Washington State

Cooperative Monitoring, Evaluation, and Research Committee

(CMER)

Protocols and Standards Manual

State of Washington Forest Practices Board's

Adaptive Management Program

February 22, 2005 (Original)

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Acknowledgments

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Availability:

Copies are available for free by downloading from the DNR Adaptive Management Program website at:

http://www.dnr.wa.gov/forestpractices/adaptivemanagement/cmer/publications/

Contents

1 Introduction

1.1 *Cooperative Monitoring, Evaluation, and Research Committee*

The purpose of the Cooperative Monitoring, Evaluation, and Research Committee (CMER) is to advance the science needed to support adaptive management. CMER also has ongoing responsibility to continue research and education in terrestrial resource issues. CMER is made up of members that have expertise in a scientific discipline that will enable them to be most effective in addressing forestry, fish, wildlife, and landscape process issues. Members represent timber landowners, environmental groups, state agencies, county governments, federal agencies and tribal governments from a scientific standpoint, not a policy view. CMER members are approved by the Washington Forest Practices Board (Board). Board approval does not preclude others from participating in and contributing to the CMER process or its subcommittees. CMER develops and manages as appropriate:

  (A) Scientific advisory groups and subgroups;
  (B) Research and monitoring programs;
  (C) A set of protocols and standards to define and guide execution of the process including, but not limited to, research and monitoring data, watershed analysis reports, interdisciplinary team evaluations and reports, literature reviews, and quality control/quality assurance processes;
  (D) A baseline data set used to monitor change; and
  (E) A process for policy approval of research, monitoring, and assessment projects and use of external information, including the questions to be answered and the timelines.

<div align="right">(WAC 222-12-045(2)(b)(i))</div>

1.2 *Purpose of the Manual*

The CMER Protocols and Standards Manual (PSM) provides an organizational framework, guidance, and instructions for CMER participants. Portions of the PSM will also be useful to recipients and technical reviewers of CMER products, and observers of the regulatory adaptive management process. The PSM provides guidelines for operating and governing the organization; developing its work plan; operating Scientific Advisory Groups that report to CMER; proposing, conducting, and documenting research studies; adhering to budget and contracting requirements; storing information; and providing information. Where templates, forms, or examples are provided, they are intended as tools, not as requirements.

Standards and protocols in this manual promote and protect both scientific rigor and administrative accountability. The AMP for forest practices involves a large number of stakeholders and interested parties, including large and small forest landowners, tribes, state and federal agencies, counties, conservation groups, and the research community. Because the AMP was created by the Forest Practices Board – a regulatory rules-making state agency, the AMP must be conducted in an open and transparent manner and must follow administrative procedure guidelines. Furthermore, CMER and its scientific products are publicly funded and are, therefore, subject to fiscal scrutiny and demands for efficiency. With all of these demands and the normal and expected turnover among the personnel of agencies and other interested parties, a thorough and usable Protocols and Standards Manual (PSM) for CMER operations is needed to maintain a consistent and efficiently functioning organization.

Additional guidance for CMER activities can be found in Section 22 (Guidelines for the Adaptive Management Program or "AMP") of the Forest Practices Board Manual. The AMP board manual and the CMER PSM together are intended to fulfill the requirements of the forest practices rules (WAC 222-12-045(2)(b)(i)).

1.3 *Protocols and Standards Manual is an Evolving Document*

This manual has been created and compiled from stakeholder experience. The PSM reflects an evolving process within the regulatory context of the Forest Practices Board's adaptive management program. The chapters vary in style and in extent of development. This variation is mainly the result of two factors: (1) the involvement of various writers and (2) varying firmness of agreement on procedures. Over time, CMER will refine and improve this manual to better serve the needs of CMER and the various users of the manual.

Continuing experience and the use of the procedures outlined in this manual may lead to suggestions for modification of CMER's structure, governance, operation, protocols, or activities. An AMP participant can initiate requests for changes to this PSM. Requests are directed to a CMER co-chair or the adaptive management program administrator (AMPA) for discussion and consideration of action at a CMER meeting.

Formal recommendations for substantive changes to the PSM should be provided in writing to CMER for approval by consensus at a CMER meeting. Minor changes for clarification and technical editing may be made orally at a CMER meeting. New versions of the PSM will be produced as needed. Changes approved between versions will be noted by errata sheets for hard copy and by notes added to electronic files.

2 Overview, History, and Context

2.1 *Adaptive Management Program*

The Washington Forest Practices Board (Board) established the Forest Practices Adaptive Management Program (AMP) in concurrence with the Forests and Fish Report[1] (FFR) and subsequent legislation (RCW 76.09.370). In 2006, the US Fish and Wildlife Service and National Marine Fisheries Service accepted a 50-year Forest Practices Habitat Conservation Plan[2] (FP HCP) from Washington State based on the Forest and Fish rules that resulted from the 1999 Forest and Fish Report and RCW 76.09.370. As a component of the FP HCP, the AMP is responsible for providing, "…science-based recommendations and technical information to assist the Board in determining if and when it is necessary or advisable to adjust rules and guidance for aquatic resources to achieve resource goals and objectives." (Forest Practices Rules, WAC 222-12-045)

Forest practice regulations as a whole address a broad range of objectives including protecting forest soils, fisheries, wildlife, water quantity and quality, air quality, recreation, and scenic beauty (RCW 76.09.010(1)). However, resource objectives listed in the WAC which guide the AMP are more narrowly focused to ensuring that "…forest practices, either singularly or cumulatively, will not significantly impair the capacity of aquatic habitat to:

> (A) Support harvestable levels of salmonids;
> (B) Support the long-term viability of other covered species; or
> (C) Meet or exceed water quality standards (protection of beneficial uses, narrative and numeric criteria, and anti-degradation)."

<div align="right">(WAC 222-12-045(2)(a)(ii))</div>

An additional outcome of the AMP is to ensure the application of quality controls to study design and execution and to the interpretation of results.

<div align="right">(Board Manual Sect 22 part 1 overview)</div>

To provide the science needed to support the AMP, the Board established CMER to "…impose accountability and formality of process, and to conduct research and validation and effectiveness monitoring to facilitate achieving the resources objectives."

<div align="right">(Forest Practices Rules, WAC 222-12-045).</div>

2.2 *Governing Statutes and Rules*

The Legislature established the Washington Forest Practices Board in 1974 to consider and adopt rules to govern forest practices in the State of Washington. The Board operates to fulfill the provisions of the Forest Practices Act, RCW 76.09.[3] In 1999, as part of the Forests and Fish legislation, the Legislature added a provision to the act that requires the Board to establish a scientifically based adaptive management process. The Act now states, with the exception of changes required by legislative or court action, that "new rules covering aquatic resources may be adopted by the Board only if the changes or new rules are consistent with recommendations resulting from the

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[1] Forest and Fish Report. 1999. Washington Department of Natural Resources.
(http://www.dnr.wa.gov/forestpractices/rules/forestsandfish.pdf)

[2] Washington DNR. 2005. Final Forest Practices Habitat Conservation Plan. Washington Department of Natural Resources, Forest Practices Program, Olympia, Washington.
(http://www.dnr.wa.gov/BusinessPermits/Topics/ForestPracticesHCP/Pages/fp_hcp.aspx)

[3] The complete text of the Forest Practices Act, RCW 76.09, can be found in the back of the Forest Practices Rule Book published by DNR.

scientifically based adaptive management process established by rule of the Board." (RCW 76.09-370(7))

The Board responded in July of 2001 by adopting rules for a science-based adaptive management program (WAC 222-12-045). The Board left open the opportunity to use the prescribed adaptive management process to address resource issues other than those identified in the Forests and Fish Report.

2.3 *Historical Context*

CMER began in 1987 as the technical arm of the Timber, Fish, and Wildlife Agreement (TFW). Under TFW, CMER's tasks were similar to its current ones, though aquatic issues did not take precedence over other potential resource impacts of forest practices. Research and monitoring projects were initiated to address concerns raised at the TFW policy table or by the Board. From 1987 through 1997 CMER operated much as it does today, through a number of subcommittees organized around either a task, such as the Field Implementation Committee, or a resource function, such as the Sediment Hydrology and Mass Wasting Steering Committee. Each subcommittee planned, contracted, and reviewed research in its area of specialization. Although there was no formal independent peer review of the research products, CMER performed a technical review of each paper brought forward by the subcommittees. After approval, final papers were published by the Department of Natural Resources (DNR) as a series of Timber/Fish/Wildlife reports. From 1987 through 1996, CMER and its subcommittees produced 86 reports on the physical and biological relationships between forest practices and fish, water, and wildlife resources.

During the Forests and Fish negotiations of the late 1990s, CMER suspended its functions. It reorganized as soon as there was policy agreement on the 1999 Forests and Fish Report. In July of 2001, the Board formally established the reorganized CMER, giving it the role of advancing the science needed to support the Board's adaptive management program.

2.4 *Goals and Objectives*

The goals of the Forest Practices legislation as they relate to regulating forest practices on non-Federal and non-tribal forestlands are (1) to provide compliance with the Endangered Species Act for aquatic and riparian-dependent species on nonfederal forest lands, (2) to restore and maintain riparian habitat on nonfederal forest land to support a harvestable supply of fish, (3) to meet the requirements of the Clean Water Act for water quality on nonfederal forest lands, and (4) to keep the timber industry economically viable in the State of Washington (Washington DNR 2005, pg 1). As part of the adaptive management program, CMER conducts research to further the first three of those goals.

The Board has adopted a series of key questions, resource objectives, and performance targets related to the aquatic resource issues pertinent to the Forests and Fish Report. These are collectively known as Schedule L-1 (see Appendix B of this PSM).

2.5 *Overview of the Adaptive Management Process*

The adaptive management process is a continuous loop. It includes the Board, the TFW Policy Committee (Policy), the adaptive management program administrator (AMPA), Washington Department of Natural Resources (DNR), CMER, and a process for independent scientific peer review (ISPR). The AMPA, an employee of the Washington Department of Natural Resources (DNR), administers the entire process.

Adaptive management research begins by posing resource-based questions that can be addressed by using accepted scientific methods. Adaptive management research topics which guide CMER research were originally listed in the 1999 Forests and Fish Report schedule L-1. Each year CMER

develops a work plan describing how these topics are being addressed, along with additional questions that emerge as studies are developed and study results become available.

The Forest Practices Board manual directs CMER to 'maintain and update for Policy review and Board approval the Forests and Fish key questions, resource objectives and performance targets (Schedules L-1 and L-2) and CMER work plan." (Forest Practices Rules, Board Manual, section 22, 2.2).

Each year, CMER submits the CMER work plan and budget to Policy, which in turn recommends to the Board a funding package for individual research projects. The Board is responsible for allocating state and federal adaptive management funds to specific research projects.

The Forest Practices Board manual directs CMER to produce "…credible, peer-reviewed technical reports based on best available science and guided by the Monitoring Design Team report[4]" (Forest Practice Rules, Board Manual section 22, 2.2).

The Board Manual defines best available science as:

> "…relevant science from all credible sources including peer-reviewed government and university research, other published studies, and CMER research products. Applicable historic information, privately produced technical reports, and unpublished data may have value and are considered as long as they can be assessed for accuracy and credibility. CMER is responsible for understanding available scientific information that is applicable to the questions at hand, selecting the best and most relevant information and synthesizing it into reports for Policy and the Board." (Board Manual section 22, 2.2)

Policy reviews CMER reports, considers the political and economic elements of the Forest Practices Act and the Board's goals, and develops recommendations to the Board for rule or guidance changes. Under the Forest Practices Act, the Board is responsible for establishing forest practices rules that are "consistent with sound policies of natural resource protection" and that "recognize both the public and private interests in the profitable growing and harvesting of timber" (RCW 76.09. 10) and that are expected to meet the state water quality standards (RCW 90.48.420(1)).

2.6   *Role and Responsibilities of CMER*

CMER conducts objective scientific inquiry into questions posed by the Board and Policy and to provide technical information and consensus-based recommendations to the Board.

To meet its responsibility, CMER will:

1. Maintain and update for Policy review and Board approval the Forests and Fish key questions, resource objectives and performance targets (Schedules L-1) (Board Manual, Section 22, Part 2.2).

2. Maintain and update for Policy review and Board approval the CMER work plan (including budget recommendations) (Board Manual, Section 22, Part 2.2).

3. Forward to Policy and the Board research proposals (Forest Practices Rules, WAC 222-12-045(2)(d)(ii)).

4. Conduct research and validation and effectiveness monitoring to facilitate achieving the resource objectives[5] (WAC 222-12-045(2)(b)(i)).

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[4] Monitoring Design for the Forestry Module of the Governor's Salmon Recovery Plan. 2006. Benkert, K., B. Bilby, B. Ehinger, P.Farnum, D. Martin, S. McConnell, R. Peters, T. Quinn, M. Raines, S. Ralph, D. Schuett-Hames.
(http://www.dnr.wa.gov/Publications/fp_am_mdt_rprt_final_18Jul02.pdf)

5. Conduct periodic reviews of the design of the Forest Practices Program compliance monitoring program(s) to ensure that it will provide requisite information to support the effectiveness and validation monitoring components of the Adaptive Management Program (Board Manual Section 22, Part 2.2).

6. Produce credible, peer-reviewed technical reports[6] based on best available science (Board Manual, Section 22, Part 2.2).
    a. Synthesize research results into coherent analysis of rule effectiveness.
    b. Use generally accepted scientific and statistical techniques.
    c. Include technical recommendations and a discussion of rule and/or guidance implications (Forest Practices Rule, WAC 222-12-045, (2)(d)(v)).

7. Develop a findings report that includes the CMER approved final study report, answers to the CMER/policy framework questions 1 through 6 and all technical implications generated through the CMER consensus process. Findings reports should be completed within 3 months of CMER approval of the final study report (Board Manual, Section 22, Part 3.3).

8. Develop and manage a set of protocols and standards to define and guide the CMER process (Forest Practices Rule, WAC 222-12-045(2)(b)(i)(C)).

The scientific inquiry CMER conducts typically falls into the following general categories:

1. *Effectiveness Monitoring:*
    - Evaluates the performance of forest prescriptions (harvest patterns, road construction/maintenance, etc) in achieving resource goals and objectives.

2. *Extensive Status and Trend Monitoring:*
    - Evaluates the current status of key watershed input processes and habitat condition indicators across FP HCP lands.
    - Documents trends in these indicators over time as the forest practices prescriptions are applied across the landscape.

3. *Intensive Monitoring and Cumulative Effects:*
    - Evaluates cumulative effects of multiple forest practices at the watershed scale.
    - Integrates the effects of multiple management actions over space and through time within the watershed.
    - Evaluates the effects of individual actions on a site and the interaction of those responses through the system.

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[5] "Resource objectives are intended to ensure that forest practices, either singularly or cumulatively, will not significantly impair the capacity of aquatic habitat to:
  (A) Support harvestable levels of salmonids;
  (B) Support the long-term viability of other covered species; or
  (C) Meet or exceed water quality standards (protection of beneficial uses, narrative and numeric criteria, and antidegradation)." (WAC 222-12-045(2)(a)(ii))
[6] "Products that must be reviewed include final reports of CMER funded studies, certain CMER recommendations, and pertinent studies not published in a CMER-approved, peer reviewed journal. Other products that may require review include, but are not limited to, external information, work plans, requests for proposals, subsequent study proposals, the final study plan, and progress reports." (WAC 222-12-045, 2 (c))

4. *Rule Implementation Tool Development:*

- Develops, refines or validates tools used to implement forest practices rules.

    a. Methodology Tool Development Projects: Develop, test, or refine protocols, models, and guides used in forest practices rule–specified management guidelines.

    b. Target Verification Projects: Verify performance targets developed during FFR negotiations.

5. *Literature reviews to help with study design and the synthesis of study findings.*

6. *Other forest-practices-related research as directed by the Board.*

2.7 *Findings Reports*

Upon finalization of technical reports, CMER produces findings reports which provide "…technical recommendations and discussion of rule and/or guidance implications analysis" (Forest Practices Rules, WAC 222-12-045(2)(d)(v)). Findings Report should include technical reports and answers to the 6 questions from the 'CMER/Policy Interaction Framework.' See chapter 7, section 7.8.3 for more information on what is included in Findings Reports. Findings are provided to the Forests and Fish Policy Committee or to the Forest Practices Board who make the public policy decision on whether or not to use the findings as a basis to establish or revise forest practices rules or guidance.

All final reports are available to the general public.

2.8 *Relation of CMER to Other Committees*

The following chart provides a general overview of the relationships among the committees and groups currently involved in the Board adaptive management process. For more information on participant relationships, please refer to WAC 222-12-045.

The general public can provide input directly to the Board at its regular quarterly meetings or by public petition for rule making or by oral or written request at any time. In addition, science developed outside the CMER adaptive management process may be brought into the process through a Scientific Advisory Group, CMER (FFR Appendix L.2(b)(i)), or by public comment at a Board meeting.

Relationships between Adaptive Management Program (AMP), Operations, Policy, and Science Participants
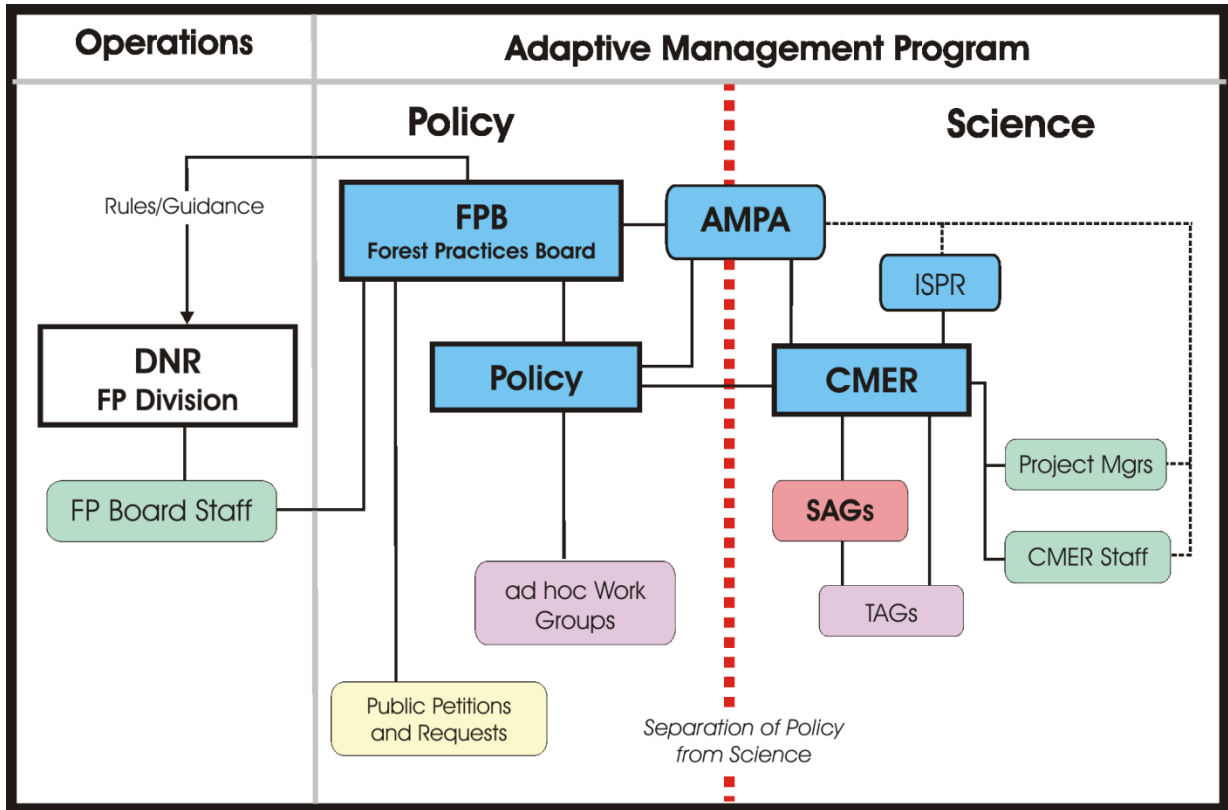
Key to Short Names and Acronyms

DNR	Department of Natural Resources	(blue)	WAC defined group
Policy	Forests and Fish Policy Committee	(white)	DNR Operations
AMPA	Adaptive Management Program Administrator	(red)	Science Advisory Groups
CMER	Cooperative Monitoring, Evaluation, and Research Committee	(green)	Support staff
SAGS	Science Advisory Groups	(purple)	Specially appointed work groups
TAGS	Technical Advisory Groups	———	Integrated process relationships
ISPR	Independent Scientific Peer Review	---------	Managerial relationship

3 CMER Organization

This chapter contains a description of CMER's structure and functions, the roles and responsibilities of its participants, and the way it governs itself.

3.1 *Structure*

The CMER committee is made up of Forest Practices Board (Board)-approved scientific representatives of the Timber, Fish, and Wildlife (TFW) caucuses (forest landowners, tribes, state agencies, county governments, federal agencies, and environmental organizations). Committee members have expertise in scientific disciplines that enable them to be effective in addressing forestry, fish, wildlife, and landscape process issues. The official composition of the committee will not preclude others from participating in and contributing to the processes of CMER or its subcommittees.

Responsibility for CMER leadership is shared by two co-chairs and the adaptive management program administrator (AMPA). A CMER Coordinator helps facilitate CMER meetings and events and maintains records of decisions by CMER.

CMER appoints subcommittees called scientific advisory groups (SAGs) to provide advice, develop proposals, and provide scientific oversight and integrity. CMER also appoints other subcommittees to complete necessary tasks as needed.

3.2 *Roles and Responsibilities*

3.2.1 Members and Participants

The CMER core members, who are official CMER voting members and represent the various Washington State Forests and Fish caucuses, are approved by the Forest Practices Board. However, participation is open to all who are interested in CMER scientific and administrative discussions and subcommittee activities. All participants are expected to contribute time and professional expertise to the adaptive management program.

All members and participants in CMER are expected to agree to the ground rules, which are provided in Section 3.3.1.

3.2.2 CMER Co-Chairs

CMER co-chairs provide scientific and administrative leadership to CMER to help the committee accomplish its tasks in a timely and efficient manner. Many of their responsibilities are shared with the Adaptive Management Program Administrator (AMPA). It is up to the individuals in these positions to work out the appropriate working relationship and task assignments.

In general, the CMER co-chair duties are as follows:

1. Facilitate the preparation, revision, and implementation of the adaptive management research work plan in accordance with the research priorities of Policy and the Board.
2. Maintain an atmosphere of high-quality, unbiased science in the development, implementation, analysis, reporting, and technical review of CMER work products.
3. Maintain a regular meeting schedule with a posted agenda at least a week in advance.

4. Communicate with key CMER participants between meetings to ensure that issues of concern are placed on the agenda and topics are properly framed for discussion at the meetings.

5. Facilitate CMER meetings and strive to manage a consensus process for decision-making.

6. Ensure that meeting notes are recorded, reviewed, approved and distributed.

7. Communicate with the AMPA to maintain a working knowledge of the status of CMER budget and spending issues.

8. Collaborate with the AMPA to prepare and present reports to Policy, the Board and other interested parties.

9. Maintain open communication with the AMPA, CMER participants, Policy co-chairs and DNR Forest Practices Board staff.

10. Facilitate Scientific Advisory Group support/coordination.

11. Communicate the results of research and monitoring studies clearly and accurately, in a timely fashion to AMPA and Policy.

12. Ensure CMER ground rules and other CMER rules, protocols, and guidelines are followed.

13. Facilitate and coordinate dispute resolution.

3.2.2.1   CMER Co-Chair Term

The term for a CMER co-chair is two years, with each co-chair starting and ending on alternate years. Ideally, terms will start on July 1 and end on June 30 to coincide with the start of each new fiscal and work plan year. This will provide the highest level of continuity in the transition of these positions. Incumbents may serve more than one term, but must be nominated and approved each time. When a co-chair cannot fulfill the two-year commitment, a minimum two-month notice is desired. An interim co-chair may be appointed or a new selection process started to find a person to complete the remaining term. If there is no consensus on an interim co-chair, CMER may choose to function under one chair until the next nomination cycle or may request that Policy make a decision.

3.2.2.2   CMER Co-Chair Qualifications and Skills

Desirable qualifications for co-chair are:

1. Advanced degree (masters or PhD) and experience in related natural resources science.
2. Experience in designing, implementing, and reporting on research in natural resources sciences.
3. Experience in oral and written communications, project management, and public meeting facilitation and management.
4. Experience working in contentious situations and working with diverse groups to find solutions.
5. Approval to commit at least half time to the position.

Critical knowledge, skills, and abilities (KSAs) for co-chairs are listed in Appendix F to this PSM**.**

3.2.2.3   CMER Co-Chair Nomination and Selection Process

Nomination Process

CMER core members (Board-approved) may nominate one person, preferably from a different caucus than the remaining co-chair, by April 1 of each year in anticipation of the selection process. Candidates do not need to be Board-approved CMER members during the selection period, but will become members if approved by the Board. CMER will submit the list of candidates, including qualifications and time and funding commitments by the organizations they represent, to the AMPA. CMER should strive to nominate a minimum of three viable candidates. Where three candidates are not forthcoming, CMER should inform Policy of the reason.

CMER Co-chair Selection Process

When there are multiple candidates for a co-chair position, the AMPA will call for a special meeting by a seven-member committee to select the CMER co-chair. The committee will comprise the following members: (a) the AMPA; (b) the current CMER co-chairs plus one CMER core member volunteer; and (c) the current Policy co-chairs plus one Policy member volunteer. This committee will then recommend a CMER co-chair for CMER approval. Policy and the Board will be updated on the co-chair selection process, but Policy and the Board approval of CMER co-chairs is not required.

A CMER co-chair does not need to be a Board-approved core member to serve. However, if the candidate is not a core member, it is recommended the candidate's caucus nominate the candidate to the Board for approval as a core member.

3.2.3 Adaptive Management Program Administrator (AMPA)

The AMPA is a DNR employee assigned full time to the Forest Practices adaptive management program. In conjunction with the responsibility for overseeing and managing the full adaptive management program, the AMPA is the lead administrator for CMER. The AMPA is responsible for managing an efficient, unbiased research and monitoring program.

The AMPA's CMER-related tasks are as follows:

1. Transmit CMER reports and funding recommendations to Policy.
2. Answer questions during Policy discussion of CMER monitoring and research reports.
3. Communicates CMER research results, reports and recommendations to Policy and the Board.
4. Assess the implications of CMER research on forest practices rules and/or board manual guidance and report to Policy and the Board.
5. Communicate pertinent information to the adaptive management participants.
6. Manage the adaptive management program, including research projects, monitoring projects, contracting, budgets, and work plans.
7. Coordinate with the Board to ensure that its guidance and priorities are implemented, and effectively communicate to the Board information and results produced by the adaptive management program.
8. Ensure the scientific integrity of the program, and facilitate appropriate scientific peer review.
9. Bring project results forward promptly, and effectively communicate the activities of the program and the project results. (This duty is shared with the CMER co-chairs.)
10. Oversee the work plans of AMP Project Managers.

11. Coordinate and facilitate, as needed, dispute resolution.

12. Track projects and budgets in consultation with Project Managers.

13. Implement DNR and Office of Financial Management (OFM) contracting procedures.

14. Coordinate website postings and manage the content of the site with the assistance of the CMER coordinator.

15. Ensure the WAC, Board Manual, and CMER Protocol and Standards Manual are adhered to by Policy, CMER and the SAGs.

16. Coordinate with other major monitoring organizations related to forest practices.

17. Identify appropriate potential outside funding opportunities.

18. Oversee the work plans of CMER staff and assign projects.

More details of the AMPA's functions in relation to CMER are in Chapter 8, "Support Services and Requirements."

3.2.4 CMER Coordinator

A CMER Coordinator is responsible for the following:

1. Schedule CMER regular monthly meetings and arrange locations.

2. Distribute correspondence and information to the CMER committee upon approval by the AMPA.

3. Assist CMER co-chairs and AMPA with agenda development.

4. Ensure that meeting agendas are distributed one week in advance of regularly scheduled CMER meetings.

5. Receive and organize all background materials relating to the agenda, and ensure that these materials are distributed, whenever possible, one week in advance of the CMER meeting.

6. Record and distribute meeting minutes and decisions.

7. Assist with CMER meeting management (i.e., remind people of previous decision points when needed).

8. Assist in scheduling CMER-related meetings (e.g., CMER Science Conference).

9. Maintain records of all CMER meetings and any SAG distributions that are important for the record or CMER activities.

10. Assist CMER co-chairs and the AMPA with other administrative tasks as needed.

11. Assist with website postings and content management of the site.

3.2.5 CMER Staff

CMER staff provides scientific support to CMER and the SAGs. Direction and work priorities are provided by the AMPA in consultation with the SAG and CMER co-chairs, PMs, and CMER staff. CMER staff duties may include:

1. Providing technical scientific support with project scoping, design development to final reporting.

2. Selecting sites and implementing projects.

3. Assisting with literature reviews.

4. Acting as Principle Investigator of projects.

5. Acting as Project Manager.
6. Preparing field protocols and conducting QA/QC.
7. Training field crews, collecting and analyzing data, and/or providing over site of data collection/analysis.
8. Analyzing data, writing reports, and responding to peer review comments.
9. Assisting CMER when revising work plan.
10. Providing general scientific support under the direction of the AMPA.

3.2.6 CMER Project Managers

The CMER Project Managers (PM) report to the Adaptive Management Project Administrator (AMPA). The AMPA is principally responsible for ensuring all aspects of project management, as described in Chapter 7, are assigned and carried out effectively.

A key to successful project management is the assignment of a Project Manager who provides project management oversight of the project and its individual steps in consultation with the SAGs and CMER. The AMPA oversees the work plans of PMs and assigns projects according to workload capacity, PM expertise, geographic considerations and other factors.

3.2.7 Scientific Advisory Groups (SAGs)

The Forest Practices Board has given CMER authority to appoint subcommittees, including scientific advisory groups (SAGs) to design and implement research and monitoring programs within specific areas of expertise. SAGs conduct or manage studies on behalf of CMER. The formation, composition, governance, and operation of SAGs are discussed in more detail in Chapter 5.

3.2.8 General Public Participation

Meetings of CMER are open to the general public in accordance with RCW Chapter 42.30.

3.2.9 Other CMER Roles

As a whole, CMER shall also develop and manage:

- SAGs/sub-groups,
- research and monitoring programs,
- sets of protocols and standards,
- a baseline data set used to monitor change, and
- a process for Policy approval of research, external science, and critical questions to be answered.

3.3 *CMER Internal Relations*

3.3.1 General

The core values of CMER are predicated upon the agreement of each CMER participant that adaptive management is based upon sound science and it is the responsibility of every participant to follow sound scientific principles and procedures. Participants will also adhere to the purpose of the adaptive management program, as defined in WAC 222-12-045(1):

… provide science-based recommendations and technical information to assist the Board in determining if and when it is necessary or advisable to adjust rules and guidance for aquatic resources

to achieve resource goals and objectives.…The goal of the program is to affect change when it is necessary or advisable to adjust rules and guidance to achieve the goals of the forests and fish report or other goals identified by the Board.

Individual policy positions should not be the basis for CMER decisions; if they are, the credibility of CMER research can be questioned and CMER will fail in its function to provide impartial results to the adaptive management program.

Participation in CMER is predicated upon adherence with the ground rules below, which were developed collectively by CMER to insure that CMER produces credible scientific results that have a broad base of support.[1] The following Ground Rules are specific to CMER and do not apply to any other portion of the adaptive management program.

3.3.2 CMER Ground Rules

CMER participants will engage in actions that promote productive meetings and will encourage the active participation of each individual member. Examples of these actions are:

1. Speak to educate, listen to understand.
2. Pursue win/win solutions.
3. State motivations and justifications clearly. Discuss issues openly with all concerns on the table.
4. Avoid hidden agendas.
5. Ensure that each individual has a chance to be heard.
6. Help others move tangent issues to appropriate venues by scheduling a time to discuss these issues later.
7. Start and stop meetings on time.
8. Take side conversations outside – listen respectfully.
9. Define clear outcomes for each agenda item and designate a discussion leader.
10. Respect discussion leaders.
11. Be trusting and trustworthy.
12. Acknowledge and appreciate the contributions of others, even when you disagree.

CMER participants agree to spend the time necessary to prepare for meetings so that their participation is both meaningful and relevant, and to refrain from participation when they are unprepared.

When choosing to review documents, CMER participants will provide their comments to the appropriate person in the agreed upon review timelines. If they cannot provide their comments within the agreed upon timelines, they will notify the appropriate person to make other arrangements if possible. If comments or notification is not provided within the agreed upon review timeline, they will not delay the document from moving forward.

CMER participants agree to participate in the adaptive management program's scientific dispute resolution process when consensus cannot be reached and to make a good-faith effort to resolve the dispute.

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[1] CMER ground rules are expected to be refined and added to as necessary over time by CMER consensus.

