Timber, Fish, & Wildlife Policy Committee
May 2, 2019 Approved Meeting Summary
v.5.30.19

Action	Responsibility
Connect Policy members who are interested in participating in the AMPA hiring process with Joe Shramek.	Policy Co-Chairs
Review the Board meeting notes in which the Board gave the AMPA the authority to move 10% of the AMP budget and report back to Policy.	Marc Engel
Amend the Policy report to the Board to inform the Board that Policy conducted an ENREP project review with project staff at its May meeting.	Terra Rentz and Curt Veldhuisen
Send an update on Extended Monitoring to Policy via email.	Curt Veldhuisen

Decision	Notes
Approve the April meeting summary.	The Eastside Tribal caucus and Federal caucus were absent; all other caucuses voted thumbs up.
Accept the ENREP project charter.	The Eastside Tribal caucus and Federal caucus were absent; all other caucuses voted thumbs up.

Welcome, Introductions, & Old Business – Policy Co-Chairs Curt Veldhuisen, Skagit River System Cooperative (SRSC), and Terra Rentz, Washington Department of Fish and Wildlife (WDFW), opened the meeting and reviewed the day's agenda.

Policy reviewed the April meeting summary and made minor edits. The group discussed a motion regarding the budget that was tabled in the April meeting that was not reflected in the meeting summary. The representatives who made and seconded that motion did not request a change to the meeting summary.

Decision: Approve the April meeting summary as amended. The Eastside Tribal caucus and Federal caucus were absent; all other caucuses voted thumbs up.

A Policy representative asked whether Policy's proposed AMP budget is impacted by the budget approved in the legislative session. Terra responded that the agencies are still reviewing the committee reports regarding the legislative budget. Joe Shramek, Department of Natural Resources (DNR), shared that the budget approved for DNR impacts the agency's operational programs, but likely not CMER or the Adaptive Management Program (AMP). DNR may need to submit a supplemental request. Joe does not see a need for Policy to change its recommendation to the Board based on the recent legislative budget.

AMPA Position Description and Hiring – Joe Shramek, DNR, provided an update on the AMPA position recruitment process and position description. He shared an organizational chart showing the current arrangement of the AMP team reflecting several roles changes among AMP staff (see Attachment 2). Joe has been in close communication with the Policy Co-Chairs and Jim Peters, Northwest Indian Fisheries Commission (NWIFC), regarding the hiring process. Joe announced that Howard Haemmerle, DNR, will continue serving as the acting AMPA through July 31, 2019. In addition to the AMPA position, DNR seeks to fill the Environmental Planner 5 position and, internally, the Environmental Planner 3 (non-permanent). Additional positions that may be added to the chart include the CMER Eastside Scientist and the Administrative Assistant II proposed by Policy.

The AMPA position description was posted on Thursday, April 25, 2019. The position will close on May 17, 2019. If the recruitment is not successful, DNR will engage talent acquisition services. DNR hopes to make an offer by mid-August and have the new employee begin in mid-September. Joe reminded Policy that there will be a vacancy in the AMPA position on August 1, when Howard Haemmerle retires.

Joe noted that the AMPA position description highlights the role of the AMPA to work closely with NWIFC CMER scientists and the DNR Office of Finance, Budget and Contract Specialist.

Joe described the following steps of the recruitment process.

- Assemble a panel of externally facing individuals to help conduct the first round of interviews. DNR seeks representatives from Policy and CMER to sit on this panel.
- Engage with employees that the position supervises.
- Review a narrowed list of applicants with Stephen Bernath, Forest Practices Board Chair. DNR may recruit other Board members to help review the list.

Jim Peters noted that the CMER Geologist job description is out for recruitment. NWIFC will also be reviewing the position description for the administrator of the CMER program.

Policy members presented the following questions and comments.

- How have developments in the AMP shaped what you seek in the optimal candidate?
    - Joe answered that DNR seeks a person who can ensure continuity in the AMP, who is well suited to help others understand the adaptive management process and implement it. They should have experience with problem solving, supervision of staff, and contract procurement and be able to navigate and carry out the responsibility of a multi-million-dollar research program.
    - Jim expressed that a key to this position is skillful communication between all the entities in the AMP.
- Who is the appointing authority?
    - Stephen Bernath, Forest Practices Board Chair. Everyone at the Washington Management Service (WMS) classification is appointed by a deputy or higher.
- Is there anything in the AMP program structure to compensate for skills that the chosen candidate might not have?
    - The Forest Practices division has many skilled employees and DNR plans to facilitate the new AMPA learning from other staff. DNR seeks a candidate who can work sustainably in the AMP environment.
- A Policy representative expressed the importance of process leadership and that the AMPA ensures that communication is coordinated and transparent.

Terra asked that Policy representatives let the Co-Chairs know if they are interested in contributing to the hiring committee from mid-June to mid-July. Rich Doenges, Department of Ecology (Ecology), and Darin Cramer, Washington Forest Protection Association (WFPA), expressed interest.

Action: Terra Rentz and Curt Veldhuisen will connect Policy members who are interested in participating in the AMPA hiring process with Joe Shramek.

CMER Update – CMER Co-Chairs, Jenny Knoth, Green Crow, and Doug Hooks, WFPA, provided Policy with an update from the April 23 CMER meeting. Highlights are listed below.

