Program – Westside Critical Questions)*
- *How do stream-associated amphibians (SAAs) utilize intermittent stream reaches near the origins of Type N (headwater) streams? (Type N Amphibian Response Program Critical Question)*

As a part of the Scoping Paper development we will review critical questions and may suggest revisions or additions during the Work Plan biennial update based on data summary and literature review.

CMER Rule Group and Program(s)

This project is part of the CMER, Type N Riparian Prescriptions Rule Group, and the Type N Riparian Effectiveness and Type N Amphibian Response Programs (Effectiveness).

Project Tasks and Timeline

Table 1. Summary depicting initial project tasks, team members responsible for completing the task, and estimated completion dates associated with each task. Indicated dates are preliminary and subject to change pending charter approval and other circumstances that may affect the timeline.

Task	Responsible Team Member	Estimated Completion Date
Task 1. Summarize data from existing CMER projects and review published literature to provide best available science (BAS) for study context and development.		
Subtask 1.1. Summarize findings from published literature and Type N-related CMER studies (e.g., Type N Hard and Soft Rock Projects).	PI	FY22
Task 2. Develop Scoping Paper for CMER and Policy.		
Subtask 2.1. Narrow findings from Task 1 to inform recommendations and alternatives for possible future study context and development based on the current BAS.	SAG/PI	FY22

Budget

Table 2. Funding spent to date. Full contract amount for FY20-21 was \$45,000, but \$23,977 was not spent. Work will be completed with WDFW in-kind support.

FY20 (Spent)	FY21 (Spent)	FY22	Total
\$5,173	\$15,850	\$0	\$21,023

Table 3. Budget spent to date (as of October 9, 2019). Early project documents are available in the CMER Information Management System (IMS).

FY07
\$30,000

Table 4. Policy proposed budget for study design development, if approved. Note that the projected budget and timeline is a placeholder based on the budget reflected in the FP Board approved FY22-23 Master Project Schedule (MPS). A more detailed and refined budget will be developed concurrent with study design development for potential field implementation.