CMER participants recognize that information and results are preliminary until the final report is approved by CMER. Products must be clearly labeled and presented as DRAFT until approved by CMER as a final product.

At no time shall any potential contractor[2] for a project be involved in the drafting of an Request for Proposals, (RFP), Request for Qualifications (RFQ), or Scope or statement of Work (SOW)[3], unless part of a formal pre-RFP/RFQ meeting. No bidding contractor can be part of the selection process for the specific project.[4]

3.3.3 CMER Dispute Resolution Process[5]

CMER, as part of the Washington State Forest Practices Adaptive Management Program, is mandated to "…strive to use a consensus-based approach to make decisions at all stages of the process," (WAC 222-12-045(2)(b)).

CMER interprets consensus-based approach to mean that committee deliberations in both CMER and SAGs are:

- Agreement seeking
- Collaborative
- Cooperative
- Egalitarian
- Inclusive
- Participatory

Decisions during regular deliberations in CMER and in the SAGs only move forward after consensus is reached. During regular deliberation a single no vote (i.e. thumbs down) can prevent 'consensus' until that vote changes or until formal dispute resolution is conducted. The CMER process allows individuals to abstain or 'step aside', thereby consenting to let a decision/process move forward without that individual necessarily agreeing to the decision (i.e. thumb sideways), so that disagreements do not always result in blocking decisions or progress.

If during regular SAG or CMER deliberations it becomes clear to SAG/CMER participants or to the AMPA that progress towards making a decision has stalled, any participant or the AMPA can invoke the Guided Decision-Making Process (i.e. dispute resolution). Initiating the Guided Decision Making Process sets into motion a series of steps and check-in points with deadlines to facilitate resolution of an impasse in a timely manner.

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[2] For the purposes of this ground rule, "contractor" is defined as owner or employee of a private business and is restricted to contracts identified as open to public bid. These contracts are different from tasks and contracts directed to CMER staff, interagency agreements, and cooperative participation where availability, specialized knowledge and skills, timeliness, and advantage of in-kind contributions are deemed important to project success.

[3] This ground rule applies unless the SOW drafting is awarded as part of the contract.

[4] *The intent of this ground rule is to comply with state law and DNR contracting procedures.* Chapter 19.36 RCW, Statute of Frauds; Chapter 39.19 RCW, Office of Minority and Women's Business Enterprises (see also Title 326 WAC); Chapter 39.29 RCW, Personal Services Contracts; Chapter 39.34 RCW, Interlocal Cooperation Act (Interagency Agreements); Chapter 40.14 RCW (WAC 434-635-010), Destruction, Disposition of Official Public Records or Office files and Memoranda; Chapter 1.06 RCW, State Civil Service Law; Chapter 42.17 RCW (WAC 32-10-020–170), Public Records; Chapter 42.53 RCW, State Ethics Law; OFM Regulation (chapter 3, Part 4, Section 1), State of Washington Policies, Regulations, and Procedures; OFM Guide to Personal Service Contracting; DNR Policy Number P004-001, Interagency Agreements and Memoranda of Understanding; and the DNR Contract Manual

[5] "The CMER co-chairs, with the guidance and assistance of the Administrator, are responsible for setting up a dispute resolution discussion and can employ a variety or combination of methods to attempt to resolve the dispute." (Board Manual Part 5. Dispute Resolution, Sect. 5.4 Guidance for Dispute Resolution Stage 1, paragraph 5)

3.3.4 Guided Decision-Making Process

(Please refer to accompanying flow chart below)

The general approach of the Guided Decision-Making Process is to divide CMER decision making into 3 broad steps. The first step is to convene an informal meeting between the parties to determine if the dispute(s) can be resolved outside of a regular SAG or CMER meeting. If this is not successful, the second step is for the AMPA and CMER co-chairs to assign the issue(s) that are in dispute into one of four categories: Stylistic, CMER Process, Policy, and Technical. The process to resolve issue(s) in step 2 depends on to which category(s) the dispute has been assigned (see below). If the issue is categorized as Technical and there is still no consensus at the end of step 2, a third step is to refer the issue to Policy.

3.3.4.1   Step 1: Convene an informal meeting

When there is an impasse at CMER or in a SAG and decision making breaks down and becomes insoluble or unacceptably slow using regular deliberations, any participant or the AMPA can initiate the formal Guided Decision-Making Process. The first step is for representatives on both sides of the non-consensus issue/question to meet together and with the AMPA and other interested parties within 30 days to attempt to resolve the impasse.

If the issue/question cannot be resolved at this meeting, tabling the discussion and resolution to a future date should be discussed. Some issues may not be time-sensitive or critical for moving them, or other CMER work, ahead. If a better time can be identified to resolve the issue/question and there is consensus within CMER or the affected SAG to table the issue, a future date should be specified for re-engaging the discussion.

3.3.4.2   Step 2: Categorize and resolve the issue

If the issue/question cannot be resolved at the 'informal' meeting and there is no consensus to table the issue/question, then the disputing parties need to clearly articulate in position papers their interpretation of the issue/question and their positions. If the non-consensus is occurring in a SAG, the issue is elevated to CMER to continue the guided decision making process. The position papers should be submitted to the AMPA and CMER co-chairs within 14 calendar days after the decision to move forward, but no later than in time for the next CMER meeting mail-out if within the 14-day period, unless an alternate date is agreed upon by the AMPA. If a SAG or CMER participant(s) blocking consensus is unable or unwilling to provide this document in this time frame, it will be treated going forward the same as if the individual stood aside, and that consensus has been reached.
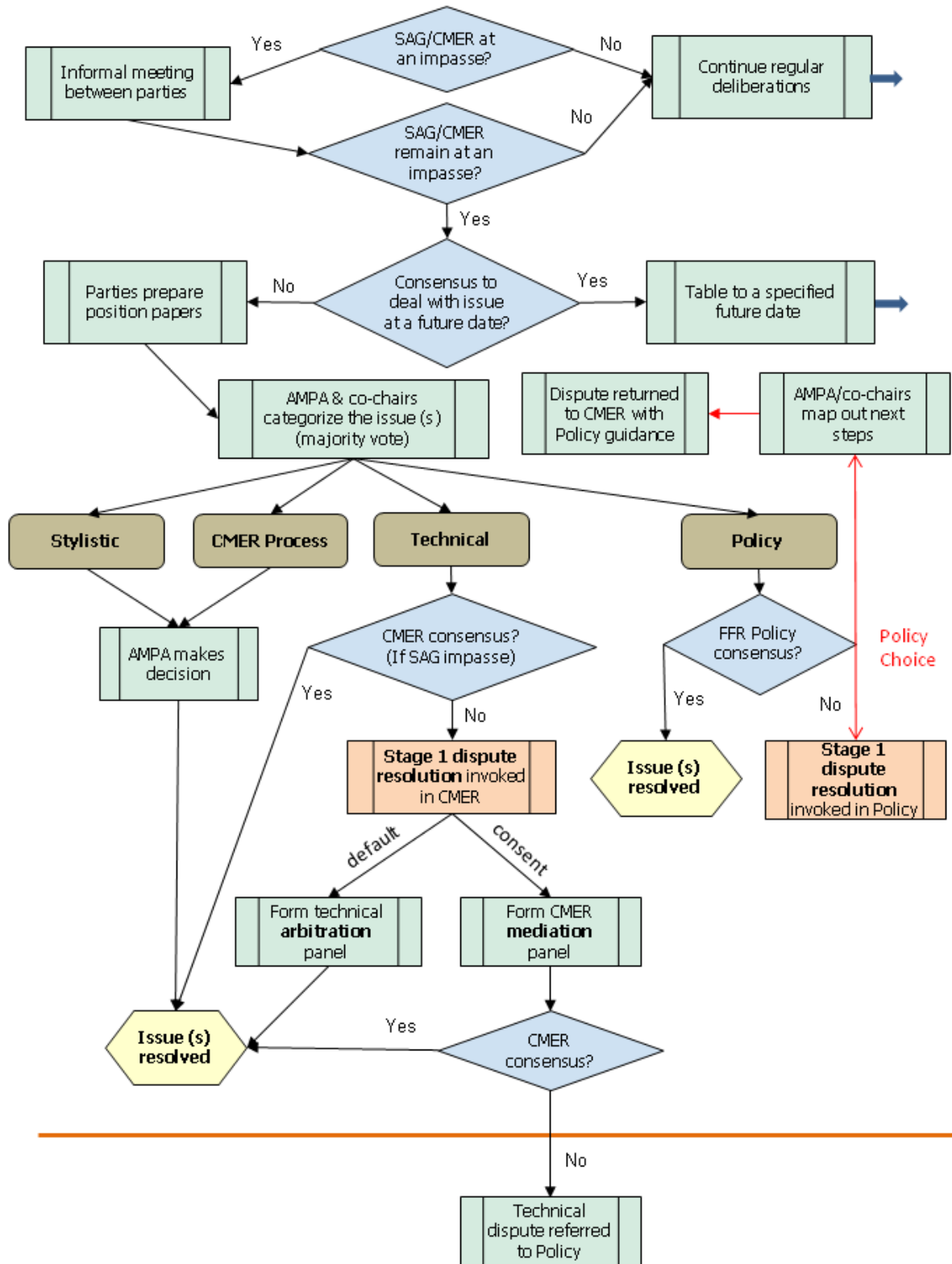
If all parties submit position papers, the AMPA and CMER co-chairs will assign the issue/question(s) to one (or more) of four categories based on the position papers: Stylistic, CMER Process, Policy, or Technical.

Guided Decision-Making Process

period, unless an alternate date is agreed upon by the AMPA. If a SAG or CMER participant(s) blocking consensus is unable or unwilling to provide this document in this time frame, it will be treated going forward the same as if the individual stood aside, and that consensus has been reached.

If all parties submit position papers, the AMPA and CMER co-chairs will assign the issue/question(s) to one (or more) of four categories based on the position papers: Stylistic, CMER Process, Policy, or Technical.

Resolving Stylistic Issues: Stylistic issues include format or other non-technical issues related to reports or other documents. The basis for categorizing issues/questions as stylistic rests on the interpretation of the position papers that the issues/questions do not affect the integrity of a study's results or are not technically substantive in nature.[6] Documents may include charters, scoping documents, study designs, maps, tables, figures and other work product. When the AMPA and co-chairs categorize an issue/question as stylistic, the AMPA makes the final decision (thus resolving the dispute) after consulting with the author(s) or creators of the document or work product. At this point, the CMER/SAG Guided Decision-Making Process has been completed. The AMPA should make a decision and inform the affected SAG or CMER in writing no later than 14 days after receiving the position papers.

Resolving CMER Process Issues: CMER process issues include questions or disputes that relate to 1) interpretation of CMER process guidelines (as described in the PSM), including whether ground rules were followed (see PSM, Chapter 3, section 3.3.2), and 2) whether comments on a CMER product (scoping document, study plan, charter, study report, comment matrix, etc.) relate to an issue that has already been decided by CMER. For example, a dispute over appropriate field methods during review of a draft final study report may be classified as a CMER Process Issue. When the AMPA and co-chairs categorize an issue/question as a CMER Process Issue, the AMPA makes the final decision (thus resolving the dispute). At this point, the Guided Decision-Making Process has been completed. The AMPA should make a decision and inform the affected SAG or CMER in writing no later than 14 days after receiving the position papers.

Resolving Policy Issues: Policy non-consensus includes issues/questions that relate to rule interpretation, board manual interpretation, or to research priorities/questions that are primarily policy in nature or are directions from policy. When the AMPA and CMER co-chairs categorize an issue/question as policy, there are several steps in the guided decision-making process. The AMPA will inform the parties which issues have been categorized as policy issues and inform them of the date the issue(s) will be discussed at Policy. The AMPA will write an introductory statement to provide background on the issue/question and describe the kind of guidance that SAG/CMER is requesting. This will be done within 14 days after the issue has been categorized as a policy issue, using the original or revised position papers. The AMPA will combine all the policy issues into a single document and identify critical timelines for resolution. The non-consensus representatives will have 7 days to review and comment on this document.

The next step includes the AMPA forwarding the document to the FFR Policy Committee along with a recommendation. The disputing parties and other interested CMER/SAG participants should attend the Policy meeting when the issue/question is discussed. At the conclusion of this meeting, Policy will be asked to make a decision by no later than the next Policy meeting. At this stage, Policy can:

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[6] Examples of causes of stylistic issues: People have varying writing styles, which should generally be left up to the discretion of the author, unless unclear, etc. Some people are splitters, while others are lumpers – neither is right or wrong. Some people want to include the bare minimum necessary, while others prefer more context and details – again, neither is right or wrong. These are matters of personal choice.

1. Resolve the issue and inform CMER,
2. Choose to initiate Stage 1 dispute resolution within Policy, or
3. Return the issue to CMER with guidance for resolution.

Resolving Technical Issues: Technical issues are scientific in nature. When the AMPA and co-chairs categorize a non-consensus issue/question as technical, the first step is to forward the issue/question to CMER voting members for their consideration if the dispute/question arose in a SAG/TAG and has not yet been discussed in CMER. CMER voting members should come prepared to vote at the next CMER meeting after receiving the dispute, unless the AMPA agrees to an alternate timeline. If CMER voting members are in consensus on an issue/question, then a final decision has been made and the Guided Decision-Making Process has been completed.

If CMER voting members are not in agreement and non-consensus remains over a technical issue, the party that wants a project or recommendation to move forward to the next step (for example scoping documents, study designs, reports, charters, work plans, etc.) should invoke formal (CMER) dispute resolution. This is the party that objects to another CMER/SAG participant blocking a decision to move forward.

If formal dispute resolution is invoked, CMER has up to six months to resolve the dispute. The initial step is for CMER to decide whether to form an arbitration or mediation panel. The default is for the AMPA to convene an arbitration panel. The arbitration will be binding, and will have up to 3 months, or the shortest practical time frame, to resolve the question/issue. At the conclusion of the arbitration step the issue(s) will be considered resolved.

If however there is consensus in CMER to form a mediation panel instead, the AMPA will form an ad hoc committee made up of SAG/CMER participants to work on resolving the issue/question outside of CMER meetings. Depending on the issue/question, the AMPA may pull together an external panel (using DNR contracting if necessary) to provide expertise for the ad hoc committee to sort out the technical questions and issues. The ad hoc committee will have up to 3 months, or the shortest practical time frame, to resolve the question/issue (i.e. no blocking vote). If the ad hoc committee does come to consensus, the decision is brought back to CMER for formal adoption and the Guided Decision-Making Process is complete. If the ad hoc committee does not come to consensus by the assigned deadline, the AMPA and CMER co-chairs make the decision and forward it to CMER. Again, the expectation is that this would complete the Guided Decision-Making Process.

3.3.4.2   Step 3: Refer Technical disputes to Policy

At the conclusion of the above CMER Guided Decision-Making Process for issues categorized as Technical, the steps of stage 1 dispute resolution have been followed within CMER. If at this point a voting CMER member does not accept the decision, the dispute is referred to Policy, as described in the Board Manual (Section 22, Part 5). The dispute remains in stage 1 and Policy has up to an additional six months to resolve the dispute within stage 1 within Policy. If that does not occur the dispute may be elevated to stage 2.

4 CMER Meetings and Meeting Management

This chapter outlines the frequency and content of CMER committee meetings, the procedures for calling and holding meetings, and the roles of CMER co-chairs, coordinator, the AMPA, and members in meetings.

4.1 *Meeting Requirements*

4.1.1 Regular Monthly Meetings

Regular meetings are held once a month (typically the fourth Tuesday of each month). Meeting dates for the year are determined at that year's January meeting and are included in the meeting minutes. Meeting dates shall be scheduled so as not to conflict with predetermined Forest Practices Board meetings and Forests and Fish Policy meetings. All CMER meetings are public, and public notice is required.

4.1.2 Special meetings

Special meetings can be called by the co-chairs, by the AMPA, or by consensus of CMER members. Notice of special meeting location, time and agenda is to be distributed to CMER participants no less than seven days prior to the special meeting. Only topics detailed on the distributed agenda are to be addressed at the special meeting.

4.2 *Meeting Process*

Agendas are developed for all CMER meetings by the AMPA, CMER co-chairs, and CMER Coordinator. CMER's agenda generally includes the following items:

- Introductions
- Agenda review and alterations
- Approval of minutes
- Review of CMER work items
- Scheduled science session
- Budget update
- SAG requests
- Independent Scientific Peer Review (ISPR) update
- SAG issues and updates
- Work plan prioritization
- New business
- Review of new decision points and action items, and topics for Policy update

Along with regular business, CMER meetings often include science sessions. If scheduled, the science session is typically a presentation or discussion of a scientific topic relevant to CMER research and monitoring.

4.3 *Meeting Coordination*

Meeting arrangements are made by the CMER Coordinator (see Chapter 3).

4.3.1 Notices of Meetings

Monthly meeting locations are posted on the DNR website a year in advance. The CMER coordinator sends an agenda and meeting material to the CMER listserv one week before each scheduled meeting. This includes the time, location, and background information needed for that month's meeting.

4.3.2 Dissemination of Agenda Items and Decision Points

The meeting information that the CMER Coordinator sends out will include an agenda detailing new business and decision points. Any decision points for any topic on the agenda should be highlighted on the agenda (with an asterisk), and background information for these decisions must be made available prior to the meeting.

For CMER requests (from CMER subgroups (e.g., SAGs, TAGs), a standard form, the CMER Request Form – see appendix XX, will be used to present the request to CMER. The SAG co-chairs (or project leads) should complete or facilitate the completion of this form and send it to the CMER Coordinator for distribution through the CMER listserv no less than one week prior to the CMER meeting.

CMER participants are expected to review materials before the meeting and contact sponsors of items where there are questions that may be resolved before the meeting.

4.4 *Meeting Management*

Meetings are managed by the CMER co-chairs. The CMER co-chairs start and adjourn the meeting, ensure that the meeting follows the agenda, introduce the agenda topic presenters, and guide the discussions. When many members want to speak on the same topic, the co-chairs recognize the speakers in order and prevent interruptions. The co-chairs ensure that everyone present has an equal opportunity to participate in the conversation.

Action items, issues, and proposals are presented or reviewed consistent with the agenda distributed before the meeting (unless a change in the agenda is agreed to at the start of the meeting). The presenters elaborate on the facts as necessary and answer any clarification questions that members ask. The group then discusses issues and identifies concerns. Individuals expressing concerns are responsible for working productively with the group to resolve them. The co-chairs formally call for consensus on the decision/action being discussed, and read the specific language that will record the decision/action.

4.4.1 Decision Making

Decisions are made by consensus. The goal is for all opinions or positions to be shared, and all members to agree to allow an action to proceed. Full agreement by all participants by all participants is ideal. When consensus cannot be reached among all participants at a CMER meeting, co-chairs will seek consensus of the Board approved CMER members. The possible outcomes of the consensus process are as follows:

1. Full consensus, in which the proposal is unanimously supported
2. Stand-aside consensus (abstention) in which one or more Board approved CMER members abstain from voting and allow the proposal to move forward. Members are not to stand aside if they have concerns that may affect their ability to support the proposal/project at later stages. See 3 (below).
3. No consensus in which at least one Board-approved CMER member votes no on an issue or proposal, resulting in one of the following:

a. The action is blocked (unless a consensus alternative proposal can be identified at the meeting), or;

b. The issue is submitted for CMER internal dispute resolution - Guided Decision-Making Process (see chapter 3).

4.4.2 Documenting CMER Decisions/Actions Items and Discussions[1]

4.4.2.1 Decision and Action Item Table

Every CMER related committee (CMER, SAG, TAG) is expected to maintain a record of decisions and actions items by filling out and updating, as necessary, a running table listing all decisions, action items and relevant updates. The CMER/SAG co-chair(s), or the identified leader of the TAG or other CMER sub-group / is responsible for making sure the table is filled out appropriately. Information in the table should include the following fields:

Date	Date that the decision or action item was made. Include what type of meeting: (i.e. monthly meeting, conference call, ad-hoc meeting, etc).
Project/Issue	Name of project, or issue or topic that the decision/action item refers to. If the committee is a TAG or other CMER sub-group, focus on specific topic(s) related to the project/issue. If committee is a SAG or CMER, list the project or issue as well as the specific topic (eg, "Soft Rock Study/Site selection criteria")
Decision	Concise (1 to 3 sentences) summary of decision or action item(s).
Person responsible	List the group or individual identified as being responsible for carrying out the decision or action item (if appropriate).
Date to be completed	Date that an action item, deadline or resolution of issue is to be completed (if appropriate).
Consensus? Note/update	Add either the phrase 'consensus reached with no stand asides,' or 'consensus reached with stand asides,' to emphasize to all in attendance that the decision was by consensus. Also include any qualifying or relevant information about the decision/action item, or any update related to the decision.

An example template for the Decision and Action Item table can be found in Appendix
The Decision and Action Items table is to be continuously updated as meetings occur and decisions are made. A SAG/TAG lead, or the CMER Coordinator for CMER decisions, will be responsible for filling out and updating the table during meetings or phone conferences. When a decision is reached, the lead (or an alternatively designated note taker) will discuss with everyone in attendance how the decision will be recorded in the table. If a decision is rescinded or changed, that should be noted in the table both as a new decision, and with a note by the old decision.

The updated table should be reviewed before each meeting/phone conference adjourns. A copy of the table should accompany meeting minutes when the minutes are distributed and approved. If there are no meeting minutes, then the Decision and Action Item table should still be maintained and distributed for review.

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[1] This guidance applies to all CMER related committees.

4.4.2.2 CMER Meeting minutes

Minutes are taken by the CMER coordinator who is responsible for taking notes that include a list of all attendees, action items, decision points, and key discussions.

The CMER Coordinator submits the draft minutes to the CMER Co-chairs and AMPA for initial review of decisions and topics/issues discussed during the meeting. The coordinator incorporates comments from the CMER Co-chairs and AMPA, and then sends the draft minutes out to the CMER listserv. The coordinator receives and documents comments from those in attendance at the CMER meeting. The goal is to bring the revised minutes to the next CMER meeting for approval. Revisions are described, and minutes are approved as amended. Disputes concerning the minutes can be dealt with in the dispute resolution process. The CMER Coordinator is responsible for presenting minutes for approval and old business for consideration according to the agenda. Before adjournment of a meeting, the CMER coordinator will restate all decision points and action items recorded during the meeting.

5 Scientific Advisory Groups (SAGs)

Scientific Advisory Groups (SAGs) are subcommittees formed by CMER to recommend, manage, conduct or facilitate, and evaluate scientific research projects and programs to help CMER fulfill its mission. This chapter outlines the formation, roles, responsibilities, operation, and dissolution of SAGs.

Examples of SAG's include:

- LWAG-Landscape/Wildlife Advisory Group
- UPSAG- Uplands Scientific Advisory Group
- RSAG-Riparian Scientific Advisory Group
- WETSAG-Wetlands Scientific Advisory Group
- SAGE- Scientific Advisory Group Eastside

5.1 *Formation*

CMER may create a SAG whenever it determines a need for a subcommittee to address a particular science-related question or set of questions. CMER will define a clear purpose, desired outcome and focus of the SAG. CMER may recommend the type of expertise required of participants in the SAG. All caucuses are encouraged to appoint representatives to each SAG. SAG participants are scientists and practitioners qualified in the scientific discipline that the SAG is intended to address. No confirmation is necessary for participation; however, the SAG should provide CMER a list of participants and their qualifications.

5.2 *Roles and Responsibilities*

5.2.1 Committee

SAGs conduct or facilitate research and monitoring to answer questions posed by the Board or Policy, or as otherwise articulated in the CMER work plan. SAGs may propose programs and projects to be considered for inclusion in the work plan. All SAG recommendations and results are provided to CMER for review and further action. (See Section 2.6 on Roles and Responsibilities of CMER) Specifically, responsibilities of SAGs include:

1. Developing research and monitoring strategies;
2. Updating the CMER work plan as needed;
3. Developing project budgets;
4. Working with contractors and AMP Project Managers to meet project objectives;
5. Responding to requests from CMER;
6. Reviewing, approving, and forwarding study designs, reports, and other research and monitoring related documents to CMER; and
7. Initiating the guided decision making process in Chapter 3

5.2.2 Members

Members are expected to follow the CMER ground rules (see CMER Internal Relations in Chapter 3, "CMER Organization"), read materials in preparation for meetings, attend meetings of the SAG, contribute to discussions, participate in decision making, take on assignments, and, when needed, serve as a scientific advisor to AMP project managers. SAG members should keep their CMER and/or Policy committee counterparts informed on SAG business, as needed. SAG members may also participate in CMER research.

5.2.2.1 SAG Co-chairs Election and Term

Each SAG shall choose a chair or co-chairs through a process agreed upon by the SAG and determine the term of the SAG chair or co-chairs. Notify the AMPA and CMER co-chairs of SAG co-chair names.

5.2.2.2 Duties

Duties of SAG Co-chairs include:

1. Be sufficiently familiar with the CMER Protocols and Standards Manual to
2. Be able to facilitate research and monitoring activities, including review and approval of documents, SAG requests, direction to project principal investigators and contractors, etc.
3. Maintain contact lists of members and interested parties for notification of meetings and providing minutes.
4. Ensure that meeting agendas and other materials are provided to members at least one week before each meeting.
5. Conduct SAG meetings.
6. Ensure that action items and decisions are recorded as per guidance in Section 5.3.4 below and minutes are taken and distributed at least one week prior to the next meeting.
7. Assist with locating expertise from outside the SAG when needed.
8. Appoint ad hoc committees as needed.
9. Attend CMER meetings.
10. Present to CMER proposals, reports, SAG requests and any other documentation required for any phase of a project or program.
11. Facilitate updates to the CMER work plan for all projects being overseen by the SAG.
12. Appoint SAG members to be contacts for each SAG project.
13. Convey to the SAG any relevant information and decisions from CMER, Policy, and the Board.

The duties of a SAG Co-chair may be assigned to SAG members or shared with CMER Co-chairs, AMP project managers, CMER voting members or others. However, the SAG Co-chair is responsible for ensuring that duties are completed.

5.3 *Meeting Management and Decision Making*

Each SAG uses a consensus-based decision process. Consensus means that all opinions or positions are shared and a mutually agreed-upon solution can be reached and supported by all members. When consensus cannot be achieved, SAG members are to follow the dispute resolution – Guided Decision Making Process described in section 3.3.4. CMER is responsible for ensuring that SAG recommendations represent consensus among all caucuses active in CMER.

SAG meetings should follow the guidelines for CMER meetings (described in Chapter 4). Each SAG, by consensus of all its members, may modify the CMER meeting guidelines to suit its needs.

5.3.1 Regular Meetings

Each SAG is encouraged to hold regular meetings at consistent intervals. Monthly meetings are recommended. The number of projects or timeline of a particular project may determine the frequency of meetings.

5.3.2 Special Meetings

When a decision is needed between regular meetings, or a topic/issue needs additional discussion, the co-chairs may call a special meeting. This could be an extra SAG meeting or a standing Technical Advisory Group (TAG) meeting, etc. One week's notice should be provided if possible. If a face-to-face meeting cannot be arranged, the SAG may meet by teleconference, conference call, e-mail, or other electronic means. As in regular meetings, decisions must be by consensus. Not all regularly participating members of a SAG need to attend a special meeting for it to occur; however, before the special meeting convenes, the SAG will decide whether decisions reached at the special meeting need to be reviewed at a regular SAG meeting before becoming final. Any decision made in a special meeting must be communicated to all interested parties before the next regular SAG meeting.

5.3.3 Notices of Meetings

Notice of each meeting shall be provided to all members of the given SAG and CMER at least one week before the scheduled meeting date. In addition, annual publication of all meeting dates and times for a year may facilitate participation. A list of agenda issues should accompany the notice of meeting. The agenda should clearly indicate which issues require a decision. Background materials to be read before the meeting should be attached, linked to an electronic location, or directions for obtaining them should be provided.

5.3.4 Meeting Minutes

Meeting notes or minutes of key topics and issues are preferred. At a minimum, SAGs and other CMER sub-groups are expected to maintain a record of decisions and actions by filling out and updating, as necessary, a running table listing all decisions, action items and relevant updates. See 4.4.2 Documenting CMER Decisions/Actions Items and Discussions for further guidance.)

5.4 *Dissolution*

SAGs may be dissolved or integrated into another SAG when:

1. A SAG has completed the work for which it was formed,
2. CMER finds that a SAG is not performing its duties adequately,
3. Workload changes. CMER may split one SAG into two or merge two SAGs into one, or
4. The programs on which a SAG is working receive a low priority or are dropped from the work plan.

6 CMER Work Plan Process

The CMER work plan is a document that describes AMP research and monitoring programs, critical questions, and individual projects. The work plan contains completed projects, projects under development, and currently active projects as well as projects identified for future design and implementation. The CMER work plan provides the backbone for establishing CMER research and monitoring priorities for a given fiscal year.

The cycle of work plan development follows the fiscal year calendar of the State of Washington government, which begins on July 1 and ends on June 30 of the following year. Each fiscal year, CMER prepares a project list and associated budget for submission to the Board for approval. Within the overall AMP cycle, revisions to the work plan and project list generally starts September 1. Under this schedule, proposed changes to the work plan and associated project list are approved by CMER in January, and sent to Policy by April for concurrence. It comes before the Board in May for consideration. In the subsequent fiscal year, CMER members and SAGs proceed with implementing the Board-approved project list contained within the CMER work plan.

This chapter describes the process for revising the work plan. The nature of the work plan and the types of information it contains are summarized, including the criteria and the process CMER uses to rank proposed projects according to their relative importance for meeting FFR goals and objectives. To view or download the current CMER work plan, follow the link at

http://www.dnr.wa.gov/BusinessPermits/Topics/FPAdaptiveManagementProgram/Pages/fp_am_program.aspx

6.1 *Purpose of the CMER Work Plan*

The purpose of the work plan is to outline an integrated strategy for research and monitoring of the effectiveness of Washington State forest practices rules, guidance, and department policies as prioritized by Policy and the FP Board. The work plan is critical to conducting CMER business, fulfilling the priorities of the Board's adaptive management program, and informing the general public who are interested in CMER's activities.

6.2 *Organization of the Work Plan Document*

The work plan is organized in a hierarchical format (Figure 6-1). Forest practices rule groups form the highest level, programs occur within rule groups, and projects are defined within programs.

Research and monitoring questions are identified at the rule group level and are assigned to programs. Then projects are developed within each program. In the remainder of this section, we further define the rule groups and programs and introduce the monitoring task framework that is being used by CMER.
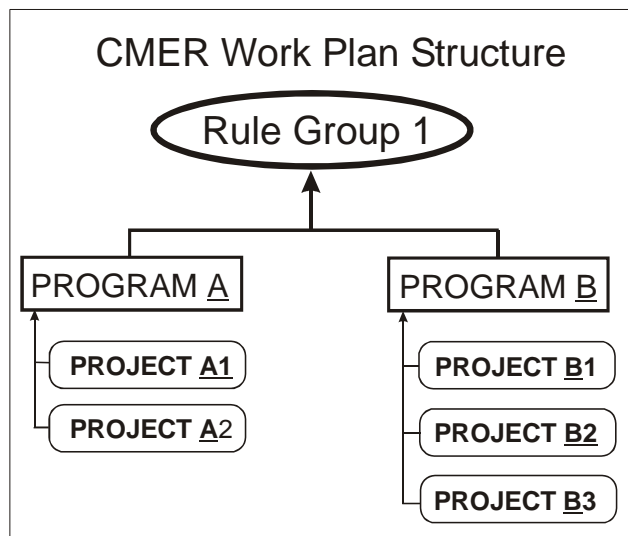
Figure 6-1. Work plan structure

6.2.1 Rule Group Structure and Definition

A rule group is a set of forest practices rules relating either to a particular resource, such as wetlands or fish-bearing streams, or to a particular type of forest practice, such as road construction and maintenance.

The rule groups are organized along the lines of the Forests & Fish Report (FFR) appendices, including:

1. Riparian Strategy (FFR, Appendix B), which includes five subgroups:
   a. Stream Typing
   b. Type N Streams
   c. Type F streams
   d. Bull trout
   e. Channel Migration Zones (CMZ)
2. Unstable Slopes (FFR, Appendix C)
3. Roads (FFR, Appendix D)
4. Fish Passage (included in FFR, Appendix D, Roads)
5. Pesticides (FFR, Appendix E)
6. Wetland Protection (FFR, Appendix F)
7. Wildlife (FFR, Appendix M)

6.2.2 Program Structure and Definition

A program is a combination of one or more projects designed to address the scientific questions underlying a specific rule group. Four general types of programs may be identified for each rule group: rule tools needed to implement the rules, effectiveness monitoring, extensive (status and trends) monitoring, or intensive monitoring. A description of each current program, including its purpose and objectives and the strategy for accomplishing them, is in the current work plan (see Appendix G for URL).