- CMER welcomed Howard Haemmerle as the acting AMPA.
- CMER is reviewing its ground rules to see if any adjustments are necessary.
- CMER approved the Extensive Riparian Status and Trends Monitoring Stream Temperature report and has directed the Riparian Scientific Advisory Group (RSAG) to prepare the findings report for Policy.
- The Riparian Characteristics and Shade study design is in review and will go next to the Independent Scientific Peer Review (ISPR) team. CMER seeks approval of an initial draft by the end of June 2019.
- CMER approved the Eastside Type N Riparian Effectiveness Project (ENREP) charter contingent upon some clarifications with the project statement and the roles of positions that are not part of the project team. Jenny noted that major amendments to the charter or budget by the project team would need to come back to CMER for recognition and approval. In May, CMER will review the charter approval process.
    - CMER plans to arrange a CMER-Policy workshop with help from Ash to review Chapter 7 of the CMER Protocol and Standards Manual, which discusses communication protocol between project teams, CMER and Policy.
- CMER had two science presentations. Dana Warren, Oregon State University (OSU), presented on early seral forest management and how light affects the food web. Dr. Ashley Coble, National Council for Air and Stream Improvements (NCASI), presented on the response of aquatic biota to alternative riparian management.
- CMER was informed that the wetlands work to which Policy approved allocation of unspent funds will not be completed due to capacity issues with staffing and seasonal misalignment. This means that there continues to be unspent funds in General Fund State. These funds will be lost if they cannot be used by June 30, 2019.
    - A Policy representative asked whether it is possible to redirect these funds toward further Light Detection and Ranging (LiDAR) flights. Doug Hooks responded that CMER is not certain this data would be valuable given the delay in the first half of the project.
    - Howard Haemmerle, acting Adaptive Management Program Administrator (AMPA), noted that some unspent funds are being used to purchase equipment for several other projects.
- The Extensive Monitoring project on the Olympic Experimental State Forest (OESF) is proceeding as planned.
- CMER is soliciting nominations for the next co-chair rotation.

Terra Rentz noted that the Policy and CMER Co-Chairs have been discussing how CMER and Policy can better communicate to avoid project delays in the future.

A Policy representative asked about the process of spending approved allocations of unspent funds within the AMP. Howard clarified that the AMPA works with the project team and CMER to review which projects are ahead of schedule in implementation, what equipment they need, and how shelf stable that

equipment is. Doug Hooks noted that CMER approved a checklist of questions that should be addressed when considering extensive monitoring, which Policy will review at a future meeting.

ENREP Policy Workshop – Policy heard a project update from members of the ENREP project team, including Tim Link, University of Idaho, Bill Ehinger, WDFW, Emily Hernandez, DNR, and Greg Stewart, former CMER scientist at NWIFC. The project team members gave a presentation on the status and progress of the project, including the purpose and critical questions, the study design, project team roles and responsibilities, study site specifics, and the updated budget for the 2020-2021 biennium. Please see the attached slides for details.

Policy representatives presented the following questions and comments.

- When Type N waters are mentioned does it mean Np in the context of this project?
    - Yes.
- Is this project's number of employees typical for AMP projects?
    - Howard Haemmerle responded that the number of employees depends on the technical nature of the study and what team structure will best accomplish the project goals.
- Are the sites paired?
    - Yes, sites are defined as a pair of watersheds.
- How do these sites fit in with the findings from the hydrology study characterizing streams on the eastside? Can you fit these sites within that context?
    - Greg Stewart responded that the 2013-15 study looked at seasonal flow with no downstream connection to fish-bearing waters. Regarding the ENREP study design, there was interest in the idea of not buffering dry reaches. The study design seeks to evaluate the effect of having clear cuts on dry reaches.
- The study design discusses treatments in different ways. Can you elaborate on the differences in buffer sizes?
    - Treatment will all align with the Washington Forest Practices Act (FPA). The project team will know more specifics about which reaches will be buffered after meeting with the landowners (Hancock Forest Management and Inland Empire Paper) to determine harvest plans.
- How often do you need to replace the batteries in the monitoring equipment?
    - About three times every two months.
- By "unharvested," are you referring to sites that have never been harvested, or are second-growth sites?
    - Second growth; all have been harvested.
- How does adding to the original amount of data variables increase cost?
    - There is a slight increase in data management costs, but not much else.
- Has the building of access roads been discussed with the landowners?
    - Roads have been built to some sites, but the team will still need to use vehicles because of nearby recreational areas and other site specifics. Tim clarified that there are distinct access and distance issues at different sites.
- What would be the impact of dropping the site that is hardest to reach (Coxit)?
    - The study would lose data at one of the drier sites. The Coxit site does not fill a key gap in the study, but it helps to have multiple sites that provide data in a given category.
    - Other sites that could be considered in place of the Coxit site are in the northern Rockies.
- Will you be creating a model comparing reference sites to each other?
    - We could try to create such a model, but the reference sites are quite different from each other.

Policy discussed its prior action regarding ENREP. Policy did not review the ENREP critical questions last year when the findings report came to Policy in April 2018, likely because there was not an imminent decision item at the time. Policy representatives expressed interest in highlighting findings reports and cover sheets in order for Policy to stay updated on projects. The Co-Chairs noted that Policy should review the study questions when the study design and preliminary findings reports first become available.

Policy then reviewed the Prospective Answers to 6 Questions from the CMER/Policy Interaction Framework Document (see Attachment 3). The group discussed the following questions and comments.

- Who is responsible for maintaining purchased equipment? Where would the all-terrain vehicles be stored? How will maintenance costs affect the budget? Are there requirements for staff to take safety trainings?
    - Tim explained that DNR would purchase the equipment and University of Idaho staff would use and maintain it for the duration of the project. After the project, then the vehicles return to DNR. Details about how the vehicles would then be used have not been defined.
    - DNR would seek a guarantee that staff are certified to operate the all-terrain vehicles.
- A Policy representative expressed concern that the results of the study as currently designed would not be helpful for the amount of money that it will cost.
- It was clarified that the clear-cut option within Forest Practices rules allows for a no-cut zone threshold of 300 continuous feet. Desired Future Condition (DFC) must be met within the 50-foot leave areas.
- The group discussed the inclusion of macro- and micro-invertebrates in non-fish streams in the study. Representatives questioned the need to study these in streams where there are no fish. Greg noted that after much debate about the project in Policy and CMER, aquatic life was included in the study design.
- A Policy representative requested a better process for archiving important study documents. The Co-Chairs stated this could be a conversation for a future meeting.