FY25	Total
\$80,000	\$80,000

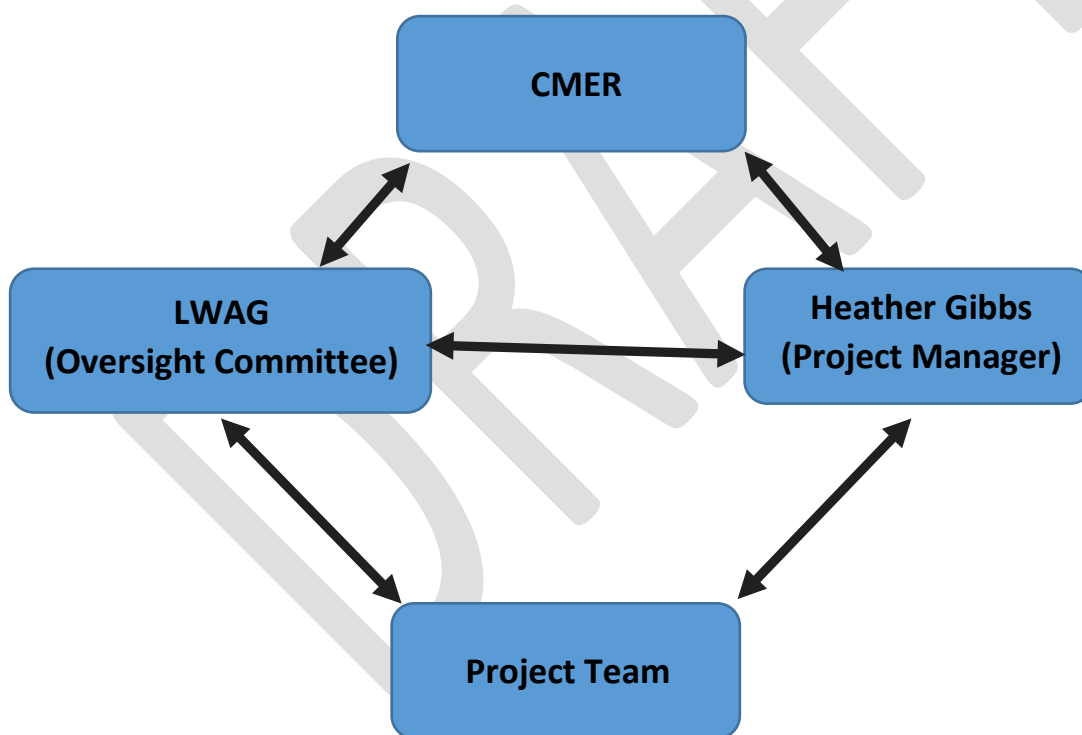
Project Team Roles and Responsibilities

Table 5. Summary of PM and PI roles and responsibilities. Though PIs have yet to be identified, desired qualification include persons experienced in: water quality monitoring and aquatic ecology, stream-associated amphibian monitoring and amphibian ecology, forest practices rules in Washington State, and the state Adaptive Management Program (AMP)/CMER.

Position	Roles and Responsibilities
Project Manager (PM): Heather Gibbs	<ul style="list-style-type: none"> • 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 LWAG • Works with LWAG/CMER, and Project Team to develop Project Charter and other managing documents, and keeps them updated • Works with the AMPA, LWAG/CMER, and Project Team (including PIs, contractors, and other Team members including CMER science staff) to develop and review proposals, RFPs or RFQs, review contractor proposals, monitor contract performance, and provide input on budgeting, schedule, scope changes, and contract amendments • Works with LWAG, CMER, and Project Team to resolve problems and build consensus • Works with PI and Project Team to develop interim and final draft reports • Ensures communication between team members is clear, concise, and consistent • Coordinates technical reviews and responses in a timely fashion • Facilitates archiving of 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 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): Aimee McIntyre, Reed Ojala-Barbour	<ul style="list-style-type: none"> • Executes the technical and scientific components of the project according to the Implementation Plan • Works with the PM and LWAG to identify additional technical expertise and time commitments needed • Provides materials needed by the PM • Prepares quarterly summary and progress reports of project status

	<ul style="list-style-type: none"> • Leads in the development and writing of the Scoping Paper • Present study progress and/or findings to LWAG, CMER, and Policy • Communicates project status and issues to the PM and Project Team
Project Team Members: Welles Bretherton, William Ehinger, Stephanie Estrella	<ul style="list-style-type: none"> • Assist with identification of CMER-related studies, peer reviewed literature, white papers, reports and theses. • Provide technical and statistical expertise for successful development of project components. • Assist with writing and review of Scoping Paper, implementation plan, communication plan, and prospective findings report six questions. • Provide constructive and timely feedback. • Assist with communicating project information to LWAG and CMER as needed. • Participate in project meetings and conference calls.

Communication Structure



Authorization

The Forest Practices Board (Board) has empowered CMER and Policy to participate in the AMP (WAC 222-12-045(2)(b)). CMER is responsible for providing technical information and developing reports for consideration by 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 biennial work plan approved by Policy and the Board. This project is identified as the "Amphibians in Intermittent Streams Project" in CMER's work plan.

Recognition of Support

Committee	Date of Acceptance	Reference
LWAG	1/13/2020	meeting minutes
CMER	1/28/2020	meeting minutes
TFW Policy	2/7/2020	meeting minutes

Updates

- Charter first approved by CMER in January 2020 (Charter version 1).
- Charter was updated in September 2020 to reflect new project title (Charter version 1.2)
- Charter was updated in August 2021 to reflect changing project team members, and updated timeline and budget (Charter version 1.3 – this draft)

References

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.

Hunter, M.A., T. Quinn and M.P. Hayes. 2005. Low flow spatial characteristics in forested headwater channels of southwest Washington. *Journal of the American Water Resources Association* 41(3):503-516.

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https://geo.nwifc.org/Docs/CMER_Doc/CMER_TOC/Documents/Table_of_Contents/TOC_AmphibiansinIntermittentStreams.pdf

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WAC 222-12-045. October 2019. <https://apps.leg.wa.gov/wac/default.aspx?cite=222-12-045>.

WAC 222-16-010. October 2019. <https://apps.leg.wa.gov/wac/default.aspx?cite=222-16-010>