6.2.3 Project Structure and Definition

One or more projects comprise a program within the rule group structure. A CMER or SAG project is defined as one research or monitoring task resulting in a final report or product. Each project is often comprised of several steps including scoping paper, literature review, study plan, implementation plan, field and data management, in- progress reporting, and final reporting. Project management of those steps is discussed in Chapter 7 of this PSM. The process by which CMER programs and projects are proposed and developed is described in this section.

6.3 *Proposal Initiation*

The term *proposal* is used generically here to identify anything whose end product is intended to inform FF Policy or the Board about forest practices rules or guidelines, or otherwise meet one of the AMP's goals and objectives.

Research and monitoring proposals enter the AMP through several pathways.

1. CMER developed and ranked the original work plan programs and project list based on the FFR Schedule L-1.

2. CMER work may also lead to additional studies proposed to Policy by CMER. These may additionally be prioritized and included in the work plan and annual budget approved by the FPB.

3. Some CMER work originates from questions from Policy or the FPB. These projects are written up, prioritized and included in the work plan.

4. Research gaps identified by SAGs or CMER can lead to project proposals that are proposed to Policy and added to the CMER work plan.

5. Formal proposal to the Forest Practices Board – anyone can make a proposal to the FPB which may enter the AM process, be evaluated by the AMPA as to relevance and priority, with AMPA recommendation to the Policy on how to address the proposal. It may be added to the CMER work plan and prioritized. WAC 222-12-045 (2) (d) describes this pathway in detail. Board Manual 22, also describes this pathway.

6.4 *Setting Program and Project Priorities for the Work Plan*

The Adaptive Management Program focuses its research and monitoring efforts on critical areas by ranking and prioritizing its research and monitoring programs and projects. The original Schedule L-1 in the 1999 Forests and Fish Report contained an unprioritized list of research and monitoring needs. At the time, CMER prioritized the various research and monitoring programs (not individual projects at that point) in order to direct limited human resources toward the highest priority programs. No programs were eliminated. Because research funding has become even more limited, CMER continues to focus on completing the highest priority work. Projects are worked into the work plan based on either their scientific priority (i.e., scientific uncertainty and resource risk) or their priority as determined by the Policy or the Board based on political, economic or social needs.

6.4.1 CMER Strategy for Setting Priorities

The original CMER strategy for annual program ranking and work priority was based on discussions with Policy. Although the Forest Practices Board is the final approving authority, Policy has been given oversight responsibility for reviewing CMER priorities and budget. The program prioritization strategy is as follows:

1. Rank at the program level (as opposed to the project level).
2. Provide a separate ranking of effectiveness/validation monitoring programs on the basis of scientific uncertainty and risk to aquatic resources.
3. Provide a separate ranking of extensive trend monitoring programs on the basis of scientific uncertainty and risk to aquatic resources.
4. Determine the importance or priority of individual projects within a program on a case-by-case basis.
5. Consult with DNR on ranking of rule tool programs, with DNR taking the lead.
6. Proceed with scoping of the intensive monitoring program.

This section presents CMER's original criteria and process for ranking effectiveness/validation and extensive trend monitoring programs. Policy and the Forest Practices Board have reviewed and accepted the rankings presented herein. Consultation with DNR facilitated ranking of rule tool programs

6.4.1.1   CMER Ranking Criteria

The ranking approach applied to effectiveness monitoring, validation research, and extensive trend monitoring programs was designed to assess the merit of each program by asking two questions:

1. How certain are we of the science and/or assumptions underlying the rule?
2. How much risk is there to the protected resource if the science and/or assumptions underlying the rule are incorrect?

In an attempt to obtain a uniform set of scores, the ranking approach constrains subjectivity by carefully defining the two assessment criteria and by establishing a numerical evaluation scale for each criterion. The sum of the assessment scores indicates the project's importance.

The ranking process is firmly rooted in the FFR. The rules established during the FFR negotiations are based on science as well as certain assumptions as to the application of the known science to the forest practice. The authors understood that uncertainties and gaps existed in the scientific foundation of the rules and that consequently some of the underlying assumptions contain uncertainties. CMER was charged with reducing these uncertainties through effectiveness and validation monitoring and research. Any necessary modifications to the rules would then go through the adaptive management process.

A. Criterion 1: Scientific Uncertainty

Scientific uncertainty is defined by the following question:

How much is NOT known about the science and the assumptions on which the rule is based?

Uncertainty is a measure of confidence in the science underlying a rule, including the scientific relationships providing the conceptual foundation for the rule, the assumptions incorporated into the prescription, or the response to the prescription when it is applied on the ground. High uncertainty (low certainty) indicates that little is known about the underlying science and the rule is likely based on speculation or poorly tested assumptions. It may also indicate that the prescription treatment is untested, and the performance under field conditions is unknown. Low uncertainty (high certainty) indicates that the science underlying the rule is well known and accepted, or that the prescription (or similar treatments) has already been evaluated under similar conditions. Examples:

High Uncertainty: Few studies describe the factors controlling the initiation of perennial flow in headwater streams, and the rule is based on assumptions derived from limited data. No studies have been done of the Type N patch buffer system (clear-cut strategy) relative to buffer survival or riparian functions.

Low Uncertainty: Numerous studies describe the effects of forest practices on slope stability and the unstable-slope rules have a firm scientific/technical foundation. (This firm foundation does not necessarily imply that all aspects of the unstable- slope rules have a similarly firm scientific foundation.)

B. Criterion 2: Risk to Resources

Risk to FFR resources is defined by the following question:

What is the potential impact on FFR resources if the rule is flawed?

A deficient rule has the potential for detrimental impacts on aquatic resources, impacts that can undermine the FFR goals. A high risk assignment indicates the rule component under study has a greater potential to alter the resource because of its high magnitude, frequency, or direct linkage to the resource. A low risk assignment indicates that the rule component has a lesser potential to alter the resource because of its low magnitude, frequency, or indirect linkage to the resource.

High Risk: Mass wasting is a major contributor of sediment to forest streams. Increased rates of mass wasting from forest practices can have a high impact on critical salmon and amphibian habitat, and thus the unstable slopes rule has a high risk ranking.

Low Risk: The Type F riparian prescriptions require a minimum leave tree requirement in the outer zone, however because of the small number of trees and their distance from the stream, there is only limited risk to riparian functions and aquatic resources from thinning in the outer zone.

6.4.1.2   CMER Scoring System

The range of scores for each criterion is 1 (lowest) through 5 (highest). To increase scoring consistency the high (5), medium (3) and low (1) scores were defined for each criterion. The intermediate scores (i.e. 2 and 4) allow for a more refined estimation of value or as a vehicle to resolve uncertainties.

6.4.1.3   CMER Ranking Process

Effectiveness/validation and extensive trend monitoring programs were ranked using the system described above by CMER members in attendance at the December 19, 2002, CMER meeting. The individual scores were averaged to obtain a mean score for risk and a mean score for uncertainty for each program. The mean risk and mean uncertainty scores for each program were multiplied to get a combined score, and programs were ranked on the basis of the combined scores.

6.4.2 Policy Strategy for Setting Priorities

Although CMER limits its focus to scientific uncertainty and technical issues during ranking, Policy and the Forest Practices Board may apply economic, legal, or other criteria before approving the final work plan and associated project list. For example, since 2009 CMER projects that address Department of Ecology Clean Water Assurances have been given top priority over other projects in the CMER work plan.

Example of Record of decisions and action items table

SAG/CMER/TAG: ‘TheEternalTruth’ Study TAG

#	Date	Project/ Issue	Decision/action item	Person responsible	Date to be completed	Consensus? Note/update
1	6/30/2009 In person meeting	Contract changes needed	Change contract to include: a report of the methods used to collect data, delivery of the 'raw' data for all 16 sites to CMER staff at the NWIFC, and field notes/ observations that are pertinent to the data collected.	Jane Doe, AMP PM	9/23/2009 CMER meeting	Consensus reached. Contingent on RSAG/CMER approval
2	6/30/2009 In person meeting	Final report	Though the analyses and the final report will be completed in-house by RSAG and CMER staff, the consultants will maintain co-authorship of the final report. They will provide specified sections, which will be incorporated into the report, and they will provide review of the draft report.	NA	NA	Consensus reached.
3	6/30/2009 In person meeting	RSAG communication	Write memo for July RSAG meeting, requesting approval of recommended changes.	RSAG member John Smith	7/16/2009	Consensus reached.
4						
5						
6						

7 Project Development and Management

Successful completion of projects requires effective project management. This chapter provides guidance to project managers on the standards and protocols that address CMER documentation and tracking needs. In addition, by following the guidelines given here the dual obligations of CMER: scientific credibility and fiscal accountability are addressed. These guidelines are offered in recognition that CMER is a collaborative and cooperative process and allowances must be made for flexibility in completing a diverse array of projects.

7.1 *Project Management Overview*

The project level is the next tier below the program level within the overall rule group structure. For most projects the final product or report requires completion of a series of intermediate project steps.

7.1.1 Project Steps

Seven project steps are discussed in this chapter: (1) scoping paper; (2) literature review, (3) study plan, (4) implementation plan, (5) field and data management, (6) status and in-progress results reporting, and (7) final results reporting. The organization of the steps is designed to accommodate the completion of common processes, products, or reports and allow for appropriate SAG and CMER reviews and approvals before continuing to the next project step. The steps also identify convenient points where a project may be archived because of timing, funding, or other problems that require its postponement or cancellation. After archiving, the project can be taken back "off the shelf" and resumed with minimal adjustments once funding or other problems have been remedied.

Some CMER projects do not require all steps, but all steps should have been considered and explanations of omissions should be documented. The process described here can also be used to help evaluate external scientific information for use in CMER.

Project Steps
1. Scoping paper
2. Literature review
3. Study plan
4. Implementation plan
5. Field & data management
6. Status & in-progress reports
7. Final results reports

7.1.2 Project Manager Roles and Responsibilities

A key to successful project management is the assignment of a Project Manager (PM) who provides oversight of the project and its individual steps. A PM should be recommended by a SAG or project proponent and approved by CMER. When more than one SAG is involved in a project, the involved SAGS should agree on the recommendation of a single PM. The PM will maintain project accountability, communication, and facilitate CMER administrative tracking. The PM may delegate selected project responsibilities to others, but the lead PM maintains sole responsibility for all aspects of project management. The AMPA will maintain a list of all currently designated PMs and their contact information.

A. The primary roles of the Project Manager (PM) include the following:
1. Advocacy for CMER objectives
2. Leadership
3. Coordination
4. Communication
5. Timeline and product management

B.   The primary responsibilities of the PM are as follows:
1. Monitor the performance of all project participants and cooperators in implementing and completing project tasks as defined in the implementation plan.
2. Communicate project progress, problems, and problem resolution to the AMPA, CMER, and SAGs.
3. Work with the AMPA and responsible participants to develop RFPs or RFQQs, review contractor proposals, monitor contract performance, and provide input on budgeting, schedule, and scope changes.
4. Work with CMER, SAGs, and principal investigators (PI) to resolve technical issues.
5. Facilitate coordination among scientists and landowners of all project activities for the life of the project, unless another PM is later designated by consensus of the SAG.
6. Coordinate with PMs of other projects that may be using the same sites or equipment.
7. Facilitate and monitor all technical reviews and response to those reviews.
8. Facilitate archiving of all data and documents.

To promote continuity and efficiency, the same PM should be responsible for the completion of all project steps, but because the AMP structure is based on a cooperative process, this level of time commitment is often impossible. A new PM can be assigned. However, a minimum commitment of one fiscal year or the completion of a project stage is strongly recommended. If the PM is under contract, CMER retains the right to terminate the contract for cause in accordance with DNR contracting procedures and terms of the individual contract.

In most cases, the PM will lead a project's technical work group, which is a subgroup formed to accomplish one or more project steps, or will oversee a principal investigator (PI). It is the responsibility of the PM to ensure that the technical work group or PI completes its tasks on time and within budget. Without CMER approval, the PM will not perform the functions of a PI on the same project. The purpose of this restriction is to maintain the PM role as CMER and SAG advocate rather than researcher or author.

7.1.3 Project Tracking and Reporting

At the highest level of tracking and reporting, the CMER and SAG co-chairs are ultimately responsible for comprehensive project oversight and tracking. The responsibilities of co-chairs are transferred to subsequent co-chairs as their terms or caucus commitments expire. SAG co-chairs are expected to track and report project progress on a Comprehensive Project Summary form, provided in Appendix G, or a similar tracking document. Project tracking information will be submitted monthly to the AMPA and the CMER co-chairs, including, at a minimum, the following information:

Project code	SAG name
Project name	PM name
Project budget	Technical work group name
Rule group	Principal investigator name
Program	Expected completion date
Associated DNR contract info	Steps completed or to be completed
Fiscal year or years	Status of current step

The PM is responsible for tracking the progress of individual project steps during a fiscal year. The PM will provide reports to the project's originating SAG, to CMER, or to both monthly or at agreed-upon intervals or as requested. The PM is expected to maintain a file containing project step tracking forms or similar documents that provide the following minimum information:

Project code	SAG name
Project name	Technical work group name
Step budget	Principal investigator name
Rule group	Expected completion date
Program	Step status
Associated DNR contract info	Products by due date and budget
Fiscal year	

Appendix G provides optional tracking forms that can be used or modified for this purpose for each of the following project steps:

- Literature Review
- Study Plan
- Implementation Plan
- Field and Data Management
- Reporting: In-Progress Results
- Reporting: Final Results

Tracking documents require two standard pieces of identifying information: (1) the project's formal name as recorded in the CMER fiscal year work plan, and (2) an identification (ID) code. The project ID code is assigned by the AMPA. It is designed to provide a unique mechanism to positively identify and track a project from start to completion. It is made up of three components, each having up to five characters (letters, numbers, and common keyboard symbols). The components are separated by periods and use the following system:

> *Project ID Coding Syntax:*
>
> Rule Group . Program . Project
>
> **UNSLP . RTOOL . LHZ** =
>
> Unstable Slopes Rule Group's Rule Tool Program's Landslide Hazard Zonation Project

1. The first component is either *CMER,* if CMER is providing direct project oversight, or the acronym of the specific SAG (e.g., *UPSAG, RSAG,* or *LWAG*).
2. The second component is a word from or abbreviation of the program name under which the project is being applied. For example, *MWEM* could be used to identify the Mass Wasting Effectiveness Monitoring program or *Roads* could represent the Road Site-Scale Effectiveness Monitoring program.
3. The third component is a word from or abbreviation of a project's name. For example, *LHZ* could be used for the Landslide Hazard Zonation project.

7.1.4 A Word About CMER Project Tracking Forms

The project management tracking forms in Appendix G are not required, but their use is strongly encouraged. The forms improve standardization and assure that all information is provided to assist in data entry for expected future CMER database services. The forms should increase PM efficiency in both completing and reviewing tasks.

7.2 *Scoping Paper*

The purpose of a scoping paper is to facilitate the process of designing CMER projects by clarifying the issue or problem that needs to be addressed, to identify a specific purpose and objectives for the project, to evaluate alternative approaches for achieving the objectives, and to determine a preferred approach. In cases where the issues are clear and the approach is straightforward, a scoping paper is not necessary. In situations where the issues are complex, a scoping paper can be very helpful in focusing the project prior to developing a study plan. For some projects, the scoping paper will be one of the project steps outlined in the proposal. For others, CMER may later request, or the SAG may recommend, that a scoping paper be completed to clarify the context and focus.

The scoping paper is submitted to CMER after the SAG has reached consensus and approved it. Once approved by CMER, it may be submitted to Policy to inform them of the direction CMER is taking on the topic.

7.2.1 Generation of the Paper

The scoping paper should generally include the following elements: (A) context, (B) issue/problem statement, (C) purpose statement, (D) objectives/critical questions/data requirements, (E) options, (F) best available science comparison, and (G) recommended approach, and (H) CMER/Policy interaction. General formatting convention guidelines for CMER and SAG documents are provided in Appendix I.

7.2.1.1 Context

Record identification and tracking information: This section should contain the basic identification information for the project. Identify the sponsoring SAG or similar group, the project manager (if known), and the PI's name and relationship to the SAG. Record the project's formal name as it appears in the CMER work plan. Record the rule group and science program under which the project is listed. Identify the fiscal year and budget (if applicable—note if in-kind resources used) allocation for the project's step being conducted.

> **Scoping Paper**
> **Key Elements**
>
> A. Context
> B. Issue/problem statement
> C. Purpose statement
> D. Objectives/critical questions/data requirements
> E.   options
> F. Best available science comparison
> G. Recommended approach
> H. CMER/Policy interaction

7.2.1.2 Issue/Problem Statement

Define the issue or problem: Succinctly state the issue/problem that the project is intended to address. Describe how it supports the adaptive management program. The task is to think, clarify, and distill, not just to parrot the project proposal or other work previously conducted on this project.

Explain why this issue/problem is important: Identify the specific resource factors and scope of the issue spatially and/or temporally (e.g., regional/ statewide, near/ long term, resource simplicity/ complexity, etc.). Describe the scientific uncertainty regarding the issue. Describe the potential resource risks and forest practices management effects. Identify the specific forest practices rule by Washington Administrative Code (WAC), guidance by board manual section number and part, or other management concerns this project addresses. Describe why this issue is relevant to FFR management.

7.2.1.3   Purpose Statement

Define the specific purpose of the project and how the project will help resolve the issues identified in the problem statement: The purpose statement determines the scope of this particular project. Briefly explain how this project complements other projects that also address the issue/problem, and identify any additional other projects which will be needed to fully resolve the issue/problem.

Identify how the data collected under this project will validate and/or improve the best available science supporting the forest practices rule or guidance.

7.2.1.4   Objectives/Critical Questions/Data Requirements

Identify the specific objective(s): Accomplishing these specific objectives will lead to success in achieving the overall purpose of the project. Objectives typically describe discrete steps in acquisition and/or analysis of data/information to answer a set of critical questions. If possible, identify the critical question addressed by each objective.

Finally, identify the type or types of data/information needed to answer the objectives and critical questions.

7.2.1.5   Options

Identify the range of options or alternatives for accomplishing the objectives/critical questions/data: The purpose of this section is to explore different options and approaches for accomplishing the project objectives. The following list identifies some potential scientific approaches that may be applicable depending on the purpose of the project and the specific objectives and critical questions:
1. Assessment studies that answer questions about the characteristics of a population using descriptive statistics
2. Experimental studies that use data and statistical tests to accept or reject hypotheses
3. Literature review that assess current scientific knowledge to draw conclusions
4. Modeling studies that develop and test models to predict responses or changes over time
5. Case studies that focus on a detailed understanding of a particular situation

Within these categories, there will often be methodological options involving the different approaches to obtaining and analyzing the data, which should be identified. A table listing the various options is recommended to summarize the options and highlight their relationships to the data needs.

The next step is to describe the advantages and disadvantages of various approaches. Included in the weighting of advantages/disadvantages are such issues as logistics, cost, time, staffing, environmental or landowner limitations, etc., should be considered as well as scientific and technical merit. This comparison of the various options provides the basis for making and explaining key decisions concerning the project design.

Identify the preferred approach:
State your decisions as to approach based on the previous discussions. Be specific about the reasons the selected approach will more accurately and efficiently achieve the stated objectives. This statement is the basis for the argument that the project is using the best available science. Follow the statement with a brief description of the scientific approach being adopted.

7.2.1.6 Best Available Science Comparison

The science underlying the current forest practice and that of the proposed project are characterized based on the following BAS elements:

1. Scientific information source
2. Spatial scale
3. Temporal scale
4. Study design
5. Methods
6. Data
7. Quantitative analysis
8. Context
9. References
10. Logical conclusions and reasonable inferences
11. Peer review

Possible future adoption by CMER of a scoring system for BAS may assist in such evaluations.

7.2.1.7 Recommended Approach

Identify which approach you recommend, and provide the rationale for your recommendation.

7.2.1.8 CMER/Policy Interaction

Using the information appearing in sections A–G of the scoping paper, answer the following six questions about the current state of knowledge. The answers to these questions provide a solid foundation for tracking progress and indicate the information to be provided for a Forests and Fish Policy adaptive management recommendation to the FPB. The six questions are as follows:

1. Does the study inform a rule, numeric target, performance target, or resource objective?[1]
2. Does the study inform the Forest Practices Rules, the Forest Practices Board Manual guidelines, or Schedules L-1 or L-2?
3. Was the study carried out pursuant to CMER scientific protocols (i.e., study design, peer review)?
4. What does the study tell us? What does the study not tell us?
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?
   c. What are the costs associated with additional studies?
   d. What will additional studies help us learn?
   e. When will these additional studies be completed (i.e., when will we learn the information?
   f. Will additional information from these other studies reduce uncertainty?
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?

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[1] FFR stakeholders agreed to resource objectives and performance targets for the following functions: heat/water temperature, LWD/organic inputs, sediment, hydrology, and chemical inputs.

7.3 *Literature Review*

A literature review is conducted to provide a better understanding of the current state of knowledge about the project's issues, available methods, and approaches. Most importantly, a literature review identifies what is known and not known about a specific subject. This information is used as a starting point to frame or evaluate a potential CMER project. A literature review may either be the stand-alone product of the project or an early phase of a more complex project. The "early phase" literature review should be used to aid in the project scoping and development of the Study Plan and will usually appear in the project report. A stand-alone literature review has four phases: (1) generation, (2) review, (3) approval, and (4) AMP publishing and archiving. This section covers only the document produced in the generation phase of a stand-alone literature review.

7.3.1 Overview

The literature reviews covered by this section are those that result in stand-alone documents. They may range from a simple annotated bibliography to a synthesis of the existing literature. Both approaches should result in a discussion and conclusions.

The literature review is developed under the direction of either a SAG or another CMER-authorized group. Literature reviews may be conducted and written by SAG members, CMER staff, agency personnel, contractors, or work groups composed of members from several SAGs.

**Literature Review
Key Elements**

A. Background
B. Methods
C. Results
D. Discussion
E. Conclusions

7.3.2 Document Creation

The literature review document can include the following five key elements: background, methods, results, discussion, and conclusions. General formatting convention guidelines for CMER and SAG documents are provided in Appendix I.

7.3.2.1 Background

This section describes the need for the review, its purpose, and the questions to be answered. It may include the approach taken in compiling and assessing the literature (in which case, a methods section may not be necessary).

7.3.2.2 Methods

In a literature review, the methods section may be very brief. It should delineate the types of literature reviewed, the span of publication dates, and any other limits on the review. If any comparison or analysis of prior data was conducted, the statistical methods should be described in detail. If the review approach is adequately described in the background section, a separate methods section may be unnecessary.

7.3.2.3 Results

The results section is either an alphabetical listing of annotated reviews or a summary of the findings in a synthesis review. In synthesis reviews, it may be appropriate to combine the results and discussion sections.

7.3.2.4 Discussion

A discussion of the results will place annotated reviews in context, explain their significance, make generalizations and syntheses from them, and describe the current state of knowledge in the given area.

7.3.2.5 Conclusions

State the conclusions drawn from the results of the review, or explain why definite conclusions cannot be drawn. Suggest a direction for further research or policy discussions.

7.4 *Study Plan*

The study plan provides the scientific design for a CMER project. It is an expansion of the materials presented in the scoping document. At a minimum, it provides the project purpose, objectives, technical approach/experimental design, general methods, schedule, and budget. This information is also helpful to identify the resources and sequencing of actions needed to develop an implementation plan. In general, each study plan will go through a minimum of four phases, including (1) generation, (2) review, (3) approval, and (4) AMP publishing and archiving.

7.4.1 Overview

The development of a study plan is a necessary step for any CMER project, other than activities such as workshops. The study plan defines the approach and methods to be used in the project. It can help assure landowners and others asked to participate that the project is technically sound.

The study plan is developed under the direction of a SAG or another CMER-authorized group. Study plans may be written by SAG members, CMER staff, agency personnel, contractors, or by a work group composed of members from several SAGs. The SAG reviews and refines the study plan. In this process, the SAG may also hold a workshop to get feedback from other SAGs and CMER participants.

A study plan must be approved by CMER. It is highly recommended that a study plan be generated, reviewed, and approved before the corresponding implementation plan is begun because modifications to the study plan may result from the review process.

When a project combines the study and implementation plans (by including the elements in this section and the next), that single product will provide all the elements needed to begin the field and data management step of the project. Inclusion of an implementation plan within the study plan may be advantageous for smaller projects or when implementation may be controversial or difficult and guidance is sought from reviewers.

Study Plan Key Elements
A. Background
A. Purpose/objectives/critical questions
B. Research/Monitoring Approach
C. Sample Population
D. Sample (Experimental) Unit
E. Sample Size
F. Sampling Scheme
G. Data Parameters
H. Data Collection Procedures
I. Data Analysis Procedures
J. Potential Data or Analysis Problems
K. Interpretation of Results
L. Budget

7.4.2 Document Creation

The study plan document should include, at a minimum, the following elements: (A) background; (B) purpose/objectives/critical questions; (C) research/monitoring approach; (D) sample population; (E) sampling unit; (F) sample size; (G) sampling scheme; (H) data parameters; (I) data collection procedures; (J) data analysis procedures; (K) potential data/analysis problems; and (L) interpretation of results; and (M) budget. General formatting convention guidelines for CMER and SAG documents are provided in Appendix I. Any changes from the approved scoping document should be highlighted and explained**.**

7.4.2.1   Background

Explain the context within which this project will be conducted, including the relationship to AMP issues and existing research.

7.4.2.2   Project Purpose/Objectives/Critical Questions

The project objectives contained in the study plan are the direct objectives of the science project. They are not objectives of the adaptive management program in general and should not concern any possible use of the results of the research in rule making or the adaptive management process. The project objectives should be measurable, relevant, and timely.

A brief review of existing literature should be included in the study plan in order to establish the relationship of the project to the body of scientific knowledge.

7.4.2.3   Research/Monitoring Approach

This section should explain how the objectives and critical questions will be addressed. If an experimental approach will be used, the specific hypothesis to be tested should be identified.

7.4.2.4   Sample Population

Provide a description of the population that is being studied (e.g. the aggregate about which we wish to obtain information and from which the sample will be taken).

7.4.2.5   Sample (Experimental) Unit

Provide a description of the single unit of the population for which measurements will be taken and which will be used in analysis.

7.4.2.6   Sample Size

Identify the precision and confidence objectives for the data. Provide an estimate of the numbers of samples needed and the procedures used to develop this estimate.

7.4.2.7   Sampling Scheme (Sample/Site Selection and Screening)

Describe the methods and procedures that will be used to identify the population to be sampled and to select a sample of that population. List criteria or procedures that will be used to screen potential sampling units to ensure they are members of the population. List any other factors that will be used to screen potential study sites, such as logistics and feasibility of data collection.

7.4.2.8   Data Parameters

Identify the data that will be collected and used in the analysis. Indicate the role of various data parameters in the analysis (i.e., whether they will be used as response variables, covariates descriptive parameters, monitoring metrics).

7.4.2.9   Data Collection Procedures

Describe the methods, procedures and tools that will be used to obtain the data. The TFW Monitoring Program Method Manuals are an excellent source of information regarding the options and calibration needs of most types of survey equipment. Table 7.1 provides a list of the available method manuals.

Table 7.1. Available TFW Monitoring Program Method Manuals by CMER publication number to assist with equipment options and calibration requirements.

TFW Monitoring Program Method Manual	CMER Publication Number
Stream Segment Identification	TFW-AM9-98-001
Reference Point Survey	TFW-AM9-98-002
Habitat Unit Survey	TFW-AM9-99-003
Large Woody Debris Survey	TFW-AM9-99-004
Stream Temperature Survey	TFW-AM9-99-005
Spawning Gravel Composition Survey	TFW-AM9-99-006
Spawning Habitat Availability Survey	TFW-AM9-99-007
Spawning Gravel Scour Survey	TFW-AM9-99-008
Wadable Stream Discharge Measurement	TFW-AM9-99-009
Available on the AMP website: http://www.dnr.wa.gov/forestpractices/adaptivemanagement/cmer/publications/	

Contact the CMER staff for more information related to equipment recommendations, purchase sources, and calibration needs.

7.4.2.10   Data Analysis Procedures

Describe the methods and procedures that will be used to complete and analyze the data to reach conclusions. Depending on the approach, these may include the use of descriptive statistics to characterize populations or statistical tests or analyses that will be used to test hypotheses. The description should contain enough detail for peer review.

7.4.2.11   Potential Data or Analysis Problems

Discuss any anticipated problems in data collection, the data, or data analysis. Contingencies for dealing with these problems should be offered and developed.

7.4.2.12   Interpretation of Results

If possible, indicate how the results of the analysis will be interpreted or used to draw conclusions.

7.4.2.13   Budget

Provide a revised budget based on the completed study plan. The revised budget should provide at least three pieces of information: (1) CMER work plan budget total; (2) revised estimated cost by major components; and (3) revised total estimated cost. If the total cost estimate is substantially over the budget allocated in the CMER work plan, research/monitoring options for the project may need to be reevaluated. CMER may also need to reevaluate the project's priority.

7.5   *Implementation Plan*

The project implementation plan provides the sequence of activities and equipment needed to efficiently conduct the project. An implementation plan is highly recommended for all CMER research and monitoring projects. It is recommended that development of the implementation plan begin after the study plan has been reviewed and approved. Waiting may save work if modifications of the study plan are recommended during the review process. In general, each implementation plan will go through a minimum of three phases, including (1) document creation, (2) document review, and (3) document approval.

7.5.1 Overview

The project implementation plan provides logistical information about the project's field and data management, in-progress reporting, and final reporting. It identifies existing applicable cooperator agreements and new agreements that need to be completed as part of the project. The implementation plan clearly specifies the schedule for progress reports to CMER as well as future actions requiring CMER approval. CMER approval may be required for the contractual scope of work and the contract award.

The logistical nature of the implementation plan makes it unlikely it will require more than SAG review and approval unless the nature of the project

Implementation Plan Key Elements
A. Project Organization B. Tasks Schedule and Deliverables C. Field Activity and Data Management Strategy D. In-Progress Reporting Strategy E. Final Results Reporting Strategy F. Permits & Cooperator Agreements G. Budget H. Project Summary

or special circumstances warrant CMER review and approval. Upon final approval, the SAG will make copies of the implementation plan available to any interested CMER participant. Modifications to the implementation plan that change the study plan or increase the project budget will be submitted to CMER for consideration of study plan revision and approval.

7.5.2 Document Creation

The implementation plan contains the logistical details of how a project will be completed. The plan will include the following key elements: (A) project organization; (B) tasks schedule and deliverables; (C) field activity and data management strategy; (D) in-progress results reporting strategy; (E) final results reporting strategy; (F) list of cooperator agreements and permits required to complete the project; (G) budget; and (H) a project summary. Standard document element and formatting convention guidelines for CMER and SAG documents are provided in Appendix I. Any changes from the approved scoping document should be highlighted and explained**.**

7.5.2.1   Project Organization

The project organization section of the plan will cover at least three components: (1) management structure, (2) participant roles, and (3) tasks and responsibilities.

1. Management Structure

The implementation plan will identify the project management and reporting structure. This can be accomplished through two charts: an organization chart showing the management hierarchy and a flowchart showing the sequencing of project tasks and the person responsible for each task.

The participation of the project manager in his/her oversight role should be included. All participant names, affiliations, and contact information will be provided in an appendix attached to the implementation plan and updated as necessary.

2. Participant Roles

This section identifies the tasks being contracted and those to be performed by CMER or agency staff, SAG members, landowners, or other stakeholders. The Department of Natural Resources serves as the contracting agency for all CMER contracts.

3. Tasks and Responsibilities

The implementation plan shall clearly state what actions are expected from each participant in the project. If any tasks are to be contracted, the procedures outlined in that chapter of this manual will be followed to insure that the contracting process follows all applicable laws and procedures.

7.5.2.2   Tasks Schedule and Deliverables

The implementation plan will include a projected timeline for completion of the project tasks and deliverables. The timeline will specifically identify deliverables that require CMER or Policy approval and tasks requiring coordination among the participants. The schedule that is approved as part of the implementation plan will identify the sequencing of the project tasks and approvals and serve as the blueprint for project completion. The diverse nature of CMER projects makes a variety of project schedules applicable. It is the proponents' responsibility to clearly state when the elements will be completed.

The schedule should include and allow time for SAG, CMER, and peer reviews and responses to comments. These are important elements for contracting purposes and expectations for timely deliverables.

7.5.2.3   Field and Data Management Strategy

The field and data management strategy section of the plan will cover at least three components including: (1) initial research site selection process; (2) research site access; (3) equipment and materials; (4) protocols and methods; (5) crew training and qualifications; (6) additional site selection process; (7) survey logistics strategy; (8) data collection and storage; and (9) quality control.

1. Initial Research Site Selection Process

Specific site selection criteria will be described for including sites appropriate to the particular objectives of the study. A contingency plan should describe how to deal with exceptions to the selection criteria, how to deal with sites' falling off the list for unforeseen circumstances, and similar procedures.