Tim Link summarized the major cost increases for the project by line item. These include the following items.

- Salary costs: These are lower for the year of 2020 because there are fewer sites than anticipated and therefore fewer staff working on site.
- Personnel time: increased travel time to the Coxit site
- Salaries and fringe benefits: $10,000 per year. This was set by the Department of Health and Human Services at the federal level, likely to account for increased health insurance costs.
- Equipment: Includes batteries (which were not included in equipment previously ordered), track vehicles for winter access (requested two for safety, listed under non-expendables), and low-flow measurement devices.
- Supplies: Includes solar radiation shields for air temperature sensors and emergency safety gear.
- Travel: Includes two people per trip rather than one and an increased number of trips. Winter trips require motel stays rather than camping. Tim hopes this increase would lessen in future years as the team gets used to using the equipment.
- Additional direct costs: The team requested Mark Tepley to set up measurement sites for riparian characterization. This would be a higher initial cost and decrease in future biennia. The team could assign monitoring tasks to a new CMER scientist if possible.
- Indirect costs: Overhead from the University of Idaho and Utah State University.

Policy continued to discuss further questions for the ENREP team. Tim Link and Howard Haemmerle provided clarification on Policy representatives' concerns.

Policy representatives then shared their positions on ENREP. Comments are summarized below by caucus.

- The Industrial Landowners caucus representative shared his opinion that he does not feel comfortable moving the project forward at its proposed budget given what will result from the study. He would prefer that the project include more sites that connect to downstream effects, as affected disconnected streams present a low risk to the resource.
- Ecology pointed out that this project is important because it is a Clean Water Act (CWA) Assurances project. Aquatic life is an important part of CWA. Ecology does not like the price increase but understands that much of it is due to a fund shift.
- The Small Forest Landowner caucus remembered that the Eastside Tribes were very supportive of the ENREP project. However, their representative shares the concern stated by the Industrial Landowners caucus representative. He believes a study of this type is needed, but the questions need to be revisited, or the study redesigned to connect to downstream waters.
- WDFW stated that micro-invertebrates are important for water quality and ecosystem health and disagreed with the assumption that disconnected streams are not valuable. They should be studied and addressed as a unique situation.
- The Conservation caucus felt that it is not Policy's place to recommend changes to the entire project simply because of a budget increase.
- The Westside Tribal caucus had been following the lead of the Eastside Tribes, who were originally supportive of this project, though there is no longer much communication between the two caucuses' policy teams. The Westside Tribal caucus wants to support CWA projects, but is cautious about moving forward with a study that is unclear whether the study will provide the answers they are looking for.
    - Howard Haemmerle reminded Policy that the Scientific Advisory Group – Eastside (SAGE), which oversees this project, includes Eastside Tribal representatives.
- The DNR caucus expressed support for a revisit of the study design to make sure that it will provide the answers Policy needs. DNR also stated that this type of workshop would be useful for every large study.
- The Counties caucus expressed discomfort with the cost increase on this project and does not feel it would be financially responsible to approve the increased budget due to the impacts it would have on the rest of the MPS.

Terra reminded the group that Policy has no required action except to approve the ENREP charter. If Policy would like to amend the biennial budget, it could do so with a motion.

Policy discussed the fund shifts that occurred in the ENREP budget. This includes CMER staffing costs that were shifted from DNR to the University of Idaho. Policy members expressed uncertainty over where the funds were located in DNR's budget, and whether the AMPA used their authority to move up to 10% of funds within a current biennium.

A Policy representative asked how budget changes are normally presented and discussed at CMER and Policy. Terra clarified that when project costs increase or decrease, both CMER and Policy should have decision space around the changes within a specific amount of time. CMER members in attendance noted that they did not remember seeing proposed changes. Emily Hernandez, DNR, noted that the ENREP project team did not present the budget change to CMER because the project team received this information at the same time as Policy was discussing the budget.

A Policy representative suggested that Policy discuss with CMER the timeline of recording and initiating projects. They also expressed the opinion that Board approval should be required for the AMPA to move funds.

Action: Marc Engel will Review the Board meeting notes in which the Board gave the AMPA the authority to move 10% of the AMP budget and report back to Policy.

Steve Barnowe-Meyer, WFFA, moved that Policy take the following actions:

a. Accept the ENREP project charter,
b. Convene three members of Policy to review the key questions that Policy wants answered on the Eastside Type Np and bring their recommendations back to Policy, and
c. Accept the low budget.

The motion was seconded. Policy discussed the motion. Policy revised the second component of the motion to replace "key questions" with "critical questions."

Bill Ehinger noted that the consequences would depend on the distribution of the funds among the project line items. He also stated that there are other options for project sites.

A representative suggested decoupling the components of the motion. Steve agreed to separate the motions into three different motions. The group also made some amendments for clarification. The resulting motions read as follows:

Motion 1: Accept the ENREP project charter.

Motion 2: Convene three members of Policy to review the study sites and methods on the Eastside Type Np study and bring their recommendations back to Policy.

Motion 3: Amend the MPS and budget for the 2020-21 biennium to include $634,827 for FY20 and $649,324 for FY21 for the ENREP project.