2. Research Site Access

Research site characteristics will be described in the study plan. The schedule for installation of research sites will be described in the implementation plan. Permission for landowners to use specific research sites for CMER research will be coordinated through the PM. SAG members, agency staff, or contractors may make preliminary contact with landowners during the project development phase of a project. However, the PM should send the formal request to access research sites. A copy of the Project Summary that includes participant expectations will accompany the request.

Landowner participation in CMER projects is voluntary. Neither CMER approval of a project nor an award of a contract to conduct CMER research in any way indicates that permissions has been granted to access research sites. Defining access requirements is the responsibility of individual landowners.

Landowner participation in a CMER research project, however, will require landowner commitments and alternative management roles and responsibilities, which should be clearly documented and understood. Commitments might include these:

    a. Time for management of sites
    b. Providing access (keys) to research participants
    c. Obtaining research exemptions (with assistance from DNR)
    d. Determining who will lay out sites

Because the time required to obtain site access may be long, the project manager may wish to conduct site location and permission activities prior to contract negotiations. If site location or permission tasks are contracted, the inherent uncertainty of the time and effort required should be clearly noted, and arrangements negotiated to accommodate it.

3. Equipment and Materials

The implementation plan must provide a list of the equipment and material types and quantities needed for field implementation. It is also important to identify which equipment requires special calibration needs and apply that to budget considerations. For example, temperature survey probes require pre- and post-survey calibrations to meet state water temperature monitoring standards. Often a contractor will provide the necessary equipment, and in these cases, the project manager or some delegate is responsible for assessing its condition and overseeing its proper calibration. In other cases, equipment will be gathered or provided from a variety of sources and the project manager is responsible for determining its usability and calibration needs. It is also important to identify and make plans to compensate for those critical equipment and material elements that would cause significant problems if broken or lost during data collection.

A contractor may be required to supply all needed equipment. Loan or purchase of all, additional, or special equipment is often needed to accomplish project tasks. CMER Staff has a list of CMER purchased equipment available for loan on a first-come-first-serve basis. Equipment purchased for CMER projects are the property of CMER and must be returned to CMER Staff when fieldwork has been completed.

4. Protocols and Methods

The quality of a protocol package is directly related to the quality of the data collected. The general components found in a comprehensive protocol package include: presurvey preparation instructions; data collection methods; data dictionary; protocols for consistent application of methods for survey; field forms with completed examples; and data management system and protocols. An existing protocol package may be suitable for use in the project with or without modification. In all cases, the protocol packages must be clear and specific so that different crews can replicate data collection procedures and interested parties can assess the data collection procedures.

Where a protocol package is unavailable or incomplete, the budget and schedule in the implementation plan must reflect the time and

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Comprehensive Protocol Package Components

    a. Presurvey preparation instructions
    b. Data collection methods
    c. Data dictionary
    d. Protocols for consistent application of methods for survey
    e. Field Forms with completed examples
    f. Data management system & protocols

cost needed to finalize the protocol before beginning field data collection. In situations where a study requires experimental equipment or protocols, the PM must evaluate them on the basis of CMER accountability and consistency in producing reputable results capable of passing scientific peer review.

5. Crew Training and Qualifications

The quality of field crew training is directly related to the quality of the data collected. Therefore, a crew training strategy must be identified. The time and cost of this process is directly related to the type of data collection expected by the project. This includes the number of data points and parameters, the complexity of the equipment, the remoteness and difficulty of field conditions, the time of year, and many other factors must be taken into account. Good training or evaluation of experience with the collection procedures provides confidence that the data collected represent actual field conditions and not crew variability in method interpretation or field application.

Crew qualifications must be clearly identified. It should be expected that crews will be made up of people with different qualifications, and the PM is expected to develop and oversee implementation of a program that will ensure that all crew members meet minimum qualifications.

6. Additional Site Selection Process *[Placeholder]*
7. Survey Logistics Strategy *[Placeholder]*
8. Data Collection and Storage *[Placeholder]*

9. Quality Control

Each CMER project will include a quality control (QC) element. The scope of this element depends upon the project type. However, quality control is critical to the establishment of the credibility of any CMER project. A good quality control system can use a variety of processes including field assistance, observational surveys, intensive replicate surveys, and simple error checking of data. The TFW Monitoring Program has established standard quality control procedures for most of their methods through trial and error in over eight years of application. They have found that most variability attributed to field crew was actually caused by poor training or equipment, inadequately defined procedures or use of inappropriate methods, and physical limitations due to field conditions. The least common problem found was poor crew work ethic. Contact CMER staff for more information on these and other quality control options.

Field Assistance: Field assistance is a common QC tool and is often the first line of quality control. This process uses one or a handful of central protocol experts that visit all crews at least once during the field season—preferably more than once, including a visit early in the field season to ensure consistency and understanding of methods and one later in the season to check for "protocol-drift." The experts will provide hands-on assistance and additional training as needed to ensure that the field crews are "up to speed." This will help develop consistency in applying the protocols within and between field crews. Each visit must be documented in writing that briefly describes strengths and weaknesses of crews and protocols and the steps taken to improve weaknesses.

Observational Surveys: Observational surveys provide a higher degree of quality control and are often used in the second visits to the field crews. The protocols, including procedures and expectations for this QC survey, must be clearly identified before the survey is conducted. These are qualitative surveys and are most often conducted with prior notice to the crews. The general approach is for the expert to observe the field crews over a specified reach length or time and to

record strengths and weaknesses of their protocol application by parameter. After the completion of the survey, the expert immediately reviews his or her findings with the field crews on site to discuss calls. This review is critical to understanding the underlying causes for variability and to promote an educational and supportive rather than punitive experience.

Replicate Surveys: Replicate surveys provide the highest degree of quality control. Some protocols and parameters lend themselves better to replicate surveys such as habitat unit, large woody debris, and stream discharge. Replicate surveys take careful planning to ensure that comparisons between crews cover the exact same stream reaches and flow conditions. Two types of replicate surveys can be employed including open—where the field crew knows they are being tested, and blind—where the field crew does not know they are being tested. Experience applying these types of surveys by the TFW Monitoring Program shows highest value in the open method, as the survey can be made on the same day as that of the field crew being tested. The survey can be limited to what can be surveyed in half a day, with time spent during the afternoon to discuss results. This process not only provides quantitative results, but also can often explain the underlying causes for any variability found. The value of the blind method is to identify crew variability in application of the survey protocol. Longer distances should be used to reduce variability caused by differences in minor start and ending locations, and flow conditions must be measured and confirmed to be similar prior to conducting the replicate survey. The results of the blind method are harder to use for improving the field crew application in subsequent surveys unless conducted soon after the field crew survey and both the replicate and field survey crews return to the tested stream reach to review the results.

Data Entry and Error Checking Implementation and Management: Data entry is the process of transferring field data from written forms or electronic equipment into a spreadsheet or database used to organize and store the information in preparation for analysis. Data entry has the potential for introducing errors that are difficult to find once data entry is complete. In addition to the common "typographical error," errors can arise when field data are recorded in diverse or unspecified units of measure, on different coordinate systems, or by use of undefined notations. The latter set of problems should be arrested during field QC visits.

7.5.2.4   In-Progress Results Reporting Strategy *[Placeholder]*

7.5.2.5   Final Results Reporting Strategy *[Placeholder]*

7.5.2.6   Permits and Cooperator Agreements

The implementation plan will identify all of the permits required, such as Forest Practice Applications, Alternative Plans, Section 10 (a)(1)(A) Endangered Species Act, Hydraulic Permit Applications, or Section 404 Clean Water Act permits. Some projects may need board approval as pilot/feasibility projects. The scope of landowner cooperation will be identified in order to inform landowners if any action, such as timing and design restrictions on timber harvest is expected.

The agreements need not be complete at the time the implementation plan is approved. However, permit processing is encouraged prior to plan approval for permit requests with long lead-time requirements.

1. Formal Landowner Contact Process

CMER interaction with landowners is not limited to formal requests for permission to access research sites. Landowners may be requested to assist in site selection or research design during

project development. These contacts can originate as part of the informal process that assists CMER in assessing the feasibility of a research project.

The CMER formal contact process is used to secure permission to include a site in a CMER project and to establish the level of expectations for all of the participants in the project. The formal process seeks to enable a landowner to easily recognize a CMER request. The formal process also seeks a firm commitment from the landowner to participate in the project and creates a firm responsibility for CMER to conduct the research as it has been described and in accordance with landowner permission.

The formal process involves a written request to conduct research at a specific site. The request is directed to the policy level contact for a landowner with copies to the managerial level contacts if more than one individual fill these roles. Included with the request is a copy of the research summary. CMER will make the complete study plan for the research project available to the landowner for review upon request

The Washington Forest Protection Association and the Washington Farm Forestry Association will also be notified when a formal request is made. This will help them respond in case any of their members have questions about a specific request.

The expectation is that landowners will respond to the request within 30 days of receiving the request. The response may include additional information such as the identity of the logistical contact or notification requirements. This information will be sent to the researchers involved in the project. Once permission to use a site is granted, it is the responsibility of the PM and his or her delegate to maintain contact.

2. Cooperator Agreements
Cooperator agreements include issues such as time commitments for harvest and landowner roles and responsibilities within the project.

3. Landowner Access to Research Data
Upon request, the PM or the AMPA will provide the landowner with the data collected as part of a CMER project.

7.5.2.7 Budget
The budget contained in the implementation plan should provide a detailed breakdown of the expected cost to complete each part of the project. These parts include, but are not limited to, field and data management, in-progress and final reporting, and the costs of peer review, data archiving, and report preparation, revision, and distribution. This is a refinement of the budget in the study plan and not an addition to that budget. This refinement is based on the project information developed during preparation of the implementation plan. Expected in-kind contributions by participants should also be identified. Should development of the implementation budget indicate the need for additional funding, the project manager should develop, in concert with the sponsoring SAG, a SAG request for those funds. The SAG request should describe the need for the supplemental funds and present the reasons for the underestimation in the approved budget. The requested supplemental funds might not be granted by CMER or Policy.

7.5.2.8   Project Summary

The project summary is the executive summary of the study and implementation plans combined and should be limited to two pages. The project summary provides an overview of the project for people who do not need the technical or logistical details of a project.

The summary should include the project objective, the project's place in the Adaptive Management Program, the general scientific approach, a brief project timeline, and expectations of landowner cooperation. Additional information can be included if it is integral to the project and easily understood by nontechnical reviewers.

7.6   *Field and Data Management*

Together, the study and implementation plans are the guiding documents for the project's field management strategy and production of scientifically credible data. The PM is responsible for making the transition from plan to field implementation a smooth and accountable process. This may involve direct or delegated actions by the PM. The objective is to produce a high-quality data set for use in analysis and reporting.

> **Field & Data Management Key Elements**
>
> 1. Field Implementation Logistics
> 2. Data Collection & Management
> 3. Quality Control & Management

The division of responsibilities between the PM and the PI is currently evolving. In general, the PM provides oversight on behalf of CMER and ensures that contract obligations are met. The PI does the majority of the work, but only what the contract specifies.

7.6.1 Overview

The mantra of the PM and all persons involved in field data collection should be that "the data collected represent actual field conditions." Inadequate field and data management quickly results in poor-quality data that produce inaccurate analyses and conclusions that ultimately lead to incorrect CMER recommendations and Policy decisions. Depending on the timeline of the project, in-progress reports may be required during the field implementation phase.

The Study Plan and Implementation Plan sections provide an overview of general standards and protocols for project field and data management. A CMER project not needing a data and field management plan should so note in the study and implementation plans and obtain a formal waiver by the responsible SAG and approval by CMER. This section includes the following subsections: Field Implementation Logistics; Data Collection and Management; and Quality Control and Management.

7.6.2 Field Implementation Logistics

The PM is responsible for oversight of preparation for data collection.

7.6.2.1   Equipment and Material Needs

The implementation plan provides a list of the equipment and material types and quantities needed for field implementation. Materials include such items as field form copies, maps, and aerial photos. In most cases, equipment will be gathered or provided from a variety of sources. With the oversight of the PM, the PI will verify that all survey equipment and materials have been obtained, that measuring equipment is of the quality and accuracy required by the study design,

that equipment is in good repair, and that calibration records are current. Contact the CMER staff for more information related to equipment recommendations, purchase sources, and calibration needs.

7.6.2.2   Data Collection Methods

The PM is responsible for preparing, obtaining, or collating the data-collection protocol package as well as collecting, reviewing for adequacy, and archiving it as identified in the implementation plan. Once the protocol package has been assembled, the PM will make sure that each field crew is provided a copy.

7.6.2.3   Field Crew Training and Safety

1. Training

The quality of the data collected is directly related to the quality of field crew training. Good training or the thorough evaluation of experience with the selected field methods increases the probability that the data collected represent actual field conditions and do not reflect crew variability in method interpretation or field application. The complexity and intensity of the needed training are directly related to the type of data collection expected for the project. The training programs should consider the number of sample sites, parameters to be collected, complexity of equipment, remoteness and difficulty of field conditions, the time of year, and many other factors.

2. Safety

No data are worth injury or death! Field crew safety is paramount in any CMER study. Field locations are usually remote and rugged. It is ultimately up to the field crews to prepare adequately for these conditions. It is also up to the field crews to know their limits and stop a survey when safety is of concern. The PM must recognize and respect these decisions in the overall scope of project management and make adjustments as needed to accommodate them. Significant problems with access to unsafe survey sites may require modifications to the study plan, the implementation plan, or both.

7.6.2.4   Selecting Additional Sample Sites

In some situations, it will be necessary for the PM to select additional sample sites because some of the original sites were rejected or unavailable. The selection of additional sample sites should follow the procedure in the project's implementation plan. Information about site rejection and supplemental site selection must be documented and included in an in-progress report and in the final report.

7.6.3 Data Collection and Management

The PI is responsible for ensuring that the field crews start data collection on schedule and that data collection proceeds on schedule over the survey period. Good presurvey logistical preparation is critical to efficient data collection and management. Common problems to anticipate during this part of the field and data management stage include:

- Loss of field crew members, either temporary (due to sickness) or permanent (due to resignation)
- Equipment failure or loss
- Contracting problems
- Implementation schedule adjustments due to study site conditions and access
- Loss or rejection of study sites (due to, e.g., low or loss of water flow, disturbance, landowner complications)

- Questions about protocol application and data documentation

7.6.4 Quality Control and Management

Quality control processes provide the documentation that "the data collected represent actual field conditions." Refer to the project's implementation plan for quality control measures and frequency to be applied during data collection. The QC information must be documented and appear in the in-progress and final reports.

7.6.5 Contract, Contractor, and Cooperator Management

[Placeholder]

7.7 *Status and In-Progress Reports*

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┌─────────────────────────────────────┐
│  Examples of Status and In-Progress  │
│               Reports                │
│                                      │
│  A.  Annual project progress report  │
│  B.  Field and data management       │
│      summary                         │
│  C.  Study and implementation plan   │
│      schedule summary                │
│  D.  Informational in-progress reports │
│  E.  General informational updates   │
│  F.  CMER science topic presentations │
│  G.  Notice of significant findings or │
│      issues report                   │
│  H.  Significant changes to study and │
│      implementation plans            │
│  I.  New collaborative opportunities │
└─────────────────────────────────────┘
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Reporting tasks for a project begin once the SAG and/or CMER approves the implementation plan. The PM, with support from the SAG, is responsible for ensuring that all reporting tasks are complete and provided on schedule. Besides a final report when the research or monitoring is complete, in-progress reports may be needed during the course of the project. Contractors, SAG members, or CMER staff may prepare the reports.

7.7.1 Overview

The box at the right provides examples of reports that may be needed. Technical reports are subject to peer review at the request of CMER. Projects are generally developed within the framework of a SAG program that is aimed at resolving a resource management issue. The programs serve to unify related projects and coordinate their timing and expected products. Programs also identify key interim steps and decision points between individual projects. In-progress reports help keep a program on track and facilitate planning and implementation of related projects.

7.7.2 Document Examples

The purpose and audience of status and in-progress reports determines the content and form of the report. Standard document elements and format contention guidelines for CMER and SAG documents are provided in Appendix I.

7.7.2.1 Annual Project Progress Report

Annually, the PM must submit a progress report to the SAG. This report may be required by the contract. If not, the PM must prepare it or delegate the task. The report will describe work completed to date, ongoing activities, and expenditures made and projected. It will also describe and justify any deviations from the implementation plan. If preliminary results are available, they may be included, but they should be clearly identified as preliminary. The annual report is the basis for identifying the project's status and budget needs for the following fiscal year.

7.7.2.2 Field and Data Management Summary

A summary of the field activities and data management strategies may be prepared to aid the SAGs in developing related projects.

7.7.2.3 Study and Implementation Plan Schedule Summary

A summary of the schedule and tasks may also be useful in the planning of related projects.

7.7.2.4 Informational In-Progress Reports

Reports of field work and preliminary results, clearly stated as preliminary, may be desirable in certain situations.

7.7.2.5 General Informational Updates

The SAG or CMER may request periodic updates on the progress of the project. The content and form of an update will depend on the information requested and the status of the project.

7.7.2.6 CMER Science Topic Presentations

The format and content of a science topic presentation for a project will also depend on the status of the project. The presentation, addressed to a general scientific audience, will generally provide background on the subject as well as a description of the study design and methods and a discussion of any results available.

7.7.2.7 Notice of Significant Findings or Issues Report

If investigators encounter results or conditions that warrant immediate communication, a notice of significant findings or issues report is in order. Such a report should focus on the specific findings that prompted the report and should explain their significance in a way that is clear to a general audience.

7.7.2.8 Significant Changes to Study and Implementation Plans

If the study or implementation plan must be significantly modified, the PM must prepare and submit a report to the SAG and CMER that describes and justifies the proposed change, for approval by the SAG and CMER. Peer review may also be required.

7.7.2.9 New Collaborative Opportunities

During the course of a project, investigators or the PM may discover ways in which the project overlaps with other projects or programs or can be coordinated with them in a collaborative manner. In this case, a paper describing overlaps and opportunities for collaboration should be submitted for consideration by the SAG and CMER.

7.8 *Final Results Report*

After being approved by CMER, the final report will inform Policy and the FPB and may result in the reevaluation of forest practices rules. In general, a final report goes through four phases: (1) document creation, (2) review, (3) approval, and (4) AMP publishing and archiving.

7.8.1 Overview

The report should be addressed to a general scientific audience. Although the technical information must be sound and detailed enough for scientists in the given field to evaluate, it should be presented in a way that allows understanding by CMER participants unfamiliar with the discipline.

7.8.2 Document Creation

Most reports of final results will include at least the following key elements: study sites, methods, results, discussion, conclusions, and recommendations. Much of the information appearing in the final report can be obtained from the study and implementation plans. Guidelines for abstracts/executive summaries, introductions, references, appendix, and other general elements, as well as formatting convention guidelines for CMER and SAG documents, are provided in Appendix I.

Reporting: Final Results Key Elements
A. Study Sites
B. Methods
C. Results
D. Discussion
E. Conclusions

7.8.2.1   Study Sites

Clearly identify the sites, and describe them in sufficient detail for a reader to understand and interpret the results and relate them to prior knowledge. A map is a useful way to show the distribution of the study sites and their relationship to the state boundaries.

7.8.2.2   Methods

The precise and thorough description of the methodology permits evaluation of the quality of the data and analyses and permits replication of the study. This section should be based on the methods section of the study plan, and any modifications from that plan should be noted and explained.

Describe the overall study design, equipment, materials, protocols, data collection and quality control strategies, laboratory analyses, and statistical methods. Published descriptions of equipment or procedures may be cited rather than repeated. Complex protocols, equipment, or parameters can be displayed in a table or figure.

7.8.2.3   Results

The results of data summary and analyses should be presented in a meaningful form, using tables, figures, and text as appropriate, but avoid interpretation. Each figure and table should stand alone and be clearly understood without the need to search through the text for explanation. Large data sets are difficult for a reader to interpret, and they should be placed in an appendix, with summary statistics presented in the results section. Figures are useful for showing trends and summarizing categorical data. Figures and tables must be numbered in order and should be referred to by number in the accompanying text. The text should emphasize important aspects of the data but should not simply repeat what is in tables or figures.

7.8.2.4   Discussion

The discussion is the place for interpretation of the results. Here the results can be placed in context with the current state of knowledge expressed in the literature review, their significance assessed, and any generalizations and syntheses developed, justified, and described. Throughout the discussion, the tables and figures in the results section should be cited to tie the two sections together and to support assertions. A thoughtful discussion can clarify and enhance the value of the results. Avoid wordiness and speculation. Any speculation or extrapolation that is included should be clearly labeled as such.

7.8.2.5   Conclusions

Summarize in the form of conclusions the points made in the discussion, or explain why definite conclusions cannot be drawn. Suggest a direction for further research or policy discussions. This section may be omitted if the conclusions are clear from the discussion.

7.9   *General Document Review and Approval Phase Guidelines*

This section describes the requirements and processes for review and approval of documents generated in the course of a project.

7.9.1 General Document Review Guidelines

All projects are reviewed by their originating SAG or other CMER subgroup. In general, CMER review is required for final documents for literature reviews, study plans, and final results reports and as specifically required for implementation plans, field and data management reports, and in-progress result reports. The independent scientific peer review (peer review) process is applied on some literature reviews and study plans, as determined by CMER, and on all final result reports. When the peer review process is applied, the SAG is expected to respond to the review comments with the appropriate response documents and revisions to the reviewed document as deemed necessary.

In cases where the SAG, CMER, or peer review comments identify substantive concerns that require reanalysis and changes in results, the new data and/or analyses as well as the revised report may be subject to additional review. The following guidelines are provided to identify minimum CMER standards for each of those review types.

The PM is responsible for facilitating the communications and logistics necessary to complete the review process.

7.9.1.1   SAG Review

The sponsoring SAG reviews and refines the documents prepared for it by its members, CMER staff, or a contractor. The objective of the SAG review is to produce a project document that represents the best available science and is sufficiently detailed and complete for a CMER technical review. The SAG co-chairs are responsible for the SAG review and preparation of the document for CMER review. The reviewed and revised document, upon consensus approval by the SAG, is submitted to CMER for action.

The SAG review may take many forms, ranging from document editing to workshops. The advantage of a workshop is that it provides feedback from other SAGs and CMER participants. The review process should result in a document that is understandable to stakeholders. For example:

1.   CMER participants should be able to understand the value of this document.
2.   The technical reader should be able to understand the scientific rationale behind the methods and their application.
3.   The specialist reader should be able to reach the same conclusions as the authors, using the criteria, methods, and material found in the document.

7.9.1.2   CMER Review

Although SAGs may prepare documents, the ultimate responsibility for a document's scientific merit rests with CMER. The CMER review process is designed to promote a high degree of

technical merit. The intent of these review guidelines is to provide a consistent and predictable process by which CMER approves and adopts technical documents. Also, the CMER review process ensures the quality and ultimate success of these projects and balances the needs for rigor and efficiency.

Central to the approval by the CMER committee of any technical document is a rigorous review process. A flexible review framework is required for the efficient processing of CMER reviews because:

1. Technical documents and reports can be submitted from a variety of sources within the adaptive management framework (Policy, CMER, ad hoc work groups, or SAGs).
2. Formats can range from literature reviews to applied science.
3. The work can be conducted and authored by many people or groups (CMER or SAG members, CMER staff, stakeholder groups, or contractors).

The technical documents requiring CMER approval or acceptance include, but are not limited to, the following:

- Literature reviews
- Project scoping papers
- Project study plans
- Final reports
- White papers

In addition, special-purpose documents such as those listed below, may be reviewed upon request:

- Technical methods
- Conceptual models
- Research and monitoring study designs
- Pilot project results
- Interim project results and progress reports
- Research and monitoring results
- Performance target validation results

Some documents may require multiple CMER reviews, but most will not. For example, a document could initially be subject to an internal CMER review that leads to a peer review, which would result in another round of SAG review and edits by the authors, which in turn would lead to another internal CMER review of the revised document prior to its acceptance. Documents that do not require peer review, such as literature reviews, may require only an internal CMER review. However, these documents may benefit from additional review or technical editing as deemed necessary or as requested by the initiating work group.

Many SAGs undertake a series of internal reviews and revisions for their documents prior to CMER submission. SAGs may choose to combine their final internal review with the CMER review or to request a CMER review following their final internal review. Upon request, CMER participants may become involved early in the SAG review process.

This review guideline is divided into a series of steps to facilitate understanding of the process.

1. The SAG provides notice to the AMPA and the CMER co-chairs that a document is ready for CMER review. This notification should include information regarding the document length and deadlines that might influence the time required for CMER review.

The SAG may also recommend the expertise of the reviewers (e.g., statistics, modeling, fish habitat, hydrology, general editing).

2. The package submitted by the SAG for CMER review has consensual approval of the SAG unless otherwise noted. The following materials will accompany the document:
    a. Executive summary or abstract, required of all documents because it is usually the basis for final CMER and policy approvals.
    b. An appendix with the six questions from the framework document answered. (See Section 7.2.1(H) of this PSM, describing the CMER/Policy interaction section of the scoping paper.)
    c. Other important information for reviewers, including any unresolved issues for which the SAG is seeking input from CMER.
3. The AMPA and the CMER co-chairs will receive the request from the SAG, and the AMPA will establish timelines for CMER review, based on information received from the SAG and on the length of the document.
4. At least three reviewers (each from a different caucus) will review a document. One reviewer or a technical editor will provide comments on document appearance, structure, cohesiveness, and grammar. The AMPA will appoint CMER reviewers based on the expertise required for a meaningful review. The reviewers must be on the CMER FPB-approved list and the AMPA will spread the workload evenly among the approved reviewers.
5. The AMPA will forward the document to the review committee with a cover memorandum naming the reviewers, providing review guidelines if appropriate, and the review timeline.
6. CMER reviewers will proceed with review within the allotted timeline and will provide comments to the initiating SAG and to the AMPA for tracking purposes. CMER reviewers may solicit assistance from qualified reviewers within their caucus and other interested CMER participants may review and comment on the document. In addition to specific comments, reviewers will rank the document as requiring (1) minor edits, (2) substantive edits, or (3) a complete rewrite.
7. The SAG will address CMER reviewer comments and incorporate them into the document, as appropriate. Documents requiring substantive editing or complete rewriting will require revision and another CMER review before further progress is possible.

7.9.1.3   Scientific Peer Review Process

Submission of a document to the Independent Scientific Peer Review (peer review) process requires CMER approval. The peer review process provides technical review of project study designs, final reports, and other documents deemed appropriate by CMER. The peer review process is required for final reports, optional for study designs, and not required for non-analytical projects without a study design.

1. Preparation and Review

Successful review of CMER documents is more difficult than review for scientific journals because of the multiple levels of review and the high political and economic stakes surrounding the issues that the CMER program must address. At a minimum, three professionals are involved in the peer review of a CMER document. When one reviewer "misses the mark" on some or all aspects of a document's context or findings, CMER has the option of (a) adopting reviewer comments and recommendations, (b) requesting further clarification from the associate editor, (c) requesting a repeat review from the same reviewer (after clarification is made to ensure the response will be more appropriate), (d) requesting an alternative reviewer, or (e) rejecting that review with cause. When two reviewers miss the mark, the document has not been truly peer-

reviewed, and CMER may (a) request a meeting with the review panel to clarify issues, (b) request another review by the same panel after clarification, (c) request another peer review panel, (d) or withdraw the document from consideration.

The document submitted for peer review will be accompanied by supplementary materials that provide review context, ask specific review questions, or identify portions of the document for review focus. In addition to questions the SAG raises that are specific to the study, the reviewers will be asked to address the following generic questions:

a. Does the report meet the purpose, goals, and objectives of the study?
b. Are the objective measures met?
c. How good are the data collected during the study?
d. Is the data analysis appropriate and adequate?
e. Is the literature review complete and appropriately utilized in the discussion?
f. Does the discussion follow from the results?
g. Are the conclusions supported by the results?

Reviewers are not limited to the review questions or the focus areas but they should, at a minimum, address the specified information. Once a review has been approved, the review will proceed according to the procedures outlined in the contract with the person or organization managing the peer review process.

2. Response to Reviewer Comments

The PM is responsible for the preparation of the SAG response to the peer review comments, which should be submitted to CMER within three months of receiving the comments from the AMPA. The SAG, technical work group, and PI may participate in drafting the response, which will address each reviewer comment. Similar comments may be grouped by topic with a single response. Editorial comments regarding format, style, and wording should be grouped as a single element for response. The written "Peer Review Response Plan" will be submitted to CMER for approval after approval by the SAG. Upon CMER approval of the response plan, the AMPA will forward a copy to the peer review associate editor and other appropriate persons for their information.

A common format for providing a response is by summary table. The table distills the peer reviewer's comments into definitive issues, proposed CMER actions (or no action) to remedy, and the rationale behind the action. Figure 7-2 provides an example of a summary table. In the example, comments are numbered, specific reviewers are identified, comments are presented as quotes and cited by page and paragraph and by bullet within a paragraph, the comment type and proposed action are identified, and a rationale is provided for that action. Similar comments from different reviewers are grouped together for a single integrated response. This response table emphasizes the general comments opening each review and clearly identifies those specific comments that raise substantive issues (an issue addressing a assumption, procedure, finding, or recommendation) or requests for clarification (a question or comment addressing the intent or meaning of a word, sentence, or paragraph).

#	Reviewer	Reviewer Comment	Comment Type: Action Response	Rationale
1.	A B C	Revisions are needed to improve clarity of the report. This need is expressed as both a general comment and as a list of specific recommended changes. The specific changes are included here by reference.	Editorial: **Action**	The recommendations for changes to the text to improve clarity, remove typographical errors, and reduce the number of acronyms will be made as appropriate and will appear is subsequent versions of the Phase I report.
2.	A	"The primary downfall of the report is the adequacy of the pilot protocol in meeting the functional objectives of headwater stream management is not addressed or discussed….. Instead the authors focus on compliance estimates and limited statistical descriptors of a few attributes associated with the subjective delineation of the seasonal stream reach" (p.1, para. 2)	Substantive**: No Action**	The purpose of the Type N study is limited to the assessment of the default basin areas that appear in the FFR. We agree that a functional study is important and would provide insights useful for headwater management. However, the protocol was designed to collect those field observations necessary to identify the Np/Ns break and to search for possible field indicators for the break other than "non migrating springs" as appears in the FFR.

Figure 7-2. Example of an action plan summary table for use in responding to SRC/ peer review comments on CMER documents

The reviewed document should be revised in accordance with the approved response plan. The response plan will be amended to note approval dates by the SAG and CMER and will be incorporated into the final document as an appendix. The PM will verify that the response plan was fully implemented during document revision and will so notify the SAG and CMER in writing. The approved final version of the document will also be submitted to the peer review committee.

7.9.2 General Document Approval Guidelines

These guidelines are for documents submitted to CMER for peer review. The SAG must reach consensus on approval that the document is ready for submission to CMER for conducting the peer review process and final approval. The SAG will submit the materials to the CMER coordinator for distribution to the CMER membership. Distribution to the membership must be at least **two weeks** before the CMER meeting at which peer review decision is requested. The full CMER committee is expected to review these documents in preparation for decision-making.

1.	Executive Summary/Abstract. All documents require one of these, as they provide important information for final CMER and policy approvals.
2.	Appendix with CMER/Policy Framework questions answered (see Section 7.2.1(H) of this PSM).
3.	List of all formal SAG and CMER reviewers and whether the peer review process was used.
4.	A statement indicating one of the following:
	a.	Consensus among the SAG and CMER reviewers that the document is acceptable—including response to the peer review process when applied;
	b.	Assurance by the authors or submitters that the document has been revised according to the response plan; or
	c.	A request by the submitters to mediate a disagreement between reviewers and/or the authors on fundamental issues.
5.	An attachment summarizing review comments or concerns (if any) and telling how those concerns have been addressed or, if not, why not.

These documents are provided first for CMER approval of submission to the peer review process and then again, revised as necessary, for final approval. Technical issues should not be raised during the final approval process.

CMER may request a new review or resubmission for the peer review process when substantive changes are proposed to a previously approved study plan.

CMER will strive to approve a project step prior to, or concurrently with, approval of beginning that project's next step. Final approval of a completed step should **not** be based on the priority of the project or the availability of funding for the next step. Approval for continuation of a project is a separate action.

8 Support Services and Requirements

This chapter provides basic information for CMER participants regarding budget, accounting, staff assistance, and the legal and fiscal requirements of contracting for services. It describes the services DNR and the AMPA provide to CMER and its members, as well as the processes and documentation required of CMER. It explains how CMER cooperators interact with the AMPA and other staff to obtain information and complete needed paperwork.

8.1 *Fiscal Services and Requirements*

8.1.1 Budget and Accounting Services

The AMPA develops and manages a 10-year budget forecast for CMER, presents that budget sheet at CMER meetings as needed, tracks fiscal funding cycles for a number of funding sources, tracks individual contracts and budgets, and receives and approves all invoices in consultation with CMER project managers.