Policy reviewed the numbers for the "low" and "high" budgets that Policy drafted in April. It was clarified that the low budget aligns with the budget that the Board approved in the fall of 2018, with the exception that a budget for a staff person was removed as a line item, resulting in a change of $160,000 for the biennium.

A Policy representative suggested the ENREP project utilize the soon-to-be-hired Eastside CMER scientist of hiring a new biologist on the Eastside, in order to reduce the number of staff to be hired.

Decision: Motion 1: Accept the ENREP project charter. The Eastside Tribal caucus and Federal caucus were absent; all other caucuses voted thumbs up.

Policy then discussed Motion 2. The motion was amended from "critical questions" to "study methods." The group discussed Policy's role in determining study methods, design, and critical questions. Policy representatives acknowledged that Policy may not have reviewed the critical questions as thoroughly as was warranted the first time around, and that now there is concern that the current study design will not provide information that Policy now considers necessary.

The group discussed the study design process for ENREP. A Policy representative asked whether there would be an opportunity for the ENREP team to learn more information during summer fieldwork and report back to Policy. Bill Ehinger stated that the team could reach out to the Yakama Nation about working together and could continue to look at other sites in the northeast that the team had identified. Tim Link said that the team could likely set up another site by the fall if Policy considers and approves the final site selections promptly in August. This would require efficient work on both sides.

Policy discussed the ENREP charter and the prospective answers to the 6 critical questions from the CMER /Policy Interaction Framework Document (see Attachment 3). The group compared the questions listed in each document. Terra noted that this study is designed to be a piece of a larger body of work. She suggested that Policy consider its response to the questions that the study will not answer.

Policy called to question the following motion (Motion 2 as listed above): Convene three members of Policy to review the study sites and methods on the Eastside Type Np study and bring their recommendations back to Policy. The Eastside Tribal and Federal caucus were absent; the Small Forest Landowner caucus voted thumbs up; the Counties caucus, DNR caucus, and Industrial Landowners caucus voted thumbs sideways; the Conservation caucus, Westside Tribal caucus, and Ecology/WDFW caucus voted thumbs down. The motion failed.

Policy discussed Motion 3. Policy asked the ENREP project team how the "low" budget would impact the study. Tim Link stated that the low budget would not allow for all types of data to be collected at all six sites including the farthest north site (Coxit). He suggested that the sediment component could be cut to save money on power usage and other costs. Another option would be to rent the track ATVs rather than purchase them, which would likely cost the project more money over a longer period of time but lower the up-front cost.

After discussing possible changes to the study design, Policy considered amending motion 3. Darin Cramer, WFPA, requested that Motion 3 be tabled in order to suggest an alternative motion. Steve Barnowe-Meyer tabled Motion 3.

Darin moved that Policy request of CMER to:

a. Ensure study sites represent the majority of Type Np channel types found in eastern Washington,
b. Ensure treatments applied represent actual implementation of the Type Np rules in eastern Washington, to include non-buffered reaches, and
c. Evaluate dropping the Benthic Index of Biotic Integrity (B-IBI) component if needed to ensure above is adequately addressed.

Steve Barnowe-Meyer, WFFA, seconded the motion.

Greg Stewart noted that he had reached out to Hancock and IEP about doing a clear-cut rather than a partial-cut strategy. Greg predicted that Motion 4a. will be problematic because the project team is already having difficulty finding sites that represent a majority of Np channel types in eastern Washington.

A participant asked for clarification on Motion 4b. Darin responded that management strategies often implemented in eastern Washington streams mostly includes unbuffered reaches. Greg clarified the landowners of all three sites agreed to use a clear-cut strategy, though it hasn't been determined where exactly the clear-cut portions will be. The project team will try to ensure that some of those clear cuts will be in dry reaches. There was also discussion of whether the stream sites of the study need to be connected to the stream network. This appeared to be a point of non-consensus among Policy representatives.

Policy then called a vote on Motion 4 (see above). The Eastside Tribal and Federal caucus were absent; the Small Forest Landowner caucus and Industrial Landowners caucus voted thumbs up; the Counties caucus, DNR caucus, and Ecology/WDFW caucus voted thumbs sideways; the Conservation caucus and Westside Tribal caucus voted thumbs down. The motion failed.

Policy returned to Motion 3: Amend the MPS and budget for the 2020-21 biennium to include $634,827 for FY20 and $649,324 for FY21 for the ENREP project. The Eastside Tribal and Federal caucus were absent; the Small Forest Landowner caucus, Westside Tribal caucus and Counties caucus voted thumbs

up; the Conservation caucus and Industrial Landowners caucus voted thumbs sideways; the DNR caucus and Ecology/WDFW caucus voted thumbs down. The motion failed.

Action: Terra Rentz and Curt Veldhuisen will amend the Policy report to the Board to inform the Board that Policy held the ENREP workshop at its May meeting.

Forest Practices Board Meeting Agenda Review – Marc Engel, DNR, shared that the Board will be meeting for two days on May 8 and 9, 2019. The materials for the meeting are posted on the website by the meeting day. Marc mentioned the following topics on the Board meeting agenda.

- The Type Np charter along with Policy's recommendations will be brought forward.
- The Board will review Policy's recommended budget for the 2020-2021 biennium.
- The Board will discuss the validation study design.
- The Board will hold a general discussion of the water typing system rule and review the implementation guidance regarding the rule.
- The Policy Co-Chairs will review for the Board the relative priorities for the AMP.
- The Board will discuss the CWA Assurances. Given that this year is the end of a 10-year period, Ecology will give a verbal presentation on the status of the Assurances.
- The Board will hear a presentation on small forest landowner demographics and forest practices. This will include the 2007 demographics and all the policies legislation has passed for small forest landowners and how they are being used.