The DNR provides a year-end financial report of CMER expenditures to the state's Interagency Committee (IAC).

8.1.2 Budget and Accounting Requirements

CMER project managers must consult with the AMPA on contracts and must make sure that contractors keep up with and submit invoices and expenses.

8.2 *Contract Services and Requirements*

CMER contracts are administered through the DNR and managed by the AMPA. They are subject to a multitude of statewide Office of Financial Management (OFM) requirements, DNR policies, and other legal constraints. The DNR Contract Manual, which provides a summary of these requirements, is over 150 pages long. Only highlights are presented here.

Many of the DNR contracting requirements were developed prior to full implementation of the external stakeholder approach of the TFW and FFR and subsequent CMER projects. Therefore, they do not always fit the CMER process well. Despite this problem, all DNR requirements must be strictly followed in order to develop legally sound contracts and to avoid the risk of harm to the DNR or the credibility of the adaptive management program itself.

CMER participants contribute to the contracting process mostly by:
1. Providing a written scope of work and project schedule to the AMPA for both the request for proposals (RFP) and the subsequent contract.
2. Reviewing and scoring contractor proposals according to the criteria and schedule contained in the RFP.
3. Providing day-to-day project management throughout the life of the contract.
4. Routinely reporting project status and contract problems to the AMPA.

CMER can do many things to help improve both the speed of the contracting process and the quality of the resulting contracts. The contract specialist should be consulted very early and throughout the RFP and contracting process. Detailed and thorough scopes of work in RFPs and contracts, realistic project schedules and budgets, and recognition of the trade-offs between scientific rigor and realistic criteria for methods and site selection all contribute to a smooth process and beneficial results.

8.2.1 Contract Services

DNR provides contracting services to CMER through its staff: the AMPA and the DNR contract specialist. The following is a general list of the AMPA's contract-related activities:
1. Project and budget tracking in consultation with CMER project managers
2. Implementing DNR and OFM contracting procedures, including:
   a. Determining appropriate types of contracts
   b. Conducting the bidding process professionally
   c. Guarding against conflicts of interest
   d. Handling out-of-scope work or contract add-ons
   e. Managing the process for closing out a contract once it is completed
   f. Maintaining records

In addition, the DNR contract specialist provides contracting support to CMER, and DNR serves as a liaison to OFM, which must review all contracts.

8.2.2 Contract Requirements

Most CMER research is conducted via DNR contracts using federal and state funds also routed through the DNR. State law, OFM policies, and DNR policies strictly regulate contracting procedures. Many CMER participants are not fully aware of these contracting requirements, so a brief summary is provided here to help avoid potential legal problems.

8.2.2.1 Contract Types

Types of agreements that CMER typically uses to secure services include the following:

1. Personal service contract (PSC)
A PSC is an agreement for professional or technical services to be provided by a consultant to accomplish a specific study, task, or other work statement. See RCW 39.29.

2. Interagency agreement (IAA)
An IAA is used for specifying work performed between agencies, tribal organizations, universities, and other government institutions. It is essentially the same as a contract with a private company, except that many of the requirements, such as insurance and dispute processes, have been modified. The terms are binding on all parties, although not in the same way as a contract (see RCW 39.34). Nevertheless, every effort should be made to write and manage IAAs as if they were contracts.

Other less formal options exist for data sharing and other coordination needs. These include cooperative agreements, memorandums of agreement (MOA), and memorandums of understanding (MOU).

Formats and boilerplate for contracts and IAAs are approved by the Attorney General's office. Boilerplate language is changed from time to time. For specific formats, contact the contract specialist in the Financial Management Division (FMD) at DNR.

8.2.2.2   Procurement Formats

There are several ways to obtain contracted services. The process of establishing an agreement for work to be done varies with the size and type of project and the persons doing the work. The nature of the goods or services needed also dictates the format of the procurement. For more information, see the DNR Contracts Manual or speak with the AMPA or the DNR contract specialist.

Various forms of service procurements are described in the following paragraphs. In addition, IAAs can be awarded without advertisement.

1. **Request for Proposals (RFP)**
This is the most commonly used procurement format. A request for proposals (RFP) is used when there is a general idea of the nature of work to be done, but the exact approach has not been worked out yet. A budget may or may not be indicated. The consultant provides a specific proposal regarding how the work can be done, what the consultant's qualifications or credentials are to perform the work, and what the costs will be.

2. **Request for Qualifications and Quotations (RFQQ)**
A request for qualifications and quotations (RFQQ) is typically used when CMER has approved a specific study design or detailed scope of work. The consultant indicates qualifications to perform the specified work and offers a proposed budget. Proposal scoring and contractor selection are based on both price and qualifications. The process requirements for RFQQs are similar to those for RFPs but are less burdensome on potential contractors, since they need not provide a detailed scope of work.

3. **Sole-Source Contract (SSC)**
This type of contract, although rarely used, is helpful when a particular consultant is the only one available to provide the desired service, or when a consultant's unique professional or technical expertise makes it the only one qualified. An SSC may be awarded without a competitive process or advertisement. Sole-source contracts are typically for less than $5000 and are used to significantly speed up the process of completing small tasks. However, an SSC requires submission of a "Sole Source Justification" that addresses certain questions outlined in the Office of Financial Management (OFM) regulations (Chapter 15 WAC) and is subject to OFM's review and, in some cases, approval before work begins. The "Contractor/Proposal Evaluation and Selection" section of this chapter is not applicable to SSCs. Contact the DNR contract specialist for guidance in processing SSCs, as specific guidelines depend on the dollar amount of the contract.

8.2.2.3   Fairness and Ethics in Contracting

Most of the potential for conflict of interest within CMER occurs during the contracting process. CMER and the DNR must be fair to contractors that must rely only on the official RFP and can see it only when it is formally distributed, with a tight deadline to respond. One of the most common grounds for protesting a DNR contract award is that one contractor may have had the RFP longer than others. It is appropriate to openly discuss the general schedule or more visionary concepts of a contracted project. The potential for bias or conflict of interest comes when CMER starts developing the specifics of an RFP. At that point, protecting fairness in contracting while maintaining open meetings may be difficult. A procedure to address this issue is under development.

1. Contractor/Proposal Evaluation and Selection

A number of methods are used for evaluating responses. The most common is to convene an evaluation panel of three or more people to score responses according to specific criteria. Some evaluations may include oral presentations by bidders. Any evaluation method used shall be (1) chosen during the initial planning phase of the contract solicitation and (2) fully described in the RFQQ or RFP, in order to maintain fairness and the appearance of fairness. CMER cooperators may help the DNR in the evaluation and selection process. All evaluators shall use the same scoring form, which must include clear instructions for its use.

a.   Proposal reviews

Proposal reviews present greater opportunity for bias than for conflict of interest. All proposals must be reviewed objectively, using the review criteria listed in the RFP. A scoring system should be agreed to beforehand by all reviewers and strictly followed. This practice may prevent, for example, a proposal from a particular company being downgraded because a reviewer does not want to award a contract to a large company or a company that has performed work for a particular private company in the past.

b.   Contract awards

The proposal evaluation panel makes its recommendation to the AMPA and the DNR contracts specialist, who then review score sheets and other components to ensure that all the proper procedures were followed. If the AMPA accepts the panel recommendation for contract award, the contracts specialist will contact the "apparent successful contractor." The SAG (which usually is the evaluation panel) can then help draft the final contract language. There are inevitably minor modifications to the proposal scope of work or budget that require negotiation with the contractor. Once the contract is negotiated, the contractor signs first and then submits the documents to the DNR for signature. The AMPA will review the final draft and forward the contract to the DNR Forest Practices Division Manager for the final decision and signature.

c.   Documentation

All major steps in the process need to be documented and copies of related documents retained in the files for possible review by state auditors. Hard deadlines need to be disclosed, and it should be stressed that those deadlines are material to the contract and time is of the essence. Consistency in the process (e.g., consistency of information given

to different bidders) is very important. Inconsistency could give one bidder an unfair advantage over the other bidders and could invalidate the competitive process.

2. Other Ethical Considerations

The open stakeholder approach that CMER enjoys also brings with it the potential for conflict of interest in many areas. Many of these areas are very apparent, but the CMER process can generate many "gray" areas as well. Honest mistakes are inevitable. CMER must rely on the professionalism of each individual to prevent a conflict of interest in a given situation and must be very careful to avoid even the perception of a conflict of interest.

9 Data Gathering, Documentation, and Information Management

This chapter explains the sources of CMER information (data, reports, and maps) produced by or on behalf of CMER and the collection and storage of that information.

Additional intentions and goals of this chapter include the following:
1. Guidance to DNR staff and CMER cooperators in how CMER documents and data will be stored

2. Guidance for minimum data standards for CMER reports

3. Setting the stage for public sharing of information and the provision of accurate data and learning for policy setting

4. Minimizing the loss or corruption of CMER work products

5. A system of storage that minimizes staff time and space in filing and storage

6. Linking CMER data and reports to the contracting process and to the project management process that generates the CMER reports and data

9.1 *Protocols and Process Steps for Data Gathering and Storage*

1. The work plan identifies a research and report need.

2. An RFQ or other solicitation is sent out, and a contract is awarded for research and report.

3. The contractor generates data through field research.

4. The contractor generates a final written report.

5. The contractor creates a geographical map of the research site(s).

6. The contractor delivers all data, reports, and maps to DNR at the close of the contract.

7. DNR distributes hard copies of reports to CMER and SAGs for review.

8. Data, reports, and maps are stored (one hard copy of each in contractor's file, one hard copy in AMPA's file, CD in contractor's or AMPA's file). The report is catalogued. Raw data are stored _____ *[Placeholder]*. Maps are catalogued and are stored _____ *[Placeholder]*.

9. Other data and emails are stored by DNR Information Technology as required by law.

10. Contractor/contract file is closed and retention protocol is used to store (DNR).

11. Data are periodically reviewed for proper conditions, formats, and applications.

9.2 *Data Generation*

CMER data or information is generated by contractors performing research and writing reports to fulfill CMER projects identified in the work plan. Data are generated in three forms: original research or field data, geographical maps or descriptions of research sites, and final reports.

9.3 *Data Quality Standards*

All CMER-funded projects must meet DNR minimum standards for data formatting, metadata, GIS layers, and other data considerations, such as sample size. The purpose of these standards is to assure CMER of scientifically credible data that can be used to develop sound policy. Since standards are lengthy and dynamic, they are incorporated here by reference. **(Reference?)**

9.3.1 Principles of Data Quality

[Placeholder]

9.3.2 Error Checking

[Placeholder]

9.4 *Data Dictionary*

A data dictionary should accompany any project data submitted for archiving. The data dictionary should list the files included, name and describe the data fields in each file, outline the data structure of each file, and provide other information as shown in the template or as needed to facilitate use of the data.

9.4.1 Data Dictionary Template

[Placeholder]

9.4.2 Data Dictionary Example

[Placeholder]

9.5 *Data Ownership*

Most CMER data are obtained via DNR contracts and so are legally owned by DNR. Copies of all adaptive management contract deliverables are physically stored in the contract file that is maintained in the Forest Practices Division. This includes study plans, interim and final reports, paper and digital data, maps, publications, and presentations. The contract file should have a copy of every single thing that was generated as part of work paid for by the state; investigators should have nothing in their personal possession (including raw data) that is not part of the contract file.

9.5.1 Authorship

Whether CMER or the contractor will be considered the author is determined by the contract terms.

9.6 *Data Storage and Document Retention*

DNR stores CMER data generated through contract work. DNR follows a file retention policy for storage of CMER data. Generally speaking, CMER data are kept indefinitely and is periodically reviewed to ensure that the storage format (compact disc, etc.) and data format (.xls, ascii) both meet our needs.

DNR file retention policies must be followed for data collected through DNR contracts. In general, a staggered 5-year retention schedule (2 years at DNR, 3 years in archives etc.) is appropriate for most CMER-related products. However, some products, such as final reports, may have longer retention periods. Products that have exceeded the retention schedule will and should be archived or destroyed as appropriate.

10 Information Access and Communication

This chapter specifies CMER's obligations to provide information to the public and describes the ways in which the information will be requested and provided. It also outlines reporting requirements. It may also include plans for education programs and other outreach efforts. External peer review is *not* covered in this chapter (see Chapter 7).

Additional intentions and goals of this chapter include the following:

1. Guidance to DNR staff and CMER cooperators on CMER document retrieval and distribution (phone request, internet, kept by project manager, etc.)

2. Guidance to CMER cooperators and the public in requesting data and other CMER information

3. Requirements, structure, and procedures for distribution and use of CMER products

4. A system and procedures for CMER scientists to gain access to data for scientific purposes and for landowners to obtain data collected on their lands

5. A system of distribution that minimizes staff time in servicing requests

10.1 *Protocols and Process Steps for Distribution of Reports*

1. DNR distributes hard copy of reports to CMER, SAGs for review.

2. CMER reviews final report for approval.

3. If edited by CMER, authorship of report is decided. (contractor or CMER)

4. Once approved, final report becomes known as a "CMER-approved document."

5. CMER documents are "published" in a variety of ways: posted on the web, photocopied and inventoried in the DNR Forest Practices library, or printed as journal articles.

6. Access to CMER information and documents/publications is gained through phone calls, letters, walk-in mail-slot system in DNR office, website, and email. Active access is solicited by and shared by DNR, CMER, the scientific community and others via web postings, press releases, phone contacts, outreach events, and scientific presentations at conferences.

7. CMER transmits documents and data through the AMPA to Policy, which uses the information to make policy recommendations to the FPB.

10.2 *Access to Data*

10.2.1   Public Disclosure

All data should be disclosed as a matter of public record since public funds are used for this research. Small fees will be charged for photocopying, CDs, and other media. Certain personal and other records are exempt from public disclosure (RCW 42.17.310). Nearly all of these specific exemptions are completely unrelated to any CMER process or products. The only exemption remotely applicable is the "valuable formula" exemption

for "research data obtained by any agency within five years of the request for disclosure." It is doubtful that any CMER project conducted in an open stakeholder approach would produce products of this nature, so it is appropriate to disclose nearly all CMER products.

For some special types of data, the DNR charges a more substantial fee. Considered DNR corporate data, these include the transportation and hydrography GIS layers, aerial photos, and some types of maps. If a CMER project specifically requires these data, the need should be documented in a letter or, ideally, included in the contract language as a DNR deliverable to the contractor ("DNR will provide XYZ at no costs….").

Although DNR-owned data are fully available through public disclosure, data are not considered to be in the public record until DNR accepts the data from the contractor. Until DNR accepts these data, they remain the property of the contractor. The intent here is to allow the contractor to perform quality assurance, and to allow the DNR to correctly incorporate the new data into DNR databases and GIS systems.

Landowners that allow access to their lands for CMER projects should have a Memorandum of understanding (MOU) in place with the DNR prior to access if they desire early release of raw data. The MOU should clearly state that the data may contain errors and should caution landowners about the risk of making management decisions on these preliminary data.

10.2.2   Data and Document Requests

Data and document requests are made in writing. If a request is made by telephone, it is recorded. The request is processed by the DNR Public Disclosure Officer, who clarifies the request, processes it, and tracks the public request records.

10.3 *Dissemination and Sharing of Data*

CMER and the AMPA actively share information in several ways:

1. Recommending policy based on report and field data findings to the Board.
2. Making informal presentations.
3. Encouraging scientists to use data in their conferences and professional presentations.
4. Publishing papers in professional journals.
5. Sharing information at the annual CMER Science Conference.

Appendix A

Forest Practices Rules for Adaptive Management

WAC 222-08-035 Continuing review of forest practices rules. (p. 8-1)
*(2) **Adaptive management program.** The adaptive management program will be used
to determine the effectiveness of forest practices rules in aiding the state's salmon
recovery effort and provide recommendations to the board on proposed changes to forest
practices rules to meet timber industry viability and salmon recovery. The program
provides assurances that rules and guidance not meeting aquatic resource objectives will
be modified in a streamlined and timely manner. The board may also use this program to
adjust other forest practice rules and guidance in order to further the purposes of chapter
76.09 RCW. The specific components of the adaptive management program are set forth
in WAC 222-12-045.

WAC *222-12-045 Adaptive management program. (p. 12-7) In order to further the
purposes of chapter 76.09 RCW, the board has adopted and will manage a formal
science-based program, as set forth in WAC 222-08-035(2). Refer to board manual
section 22 for program guidance and further information.
(1) **Purpose:** The purpose of the program is to provide science-based recommendations
and technical information to assist the board in determining if and when it is necessary or
advisable to adjust rules and guidance for aquatic resources to achieve resource goals and
objectives. The board may also use this program to adjust other rules and guidance. The
goal of the program is to affect change when it is necessary or advisable to adjust rules
and guidance to achieve the goals of the forests and fish report or other goals identified
by the board. There are three desired outcomes: Certainty of change as needed to protect
targeted resources; predictability and stability of the process of change so that
landowners, regulators and interested members of the public can anticipate and prepare
for change; and application of quality controls to study design and execution and to the
interpreted results.
(2) **Program elements:** By this rule, the board establishes an active, ongoing program
composed of the following initial elements, but not to exclude other program elements as
needed:
(a) **Key questions and resource objectives:** Upon receiving recommendations from the
TFW policy committee, or similar collaborative forum, the board will establish key
questions and resource objectives and prioritize them.
(i) Projects designed to address the key questions shall be established in the order
and subject to the priorities identified by the board.
(ii) Resource objectives are intended to ensure that forest practices, either
singularly or cumulatively, will not significantly impair the capacity of aquatic
habitat to:
(A) Support harvestable levels of salmonids;
(B) Support the long-term viability of other covered species; or
(C) Meet or exceed water quality standards (protection of beneficial uses,
narrative and numeric criteria, and antidegradation).

(iii) Resource objectives consist of functional objectives and performance targets. Functional objectives are broad statements regarding the major watershed functions potentially affected by forest practices. Performance targets are the measurable criteria defining specific, attainable target forest conditions and processes.

(iv) Resource objectives are intended for use in adaptive management, rather than in the regulatory process. Best management practices, as defined in the rules and manual, apply to all forest practices regardless of whether or not resource objectives are met at a given site.

(b) **Participants:** The board will manage the program and has empowered the following entities to participate in the program: The cooperative monitoring evaluation and research committee (CMER), the TFW policy committee (or similar collaborative forum), the adaptive management program administrator, and other participants as directed to conduct the independent scientific peer review process. The program will strive to use a consensus-based approach to make decisions at all stages of the process. Specific consensus-decision stages will be established by CMER and approved by the board. Ground rules will follow those established by the TFW process as defined in the board manual.

(i) **CMER.** By this rule, the board establishes a cooperative monitoring evaluation and research (CMER) committee to impose accountability and formality of process, and to conduct research and validation and effectiveness monitoring to facilitate achieving the resource objectives. The purpose of CMER is to advance the science needed to support adaptive management. CMER also has ongoing responsibility to continue research and education in terrestrial resource issues. CMER will be made up of members that have expertise in a scientific discipline that will enable them to be most effective in addressing forestry, fish, wildlife, and landscape process issues. Members will represent timber landowners, environmental interests, state agencies, county governments, federal agencies and tribal governments from a scientific standpoint, not a policy view. CMER members will be approved by the board. This will not preclude others from participating in and contributing to the CMER process or its subcommittees. CMER shall also develop and manage as appropriate:

(A) Scientific advisory groups and subgroups;

(B) Research and monitoring programs;

(C) A set of protocols and standards to define and guide execution of the process including, but not limited to, research and monitoring data, watershed analysis reports, interdisciplinary team evaluations and reports, literature reviews, and quality control/ quality assurance processes;

(D) A baseline data set used to monitor change; and

(E) A process for policy approval of research, monitoring, and assessment projects and use of external information, including the questions to be answered and the timelines.

(ii) **TFW policy committee (policy).** TFW, or a similar collaborative forum, is managed by a policy committee (hereafter referred to in this section as "policy"). Policy membership is self-selecting, and at a minimum should include representatives of the following caucuses: Timber landowners (industrial and nonindustrial private landowners); environmental community; tribal governments; county governments; state departments (including fish and wildlife, ecology, and natural resources); and federal

agencies (including National Marine Fisheries Service, U.S. Fish and Wildlife Service, U.S. Environmental Protection Agency and U.S. Forest Service). Policy members will participate without compensation or per diem.

(iii) **Adaptive management program administrator (program administrator).** The department will employ a full-time independent program administrator to oversee the program and support CMER. The program administrator will have credentials as a program manager, scientist, and researcher. The program administrator will make reports to the board and have other responsibilities as defined in the board manual.

(c) **Independent scientific peer review process.** By this rule, the board establishes an independent scientific peer review process to determine if the scientific studies that address program issues are scientifically sound and technically reliable; and provide advice on the scientific basis or reliability of CMER's reports. Products that must bereviewed include final reports of CMER funded studies, certain CMER recommendations, and pertinent studies not published in a CMER-approved, peer-reviewed journal. Other products that may require review include, but are not limited to, external information, work plans, requests for proposal, subsequent study proposals, the final study plan, and progress reports.

(d) **Process:** The following stages will be used to affect change for managing adaptive management proposals and approved projects. If consensus cannot be reached by participants at any stage, the issue will be addressed within the dispute resolution process.

(i) **Proposal initiation:** Adaptive management proposals can be initiated at this stage by any of the participants listed in (2)(b) of this subsection to the program administrator, or initiation may be proposed by the general public at board meetings. Proposals must provide the minimum information as outlined in the board manual and demonstrate how results of the proposal will address key questions and resource objectives or other program rule and/or guidance issues. The board may initiate proposals or research questions in the course of fulfilling their duties according to statute.

(ii) **Proposal approval and prioritization:** The program administrator will manage the proposal approval and prioritization process at this stage and consult with CMER on the program work plan. CMER proposals will be forwarded by the program administrator to policy and then to the board. The board will make the final determination regarding proposal approvals and prioritization. The board will act on proposal approval and prioritization in a timely manner.

(iii) **CMER implementation of proposal:** Board approved proposals are systematically implemented through CMER at this stage by the program administrator.

(iv) **Independent scientific peer review:** An independent scientific peer review process will be used at identified points within this stage of implementation depending upon the study and will be used on specified final studies or at the direction of the board.

(v) **CMER committee technical recommendations:** Upon completion, final CMER reports and information will be forwarded at this stage by the program administrator to policy in the form of a report that includes technical recommendations and a discussion of rule and/or guidance implications.

(vi) **Policy petitions for amendment:** Upon receipt of the CMER report, policy will prepare program rule amendments and/or guidance recommendations in the form of petitions for amendment. When completed, the petitions and the original CMER report

and/or other information as applicable will be forwarded by the program administrator to the board for review and action. Policy recommendations to the board will be accompanied by formal petitions for rule making (RCW 34.05.330). Policy will use the CMER results to make specific petitions to the board for amending:
(A) The regulatory scheme of forest practices management (Title 222 WAC rules and board manual);
(B) Voluntary, incentive-based, and training programs affecting forestry;
(C) The resource objectives; and(D) CMER itself, adaptive management procedures, or other mechanisms implementing the recommendations contained in the most current forests and fish report.
(vii) **Board action to adopt petitions for amendment:** Upon receiving a formal petition for amendment to rules and/or guidance, the board will take appropriate and timely action. There will be a public review of all petitions as applicable. The board will make the final determination.
(e) **Biennial fiscal and performance audits.** The board shall require biennial fiscal and performance audits of the program by the department or other appropriate and accepting independent state agency.
(f) **CMER five-year peer review process.** Every five years the board will establish a peer review process to review all work of CMER and other available, relevant data, including recommendations from the CMER staff. There will be a specified, but limited, period for public review and comment.
(g) **Funding.** Funding is essential to implement the adaptive management program, which is dependent on quality and relevant data. The department shall request biennial budgets to support the program priority projects and basic infrastructure needs including funding to staff the adaptive management program administrator position. A stable, long-term funding source is needed for these activities.
(h) **Dispute resolution process.** If consensus cannot be reached through the adaptive management program process, participants will have their issues addressed by this dispute resolution process. Potential failures include, but are not limited to: The inability of policy to agree on research priorities, program direction, or recommendations to the board for uses of monitoring and/or research after receiving a report from CMER; the inability of CMER to produce a report and recommendation on schedule; and the failure of participants to act on policy recommendations on a specified schedule. Key attributes of the dispute resolution process are:
(i) Specific substantive and benchmark (schedule) triggers will be established by the board for each monitoring and research project for invoking dispute resolution;
(ii) The dispute resolution process will be staged in three parts and may be applied at any level of the adaptive management process. Any participant, or the board, may invoke each succeeding stage, if agreement is not reached by the previous stage, within the specified time (or if agreements are not substantially implemented) as follows:
(A) Stage one will be an attempt by CMER and policy to reach consensus. On technical issues, CMER shall have up to six months to reach a consensus unless otherwise agreed upon by policy. Parties may move the process to stage two after an issue has been before policy for six months unless otherwise agreed. The time periods commence from referral of technical issues to CMER, report by CMER to policy, or the raising of a nontechnical issue (or matter not otherwise referable to CMER) directly at policy.

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(B) Stage two will be either informal mediation or formal arbitration. Within one month, one or the other will be picked, with the default being formal unless otherwise agreed. Stage two will be completed within three months (including the one month to select the process) unless otherwise agreed. (C) If stage two does not result in consensus, stage three will be action by the board. The board will consider policy and CMER reports, and majority and minority thinking regarding the results and uses of the results can be brought forward to the board. The board will make the final determination regarding dispute resolution.

WAC 222-12-046 Cumulative effects. (p. 12-11) The purpose of this section is to identify how the forest practices rules address changes to the environment caused by the interaction of natural ecosystem processes with the effects of two or more forest practices. This interaction is referred to as "cumulative effects." The following approaches have been taken:

(3) Certain rules are designed to focus on specific aspects of cumulative effects of forest practices. For example:

(a) WAC 222-08-035 requires continuing review of the forest practices rules and voluntary processes and adopts the concept of adaptive management. WAC 222-12-045 also adopts adaptive management.

WAC 222-12-090 Forest practices board manual. (p. 12-12) When approved by the board the manual serves as an advisory technical supplement to these forest practices rules. The department, in cooperation with the departments of fish and wildlife, agriculture, ecology, and such other agencies, affected Indian tribes, or interested parties as may have appropriate expertise, is directed to prepare, and submit to the board for approval, revisions to the forest practices board manual. The manual shall include:

…

(22) **Guidelines** for adaptive management program.

Appendix B

Schedule L-1
[Board-approved version: 6/21/00]

**Key Questions, Resource Objectives, and Performance Targets
 for Adaptive Management**
[This schedule contains implementation details and will be subject to further revisions and clarifications as the provisions of the agreement are implemented through rule, statutes and programs.]

Overall Performance Goals: Forest practices,[1] either singly or cumulatively, will not significantly impair the capacity of aquatic habitat to:

a) Support harvestable levels of salmonids;
b) Support the long-term viability of other covered species; or
c) Meet or exceed water quality standards (protection of designated uses, narrative and numeric criteria, and antidegradation).

Resource Objectives are defined below for the key aquatic conditions and processes affected by forest practices. These resource objectives are intended to meet the overall performance goals. Resource objectives consist of:

- **Functional Objectives**, which are broad statements of objectives for the major watershed functions potentially affected by forest practices; and
- **Performance Targets**, which are the measurable criteria defining specific, attainable target forest conditions and processes.

Resource objectives are intended for use in adaptive management, rather than in the regulatory process. Best management practices, as defined in the rules and manual, apply even if resource objectives are met at a given site.

Key Questions. The key questions driving adaptive management can be summarized as follows:

1. *Are forest practices being conducted in compliance with the prescriptions contemplated in this Report?*

   Compliance monitoring will answer this question. Compliance monitoring will be conducted by DNR and is outside the scope of this adaptive management process.

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[1] "Forest practices" are defined in the Forest Practices Rules (76.09.010 RCW) and include road construction, timber harvesting, reforestation, brush control, etc.

2. *Will the prescriptions produce forest conditions and processes that achieve resource objectives while taking into account the natural spatial and temporal variability inherent in forest ecosystems?*

Effectiveness monitoring and research will answer this question. Performance targets are not attainable in all places, even under natural conditions. The adaptive management process will take into account the extent to which a given performance target can actually be achieved given the natural spatial and temporal variability within forest ecosystems.

In addition, reasonable timeframes to achieve targets will be part of the process. There will be identification of performance targets that can be met within short (0-10 years), mid (10-50 years) and long-term (50-200 years) ranges of time measured at the landscape scale. There will also be consideration for the time required for the quantity of prescriptions to be applied on the ground to ensure adequate sample sizes for implementing adaptive management. Effectiveness monitoring and research should also test whether less costly alternative prescriptions would be effective in producing conditions and processes that meet resource objectives or where more conservative prescriptions may be necessary.

3. *Are the resource objectives the right ones to achieve the overall performance goals?*

Validation monitoring and research will answer this question. Validation monitoring and research should be designed to validate or verify the assumptions underlying the resource objectives. Resource objectives must work to achieve the overall performance goal, yet also be attainable within the context of a viable forest products industry. Current targets are those the authors believe will be met by the prescriptions in this Report. Progress towards achieving resource objectives within appropriate timeframes will be tracked through time. Changes to targets should be guided by evaluating two general questions aimed at defining the appropriate level of accuracy needed to change targets: (1) what level of statistical significance, scientific confidence or trend analysis is the monitoring effort intended to achieve and was it achieved; and (2) what level of significance for biological or habitat change is expected?

Heat/Water Temperature

Functional objective: Provide cool water by maintaining shade, groundwater temperature, flow, and other watershed processes controlling stream temperature.[2]

Measures	Performance targets	Time-Frame
Stream temperature	Water quality standards—current and anticipated in next triennial review (e.g., for bull trout[3]).	*(Note--need to be completed by scientific advisory groups)*
Groundwater temperature	To be developed.	
Shade	• Type F & S streams, except Eastside bull trout habitat: that produced by shade model or, if model not used, 85-90% of all effective shade. • Westside and eastside high elevation, Type N streams: shade available within 50' for at least 50% of stream length. • Eastside: all available shade within 75' of designated bull trout habitat per predictive model.	

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[2] Stream temperature is affected by the interaction of a complex set of factors, including shade, air temperature, pool depth and frequency, flow, and groundwater influences. These factors are addressed in resource objectives for other conditions or processes (e.g., hydrology, sediment, LWD) in addition to the targets selected for stream temperature.

[3] Bull trout temperature standards are expected to be an outcome of DOE's triennial review of water quality standards.

LWD/Organic Inputs

Functional objective: Develop riparian conditions that provide complex habitats for recruiting large woody debris and litter[4].

Measures	Performance targets			Time-Frame
Riparian condition	• Westside and high elevation Eastside habitats: riparian stands are on pathways to meet Desired Future Condition (DFC) targets (species, basal area, trees per acre, growth, mortality). • Eastside (except high elevation): DFC; current stands on pathways to achieve Eastside condition ranges for each habitat series.			
Litter fall	• Westside Type N[5]: at least 50% of recruitment available from within 50'. • Eastside Type N: at least 70% of recruitment available from within 50'.			
Pool frequency	< 2 channel widths per pool.			
In-stream LWD	Westside: • Streams <20 m (or 65.6 ft.) bankfull width: > 2 pieces (total wood) per channel width • Streams <10 m (or 32.8 ft.) bankfull width: >0.30 key pieces per channel width • Streams >10 m (or 32.8 ft.) bankfull width: >0.50 key pieces per channel width Eastside: (To be developed.)			
Residual pool depth	Mean Segment Bankfull Width in meters and (feet)	Minimum Unit Size in meters and (feet)	Minimum Residual Pool Depth in meters and (feet)	
	0 to <2.5 (>0 to 8.2 ft.)	0.5 (5.4 ft.)	0.10 (0.33 ft.)	
	∃2.5 to <5.0 (≥ 8.2 to 16.4 ft.)	1.0 (10.8 ft.)	0.20 (0.66 ft.)	
	∃5.0 to <10.0 (≥ 16.4 to 32.8 ft.)	2.0 (21.5 ft.)	0.25 (0.82 ft.)	
	∃10.0 to <15.0 (≥ 32.8 to 49.2 ft.)	3.0 (32.3 ft.)	0.30 (0.98 ft.)	
	∃15.0 to <20 (≥ 49.2 to 65.6 ft.)	4.0 (43.1 ft.)	0.35 (1.15 ft.)	
	∃20 (≥ 65.6 ft.)	5.0 (53.8 ft.)	0.40 (1.31 ft.)	

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[4] Litter is defined to include leaves, needles, twigs, branches, and other organic debris that is recruited to aquatic systems and riparian forest floor.

[5] Targets for Westside and Eastside Type S and F streams are a low priority because adequate leaf litter is expected to be a by-product of riparian stand conditions.

Sediment

Functional objective: Provide clean water and substrate and maintain channel forming processes by minimizing to the maximum extent practicable, the delivery of management-induced coarse and fine sediment to streams (including timing and quantity) by protecting stream bank integrity, providing vegetative filtering[6], protecting unstable slopes, and preventing the routing of sediment to streams.

Measures	Performance targets	Time-Frame
Mass wasting sediment delivered to streams	• Road-related: virtually none is triggered by new roads; favorable trend on old roads. • Timber harvesting-related: no increase over natural background rates from harvest on a landscape scale on high risk sites.	
Road sediment delivered to streams	• New roads: virtually none.	
Ratio of road length delivering to streams / Total stream length (miles/mile)	Old roads: Not to Exceed: Coast (Spruce) West of Crest East of Crest 0.15-0.25 0.15-0.25 0.08-0.12	
Ratio of road sediment production delivered to steams/Total stream length (tons per year/mile)	Old roads: Not to Exceed: Coast (Spruce) West of Crest East of Crest 6-10 T/yr 2-6 T/yr 1-3 T/yr	
Streambank/equipment limitation zone disturbance (caused by forest practices)	• Type S&F: no streambank disturbance outside road crossings. • Type N: $\leq 10\%$ of the equipment limitation zone.	
Fines in Gravel	Less than 12% embedded fines (<0.85 mm).	

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[6] Vegetative filtering can be measured by riparian vegetation, which is covered under the target for riparian condition under LWD.

Hydrology

Functional objective: Maintain surface and groundwater hydrologic regimes (magnitude, frequency, timing, and routing of stream flows) by disconnecting road drainage from the stream network, preventing increases in peak flows causing scour, and maintaining the hydrologic continuity of wetlands.

Measures	Performance Targets	Time-Frame
Road run-off	Same targets as road-related sediment.	
Peak flows	West side: Do not cause a significant increase in peak flow recurrence intervals resulting in scour that disturbs stream channel substrates providing actual or potential habitat for salmonids, attributable to forest management activities.	
Wetlands	No net loss in the hydrologic functions of wetlands	

Chemical Inputs

Functional objective: Provide for clean water and native vegetation (in the core and inner zones) by using forest chemicals in a manner that meets or exceeds water quality standards and label requirements by buffering surface water and otherwise using best management practices.

Measures*	Performance targets	Time-Frame
Entry to water	No entry to water[7] for medium and large droplets; minimized for small droplets (drift).	
Entry in RMZs	Core and inner zone: levels cause no significant harm to native vegetation.	

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[7] Targets are for forest chemicals other than Bt and fertilizer. BMPs for both are not priorities for adaptive management.

* These measures and performance targets are not intended to override label requirements.

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Stream Typing and Fish Passage

Functional objective (stream typing): Type "fish habitat" streams to include habitat which is used by fish at any life stage at any time of the year, including potential habitat likely to be used by fish which could be recovered by restoration or management, and including off-channel habitat, by using a multi-parameter, field-verified, peer reviewed, GIS logistic regression model using geomorphic parameters such as basin size, gradient, elevation and other indicators.

Functional objective (fish passage): Maintain or restore passage for fish in all life stages and provide for the passage of some woody debris by building and maintaining roads with adequate stream crossings.

Measures	Performance targets	Time-Frame
Accuracy of predictive models	Fish habitat model: statistical accuracy of +/- 5%, with line between fish and non-fish habitat waters equally likely to be over and under inclusive.	
Access barriers	Eliminate road-related access barriers over the time-frame for road management plans.	

Appendix C

Schedule L-2

(v.10/24/03 WFPA PJH)

Schedule L-2 lists specific projects associate with the issues identified for adaptive management research in the Forests and Fish Report. All of the definition and Key Questions identified on pages one and two of Schedule L-1apply. Text and tables in the first column, titled Performance Targets and Measures should be identical to the wording that appears in Schedule L-1.

Column Headings: 1. Performance targets and measures are taken from Schedule L-1. 6/21/00
2. Projects are from the "Research Budget FWS_NMFS" (L-1b) dated 1/31/00.
3. First year of funding denotes project initiation priority from "Research Budget FWS_NMFS" (L-1b) dated 1/31/2000.
4. Total $ x 1000 - the total project cost estimated by "Research Budget FWS_NMFS" (L-1b) dated 1/31/2000.
5. Priority: PR = Priority Research, OR = Other Research from FFR 4/29/99
6. FFR. This column references the origins of the project in FFR 4/29/99. App refers to Appendix. Sch refers to Schedule

Other Notes: Yellow highlighted or shaded text in the Project column show FFR L-1 text that varied from the FWS_NMFS list (L-1b)
The "G" general projects are mostly from "Other Priority Research" on the last page of L-1.

Research questions that are in FFR Schedule L01 but do not appear in FWS_NMFS list (L-1b) and are not in this draft of L-2.

Heat/Water Temperature Other Research b): Test the effectiveness of the eastside basal area prescriptions in meeting shade targets.

LWD/Organic Inputs Priority Research j): Determine LWD targets for type N streams (e.g., for sediment retention and amphibians).

Sediment Priority Research f): Develop 10 m DEM state-wide; explore laser mapping. (Included in DNR budget and task list).

Other Priority Research e): Assess the historical ranges of conditions in disturbance regimes of the eastside riparian ecosystem.

Fish Habitat

***Functional Objective*: Type "fish habitat" streams to include habitat which is used by fish at any life stage at any time of the year, including potential habitat like to be used by fish which could be recovered by restoration or management, and including off-channel habitat, by using a multi-parameter, field-verified, peer-reviewed, GIS logistic regression model using geomorphic parameters such as basin size, gradient, elevation, and other indicators.**

Performance Target (measures in bold)[1]	Project[2] (First Year of Funding[3])	Tot $[4]	Priority[5]	FFR[6]
Accuracy of predictive model Fish habitat model: statistical accuracy of +/- 5% with line between fish and non-fish habitat waters equally likely to be over and under inclusive.	G1. Develop a predictive model (e.g. the logistic regression model in FFR) to serve as the basis for stream typing in Washington State. (00)	1,000	PR	App B.1(a)
	G3. Develop and validate habitat suitability and distribution protocols for bull trout currently under development by AFS. (00)	700	PR	Sch L-1 Other Pri. Res. a)
	G5. Validate last-fish habitat model for upper extent of bull trout and other fish. (00)	300	PR	Sch L-1 Other Pri. Res. a)

Amphibians

Functional Objective : (In Progress)

Performance Target (measures in bold)[1]	Project[2] (First Year of Funding[3])	Tot $[4]	Priority[5]	FFR[6]
In progress	G4. Verify the stream-associated amphibian models. (00)	620	PR	Sch L-1 Other Pri. Res. a)
	G7. Test the effectiveness of the "patch buffer" prescriptions for westside type N streams in maintaining the long-term viability of amphibians. (00)	670	PR	App B.4(d)(iv)
	Also see TH9 (Platform for developing amphibian performance targets)			

Fish Passage

Functional Objective: Maintain or restore for fish in all life stages and provide for the passage of some woody debris by building and maintaining roads with adequate stream crossings.

Performance Target (measures in bold)[1]	Project[2] (First Year of Funding[3])	Tot $[4]	Priority[5]	FFR[6]
Access Barriers Eliminate road-related access barriers over the time-frame for road management plans.	G6. Test the effectiveness of fish passage prescriptions at restoring and maintaining passage. (03)	200	PR	Sch L-1 Other Pri. Res. b)

Other Research

Functional Objectives: (In progress)

Performance Target (measures in bold)[1]	Project[2] (First Year of Funding[3])	Tot $[4]	Priority[5]	FFR[6]
	G8. Develop an effective strategy to retain snags in riparian areas on the Eastside. (03)	200	OR	Sch L-1 Other Pri. Res. d)

Performance Target (measures in bold)[1]	Project[2] (First Year of Funding[3])	Tot $[4]	Priority[5]	FFR[6]
	G2. Long-term Course-Level Ambient Monitoring of FFR, incl. Infrastructure for date management and archiving. (01)	200	PR	App L.3 (a)

Heat Temperature

Functional Objective: Provide cool water by maintaining shade, groundwater temperature, flow, and other watershed processes controlling stream temperature

Performance Target (measures in bold)[1]	Project[2] (First Year of Funding[3])	Tot $[4]	Priority[5]	FFR[6]
Stream Temperature • Water quality standards - current and anticipated in next triennial review (e.g., for bull trout).	TH1. Validate cumulative effects of forest practices upon temperatures of F and S streams at the basin scale. (00) (FFR: Investigate basin-wide cumulative effects of forest practices, and potentially other land uses, on attainment of temperature targets.)	550	OR	Sch L-1 Heat/Water Temp 2) d)
	TH2. Improve shade model to better predict relationships between shade and other microhabitat variables and temperature at the reach scale. (00) **(FFR: Improve the shade model to better predict relationships between shade and temperature at a regional level and at different spatial scales, and update to reflect current research and any updated water quality standards.)**	500	PR	Sch L-1 Heat/Water Temp 1) a)
Groundwater • To be developed. (See TH5)	TH3. Test effectiveness of 75' alternative to the shade rule in meeting temp and shade targets. (02)	450	OR	Sch L-1 Heat/ Water Temp 2) a)
	TH4. Test the cumulative effect (at basin scale) of the westside Type N patch buffers and eastside type N buffers in meeting temperature targets. (00)	800	PR	Sch L-1 Heat/Water Temp 1) c)
	TH5. Understand the effects of forest practices on groundwater and on stream temperature (e.g. –hyporheic zones) and their relationship to temperature targets. (00)	900	PR	Sch L-1 Heat/Water Temp 1) d)
	TH6. Calibrate the shade model to meet bull trout temperature targets. (00)	100	PR	Sch L-1 Heat/Water Temp 1) e)

Shade	TH7. Test whether the management prescriptions for buffers are achieving shade and temperature targets, including:	400	OR	<u>Sch</u> L-1 Heat/Water Temp 2) c)
• Type F & S streams, except eastside bull trout habitat: that produced by shade model or, if model not used, 85-90% of all effective shade.	TH7a. Understand how local conditions affect the performance of the prescriptions (03); and			
• Westside and eastside high elevation, Type N streams: shade available within 50' for at least 50% of stream length	TH7b. understanding the cumulative effects of yarding corridors on meeting temperature targets. (03)	400	OR	
Eastside: all available shade within 75' of designated bull trout habitat per predictive model	TH8. Test whether the wetland prescriptions are effective in preventing downstream temperature increases beyond targets. (03)	200	OR	<u>Sch</u> L-1 Heat/Water Temp 1) e)
	TH9. Determine whether amphibians or other designated uses require different temperature targets. (03)	300	OR	Heat/Water Temp 1) f)

Large Woody Debris/Organic Imputs

Functional Objective: Provide complex and productive in- and near-stream habitat by recruiting large woody debris and litter.

Performance Target (measures in bold)[1]	**Project**[2] (First Year of Funding[3])	Tot $[4]	Priority[5]	FFR[6]
Riparian Condition	LWD1. Validate assumptions, models and data used to develop Desired Future Condition (DFC) targets and eastside stand conditions. Conduct field reconnaissance of mature riparian reference stands and compare results with interim targets. (00)	1050	PR	Sch L-1 LWD/Org Input 1) i)
• Westside and high elevation eastside habitat: riparian stands are on pathways to meet Desired Future Condition (DFC) targets (species, basal area, trees per acre, growth, mortality)	LWD2. Validate the assumptions, models, and data used to develop growth and succession pathways to riparian DFC's. Conduct field reconnaissance of riparian stands (management age and mature); utilize new data on validation and refinement of growth models. (00)	350	PR	Sch L-1 LWD/Org Input 1) a)
• Eastside (except high elevation): Desired Future Condition; current stands on pathways to achieve eastside condition ranges for each habitat series	LWD3. Improve and validate growth models for conifer/hardwood interactions, older ages, and riparian zone conditions. (02) ("older ages and riparian zone conditions" add to FFR version)	100	PR	Sch L-1 LWD/Org Input 1) b)
Litter fall				
• Westside Type N: at least 50% of recruitment available from within 50'	LWD4. Determine rates of natural regeneration and tree mortality in riparian management zones and their effects on the ability of management prescriptions to provide riparian function(s), including LWD recruitment. Identify practices to reduce adverse impacts. (01)	560	PR	Sch L-1 LWD/Org Input 1) h)
• Eastside Type N: at least 70% of recruitment available form within 50'				

Performance Target (measures in bold)[1]	Project[2] (First Year of Funding[3])	Tot $[4]	Priority[5]	FFR[6]
10.3.1.1 Pool Frequency • < 2 channel widths per pool **Instream LWD targets** **Westside:** • Streams <20 m bankfull width: > 2 pieces (total wood) per channel width • Streams <10 m bankfull width: >0.30 key pieces per channel width • Streams ≥10 m bankfull width: >0.50 key pieces per channel width **Eastside:** • (To be developed see LWD10) 　　**≥20 5.0 0.40**	LWD5. Assess the historical ranges of conditions and disturbance regimes of the eastside riparian ecosystems. (04)	400	OR	Sch L-1 LWD/Org Input 2) g)
	LWD6. Test the effectiveness of the hardwood conversion in placing riparian forest stands on trajectory to DFC's. (04)	300	PR	Sch L-1 LWD/Org Input 1) d)
	LWD7. Evaluate the effects of riparian prescription Options I and II (thinning or clearcutting to DFC/floor) on LWD recruitment relative to riparian reference stand conditions. (01)	90	PR	Sch L-1 LWD/Org Input 1) e)
	LWD8. Assess the cumulative impacts of yarding corridors on LWD recruitment. (01)	90	PR	Sch L-1 LWD/Org Input 1) f)
	LWD9. Test the effectiveness of wood placement in helping achieve instream habitat conditions. (04)	100	PR	LWD/Org Input 1) g)
Residual Pool Depth Mean Segment Min Unit Size Minimum Residual Pool Bankfull Width M　　　M　　　Depth M 　0 to<2.5　　　0.5　　　0.10 　≥2.5 to <5.0　　1.0　　　0.20 　≥5.0 to 10.0　　2.0　　　0.25 　≥10 to <15　　3.0　　　0.30 　≥15 to <20　　4.0　　　0.35 **1.**	LWD10. Develop *(or validate current)* Performance Targets for instream LWD amounts for all stream types. (00)	100		Not in FFR
	LWD11. Investigate the delivery of LWD from off-site, upstream locations, and test the cumulative effectiveness of the riparian and mass wasting prescriptions in contributing LWD to down-stream channels. (03)	400	OR	Sch L-1 LWD/Org Input 2) a)
	LWD12 Test the effectiveness of trees in the outer buffer (outer zone) in contributing LWD to streams. (01)	250	OR	Sch L-1 LWD/Org Input 2) b)
	LWD13. Test the effectiveness of the riparian prescriptions for recruiting LWD under different site conditions. (01)	250	OR	Sch L-1 LWD/Org Input 2) c)
	LWD14. Test the regeneration capacity of forested wetlands in riparian zones. (01)	350	OR	Sch L-1 LWD/Org Input 2) d)

Performance Target (measures in bold)[1]	Project[2] (First Year of Funding[3])	Tot $[4]	Priority[5]	FFR[6]
CMER PSM	LWD15 Evaluate the effectiveness of current WMZ s in meeting in-stream LWD targets (Not certain of intent/scope of this study. Need to discuss) (02)	100	OR	Sch L-1 LWD/Org Input 2) e)
	LWD16. Validate the assumptions underlying in-stream LWD targets by determining the effectiveness of different LWD sizes in habitat formation and the probability of recruitment and long-term stability. (03)	300		Not in FFR
	LWD17. Develop (priority) and validate indexes of LWD recruitment in relation to eastside disturbance regimes. (02)	100	OR	Sch L-1 LWD/Org Input 2) f)
	LWD18. Determine targets for LWD for Dunn and Van Dyke salamanders, and determine the effectiveness of Type N prescriptions in meeting them. (02)	300	OR	Sch L-1 LWD/Org Input 2) h)
	LWD19. Determine basin-wide targets for LWD loading, and test the cumulative effectiveness of the prescriptions in meeting them Validate models to predict regional LWD recruitment. (03)	300	OR	Sch L-1 LWD/Org Input 2) i)
	LWD20. Determine targets for nutrient cycling on type N streams, and test the effectiveness of the prescriptions in meeting them. (02)	100	OR	Sch L-1 LWD/Org Input 2) j)
	LWD21. Investigate the role of groundwater in nutrient cycle in aquatic ecosystems, whether forest practices have significant adverse impacts, and whether additional targets or prescriptions are needed. (02)	100	OR	Sch L-1 LWD/Org Input 2) k)

Sediment

Functional Objective: Provide clean water and substrate and maintain channel forming processes by minimizing, to the maximum extent practicable, the delivery of management-induced coarse and fine sediment to streams (including timing and quantity) by protecting stream bank integrity, providing vegetative filtering, protecting unstable slopes, and preventing the routing of sediment to streams.

Performance Target (measures in bold)[1]	Project[2] (First Year of Funding[3])	Tot $[4]	Priority[5]	FFR[6]
Mass wasting sediment delivered to streams **Road-related mass wasting** • Virtually none is triggered by new roads; favorable trend on old roads. **r Harvest-related mass wasting** • No increase over natural background rates on a landscape scale on high risk sites. **Road erosion sediment delivered to streams** • New roads: virtually none. **Ratio of road length delivering to streams to total stream length (miles/mile)** Old road not to exceed:	S1. Develop road sediment targets and determine the effectiveness of road maintenance BMPs on a site-scale in meeting those targets. (00) "Develop road sediment targets" added to FFR	200	PR	Sch L-1 Sediment 1) a)
	S2. Determine the effectiveness of road maintenance BMPs on a sub-basin scale in meeting road sediment targets. (02)	100		Not in FFR
	S3. Test the accuracy and lack of bias of the criteria for identifying unstable landforms in predicting areas with a high risk of instability. (00)	300	PR	Sch L-1 Sediment 1) b)
	S4. Test the effectiveness of the equipment exclusion zone on Type N streams at meeting targets for streambank disturbance. (00)	400	PR	Sch L-1 Sediment 1) c)
	S5. Identify the best available model to predict shallow-rapid landslides. (00)	200	PR	Sch L-1 Sediment 1) d)

Performance Target (measures in bold)[1]	Project[2] (First Year of Funding[3])	Tot $[4]	Priority[5]	FFR[6]
Coast West of East of Spruce zone Cascade Crest Cascade Crest 0.15-0.25 0.15-0.25 0.08-0.12 **Ratio of road sediment production delivered to streams to total stream length** **(Tons/year/mile)** Old roads not to exceed: Coast West of East of Spruce zone Cascade Crest Cascade Crest 6-10 2-6 1-3 **Streambank equipment limitation zone disturbance** (caused by forest practices) • Type S&F : No streambank disturbance outside of road crossings. • Type N: Less than or equal to 10% of the equipment limitation zone. **Fines in Gravel** • Less than 12% embedded fines (<0.85 mm).	S6. Develop a screen for deep-seated landslides (needs to be done state-wide). (00) S7. Test the effectiveness of yarding corridor prescriptions at meeting targets for streambank disturbance, including the cumulative effects of allowable corridors. (01) S8. Test the effectiveness of mass wasting prescriptions in meeting mass wasting targets. (03) S9. Develop and validate mass wasting and road sediment targets by determining what levels of cumulative sediment inputs are harmful to the resource at the basin scale. (03)	300 120 400 400	PR PR OR OR	Sch L-1 Sediment 1) e) Sch L-1 Sediment 1) f) Sch L-1 Sediment 2) a) Sch L-1 Sediment 2) b)

Hydrology

Functional Objective: Maintain surface and groundwater hydrologic regimes (magnitude, frequency, timing, and routing of stream flows) by disconnecting road drainage from the stream network, preventing increases in peak flows causing scour, and maintaining the **hydrologic** continuity of wetlands.

Performance Target (measures in bold)[1]	Project[2] (First Year of Funding[3])	Tot $[4]	Priority[5]	FFR[6]

Road Runoff
 	
Ratio of road length delivering to streams to total stream length (miles/mile)
 	
Old road not to exceed:
 	
  Coast   West of   East of
 	
Spruce zone Cascade Crest Cascade Crest
 	
0.15-0.25   0.15-0.25   0.08-0.12
 	
Ratio of road sediment production delivered to streams to total stream length
 	
(Tons/year/mile)
 	
Old roads not to exceed:
 	
  Coast   West of   East of
 	
Spruce zone Cascade Crest Cascade Crest
 	
  6-10   2-6   1-3
 	
Peak Flows
	H1. Test the effectiveness of the roads program at disconnecting road drainage from the stream network and the effect roads have on the hydrology of streams. FWS/WDFW priority. (00)
	"and the effect roads have on the hydrology of streams. FWS/WDFW priority" added to FFR
		200	PR	Sch L-1 Hydrology 1) a)

	H2. Test the effectiveness of prescriptions in meeting peak flow targets (rain-on-snow issue). (Includes validation of the model in the watershed analysis hydrology module used to predict forest-management related peak flows.) (01)	750	PR	Sch L-1 Hydrology 1) b)
	H3. Develop a process to accurately identify wetlands in the dry season, especially on the Eastside. (01)	100	PR	Sch L-1 Hydrology 1) d)
	H4. Develop and validate the target for peak flows as sufficient to prevent increases in the frequency of peak flows causing extensive redd scour. (01)	200	PR	Sch L-1 Hydrology 1) e)
	H5. Investigate the role of groundwater influences on low flows, their relationship to forest practices, and develop targets if appropriate. Test the effectiveness of the prescriptions in meeting the targets. (02)	100	PR	Sch L-1 Hydrology 1) f)

Westside: Do not cause significant increase in peak flow recurrence intervals resulting in scour that disturbs stream channel substrates providing actual or potential habitat for salmonids, attributable to forest management activities.	H6. Improve models of the effects of forest practices on stream flows. (02)	100	OR	Sch L-1 Hydrology 2) a)
	H7. Refine the demarcation between perennial and seasonal Type N streams. (02)	300	OR	Sch L-1 Hydrology 2) b)
Wetlands No net loss in the hydrologic functions of wetlands.	H8. Determine wetland size and function requiring mitigation sequencing to achieve targets. (03)	150	OR	Sch L-1 Hydrology 2) c)
	H9. Assess the hydrologic functions of forested wetlands, the effects of harvesting on stream flows and the effectiveness of prescriptions in meeting wetland targets. If needed, revise the classification system based on wetland function. (02)	100	OR	Sch L-1 Hydrology 2) d)

Appendix D

Other References and Links

<u>Adaptive Management</u>

Salafsky, Nick, Richard Margoluis, and Kent Redford. 2001. Adaptive Management: A Tool for Conservation Practitioners. Biodiversity Support Program Publication # 112. 1250 24th Street, NW, Washington D.C. 20037. Available from the Internet. URL: http://www.BSPonline.org.

Walters, Carl. 1997. Challenges in adaptive management of riparian and coastal ecosystems. Conservation Ecology [online] 1(2):1. Available from the Internet. URL: http://www.consecol.org/vol1/iss2/art1

<u>Science Guiding Policy</u>

Adams, Paul W. and Anne B. Hairston. 1996. Using science to direct policy. J. Forestry 94(4):27-30.

Binkley, Clark S. 199X. From the Dean's desk. Branch Lines 4(2), Faculty of Forestry Newsletter, The University of British Columbia. *Note: This is an editorial on the use and limitations of scientific information for policy decisions*.

Gieben, Helmut. 1995. The misplaced search for objectivity in resource management. Watershed Management Council newsletter 6(3): 9

Meyers, Doug. 2001. Integrating the science of habitat-maintaining processes into natural resource policy. Earth Systems Monitor September:9-11. Puget Sound Water Quality Action Team, Washington Department of Ecology.

Mills, Thomas J. 2000. Position advocacy by scientists risks science credibility and may be unethical. Northwest Science 74(2): 165-168.

Washington State Office of Community Development. 2002. Citations of the Best Available Science for designating and protecting Critical Areas. Available from the Internet. URL: http://www.ocd.wa.gov/info/lgd/growth/bas/BAS_Citations_Final.pdf

Appendix E

Stakeholders and Key Contact Information

CMER Cooperators

Northwest Indian Fisheries Commission
http://www.nwifc.org/

Washington Department of Natural Resources
http://www.dnr.wa.gov/

Washington Department of Ecology
http://www.ecy.wa.gov/

Washington Department of Fish and Wildlife
http://www.wdfw.wa.gov/

United States Fish & Wildlife Service
http://pacific.fws.gov/

National Marine Fisheries Service NW Region
http://www.nwr.noaa.gov/

Environmental Protection Agency
http://www.epa.gov/region10/

Washington Forest Protection Association
http://www.forestsandfish.com/

Washington Farm Forestry Association
http://www.wafarmforestry.com/

Key Contacts for CMER

For current contact information for the Adaptive Management Program Administrator
(AMPA), the CMER co-chairs, or the CMER coordinator, see
http://www.dnr.wa.gov/forestpractices/adaptivemanagement/

Appendix F

Critical Knowledge, Skills, and Abilities (KSAs) for CMER Co-chairs

The KSAs were taken from the Washington State Manager Development and Performance Plan (PER SF-MCPP2000 4/93) and edited to better reflect the CMER co-chair position. The eight KSAs represent broad areas of ability deemed critical to most state managerial positions. "Prompters" included for each KSA are indicators to better guide the co-chairs' performance expectations.

KSAs	"Prompters"
Communication	o Adapt communications to diverse audiences o Deliver quality oral presentations o Demonstrate consistency between verbal and nonverbal communication o Share appropriate information internally and externally o Manage meetings effectively o Possess effective listening skills o Write clearly and concisely o Speak clearly and concisely
Decision Making	o Take calculated risks o Use a logical rational approach o Make timely/responsive decisions o Take responsibility for decisions o Modify decisions based on new information when appropriate o Involve appropriate others in the decision making process
Interpersonal Skills	o Relate well with others o Demonstrate trust, sensitivity and mutual respect o Provide timely and honest feedback in a constructive and non-threatening way o Maintain confidentiality o Accept constructive criticism o Demonstrate consistency and fairness o Negotiate effectively
Leadership	o Coach and mentor; inspire and motivate o Delegate responsibility with associated authority o Demonstrate self-confidence o Lead by example; serve as appropriate role model o Promote a cooperative work environment o Set clear, reasonable expectations and follows through o Remain visible and approachable and interacts with others on a regular basis o Demonstrate high ethical standards o Gain support and buy-in through participation of others
Planning	o Maintain a clear focus on internal and external customer needs

C-2

	o Work with Policy and SAGs to plan future budgets and resource requirements
	o Anticipate problems and develops contingency plans
	o Work with CMER members to:
	   ▪ Set priorities
	   ▪ Establish challenging, attainable goals and objectives
	   ▪ Identify short and long range organizational needs
	   ▪ Look to the future with a broad perspective

Human Resource Management	o Recruit, select and retain capable, productive volunteers o Promote volunteer safety and wellness o Demonstrate knowledge of volunteer support/coordination o Recognize and reward good performance o Assess and provide for volunteer development and training o Encourage and assist volunteers to achieve full potential o Evaluate volunteers timely and thoroughly o Take timely, appropriate corrective/dispute resolution action
Program/Project Management	o Monitor and verify ongoing cost effectiveness (AMPA task only?) o Ensure protocols and standards are met o Respond effectively to unforeseen problems o Understand policy and FPB needs o Ability to lead CMER in achieving results o Use resources efficiently and manages effectively within budget limits
Interacting with the External Environment	o Work effectively within the political environment o Exhibit knowledge and show cooperation regarding intra- and inter-agency programs/ activities/ responsibilities o Display sensitivity to public attitudes and concerns o Understand and cultivate stakeholder relationships o Demonstrate team play

Appendix G

Project Management Forms

This appendix contains the following forms. Use of these forms is optional but may be helpful for project management, tracking, and reporting.

[To come for each form: Instructions for Completion; Completed Example]

Comprehensive Project Summary Tracking Form

Literature Review PM Tracking Form

Study Plan PM Tracking Form

Implementation Plan PM Tracking Form

Field and Data Management PM Tracking Form

Reporting, In-Progress Results, PM Tracking Form

Reporting, Final Results, PM Tracking Form

COMPREHENSIVE PROJECT SUMMARY

Project ID Code: _____ . _____ . _____	Project Name:
Project Start Date:	☐ CMER ☐ SAG:
Expected Project Completion Date:	Rule Group:
Expected Total CMER Budget $:	Program:

Fiscal Year	Budget Approp-riation	Budget Spent	Step	% Step	Date Start	Date End	PM	Tech. Work Group/PI

Notes:

Project ID Code: _____ . _____ . _____		**FY Literature Review**	Project Name:

Date:	Expected Step Completion Date:	Expected Project Completion Date:
FISCAL YEAR: 20 _____	☐ CMER ☐ SAG:	Co-chairs:
Rule Group:	Project Manager (PM):	Principal Investigator (PI):
Program:	Technical Work Group:	Step Budget $:
Associated Contracts & Numbers:		

Checkpoints

√	∅	W	Stage Checkpoints	Date Start	Date End
			Scoping		
			Literature Review		
			SAG Review		
			SAG Approval		
			SRC Review		
			CMER Review		
			CMER Approval		

LR Deliverable	Due Date	Budget	Workload	Coop/Cont

Use footnotes to identify additional information pages – Use notes by footnote to explain name/location of page

Notes:

Project ID Code: _____ . _____ . _____ ☐	**FY Study Plan**	Project Name:
Date:	Expected Step Completion Date:	Expected Project Completion Date:
FISCAL YEAR: 20 _____	☐ CMER ☐ SAG:	Co-chairs:
Rule Group:	Project Manager (PM):	Principal Investigator (PI):
Program:	Technical Work Group	Step Budget $:
Associated Contracts & Numbers:		

Checkpoints

√	∅	W	Stage Checkpoints	Date Start	Date End
			Scoping		
			Study Plan		
			SAG Review & Approval		
			CMER Review & Approval for SRC		
			SRC Review		
			CMER Response to SRC		
			CMER Final Approval		

SP Deliverable	Due Date	Budget	Workload	Coop/ Cont

Use footnotes to identify additional information pages – Use notes by footnote to explain name/location of page

Notes:

Project ID Code: _____ . _____ . _____ [ ]	**FY Implementation Plan**	Project Name:
Date:	Expected Step Completion Date:	Expected Project Completion Date:
FISCAL YEAR: 20 _____	☐ CMER ☐ SAG:	Co-chairs:
Rule Group:	Project Manager (PM):	Principal Investigator (PI):
Program:	Technical Work Group:	Step Budget $:
Associated Contracts & Numbers:		

Checkpoints

√	∅	W	Stage Checkpoints	Date Start	Date End
			Implementation Plan		
			Research Site Access Approval		
			Project Summary Approval		
			Contract Preparation Approval		
			SAG Review & Approval		
			CMER Review & Approval		

IP Deliverable	Due Date	Budget	Workload	Coop/ Cont

Use footnotes to identify additional information pages – Use notes by footnote to explain name/location of page

Notes:

Project ID Code: _____ . _____ . _____		**FY Field & Data Management**	Project Name:	
Date:		Expected Step Completion Date:	Expected Project Completion Date:	
FISCAL YEAR: 20 _____		☐ CMER ☐ SAG:	Co-chairs:	
Rule Group:		Project Manager (PM):	Principal Investigator (PI):	
Program:		Technical Work Group:	Step Budget $:	
Associated Contracts & Numbers:				

Checkpoints

√	∅	W	Stage Checkpoints	Date Start	Date End
			Logistics		
			Data Collection		
			Quality Control		
			Data Entry & Error Checking		
			Data Management		

FD Deliverable	Due Date	Budget	Workload	Coop/ Cont

Use footnotes to identify additional information pages – Use notes by footnote to explain name/location of page

Notes:

<table>
<tr><td>Project ID Code:

_____ . _____ . _____ [ ]</td><td colspan="2" style="background:yellow">FY Reporting: In-Progress Results</td><td>Project Name:</td></tr>
<tr><td>Date:</td><td colspan="2">Expected Step Completion Date:</td><td>Expected Project Completion Date:</td></tr>
<tr><td>FISCAL YEAR: 20 _____</td><td colspan="2">☐ CMER ☐ SAG:</td><td>Co-chairs:</td></tr>
<tr><td>Rule Group:</td><td colspan="2">Project Manager (PM):</td><td>Principal Investigator (PI):</td></tr>
<tr><td>Program:</td><td colspan="2">Technical Work Group:</td><td>Step Budget $:</td></tr>
<tr><td colspan="4">Associated Contracts & Numbers:</td></tr>
</table>

Checkpoints

√	∅	W	Stage Checkpoints	Date Start	Date End
			Annual PMC Progress Report		
			Notice of Significant Findings/Issues Report		
			CMER Science Topic Presentations		
			Plan Modification Report		
			Plan Revision Request to CMER		
			Other Report:		
			Other Report:		

IR Deliverable	Due Date	Budget	Workload	Coop/ Cont

Use footnotes to identify additional information pages – Use notes by footnote to explain name/location of page

Notes:

Project ID Code: _____ . _____ . _____		**FY Reporting: Final Results**	Project Name:
Date:	Expected Step Completion Date:		Expected Project Completion Date:
FISCAL YEAR: 20 _____	☐ CMER ☐ SAG:		Co-chairs:
Rule Group:	Project Manager (PM):		Principal Investigator (PI):
Program:	Technical Work Group:		Step Budget $:
Associated Contracts & Numbers:			

Checkpoints

√	∅	W	Stage Checkpoints	Date Start	Date End
			Data Analysis Report		
			Final Project Results Report		
			SAG Review & Approval		
			CMER Review & Approval for SRC		
			SRC Review		
			CMER Response to SRC		
			CMER Final Approval		

FR Deliverable	Due Date	Budget	Workload	Coop/ Cont

Use footnotes to identify additional information pages – Use notes by footnote to explain name/location of page

Notes:

Appendix H

Contracting Templates

This appendix contains the following templates, which may be useful in the contracting process.