Next Steps – Policy reviewed the monthly workload document and the meeting schedule for 2019. Terra noted that the Westside Type F Charter, Type Np Job Description, and Extended Monitoring Framework agenda topics will be tabled to the June meeting. She noted that these shifts may affect other items in future months. Steve Barnowe-Meyer noted that the Small Forest Landowner Alternative Plan Workgroup will need the ISPR report as soon as possible in order to complete its products by September.

Action: Curt will send Policy an update on Extended Monitoring via email.

Next meeting date: The next Policy meeting will occur on Thursday, June 6th, 2019.

The meeting was adjourned at 4:28 p.m.

Attachment 1 – Participants by Caucus at 5/2 Meeting*

Conservation Caucus
*Alec Brown, WEC

County Caucus
Kendra Smith, Skagit County
*Scott Swanson, WSAC

Industrial Timber Landowner Caucus
*Darin Cramer, WFPA
Doug Hooks, WFPA
Martha Wehling, WFPA
Jenny Knoth, Green Crow
Harry Bell, Green Crow

Small Forest Landowner Caucus
*Steve Barnowe-Meyer, WFFA
Doug Martin, Martin Environmental

State Caucus – DNR
*Marc Engel, DNR
Emily Hernandez, DNR
Joe Shramek, DNR

State Caucus – Ecology & WDFW
*Rich Doenges, Ecology
Mark Hicks, Ecology
*Chris Conklin, WDFW
Terra Rentz, WDFW and Co-Chair

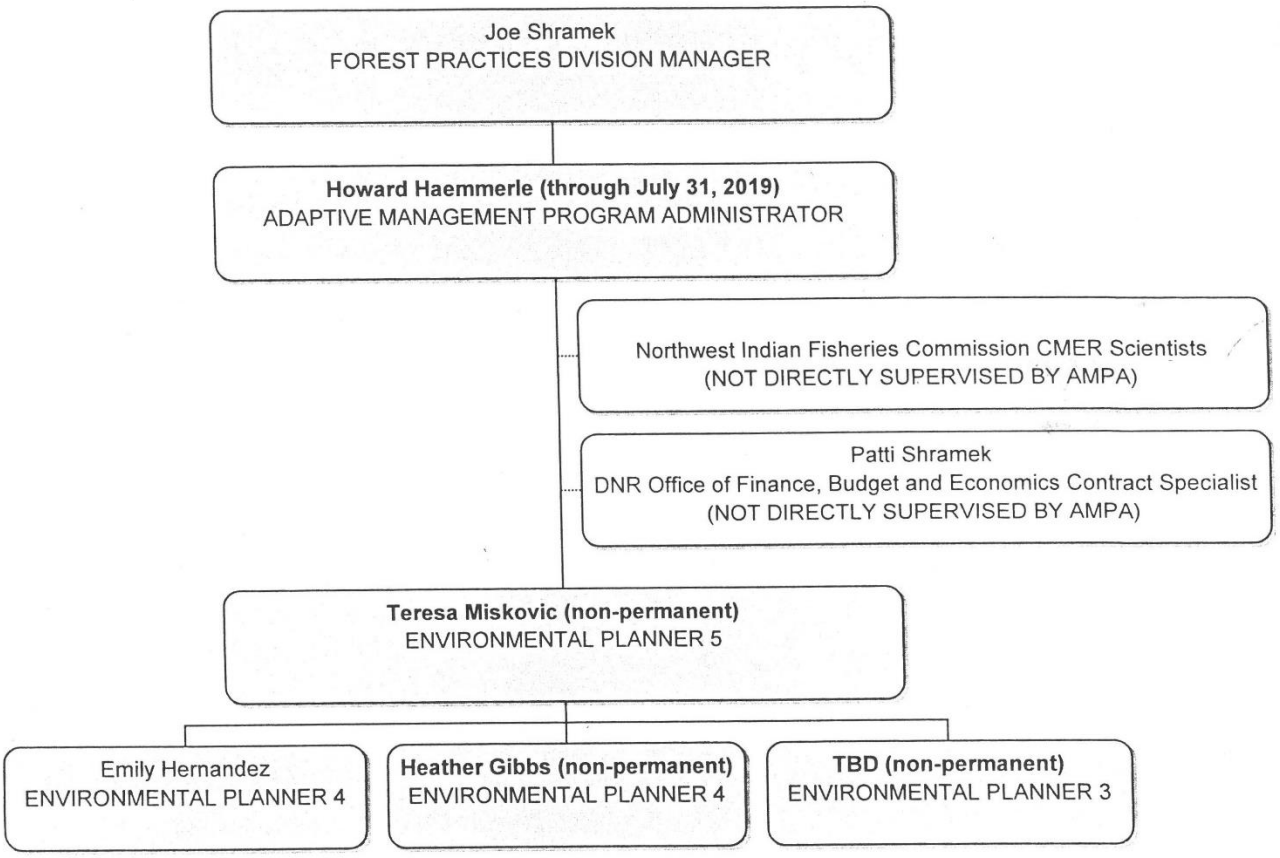
Tribal Caucus – Westside
*Jim Peters, Northwest Indian Fisheries Commission
Ash Roorbach, Northwest Indian Fisheries Commission
Curt Veldhuisen, Skagit River System Cooperative and Co-Chair

Tribal Caucus – Eastside

*caucus representative

Others
Howard Haemmerle, Adaptive Management Program Administrator (acting)
Tim Link, University of Idaho
Rachel Aronson, Triangle Associates
Annalise Ritter, Triangle Associates
Greg Stewart

Attachment 2: DNR Forest Practices Adaptive Management Program Team – May 2019



Prospective Answers to the 6 Questions from the CMER / Policy Interaction Framework Document

Project Title: Eastside Type N Riparian Effectiveness Project (Lean Pilot)
Study Design Title: Eastside Type N Riparian Effectiveness Study Design

1. Does the study inform a rule, numeric target, performance target, or resource objective (Yes/No)? If Yes, go to the next question. If No, provide a short explanation on the purpose of the study.)