Confidentiality and Conflict of Interest Template
Evaluation Scoring Sheet Example and Template

Confidentiality and Conflict of Interest Template

The DNR routinely uses the following conflict of interest statement when reviewing proposals. DNR employees must sign this form before participating in a proposal review team for any DNR-administered contract. The DNR cannot require other CMER participants to sign, but all members of the review team must be informed that the content of this form is a DNR policy.

CONFLICT OF INTEREST AND CONFIDENTIALITY STATEMENT

(Select one) RFP/RFQQ/RFQ Number:

TITLE OF RFP PROJECT

CONFLICT OF INTEREST STATEMENT

To ensure a fair procurement process and to guard against protests by unsuccessful proposers, I have carefully evaluated my position with regard to possible conflict of interest. I certify that I am not aware of any issue that would reduce my ability to participate on the evaluation team in an unbiased and objective matter, or which would place me in a position of real or apparent conflict of interest between my responsibilities as a member of the evaluation team and other interests. In making this certification, I have considered all financial interests and employment arrangements past, present, or under consideration.

CONFIDENTIALITY STATEMENT

In anticipation of my participation in the evaluation process used to evaluate proposals, I certify that I will not disclose any information, during the proceedings of the evaluation process or at any subsequent time, to anyone who is not also authorized access to the information by law or regulation.

Signature

Name (Print)

Date

Evaluation Scoring Sheet Example and Template

The following is an example of a scoring system routinely used by CMER and the DNR. This can be modified as needed to suit a particular situation as long as it is predetermined, used objectively, and directly supports the review criteria listed in the RFP.

The proposal review team should be encouraged to be "hard graders" and not, for example, to routinely assign a 4 or a 5 to a component worth 5 points. Where appropriate, the full range should be considered to help separate closely scoring proposals. A scoring method that is too liberal will lead to nearly identical scores, causing the contract award to appear more arbitrary or to be based upon hidden review criteria.

The contractor receiving the highest score does not necessarily have to be awarded the contract if the top 2 scores are nearly identical (for example 89.2 and 91.9). The second- place proposal can be awarded the contract if the management approach or other proposal components better suit the needs of CMER and the DNR.

Sample Evaluation Scoring Sheet
(This can be modified by the DNR to suit a particular scope of work.)

RFP/RFQQ NO. _____
Title: _____

EVALUATION FACTORS	Maximum Points Possible	Bidder 1	Bidder 2	Bidder 3	Bidder 4
1. Technical approach (35%) (Delete this Section for RFQQ)					
a) Understanding of project requirements	15				
b) Proposed project approach & methodology	10				
c) Quality of work plan	25				
d) Feasibility of proposed schedule	10				
e) Description of proposed deliverables	10				
Subtotal for this section	70				
2. Management approach (30%)					
a) Project team structure & internal controls	15				
b) Firm's degree of relevant experience with projects of similar complexity & type	25				

EVALUATION FACTORS	Maximum Points Possible	Bidder 1	Bidder 2	Bidder 3	Bidder 4
c) Staff qualifications & experience	15				
d) References	5				
Subtotal for this section	60				
3. Price (35%)					
Lowest responsible bid = maximum points					
All other bidders receive points based upon a percentage derived by dividing their bid into the lowest bid and then multiplying the percentage derived by 70 (maximum points for this section). Example: Low Bid $50,000 = 70 points Other Bid $55,000 = 64 points Calculation: Low Bid $50,000 Other Bid $55,000 = 0.91 x 70 = 64 pts					
Subtotal for this section	70				
TOTAL SCORE	200				

Appendix I

Standard Document Elements and Format Conventions

The following guidelines are based on a variety of sources including a Lee MacDonald paper[1]; Transactions of the American Fisheries Society, Canadian Journal of Fisheries and Aquatic Sciences, and the North American Journal of Fisheries Management author guidelines. This information provides the front and end pieces around a CMER document.

Standard Document Elements
1. Title, Table of Contents, and Other Information
This is the information that starts the report and is standard in most scientific texts.

- Title Page: See example at right. At the top of the page, put "Washington State Cooperative Monitoring, Evaluation, and Research Committee Report." Next, put the title of the study. The title of the report should clearly indicate the scope and duration of the monitoring project. The title serves two functions: 1) it allows the reader to judge whether or not the article is of potential interest; and 2) it provides enough information to judge the document's potential importance. Underneath the title should be the name(s) of the author(s) with their affiliations. If the authors are CMER members, then the appropriate SAG or CMER work group should be identified. Next put "for the Washington State Forest Practices Board Adaptive Management Program." At the bottom of the page put the date of completion or that version.

> Washington State
> Cooperative Monitoring, Evaluation, and Research Committee (CMER)
> Report
>
> **Title**
>
> by:
> (Authors)
>
> of the
> (SAG or CMER Work Group)
>
> for the
> **State of Washington**
> **Forest Practices Board Adaptive Management Program**
>
> (Date)

- Citation Information: Provide the official citation and reference information that should be used by others to reference this document. This may be included with the contributors section or placed on the back of the title page.

- Table of Contents: In most situations, the table of contents page identifies chapter and sub-chapter headings down to the third level (e.g., 6.2.3) and their page start locations. The table of contents also identifies the front and end materials and their page numbers found both before and after the contents.

- Contributors: The name, title, affiliation, email address, and full mailing address of all listed authors should be provided as a courtesy to the readers. This may be extended for the final published version into brief biographies of each author.

---
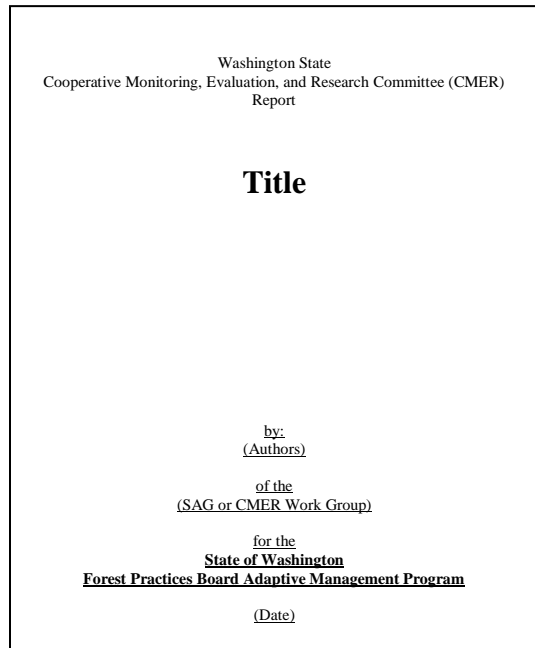
[1] Lee H. MacDonald. 1992. Components of a Monitoring Report. Department of Forest, Rangeland, and Watershed Stewardship, Colorado State University. Fort Collins, CO 80523-1472. (970) 491-6109

2. *Abstract/Executive Summary*

This section should summarize the "meat" of the report, briefly telling the reader what you did, how you did it, the primary results, and the implications of those results. Keep it as objective and as factual as possible. Usually it is best to write this after you've completed the rest of the report, as only then will you have the clarity and understanding to do a good job on this section. Remember not to include abbreviations or other jargon that may not be known to the reader. This section should stand on its own, as many readers will read only this section. This section does not include tables or figures, but should specify the most important numerical results.

3. *Introduction*

The introduction is critical, as it: (1) sets the stage for all that follows, and (2) either hooks or loses the reader. It is all too easy for an introduction to be rambling and include a variety of extraneous information. The first paragraph needs to come to the point--why are you monitoring some particular variable(s) in the selected locations. You then need to provide the context of your study--what has been done in the past, what is known about the system being monitored, and what is the technical basis for your study. This should not be an exhaustive review, but a concise summary.

The introduction should then clearly list the objectives of the study. These objectives should be both concise and precise, and they should stand out. The logic and structure developed here should be reflected in all the other sections of the report, as the reader knows what to expect and is ready for it. Often the introduction you write at the beginning will not fit the report once it's finished, so you may need to go back and revise the introduction to fit the results and discussion. Footnotes generally should be avoided here and in the rest of the report because they can distract the reader and break up the flow of the report.

4. *Key Elements*

The key elements provide the main substance of the report. The specific elements vary somewhat with the type of report. Refer to Chapter 7 of this manual, particularly the sections on literature reviews (7.3.2) and reporting final results (7.8.2).

5. *Acknowledgments*

Most monitoring projects involve a variety of people, and this is your chance to give credit where credit is due. If people can see that their efforts helped produce a usable and tangible result, they are more likely to be interested and willing participants in the future. Having interested and willing participants will then greatly improve the quality and reliability of your future monitoring efforts. Key people may include technicians, managers, and peer reviewers. Funding sources may also be acknowledged in this section whether monetary or in-kind. Recognize these contributions! Acknowledgments may appear in the front matter of the document instead of this position.

6. *References*

This is where you list all the source material cited in your report, including published literature, previous monitoring reports, unpublished documents, personal communication, and computer software. "Literature cited" is a more restrictive term, and for most monitoring reports "references" is more appropriate.

Use the author-date system—e.g., (Smith 1992)—rather than a numbering system. Two advantages of author-date are that (1) you don't have to renumber your citations each time you add or delete a reference, and (2) many readers can readily identify a reference from the author and date. A numeric system forces the reader to keep flipping from the text to the references to see exactly what you are referencing each time.

Text lifted verbatim from a source should be enclosed in quotation marks. Such quotes should be referenced not only by author and date, but also by page number. Paraphrased text requires a reference but need not be enclosed in quotation marks; information considered general knowledge and not subject to argument can be used without an accompanying citation.

Be sure your citation is sufficiently complete to allow the reader to track down and obtain any reference. Referencing a personal communication by name only is not adequate; include the person's organization so that the reader knows exactly whom you mean and could contact that person if desired. Your attention to detail in the references is another clue to the type of work you do; a sloppy and incomplete reference list suggests that your monitoring efforts are sloppy and unreliable. Credibility is a resource that generally takes a great deal of time to build up but can be rapidly destroyed. To be effective, a monitoring report must be credible, useful, and clear.

7. *Appendix*
The appendix holds all the extra information that makes the report complete and documents the CMER process on how it got to that point. Most material is placed here to make the heart of the report readable and efficient. Common appendix elements include CMER process documentation as noted in the manual by chapter, supportive data, a glossary of terms and definitions used, etc.

Standard Document Format Conventions

Element	Sub-Element	Standard Formats
Electronic Files	Transfer materials & Compatibility	• CD ROM Disk • 3.5 Floppy Disk • Microsoft Word (PC) • Adobe PDF (PC compatible) • Microsoft or WordPerfect RTF (PC compatible)
Page Setup	Auto Formatting/ Master Documents	• None
	Page size	• 8.5 x 11 inches standard 20-24lb. white paper
	Margins	• Minimum 1 inches top, bottom, & sides
	Headers, report format	• Left: SAG • Center: Short title • Right: Version & date
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	Title numbering	• First to third levels: Outline numbering (e.g., 1.2.3) • Fourth level: Capital letters (A, B, C, etc.) • Fifth level: Arabic numerals (1, 2, 3, 4, etc.)
	Citations	• Name-and-year system: Name (year) or (Name year) - e.g., Johnson (1995); (Johnson 1995); Johnson and Smith (1996); (Rice et al. 1997) • In press, unpublished data and personal communications system: same format as name-and-year system except use term in place of year - e.g., Johnson (in press); (Rice et al. – unpublished data); Johnson and Smith (personal communications). Identify full name and contact information in footnote or endnote
	Footnotes and Endnotes	• Useful in identifying points of discussion and document review comments; • Limit use in final document
Paragraph Format	Line spacing	• Single
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Font	Style & Size	• Times New Roman or Times Roman – 12pt
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	Mathematical Expressions, Equations, and Formulae	• Metric units or conversions to metric in parentheses • Use correct standard equation and formulae symbols
Tables, Figures, & Text Boxes	Inserting	• Photos & line art – JPEG; TIFF; or EMF • Line art tip for smaller file sizes – copy and paste "As: picture" (Word – Edit > Paste Special function) • Spreadsheet – convert to table preferred
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	Captions	• Table 1. (captions above table) • Figure 1. (captions below image)

	Alignment	• Centered or right preferred
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	Track changes	• Underline/strikeout
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	Reviewer name	• Right footer - Last name & date as mm/dd/yy or mmddyy

Appendix J

CMER Published Reports

Many of the reports listed here are available at
http://www.dnr.wa.gov/forestpractices/adaptivemanagement/cmer/publications/

Date/Type/ID	Title and Authors
5/1/2000 Biological Research TFW-LWAG1-00-001	**Effectiveness of Riparian Management Zones in Providing Habitat for Wildlife, Final Report**; Margaret A. O'Connell, James G. Hallett, Stephen D. West, Kathryn A. Kelsey, David A. Manuwal, Scott F. Pearson
2/1/2000 Physical Research TFW-MAG1-00-002	**Functions of Wood in Small, Steep Streams in Eastern Washington: Summary of Results for Project Activity in the Ahtanum, Cowiche, and Tieton Basins**; charles chesney
2/1/2000 Physical Research TFW-MAG1-00-003	**Streamside Buffers and Large Woody Debris Recruitment: Evaluating the Effectiveness of Watershed Analysis Prescriptions in the North Cascades Region**; Jeff Grizzel, Myla McGowan, Devin Smith, and Tim Beechie
12/1/1999 Physical Research TFW-AM9-99-007	**TFW Monitoring Program Method Manual for the Salmonid Spawning Habitat Availability Survey (replaces 76)**; Allen E. Pleus, Dave Schuett-Hames
12/1/1999 Physical Research TFW-AM9-99-003	**TFW Monitoring Program Method Manual for the Habitat Unit Survey**; Allen E. Pleus, Dave Schuett-Hames
12/1/1999 Physical Research TFW-AM9-99-004	**TFW Monitoring Program Method Manual for the Large Woody Debris Survey**; Allen E. Pleus, Dave Schuett-Hames
12/1/1999 Physical Research TFW-AM9-99-005	**TFW Monitoring Program Method Manual for the Stream Temperature Survey**; Allen E. Pleus, Dave Schuett-Hames
12/1/1999 Physical Research TFW-AM9-99-008	**TFW Monitoring Program Method Manual for the Salmonid Spawning Gravel Scour Survey (replaces 76)**; Allen E. Pleus, Dave Schuett-Hames
12/1/1999 Physical Research TFW-AM9-99-009	**TFW Monitoring Program Method Manual for Wadable Stream Discharge Measurement (replaces 76)**; Allen E. Pleus, Dave Schuett-Hames
12/1/1999 Physical Research TFW-MAG1-00-001	**Onion Creek Watershed Large Woody Debris Recruitment**; Rick Schumaker and Domoni Glass
12/1/1999 Physical Research TFW-MAG1-99-006	**Monitoring Approach and Procedures to Evaluate Effectiveness of Culverts in Providing Upstream Passage of Salmonids**; C. Edward Cupp, JoAnn Metzler, Richard T. Grost, and Paul Tappel
12/1/1999 Physical Research TFW-WQ6-99-002	**Effectiveness of Forest Road and Timber Harvest Best Management Practices with Respect to Sediment-Related Water Quality Impacts - Appendices**; Ed Rashin, Casey Clishe, Andy Loch, Johanna Bell, Washington Department of Ecology

10/1/1999 Physical Research TFW--MAG1-99-004	**The Effects of the Intentional Addition of Large Woody Debris to Stream Channels in the Upper Coweeman River Basin, Storm Beech**;
10/1/1999 Physical Research TFW--MAG1-99-005	**A Watershed-scale Baseline Inventory of Large Woody Debris in the Upper Coweeman Wau**; Greg Volkhardt
9/1/1999 Physical Research TFW-MAG1-99-002	**Assessing the Effectiveness of Large Woody Debris Prescriptions in the Acme Watershed. Phase 1- Baseline Data Collection**; Alan Soicher
9/1/1999 Physical Research TFW-MAG1-99-003	**Assessing the Effectiveness of Mass Wasting Prescriptions in the Acme Watershed. Phase 1- Baseline Data Collection**; Alan Soicher
8/1/1999 Physical Research TFW-AM9-99-010	**TFW Effectiveness Monitoring & Evaluation Program, Progress Report, July 1997-June 1999**; Dave Schuett-Hames, Alan Pleus, Amy Morgan, Myla McGowan, Devin Smith
7/9/1999 Physical Research TFW-PR10-99-001	**Comparison of GIS-based Models of Shallow Landsliding for Application to Watershed Management**; Susan C. Shaw and Laura M. Vaugeois
6/1/1999 Physical Research TFW-MAG1-99-001	**Forest Road Drainage and Erosion Initiation in Four West-Cascade Watersheds**; Curt Veldhuisen and Periann Russell
4/1/1999 Physical Research TFW-WQ6-99-001	**Effectiviness of Forest Road and Timber Harvest Best Management Practices with Respect to Sediment-Related Water Quality Impacts**; Ed Rashin, Casey Clishe, Andy Loch, Johanna Bell, Washington Department of Ecology
3/1/1999 Physical Research TFW-AM9-99-006	**TFW Monitoring Program Method Manual for the Salmonid Spawning Gravel Composition Survey**; Allen E. Pleus, Dave Schuett-Hames
10/15/1998 Biological Research TFW-WL3-98-001	**Effectiveness of Riparian Management Zones in Providing Habitat for Wildlife Workshop Abstracts**; James G. Hallett, Kathryn A. Kelsey, David A. Manuwal, Margaret A. O'Connell, Stephen D. West
10/1/1998 Physical Research TFW-WQ11-98-001	**Stream Biological Assessments (Benthic Macro Invertebrates for Wathershed Analysis): Mid-Sol Duc Watershed Case Study**; Robert W. Plotnikoff
5/1/1998 Physical Research TFW-AM9-98-002	**TFW Monitoring Program Method Manual for the Reference Point Survey**; Allen E. Pleus, Dave Schuett-Hames
5/1/1998 Physical Research TFW-AM9-98-001	**TFW Monitoring Program Method Manual for Stream Segment Identification**; Allen E. Pleus, Dave Schuett-Hames
1/1/1998 Biological Research TFW-WL4-98-003	**Wildlife Use of Managed Forests - A Landscape Perspective, Vol 3: East-Side Studies, Research Results**; James G. Hallett, Margaret A. O'Connell
1/1/1998 Biological Research TFW-WL4-98-002	**Wildlife Use of Managed Forests - A Landscape Perspective, Vol 2: West-Side Studies, Research Results**; Keith B. Aubry, Stephen D. West, David A. Manuwal, Angela B. Stringer, Janet Erickson, Scott Pearson
1/1/1998	**Wildlife Use of Managed Forests - A Landscape Perspective, Vol 1: Executive Summaries, Introduction**

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Biological Research TFW-WL4-98-001	**and Technical Approach**; Keith B. Aubry, James G. Hallett, Stephen D. West, Margaret A. O'Connell, David A. Manuwal
12/1/1997 Physical Research TFW-AM9-97-001	**TFW Monitoring Program Status Reports for the Period From July 1, 1995 to June 30, 1997**; David Schuett-Hames, Allen Pleus, Amy Morgan, Devin Smith
10/1/1997 Physical Research TFW-AM9-97-002	**Trends in Disturbance and Recovery of Selective Salmonid Habitat Attributes Related to Forest Practices: Literature Review and Monitoring Recommendations**; Amy Morgan, Devin Smith
9/1/1997 Physical Research TFW-SH20-97-001	**Evaluation of the Effects of Forest Roads on Streamflow in Hard and Ware Creeks, Washington**; Laura C. Bowling and Dennis P. Lettenmaier
12/1/1996 Physical Research TFW-SH15-97-001	**Landslide Hazard Mapping: Part 3: Prediction and Mapping of Landslide Hazard**; Tien H. Wu and Mohamed A. Abdel-Latif
12/1/1996 Physical Research TFW-SH12-96-001	**Simulation of Water Available for Runoff in Clearcut Forest Openings During Rain-On-Snow Events in the Western Cascade Range of Oregon and Washington**; Marijke van Heeswijk, John S. Kimball, and Danny Marks, U.S. Geological Survey (Water-Resources Investigations Report 95-4219)
11/12/1996 Physical Research TFW-AM9-96-007	**Proposal for a TFW Monitoring Strategy to Determine the Effectiveness of Forest Practices in Protecting Aquatic Resources**; Dave Schuett-Hames, Nancy Sturhan, Kevin Lautz, Randy McIntosh, Mike Gough, Charlene Rodgers
10/21/1996 Physical Research TFW-AM9-96-006	**Quantification of Stream Channel Morphological Features: Recommended Procedures for Use in Watershed Ambient and TFW Ambient Monitoring Manuals**; Carlos Ramos
10/16/1996 Physical Research TFW-WQ20-96-001	**Type 4 & 5 Waters Workshop Proceedings**;
10/1/1996 Biological Research TFW-WL4-96-003	**Wildlife Use of Managed Forests - A Landscape Perspective: A Workshop**; Dr. James G. Hallett, Dr. Margaret A. O'Connell
5/1/1996 Physical Research TFW-AM9-96-005	**Field Comparison of the McNeil Sampler with Three Shovel-based Methods Used to Sample Spawning Substrate Composition in Small Streams**; Dave Schuett-Hames, Bob Conrad, Allen Pleus, Devin Smith, Northwest Indian Fisheries Commission
2/1/1996 Physical Research TFW-AM9-96-003	**Watershed Analysis Monitoring: Pilot Project Evaluation**; Dave Schuett-Hames, Allen Pleus, Northwest Indian Fisheries Commission
2/1/1996 Physical Research TFW-AM9-96-002	**Salmonid Spawning Habitat Availability: A Literature Review and Recommendations for a Watershed Analysis Monitoring Methodology**; Dave Schuett-Hames, Allen Pleus, Northwest Indian Fisheries Commission
2/1/1996 Physical Research TFW-AM9-96-001	**Spawning Gravel Scour: A Literature Review and Recommendations for a Watershed Analysis Monitoring Methodology**; Dave Schuett-Hames, Bob Conrad, Allen Pleus, Northwest Indian Fisheries Commission
2/1/1996 Physical Research TFW-AM9-96-004	**Winter Habitat Utilization by Juvenile Salmonids: A Literature Review**; Amy Morgan, Northwest Indian Fisheries Commission, Frank Hinojosa, Grays Harbor College
7/1/1995 Physical Research TFW-SH20-96-001	**Implications of Forest Practices on Downstream Flooding, Phase II, Final Report**; Pascal Storck, Dennis P. Lettenmaier, Brian A. Connelly, Terrance W. Cundy

3/8/1995	**Effects of Hydraulic Roughness and Sediment Supply on Surface Textures of Gravel-bedded Rivers**; John M. Buffington
Physical Research	
TFW-SH10-95-002	

1/1/1995	**Mountain Scale Strength Properties, Deep-Seated Landsliding, & Relief Limits**; Kevin M. Schmidt
Physical Research	
TFW-SH10-95-001	

12/1/1994	**TFW Ambient Monitoring Program 1993-94 Status Report**; Dave Schuett-Hames, Allen Pleus, Dennis McDonald
Physical Research	
TFW-AM9-94-002	

10/1/1994	**CMER Research and Status Reports with Abstracts 1988-1994**; Northwest Indian Fisheries Commission & Washington Department of Natural Resources
CMER	
TFW-000-94-002	

10/1/1994	**Bedload Transport and Large Organic Debris in Steep Mountain Streams in Forested Watersheds on the Olympic Peninsula, Washington: Final Report**; Matthew O"Connor
Physical Research	
TFW-SH7-94-001	

7/1/1994	**1993 Riparian Management Zone Survey**; TFW Field Implementation Committee
CMER	
TFW-000-94-001	

6/1/1994	**Dam-Break Floods in Low-Order Mountain Channels**; Carol Coho and Stephen J. Burges
Physical Research	
TFW-SH9-93-001	

6/1/1994	**User Instructions: Sediment Sampling Application, rBASE Ver 1.2**; Anita Sparks and Dave Schuett-Hames
Physical Research	
TFW-AM14-94-002	

5/1/1994	**The Effect of Forest Practices on Fish Populations, Final Report**; Dr. Thomas P. Quinn, N. Phil Peterson
Biological Research	
TFW-F4-94-001	

5/1/1994	**Effectiveness of Forest Road and Timber Harvest Best Management Practices with Respect to Sediment-Related Water Quality Impacts - Interim Report 2 [Companion to Interim Report #1, TFW-WQ8-93-001 (63)]**; Ed Rashin, Casey Clishe, Andy Loch
Physical Research	
TFW-WQ8-94-001	

5/1/1994	**A Strategy to Implement Watershed Analysis Monitoring: Assessment of Parameters and Methods, Monitoring Module Outline, Recommendations for Program Development**; Dave Schuett-Hames and George Pess, Northwest Indian Fisheries Commission
Physical Research	
TFW-AM14-94-001	

10/1/1993	**Effectiveness of Best Management Practices for Aerial Application of Forest Pesticides**; Ed Rashin, Craig Graber
Physical Research	
TFW-WQ1-93-001	

9/1/1993	**TFW - Cooperative Monitoring, Evaluation and Research Workplan Status Report**;
CMER	
TFW-000-93-002	

6/30/1993	**Geomorphological Watershed Analysis Project, Final Report For The Period From 10/1/91 to 6/30/93**; David R. Montgomery, Thomas Dunne, William E. Dietrich
Physical Research	
TFW-SH10-93-001	

6/24/1993	**Channel Classification, Prediction of Channel Response, and Assessment of Channel Condition**; David R. Montgomery and John M. Buffington
Physical Research	
TFW-SH10-93-002	

| 6/1/1993 | **Effectiveness of Forest Road & Timber Harvest Best Management Practices With Respect To** |

Physical Research TFW-WQ8-93-001	**Sediment-Related Water Quality Impacts, Interim Report 1**; Ed Rashin, Johanna Bell, Casey Clishe
6/1/1993 Physical Research TFW-WQ4-93-001	**TFWTEMP Computer Model: Revisions and Testing**; Kent Doughty, J. Smith and J. E. Caldwell
3/1/1993 Biological Research TFW-WL1-93-001	**Wildlife Use of Riparian Habitats: A Literature Review**; Margaret A. O"Connell, James G. Hallett, Stephen D. West
1/1/1993 Physical Research TFW-SH15-93-001	**Landslide Hazard Mapping, Part 1: Estimating Piezometric Levels**; Tien H. Wu and Mohamed Abdel-Latif
8/20/1992 Physical Research TFW-WQ1-92-001	**Proposed Surface Water Criteria for Selected Pesticides Used for Forest Management and Management of Forest Tree Seedling Nurseries and Christmas Tree Plantations in Oregon and Washington**; Logan A. Norris and Frank Dost
7/30/1992 Physical Research TFW-SH1-92-001	**Effects of Forest Cover On Volume of Water Delivery to Soil During Rain-On-Snow, Final Report**; Bengt A. Coffin and R. Dennis Harr
7/1/1992 Biological Research TFW-WQ11-92-001	**TFW Ecoregion Bioassessment Pilot Project**; Plotnikoff and Dietrich
7/1/1992 Physical Research TFW-WQ6-92-001	**Effectiveness of Washington's Forest Practice Riparian Management Zone Regulations for Protection of Stream Temperature**; Ed Rashin and Craig Graber, Washington Department of Ecology
4/1/1992 Physical Research TFW-SH11-91-001	**A Process-Based Stream Classification System for Small Streams in Washington**; Jeffrey B. Bradley and Peter J. Whiting
3/2/1992 Biological Research TFW-F3-92-001	**Assessment of Cumulative Effects on Salmonid Habitat: Some Suggested Parameters and Target Conditions**; N. Phil Peterson, Andrew Hendry, Dr. Thomas P. Quinn
11/1/1991 CMER TFW-000-98-001	**1991 Forest Practice Compliance Survey**; Timber/Fish/Wildlife Field Implementation Committee
9/1/1991 Physical Research TFW-WQ5-91-004	**Evaluation of Downstream Temperature Effects of Type 4/5 Waters**; Jean Caldwell, Kent Doughty, and Kate Sullivan
7/15/1991 Physical Research TFW-SH10-91-002	**Proposal for Research in Geomorphological Watershed Analysis**; Thomas Dunne and David Montgomery
7/1/1991 Physical Research TFW-WQ4-91-003	**Management Trials Testing Plan for the TFW Stream Temperature Method**; Caldwell, Sullivan, & Doughty
7/1/1991 Physical Research TFW-SH9-91-001	**Analysis of Initiation Mechanisms of Dam-Break Floods in Managed Forests**; Carol Coho, Stephen J. Burges
6/30/1991 CMER TFW-IM-91-001	**Information Management Coordination Project: Report to TFW Administrative Committee**; Dan Cantrell, Peter T. Haug

6/28/1991	**Geomorphological Watershed Analysis: A Conceptual Framework and Review of Techniques**; Lee Benda and Lynne Rodgers Miller
Physical Research	
TFW-SH10-91-001	

6/28/1991	**Wildlife Use of Managed Forests - A Landscape Perspective (Study Design)**; Stephen West, James Hallett
Biological Research	
TFW-WL4-91-001	

6/28/1991	**Methods for Testing Effectiveness of Washington Forest Practices Rules and Regulations with Regard to Sediment Production and Transport to Streams**; Pentec Environmental, Inc.
Physical Research	
TFW-WQ8-91-008	

6/28/1991	**Watershed Characteristics and Conditions Inventory, Taneum Creek and Tacoma Creek Watersheds**; Jones & Stokes Associates
Physical Research	
TFW-AM10-91-002	

6/1/1991	**Literature Search of Effects of Timber Harvest To Deep-Seated Landslides**; Thomas E. Koler
Physical Research	
TFW-SH5-91-001	

6/1/1991	**TFW Stream Temperature Method: User's Manual**; Doughty, Caldwell, & Sullivan
Physical Research	
TFW-WQ4-91-002	

6/1/1991	**Patterns of Flow, Temperature and Migration of Adult Yakima River Spring Chinook Salmon**; Thomas P. Quinn
Biological Research	
TFW-F4-91-001	

6/1/1991	**Effects of Landslide-Dam-Break Floods on Channel Morphology**; Adelaide C. Johnson
Physical Research	
TFW-SH17-91-001	

6/1/1991	**Design of a Slope Hazard Assessment System for Washington"s Forested Land, Phase 1, Draft Report, June 1991**; Golder Associates
Physical Research	
TFW-SH13-91-001	

5/1/1991	**Watershed Characteristics and Conditions Inventory, Pysht River and Snow Creek Watersheds**; Jones & Stokes Associates
Physical Research	
TFW-AM10-91-001	

5/1/1991	**TFW - Cooperative Monitoring, Evaluation and Research Program Workplan**;
CMER	
TFW-000-91-001	

3/1/1991	**Watershed Characteristics and Conditions Inventory, Upper Mashel River Watershed, Charley Creek Watershed**; Jones & Stokes Associates
Physical Research	
TFW-AM10-91-003	

2/1/1991	**TFW Road Questionnaire: Analysis and Compilation of Responses**; Cogan Sharpe Cogan
Physical Research	
TFW-SH6-91-001	

1/1/1991	**Status and Trends of Instream Habitat in Forested Lands of Washington: TFW Ambient Monitoring Project, Biennial Progress Report (1989-91 Biennium)**; Robert J. Naiman, Ph.D., Loveday L. Conquest, Ph.D., Stephen C. Ralph
Physical Research	
TFW-AM9-91-002	

1/1/1991	**Watershed and Stream Channel Cumulative Effects Analysis Using Aerial Photography and Ground Survey Data - Interim Report**; Dave Somers, Jeanette Smith, Robert Wissmar
Physical Research	
TFW-SH8-91-001	

| 1/1/1991 | **A Road Damage Inventory for the Upper Deschutes River Basin**; Steven Toth |

Physical Research TFW-SH14-91-007	
12/1/1990 Biological Research TFW-WL1-91-003	**Characterization of Riparian Management Zones and Upland Management Areas with Respect to Wildlife Habitat - Data Documentation**; Washington Department of Wildlife
12/1/1990 Physical Research TFW-WQ3-90-006	**Evaluation of Prediction Models and Characterization of Stream Temperature Regimes in Washington**;
12/1/1990 Physical Research TFW-WQ3-90-006	**Evaluation of Prediction Models and Characterization of Stream Temperature Regimes in Washington, Data Appendix**;
12/1/1990 Biological Research TFW-WL1-91-001	**Characterization of Riparian Management Zones and Upland Management Areas with Respect to Wildlife Habitat - 1988-90 Cumulative Report**; Washington Department of Wildlife
7/1/1990 Physical Research TFW-16B-90-011	**Evaluation of the TFW Stream Classification System: Stratification of Physical Habitat Area and Distribution**; Beechie and Sibley
7/1/1990 Physical Research TFW-AM3-90-010	**Quantitative Modeling of the Relationships among Basin, Channel and Habitat Characteristics for Classification and Impact Assessment, with Appendices**; Orsborn
5/1/1990 Biological Research TFW-003-90-005	**Characterization of Riparian Management Zones and Upland Management Areas with Respect to Wildlife Habitat - Field Procedures Handbook**;
5/1/1990 Physical Research TFW-16E-90-004	**TFW Stream Ambient Monitoring Field Manual**;
3/1/1990 Physical Research TFW-SH15-90-001	**Slope Stability in the Transient Snow Zone**; T.H. Wu and Carolyn J. Merry
12/1/1989 Physical Research TFW-WQ3-90-007	**The Physics of Forest Stream Heating: A Simple Model**; Terry N. Adams and Kathleen Sullivan
12/1/1989 Biological Research TFW-003-90-003	**Characterization of Riparian Management Zones and Upland Management Areas with Respect to Wildlife Habitat - 1989 Field Report**;
9/1/1989 CMER TFW-000-89-007	**An Analysis of Program Integration and Development**; Jim Currie
6/1/1989 Physical Research TFW-AM-89-001	**Valley Segment Type Classification for Forest Lands of Washington**; Cupp
6/1/1989 Physical Research TFW-012-89-002	**Sediment Dynamics in Type 4 and 5 Waters, A Review and Synthesis**; Ann MacDonald and Kerry W. Ritland
6/1/1989 Biological Research TFW-009-89-005	**The Effect of Elevated Holding Temperatures on Adult Spring Chinook Salmon Reproductive Success**; Berman, Quinn

6/1/1989 Biological Research TFW-017-089-004	**Wildlife Use of Managed Forests: Literature Review and Synthesis**; NCASI
12/1/1988 Biological Research TFW-003-88-001	**Characterization of Riparian Management Zones and Upland Management Areas with Respect to Wildlife Habitat - 1988 Field Report**;
Physical Research	**Supplement: Appendix I - Field Survey Protocols and Appendix J - Case Study Summaries will be available at some future time. For copies of the supplements: Shirley Rollins (360) 407-6696 or srol461@ecy.wa.gov.**;

Appendix K

Glossary

TERM OR ACRONYM	DEFINITION
Access [to data]	Availability of information
Adaptive management	A resource management approach in which practices are adjusted in response to new information
Adaptive management participant	A person or body empowered by the Forest Practices Board to participate in the adaptive management program. Adaptive management participants include "the cooperative monitoring evaluation and research committee (CMER), the TFW policy committee (or similar collaborative forum), the adaptive management program administrator, and other participants as directed to conduct the independent scientific peer review process" (WAC 222-12-045 (2)(B).
Adaptive management process	A continuous loop that begins with policy questions about the effectiveness of the forest practices rules in meeting established resource objectives and continues through research to answer those questions, recommendations based on the research, affirmation or revision of rules, and more questions.
Adaptive management program administrator	The DNR staff member responsible for managing the adaptive management program
AMP	Adaptive management program
AMPA	Adaptive management program administrator
Authorship	Recognition and responsibility for the content of a document
Board	The Forest Practices Board
BTSAG	Bull Trout Scientific Advisory Group
CMER	Cooperative Monitoring, Evaluation, and Research Committee
CMER Budget	The funds the Forest Practices Board authorizes for CMER for a fiscal year (July 1–June 30). These funds are allocated for specific purposes as projects are developed and move forward.