Yes.

2. Does the study inform the Forest Practices Rules, the Forest Practices Board Manual guidelines, or Schedules L-1 or L-2?

Yes. ENREP will 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.

3. Was the study carried out pursuant to CMER scientific protocols (i.e., study design, peer review)? (Provide short explanation. Be clear on use of ISPR.)

Yes. This exploratory study design was developed by a TWIG under the LEAN process, and the design was reviewed and approved by CMER consistent with the Protocol and Standards Manual (2016), and successfully went through Independent Scientific Peer Review (ISPR).

4. What does the study tell us? What does the study not tell us? (This is where the study and its relationship to rules, guidance, targets, etc are to be described in detail. Consider technical findings; study limitations; and implications to rules, guidance, resource objectives, functional objectives, and performance targets; in addition to other information.)

What the study will tell us:

As companion to the Type N Effectiveness "Hard Rock" and "Soft Rock" studies, this study will inform Policy of the quantitative changes in FPHCP covered resources, water quality and aquatic life coincident with forest harvest activities in eastern Washington.
To that end, the study specifically addresses the following critical questions:

1. What is the magnitude of change in water temperature, canopy closure, and stream cover of Type Np channels in the first two years after harvest?
2. What is the magnitude of change in stream flow and suspended sediment export from the Type Np basin in the first two years after harvest?
3. What is the relationship between aquatic life (and their supporting resources) and observed changes in hydrology, sediment, and temperature associated with forest management activity?

This study will use a hierarchical design that incorporates a blocked Multiple Before-After/Control-Impact (MBACI) design with reaches nested within basins to quantify the magnitude of change that occurs as a result of harvest activity. The MBACI design, which is replicated in space and time, controls for natural variability throughout the pre- and post-treatment periods and allows us to estimate the likelihood that observed effects are related to anthropogenic activity (Underwood, 1994; Downes et al. 2002).

What the study will not tell us:

The study will not directly address alternate prescriptions. It will test a 50' Type Np buffer consistent with current rule. One of the design goals of the 'dry' study was to evaluate the effect of buffering or not-buffering dry reaches. In all the sites where we have over 1000' of stream that is predominately dry for more than 2 months (e.g., Springdale, BlueGrouse, and their eastern Cascade analogs), we will be working with landowners to clearcut harvest a portion of the dry stream network. This was always a design goal for the 'dry' component of the study that was communicated to landowners of those sites, but not well articulated in the approved study design document. We recognize that there was interest by certain members to also see clearcut harvest in perennially wet reaches, and this was discussed as an option in the March 23, 2018 CMER meeting. Clearcut harvest along perennially wet reaches has not been discussed with the landowners, and the decision on where and how perennial reaches are treated will need to be resolved at a later date with the involvement of landowners and their harvest implementation teams to ensure that experimental treatments both meet their scientific and management objectives and are practically feasible. Insights into alternate prescriptions are expected to occur through meta-analyses that incorporate the results of this study and the larger body of research on forestry effects.

The study is designed with only two-years of pre-treatment monitoring and at least two-years of post-treatment monitoring. Two-years is not enough time to capture the full range of effects, especially those that are likely to be episodic. Although the degree of inference will be limited by the relatively short pre and post-treatment phases, this has been shown to be adequate for quantifying the initial changes associated with harvest (e.g., McIntyre *et al.* 2017). Longer-term monitoring will be required to determine the overall trajectory of the response and to capture a broader range of climate conditions and greater potential for episodic changes with less frequent recurrence intervals (e.g., temperature recovery, sediment export from processes that act over longer time-scales, changes associated with flood or drought events, and delayed response in aquatic communities).

By experimenting at the basin scale, we can examine reach-scale effects within the drainage basin, as well as cumulative exports to downstream fish-bearing waters, but we cannot directly address downstream effects. These sites are not appropriate for evaluating effects on fish and have limited utility for assessing even downstream effects on temperature given that the adjoining higher-order streams the study basins discharge to are influenced by land uses both upstream and immediately downstream of their confluences with the study streams.

The three site pairs identified for inclusion of the study span a gradient of precipitation and channel wetness in the northern Rockies ecoregion and we seek another three pairs in the eastern cascades across a similar gradient of precipitation. Small sample size, relative to observational studies, is an issue for most experimental studies and especially so for field-based studies like this. However, experimental studies are essential to testing the effectiveness of specific riparian prescriptions. Given

our limited amount of basin-scale replication, the results of this study should not be viewed solely in isolation, but rather as a part of the larger body of research on forestry effects. Failure to obtain additional sites will reduce power of the study and level of inference, especially as they relate to CMER lands with higher levels of aquifer permeability.

5. What is the relationship between this study and any others that may be planned, underway, or recently completed? Factors to consider in answering this question include, but are not limited to:

a. **Feasibility of obtaining more information to better inform Policy about resource effects.**
b. **Are other relevant studies planned, underway, or recently completed? (If yes, what are they?)**

ENREP is a companion to the two westside Type N Effectiveness studies and will provide information about how riparian processes and functions provided by Type Np buffers maintained at levels that meet FP HCP resource objectives and performance targets for shade, stream temperature, LWD recruitment, litter fall, and aquatic life in eastern Washington.

In addition, ENREP will address whether different types of Type N channels explain variability among basins in their responses to forest practices. It will also address the effect of buffering or not buffering spatially intermittent stream reaches in Type Np streams. The results are likely to empirically inform the Eastside Np Effectiveness Project, which is listed in the CMER workplan as a literature review related to Ns rule effectiveness.

ENREP is currently the only Type Np Effectives study planned or underway in eastern Washington.

6. What is the scientific basis that underlies the rule, numeric target, performance target, or resource objective that the study informs? How much of an incremental gain in understanding do the study results represent?

The rules are based on multiple assumptions regarding the effectiveness of Np riparian buffers and protecting resource objectives. Some of these assumptions appear to hold while others appear questionable based on results from the Type N Experimental “Hard Rock” study in western Washington.

This is the only study that will specifically address Type Np rule effectiveness in eastern Washington, and how responses vary along a spatial, hydroclimatic gradient, and associated gradient of seasonal surface water presence. As such, it is expected to provide a substantial gain in information in the context of other Type Np and related forest research.

	A	B	F	G	H	I	J	K	L	M	N	O	P
1	**Master Project Schedule and Budget for the Adaptive Management Program**												
2	TFW Policy Consensus Recommendation 4.5.2019												
3													
4													
5	**Expenditure**	**Source**	**FY2020**	**FY2021**	**FY2022**	**FY2023**	**FY2024**	**FY2025**	**FY2026**	**FY2027**	**FY2028**	**FY2029**	**FY2030**
6	**Administration and Program Staff**												
7	Program Administration (AMPA and Contract Specialist)		261,500	261,500	269,345	269,345	277,425	277,425	285,748	285,748	294,321	294,321	303,150
8	Adminitrative Assistant 2 *(supports TFW & CMER)*		87,000	87,000	89,610	89,610	92,298	92,298	95,067	95,067	97,919	97,919	100,857
9	Project Support (3.5 Project Managers)		361,700	361,700	372,551	372,551	383,728	383,728	395,239	395,239	407,097	407,097	419,309
10	CMER Scientists (4 Scientists at NWIFC: Ecologist, Geologist, Riparian, Wetlands)		638,845	597,183	615,098	615,098	633,551	633,551	652,558	652,558	672,135	672,135	692,299
11	CMER Scientist Eastside (NRS 4)		128,750	128,750	132,613	132,613	136,591	136,591	140,689	140,689	144,909	144,909	149,257
12	Independent Scientific Peer-Review		67,500	67,500	69,525	69,525	71,611	71,611	73,759	73,759	75,972	75,972	78,251
13	TFW Policy Committee Facilitation* (on-call contract)		30,000	15,000	15,000	15,000	15,450	15,450	15,914	15,914	16,391	16,391	16,883
15	CMER Conference (Facility, refreshments, programs)		5,000		10,000		10,000		10,000		10,000		10,000
16	Contingency Fund for Projects		61,849	140,606	100,000		100,000		100,000		100,000		100,000
17	Technical Editor (on-call contract)		15,000	0	15,000		15,000	15,000		15,000	15,000		15,000
18	AMP Audits -- Performance & Financial	FPB	0	0									
19	Type Np Workgroup (Collaborative Research Allowance, Direct Buy, & Enhanced Participation Grants)		200,000	0									
20	**Implementation Phase**												
21	Extensive Riparian Status and Trends Monitoring -- Vegetation, Type F/N - Westside (Remote Sensing)	RSAG	15,000										
22	CWA_Type N Experimental Buffer treatment Project in Soft Rock Lithology -- (1) Monitoring ends fall 2017, 2-yr post-harvest		20,000										
23	Add on_Type N Experimental Buffer Treatment Project in Soft Rock Lithology -- Extended monitoring through 2020 (FY21)		139,000	151,000	0								
24	Type N Experimental Buffer Treatment Project in Hard Rock Lithology -- Temperature Monitoring (Report extended data)	RSAG	124,175	28,884									
25	Type N Experimental Buffer Treatment in Hard Rock Lithologies -- Extended Amphibian (Analysis & Summary Report)	LWAG	51,563	34,848									
26	CWA_Eastside Type N Riparian Effectiveness (ENREP)	TWIG	907,968	723,434	686,719	626,609	366,695	152,267					
27	**Field Testing/Pilot Phase**												
28	CWA_Westside Type F Riparian Prescription Monitoring	TWIG	125,000	0	35,000	150,000	250,000	150,000	250,000	250,000	40,000	20,000	
29	**Site Selection Phase**												
30	CWA_Road Prescription-Scale Effectiveness Monitoring	TWIG	374,500	330,500	403,000	400,500	406,000	291,000	212,000				
31	**Study Design Phase**												
32	CWA_Unstable Slopes Criteria Evaluation & Development -- Project 2: Object-based Landform Mapping	TWIG	95,000										
33	CWA_Unstable Slopes Criteria Evaluation & Development -- Project 3: Shallow Landslide Susceptibility	TWIG		10,000	250,000	150,000							
34	CWA_Unstable Slopes Criteria Evaluation & Development -- Project 4: Shallow Landslide Runout	TWIG		10,000		90,000							
35	CWA_Unstable Slopes Criteria Evaluation & Development -- Project 5: Management Susceptibility Modeling	TWIG				10,000	150,000						
36	CWA_Forested Wetlands Effectiveness Study	TWIG	15,000	150,000	232,500	232,500	150,000	150,000	150,000	200,000	200,000	200,000	40,000
37	Riparian Characteristics and Shade Response	RSAG	10,000	121,445	341,000	330,000	20,000						

	A	B	F	G	H	I	J	K	L	M	N	O	P
5	**Expenditure**	**Source**	**FY2020**	**FY2021**	**FY2022**	**FY2023**	**FY2024**	**FY2025**	**FY2026**	**FY2027**	**FY2028**	**FY2029**	**FY2030**
38	**Scoping Phase**												
39	CWA_Wetlands Management Zone Effectiveness Monitoring (Study Design in FY20/21 by CMER Sci)	WetSAG	0	0	100,000	0	360,000	360,000	360,000	360,000	100,000	45,000	
40	Deep Seated Research Strategy	FPB											
41	*Deep Seated Research Strategy -- 4.5 Mapping Objectives*	UPSAG	75,000	100,000	100,000	25,000	25,000						
42	*Deep Seated Research Strategy -- 4.6 Pilot Classification*	UPSAG	50,000	65,000	40,000	25,000	50,000						
43	*Deep Seated Research Strategy -- 4.7 Toolkit Development*	UPSAG	0	10,000	10,000	0	0						
44	*Deep Seated Research Strategy -- 4.8 Groundwater Modeling*	UPSAG	0	25,000	50,000	50,000	50,000						
45	*Deep Seated Research Strategy -- 4.9 Physical Modeling*	UPSAG	0	0	0	75,000	50,000						
46	*Deep Seated Research Strategy -- 4.10 Landslide Monitoring*	UPSAG	0	0	0	25,000	25,000						
47	CWA_Wetlands Intensive Monitoring	WetSAG	0	0	0	0	0	0	50,000	0	0	0	0
48	CWA_Amphibians in Intermittent Streams	LWAG	50,000	80,000	250,000	360,000	360,000	360,000					
49	Eastside Timber Harvest Types Evaluation Project (ETHEP)	SAGE	0	0	0	0	0	0					
50	**Water Typing Strategy**	FPB/TFW	40,000	450,000									
51	**Approved Resampling**												
52	CWA_Road Sub-Basin-Scale Effectiveness Monitoring -- Resample (Re-scoping)	UPSAG	0	0	0	0	0	0	0	75,000			
53	CWA_Watershed Scale Assessment of Cumulative Effects (roads and riparian) -- *post* Effectiveness Monitoring	RSAG	0	0	0	0	0	0	5,000	50,000	340,000	340,000	
71	**AMP Research Expenses**		3,949,350	3,949,350	4,186,961	4,113,351	3,998,349	3,088,921	2,795,974	2,608,974	2,513,743	2,313,743	1,925,005
72	**Projected Available Funds for Research**		3,949,350	3,949,350	3,781,600	3,781,600	(218,400)	(218,400)	(218,400)	(218,400)	(218,400)	(218,400)	(218,400)
73	**Rollover funds from previous FY**		0	0	0	(405,361)	0	(4,216,749)	0	(3,014,374)	0	(2,732,143)	0
74	***Balance at the end of Fiscal Year (accounting for Rollover)***		0	0	(405,361)	(737,112)	(4,216,749)	(7,524,070)	(3,014,374)	(5,841,748)	(2,732,143)	(5,264,286)	(2,143,405)
75													
76	**REVENUE**												
77	GF-S - AMP Carry Forward (i.e. base admin funding)		260,700	260,700	240,100	240,100	240,100	240,100	240,100	240,100	240,100	240,100	240,100
78	GF-S - AMP Research		1,107,000	1,107,000	2,947,000	2,947,000	2,947,000	2,947,000	2,947,000	2,947,000	2,947,000	2,947,000	2,947,000
79	FFSA - AMP (Business and Occupation Tax surcharge)		5,679,000	5,679,000	4,000,000	4,000,000	0	0	0	0	0	0	0
80	Reverse Fund Shift (FY20/21) - $715,500 per FY		715,500	715,500									
81	***Subtotal of Revenue***		7,762,200	7,762,200	7,187,100	7,187,100	3,187,100	3,187,100	3,187,100	3,187,100	3,187,100	3,187,100	3,187,100
82	**EXPENSES**												
83	***TFW Participation Agreements***												
84	Tribal Participation Agreements		2,500,000	2,500,000	2,500,000	2,500,000	2,500,000	2,500,000	2,500,000	2,500,000	2,500,000	2,500,000	2,500,000
85	NGO and County Participation Grants		475,500	475,500	475,500	475,500	475,500	475,500	475,500	475,500	475,500	475,500	475,500
86	State Agencies		430,000	430,000	430,000	430,000	430,000	430,000	430,000	430,000	430,000	430,000	430,000
87	FFSA DAHP (Dept. Archeology & Historic Preservation)		94,500	94,500									
88	FFSA Agency Admin/AG/OVH		312,850	312,850									
89	***Subtotal of TFW Participation Agreements***		3,812,850	3,812,850	3,405,500	3,405,500	3,405,500	3,405,500	3,405,500	3,405,500	3,405,500	3,405,500	3,405,500
90	**PROGRAM TOTALS**												
91	Revenue		7,762,200	7,762,200	7,187,100	7,187,100	3,187,100	3,187,100	3,187,100	3,187,100	3,187,100	3,187,100	3,187,100
92	AMP Research Expenses		3,949,350	3,949,350	4,186,961	4,113,351	3,998,349	3,088,921	2,795,974	2,608,974	2,513,743	2,313,743	1,925,005
93	TFW Participation Agreements		3,812,850	3,812,850	3,405,500	3,405,500	3,405,500	3,405,500	3,405,500	3,405,500	3,405,500	3,405,500	3,405,500
94	***Balance at the end of each fiscal year***		0	0	(405,361)	(331,751)	(4,216,749)	(3,307,321)	(3,014,374)	(2,827,374)	(2,732,143)	(2,532,143)	(2,143,405)
95	**Cumulative Balance at end of Biennium**			0		(737,112)		(7,524,070)		(5,841,748)		(5,264,286)	