CMER cooperators	The agencies and associations that are members of the six adaptive management caucuses
CMER data	Field data from research—e.g., data on forms and informal field notes
CMER Member	A representative appointed by one of the six adaptive management caucuses and confirmed by the Forest Practices Board to serve on the Cooperative Monitoring, Evaluation, and Research Committee
CMER publication	An official CMER report
CMER report	A report that summarizes, analyzes, and draws conclusions from research conducted as part of the CMER work plan.
Consensus	Agreement by all members of a group to allow an action to proceed (See Chapter 4 for a complete description of CMER consensus.)
Cooperative agreement (CA)	A contract that public and private parties can enter into when the scope is covered by one of several chapters of the RCW
Cooperative monitoring	Process in which groups with varied interests work together to gather and interpret data on natural resources
Cooperator	See *CMER cooperators.*
Core members	A term sometimes used to distinguish CMER members appointed by the Forest Practices Board from other interested parties
Dissemination	Formal publication or presentation of information
DFC	Desired future outcome
DNR	Washington Department of Natural Resources
Effectiveness monitoring	Evaluation of the performance of the prescriptions in achieving resource objectives at one site
Extensive monitoring	Evaluation of the current status and future trends of key watershed input processes and habitat conditions within FFR lands statewide; also called *status and trends monitoring*
FFR	Forests and Fish Report
FFR Policy Group	Same as TFW Policy Committee

Forest Practices Board	A state administrative body established in 1974 by the Forest Practices Act and charged with establishing rules to protect the state's public resources while maintaining a viable timber industry
Forests and Fish Report	A 1999 report containing recommendations for protecting aquatic resources on forested lands in Washington State. The report was later legislated (ESHB 2091) and then adopted as rules by the Forest Practices Board.
FPB	Washington State Forest Practices Board
FPD	DNR Forest Practices Division – Olympia Headquarters
FREP & ROSP	Forestry Riparian Easement Program & Riparian Open Space Program
Geographical map	Location reports or legal description or literally a map of research areas
Ground rules	Code of conduct that group members agree to use in their meetings
Independent scientific peer review	The process for securing evaluation by scientists outside CMER of proposals, study designs, research reports, and other CMER work
Intensive monitoring	Watershed-scale monitoring that is designed to evaluate the cumulative effects of multiple forest practices and to provide information that will improve our understanding of causal relationships and biological effects of FFR rules on aquatic resources
Interagency agreement (IAA)	A contract between public agencies to implement joint or cooperative projects. The terms are binding on all parties. See RCW 39.34.
Internal dispute resolution	Processes for dealing with disagreements within CMER
ISAG	Instream Scientific Advisory Group
LWAG	Landscape and Wildlife Advisory Group
Memorandum of understanding (MOU)	A document used to identify areas of cooperation and coordination. It is not a contract, and its terms are not legally binding.
Peer review	Independent scientific peer review

Personal service contract (PSC)	Agreement for professional or technical services to be provided by a consultant to accomplish a specific study, task, or other work statement. See RCW 39.29.
Policy	The TFW Policy Committee or the Forests and Fish Policy Group
Program	A group of projects designed to answer related questions about forest practices rules within a rule group
Project	A research study or monitoring task
Protocols and standards	Routine tasks, standard operating procedures, rules, requirements, responsibilities, and measures of quality
PSMWG	Protocols & Standards Manual Work Group
Ranking criteria (work plan)	The factors, such as scientific uncertainty and risk to public resources, considered in determining the priority of projects and programs
Regions	Northeast, Southeast, Northwest, Pacific Cascade, Olympic
RFP	Request for proposal (sometimes used also as a catch-all to refer to RFQ or RFQQ)
RFQ	Request for qualifications
RFQQ	Request for qualifications and quotation
RSAG	Riparian Scientific Advisory Group
Rule group	A category of forest practices rules based on similar resource protection goals
Rule tool program	A program to help DNR develop tools for rule implementation and testing
SAG	Scientific advisory group
SAGE	Scientific Advisory Group - Eastside
Schedule L-1	A portion of the 1999 Forests and Fish Report that defines resource objectives, performance targets, and key questions related to aquatic forest practices rules
Schedule L-2	An outline, created after the 1999 Forests and Fish Report to help guide research, that lists specific types of questions and studies to be used to answer the broad questions in Schedule L-1
Scientific advisory group	A subcommittee formed by CMER to address a particular set of scientific issues
SFLO & AC	Small Forest Landowner Office & Advisory Committee

SFLWG	Small Forest Landowner Work Group
SOW	Scope of work
SRC	An acronym for *Scientific Review Committee*, sometimes used to refer to independent scientific peer review
TFW	Timber, Fish, and Wildlife Forum
TFW CC	Timber/Fish/Wildlife Cultural Committee
TFW Policy Committee	The group responsible for recommending policy changes in response to CMER reports; also referred to as *FFR Policy Group* or *Policy*
Timber, Fish, and Wildlife Agreement	A 1987 agreement among government, forest industry, tribal, and environmental groups for cooperative management of resources
UPSAG	Upslope Processes Scientific Advisory Group
WETSAG	Wetlands Scientific Advisory Group
Work Plan	An annual document developed by the adaptive management participants, with assistance from the SAGs, and approved by the Forest Practices Board to guide CMER's work for a given year

Appendix L

Final amended CMER Review Response Plan

for the
Protocols and Standards Manual

CMER Review Response Plan
For the
Cooperative Monitoring, Evaluation, and Research Committee (CMER) Protocols and Standards Manual
Version: September 28, 2004

Introduction

The CMER Protocols and Standards Manual (PSM) work group presented a draft of the manual to CMER on September 28, 2004. At the request of the PSM work group, CMER asked the following people to review the draft and provide comments to the work group by October 19: Doug Martin (CMER co-chair), Nancy Sturhan (CMER co-chair), Terry Jackson and Mark Hunter (WDFW), Chris Mendoza (Conservation Caucus), Dave Schuett-Hames (CMER Staff), any other project managers that wished to comment. Additional comments were received comments from Robert Palmquist (CMER Staff), Mary Raines (NWIFC), and Sally Butts (USFWS). This document collates and summarizes all (306) reviewers' comments and provides the PSM work group's responses to those concerns for a final document recommendation.

CMER Review Summary

The PSM work group met several times to discuss reviewer comments. Where comments were not understood, reviewers were contacted for clarification. The actions and rationale provided are by consensus of the work group. The group that met for this purpose consisted of Allen Pleus (NWIFC), Ann Colowick (contract writer), Dennis McDonald (WDNR), Geoff McNaughton (AMPA), and Heather Rowton (WFPA), and Jeannette Barreca (WDOE). They were joined by reviewers Nancy Sturhan and Chris Mendoza. Kris Ray (Colville Tribes), Peter Heide (WFPA), and Sara Grigsby (contract manager) were work group members involved in preparing or discussing the draft PSM but not in discussing the comments.

A summary of each reviewer's overall comments follows.

- Doug Martin said that, overall, the manual is too long and has too much detail, many redundancies, and too many headings. He thinks thorough editing is needed.
- Nancy Sturhan conveyed concerns she had heard that the manual is "too prescriptive and not flexible enough for the broad array of projects that we do." She suggested that the work group might need "to make it clearer that this is a guide and individual project steps might vary but the overall progression is about the same."
- Terry Jackson and Mark Hunter provided suggestions to polish wording and clarify intent. They also expressed concern about increasing the burden of CMER work.
- As someone relatively new to CMER, Chris Mendoza welcomed the background information and reference material.
- Dave Schuett-Hames provided suggestions to help the manual fit more closely the actual processes followed by CMER and the practical needs of project managers.

- Robert Palmquist, who confined his review to the project management chapter, made many constructive language recommendations and thought the efforts of the work group were "largely successful."
- Mary Raines focused her attention on Section 7.2, Scoping Paper.
- Sally Butts liked the introduction and had only a few comments on the project management chapter.

Work Group Interpretation of CMER Review

The work group accepted most of the comments, incorporating many helpful suggestions and addressing others by its own rewriting. Comments from two reviewers reflected feelings that the manual should be very short, provide minimal detail, and allow maximum flexibility. Other reviewers seemed to feel that detailed guidelines and extensive information would help CMER participants carry out their work and would help other interested parties understand what CMER is, how it is organized, and how it operates. The work group agrees about the need for flexibility to accommodate a variety of projects and situations. However, the work group firmly believes that CMER needs to establish and publish clear and concise standards for its research (as required by WAC 222-12-045(2)(b)(i)(C)) and for its decision making, reporting, information handling, responses to peer review, and approval processes. In addition, the work group wants the PSM to include information that makes it a useful reference tool and to offer guidance detailed enough to cover most situations. The work group believes this need for detail will be borne out through application of the guidelines over the "provisional" trial period. If this proves to be burdensome, they can be removed in future revisions. These views form the basis of the rationales for rejecting those comments.

CMER Review Response Plan Recommendation Table

All reviewer comments are listed in the "CMER Review Response Plan Recommendation Table" below, grouped by chapter and in order by page and section within each chapter. Comment numbers are provided for easy reference and review. Reviewers are identified by letter, and a key appears at the bottom of each page. Specific comments are presented, often in an abbreviated form. The text the comment pertains to is identified by section and often by page or other identifier, depending on how specific or general the comment was. Comment type is coded as "S" for substantive, "E" for editorial, and "R" for recommendation for future discussion. The term "substantive" is defined here as affecting the meaning or application of the section. The Action column indicates (usually by *YES, NO, or Partial*) whether the work group proposes to accept the comment or suggestion. The last column provides the rationale for the action recommended. For suggestions accepted, the rationale is often omitted where it uses the reviewer's direct recommendation.

In completing the actions in the response plan, some errors were found and corrected. These appear as underline/strikeout edits in the table. These non-substantive edits simply clarified or corrected inconsistencies in the actions or rationales. The revised manual was then sent back to the reviewers with the response plan for confirmation that we accomplished the actions stated. One reviewer's responded and comments # 263, 275, and 276 regarding what to call the peer review process have been adjusted accordingly.

D = Dave Schuett-Hames; P = Bob Palmquist; M = Doug Martin; W = WDFW (Jackson & Hunter); R = Mary Raines; C = Chris Mendoza; B = Sally Butts

CMER Review Response Plan Recommendation Table

Comment Number	Reviewer	Reviewer Comment	Original Text Location	Comment Type (E, R, S)	Action	Rationale
		Table of Contents				
1	M	The table of contents is confusing. Why three different lists? Just show a normal Table of Contents starting with 1.0 Introduction		E	~~NO~~ **Partial**	Keep 1st & 3d; Some find chapter-only table of contents helpful. Second list is an error.
		Executive Summary				
2	D	General: The executive summary doesn't seem very useful to me. The first paragraph should just be incorporated.	p.vii-viii	S	~~NO~~ **Partial**	Will Call "Summary of Contents" and rework 1st paragraph
		Chapter 1 - Introduction				
3	M	1.0 - The Intro chapter is too long and segmented. Needs to be more concise and consolidated into one section	p.1-1	E	~~Partial~~ **No**	~~Rewrite 1st paragraph.~~ Background info important to those unfamiliar w/CMER
4	M	1.~~0~~1 - Omit first paragraph.		E	NO	Important for new participants and will incorporate Dave's edits
5	D	1.1 - I don't recall CMER making scientific recommendations to the FPB.		S	YES	Delete ref to FPB; add "within the adaptive management program"
6	D	1.1 - Incorporate added text to clarify		E	NO	FFR not defined or used in manual except as history; other information too detailed.
7	M	Transpose first two paragraphs in 1.2.		E	YES	
8	D	1.2 - Delete 1st paragraph to midpoint of last sentence. This section never states the purpose, just the rationale. Is the purpose to provide guidance to the participants in conducting the business of the organization? par 1		E	NO	Using Doug's Comments, agree this needs to be consistent w/AMPM, but do not agree to delete at this time – this paragraph
9	D	1.2 - Modify last sentence to improve purpose. par 1		E	NO	Keeping first part of paragraph eliminates need.
10	D	1.2 - Wordsmith 2nd paragraph two places. par 2		E	YES	Replace w/ "provides"
11	D	1.3 - Incorporate paragraph 1 from the Executive Summary.		E	NO	Redundant
		Chapter 2 – Overview, History, and Context				
12	M	Last sentence of 2.1 (re SAGs) unnec.	p. 2-1	S	YES	Move to appropriate section
12a	W	2.1 – Change "appoint" to "create" in last sent.		S	NO	Sentence deleted

13	M	2.2 – Unnec. to mention "another means of independent scientific peer review"		**S**	**Partial**	Reword. The rules do not specify anything called a Scientific Review Committee, and in fact, there is no such committee.
14	M	2.2 – Reports need to be written with the normal protocol for scientists to facilitate technical review. Executive summaries, etc can be written for not science audience: bottom		**S**	**Partial**	Incorporate comments
15	M	2.2 – Add "All final reports will be available to the general public." Par 1	p.2-2	**E**	**YES**	
16	M	2.2 – Omit last paragraph.		**S**	**NO**	Part of AMP process – not every reader will know this
17	M	Section 2.3 more logically part of 2.1.		**E**	**NO**	Separation prevents too much detail at start and helps audience find.
19	D	2.2 to partial 2.5 – Delete all. Concern about redundancy with AMP manual and reader fatigue in plowing-through this material to get to heart of this manual.	p.2-1 to 2-3	**S**	**NO**	Will keep until AMPM is completed and available, will revisit need then
20	D	2.5 - Delete header and first sentence.	p.2-3	**E**	**YES**	May delete all or incorporate in rewrite with Doug's comments of 2.5 to 2.7
21	W	2.5 – Add "or invalidate" to bullet 2		**E**	**NO**	~~If b~~Bullets ~~are~~ not kept~~, may rewrite to clarify~~
18	M	2.6 – Refer to FFR instead of including Schedule L-1 in appendix.		**E**	**NO**	Added for convenience to avoid need to access multiple documents to accomplish tasks – new section 2.5
22	M	2.6 – Integrate w/ 2.7. Material on goals and objectives is "unnecessary and breaks thought track from the 1st sentence."		**S**	**Partial**	Move paragraph 2 to start of section for proper flow. Provides important context. Will consider rewrite. – new title "Roles and Responsibilities of CMER"
23	W	2.6 – Bullet 1 isn't worded right. CMER research can't restore and maintain resource functions.		**E**	**?YES**	~~If kept, will rewrite to clarify~~Deleted
24	D	2.6 and 2.7 – Delete all, same reason as 2.2 to 2.5	p.2-3 to 2-5	**E**	**NO**	Will rewrite in accord w/ Doug's comments
25	M	2.7 – Items under first bullet are unnec.	p.2-4	**E**	**YES**	
26	M	2.7 – Paragraph under list is redundant & unnec.		**E**	**Partial**	Agree it's too long. Will delete or condense.
27	M	2.7 – 2nd paragraph under list is unnec.		**E**	**YES**	
28	M	2.7 – Restate last paragraph as bullets in list above.		**E**	**YES**	
29	M	2.7 – This paragraph is way off the mark and does not	p.2-5	**E**	**YES**	Will delete

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		address the heading "Responsibilities." par.1				
30	M	2.7 – Last paragraph is unnec.		**S**	**NO**	Will rewrite; provides context.
31	M	2.7.1 – Simplify chart, too confusing, don't need the names of all these groups in this document.		**E**	~~**YES**~~ **Partial**	Will delete boxes under DNR, change section number to ~~2.8~~2.7
32	M	2.7.1 – Combine and simplify Key. E.g. SAGs are defined in "Organization" below	p.2-5, 6	**E**	**Partial**	Will simplify but keep SAGs
33	D	2.7.1 – Delete all text below acronym table	p.2-6	**E**	**Partial**	Keep last paragraph.
34	M	2.7.1 – Put info on SAGs in Organization sec.		**E**	**YES**	Chart & acronym list enough here

Chapter 3 – CMER Organization

35	M	3.0 - Intro – Why include summary of CMER functions covered in later chapters?	p.3-1	**E**	**YES**	Will delete all of 3.4
36	D	3.0 – Add "two types of members voting and non-voting" par 2, sent 1		**S**	**NO**	Paragraph moved to 3.1. Members make decisions; others will be called participants. Decisions are by consensus, not voting.
37	M	Intro – Replace "landscape process" w/ "natural resource management" in areas of expertise. par 2		**S**	**Partial**	Will replace areas of expertise with more general statement in 3.1
38	M	3.1 & 3.2 – Prefer "core members."	p.3-1, 2	**S**	**NO**	See above
39	D	3.1 to 3.2.2 - This entire section needs to be reorganized: 1) leadership - Co-chairs and AMPA; 2) Member - core voting and participants; 3) SAGs; 4) Coordinator; and 5) CMER Staff	p.3-1, 2	**E**	**Partial**	Will reorganize, ~~but not quite as suggested.~~ As 1) member & participants, 2) co-chairs; 3) coordinator; 4) SAGs; and 5) Staff in 3.2
40	D	3.1 – Delete 1st paragraph	p.3-1	**E**	**NO**	Will reorganize and move to 3.2.1, where it will replace current par. 1.
41	M	3.1 – Maximum of 3 CMER reps per caucus		**S**	**NO**	No maximum, but will delete par.1
42	W	3.1, par. 2 – Replace "propelling" with "advancing"		**E**	~~**NO**~~ **Partial**	Incorporate Dave's suggestion #40 to eliminate
43	D	3.1 – rephrase to promote leadership: par 2, sent 1		**E**	**YES**	
44	M	3.1 – Delete ref to coordinator		**S**	**NO**	Need greater awareness of coordinator's contributions
45	D	3.2 – rephrase to identify as non-voting representatives: par 1, sent 1		**E**	~~**NO**~~ **Partial**	No voting – see #45
46	M	3.2.1 – All participants are expected to agree to ground rules.		**S**	**YES**	Will include participants
47	D	3.2.1 – add "voting" before representatives: par 1, sent 1		**S**	**NO**	No voting

48	W	3.2.2 – Is this really possible? It is going to be really hard to come up with a new cochair each year. There are so few qualified and interested candidates for this position.	p.3-2	**S**	**NO**	As explained later, cochair may serve multiple terms.
49	M	3.2.2 – CMER nominates cochair, FPB selects.	p.3-2, 3	**S**	**NO**	Policy approval is required, but not FPB approval.
50	D	3.2.2 – Term: wordsmith two places: par 1, sent. 4 & 6	p.3-2	**E**	**YES**	
51	W	3.2.2, Term – If CMER can't reach consensus on an interim Co-chair, why assume that it can reach consensus on a co-chair to finish the term? Change suggested to avoid two elections. Last sentence		**S**	**YES**	Misunderstanding. Will change "elect to maintain" to "choose to function under a single." Language is not about two elections, but assumes two logical choices for either dropping the issue and maintaining or elevating it to Policy for resolution.
52	D	3.2.2 – Guidelines…: Delete 2nd sentence par 1		**E**	**YES**	Will delete entire paragraph
53	D	3.2.2 – Guidelines…: There is no background section – what does this refer to? par 1 sent 4		**E**	**YES**	Will delete entire paragraph
54	M	3.2.2 – Omit 1st paragraph under "Nomination and Selection Process."		**E**	**YES**	
55	M	3.2.2 – Combine "Desirable Qualifications" & "Knowledge, Skills, and Abilities" into "Qualifications and Skills" & place right before "Duties."		**E**	~~**YES**~~ **Partial**	Made title change, placed after "Term"
56	D	3.2.2 – Desirable…: Add "program and/or" to second bullet before project		**E**	**NO**	Not needed, rewrote section – Qualifications & Skills
57	M	3.2.2 – Replace 2nd qualification w/ these: • Experience in designing, implementing, and reporting on research in natural resource sciences. • Experience in oral and written communications, project management, and public meeting management		**S**	**YES**	
58	D	3.2.2 – Knowledge…: Capitalize "abilities" in title		**E**	~~**YES**~~ **NO**	Deleted title in rewrite
59	D	3.2.2 – Duties: General - This section is confusing - why are there two overlapping bulleted lists - what's the distinction between roles , responsibilities and duties?	p.3-3, 4	**E**	**YES**	Will use Doug's suggestions to rewrite – moved to 1st subtitle under 3.2.2
59	M	3.2.2 – Extensive revision of co-chair duties recommended	p.3-4, 5	**S**	**YES**	
60	D	3.2.2 – Duties: 1st bullet - Not a duty - a requirement.	p.3-3	**S**	**YES**	Will move in "Qualifications" – 4th bullet

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61	D	3.2.2 – Duties: 2nd bullet – change to "Provide leadership in achieving consensus"		**E**	**Partial**	Need to parallel construction of other list items – 5th bullet rephrased
62	D	3.2.2 – Duties: 3rd bullet - Not a duty - a mode of operation.		**S**	**YES**	Rewrite should fix
63	D	3.2.2 – Duties: 4th to 6th bullet – Not clear what this duty entails		**E**	**YES**	Rewrite should fix
64	D	3.2.2 – Duties: Last bullet – add "to make sure this happens" to make a duty?		**E**	**YES**	Rewrite should fix
65	D	3.2.2 – Duties – In general… list: This list seems more like duties	p.3-4	**E**	**YES**	Rewrite should fix
66	D	3.2.3 – Duties: 5th bullet: change "manage" to "oversee and coordinate"; delete "research projects, monitoring projects" – AMPA has financial responsibilities for projects, but does not actually manage them.		**S**	**NO**	AMPA, ultimately, legally, responsible for these duties
67	D	3.2.3 – Duties: 7th bullet: change "Run a science-based operation" to "Ensure the scientific integrity of the program"		**E**	**YES**	
68	D	3.2.3 – Duties: 10th bullet: don't understand this	p.3-5	**E**	**YES**	Will rewrite
69	W	3.2.4 – The task list for the CMER coordinator is not realistic for a volunteer participant whose agency or entity does not get CMER funding to support that position.		**R**	**NO**	Evolving position, will revise as needed in future
70	D	3.2.5 – This seems out of place here		**E**	**NO**	Adds context – completes general spectrum of CMER roles
71	M	3.2.6 – Modify description to say that staff "perform other duties as assigned by the AMPA in coordination with the CMER cochairs" and that staff may help with (rather than do) project scoping, design, and implementation.	p.3-6	**E**	**YES**	
72	D M	3.4 to 3.4.6 – Delete all: This section is unnecessary and having these headings in the table of contents simply leads the reader to the wrong portion of the document	p.3-8	**E**	**YES**	

Chapter 4 – CMER Meetings and Meeting Management

73	M	4.2 – Need not say science topic is predetermined, but should mention that it is relevant to CMER.	p.4-1	**E**	**YES**	
74	D	4.2 – change "shall" to "is typically". par 3, sent 1		**S**	**YES**	
75	D	4.2 – Delete last sentence and add new one. par 3		**S**	**YES**	

76	M	4.4.1 – Use "core members".	p.4-2	**S**	**NO**	Using "members" per #36
77	D	4.4.1 – rephrase 1st sentence to read, "CMER attempts to make decisions by consensus."		**E**	**NO**	Will consider rephrasing, but consensus is the required decision method
78	D	4.4.1 – 2nd sentence, add language after "shared": "a motion is made, and the co-chairs ask if all participants agree"		**E**	**NO**	Motion part of meeting process, but not of decision process
79	D	4.4.1 – 3rd sentence, change "participants" to "members"		**S**	**NO**	Maintain distinction between participants and members
80	D	4.4.1 – 4th sentence, change "participants" to participating members" and add "core" before "CMER" at end.	p.4-2, 3	**S**	**NO**	Using "members" per #36
81	D	4.4.1 – 2nd bullet: add "core" before members	p.4-3	**S**	**NO**	Using "members" per #36
82	D	4.4.1 – missing bullet: what about situations when the co-chairs ask for a vote of the core members?		**S**	**NO**	No voting, consensus of members already covered

Chapter 5 – CMER Scientific Advisory Groups (SAGs)

83	M	Intro & 5.2.1 – Change "conduct" to "facilitate". (PIs conduct research.)	p.5-1	**S**	**Partial**	Will add "or facilitate" as they can also conduct where necessary or desired
84	W	5.3.3 – Add new subsection: "Meeting Attendance. A minimum of [4] committee members must be present, representing at least [3] stakeholders. A representative from the Landowner Stakeholder group must always be present. The meeting shall be rescheduled if this quorum is not met."	p.5-3	**R**	**NO**	Quorum criteria needs full CMER agreement – future task
85	W	5.6: Add to bullet 2 "or merge it with another SAG"		**S**	**YES**	Will change "three" to "four" in first sentence; delete reference to splitting in second bullet; and add new third bullet to reflect merge and split options

Chapter 6 – CMER Work Plan Development

86	D	6.0 – Uncertain that Sept 1 to Dec 31 schedule is correct. par 1, sent 4	p.6-1	**S**	**YES**	CMER approves in Feb., Policy in Mar., FPB in May.
87	M	6.1 – Simplify, & chg "provide" to "outline."		**E**	~~YES~~ **Partial**	Simplified "outline" part, kept end.
88	M	6.2: This entire section is unnecessary because it just repeats text from the work plan. All you need is a simple summary paragraph and reference to the plan. Note, this section defines a workplan format that we may not continue. Instead it should say the format is defined by	p.6-1 to 4	**E**	**Partial**	Useful to have general information on structure and definitions of rule groups, programs, and projects in manual. Will delete 6.2.4 (Task Categories) because that is likely to change.

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		CMER and may change as needed.				
89	M	6.3: Sentence 1 is confusing..	p 6-4	**E**	**YES**	Will rewrite
90	M	6.3.1: Sentence 1 is confusing.		**E**	**YES**	Will rewrite
91	M	6.3.2, sent. 1: Not aware of this? Seems like the board may give us a task at any time.		**S**	**YES**	Will change sentence to reflect two points: Sept 1 reflects annual AMP stage cycle when proposals can be expected; board may also seek proposal development at other times
92	M	6.3.2 – Proposed work plan is submitted in spring—Apr 1, not Jan 1.		**S**	**YES**	New 6.3.2 - Will fix dates in 6.0 and 6.4
93	D	6.3 to 6.3.2 – General: process is unclear/confusing. Don't SAGs submit proposals to CMER?		**S**	**Partial**	Reorganization to get away from advocacy science. Will rewrite to clarify who does what when
94	D	6.3 – Last sentence, approved by whom?		**E**	**YES**	Will clarify approval by Policy
95	M	6.3.2 – Unnec to provide rationale for removal of study from work plan unless it is a specific project that was assigned by the FPB. We have removed a number of projects that are unnecessary.	p. 6-5	**S**	**YES**	Will clarify
96	M	6.3.3 – Not clear if DP is necessary if the project proposal has this info. If there is an implementation plan, this is unnecessary, just include info in proposal.		**S**	**NO**	Keep; will work out any conflicts as needed in future
97	W	6.3.3 – Add ref to 7.1 for description of steps.		**E**	**YES**	
98	M	6.3.3, par 1: Delete last sent. FPB does not need to approve DP.		**S**	**YES**	Will clarify that the board approves the CMER work plan within which the Development Plan resides.
99	W	6.3.3, bullet 6 – Consider changing "group" to "party" (or "SAG"?) to avoid confusion with rule groups.		**E**	**YES**	
100	W	6.3.3, bullet 8 – Is oversight group different from group in bullet 6? Redundant?		**E**	**NO**	Oversight group could be different.
101	M	6.3.3, par 3: Cover tracking form unnec if DP contains info listed below		**E**	**NO**	Tool only, Not required

Chapter 7 – Project Management

102	D	7.0 – change chapter title to "Project Development and Management"	p.7-1	**S**	**YES**	Will change to better clarify purpose of chapter
103	P	7.0 – minor wordsmithing		**E**	**YES**	

104	P	7.1 – minor wordsmithing		**E**	**YES**	
105	D	7.1 – Delete figure 7.1 – not very informative		**E**	**NO**	Will reduce size, but should help define the structure of how projects fit into programs
106	D	7.1.1 – Simplify 1st sentence to "The project development and management chapter is organized in steps."	p.7-2	**E**	~~**YES**~~ **Partial**	Substantial revision to section & new title "Project Steps"
107	P	7.1.1 – minor wordsmithing		**E**	**YES**	
108	D	7.1.1 – Second to last sentence: change "for" to "due to".		**E**	~~**YES**~~ **NO**	Deleted sentence
109	D	7.1.2 – General: This section is out of place here. If section is organized step-wise as stated above.		**S**	**YES**	Place before 7.1.1 for better flow – changed title and reworded to make work
110	B	7.1.2 – I'd suggest that the AMPA keep the list of current PMs. Par 1, last sentence.		**S**	**YES**	Will change as reflects current duties
111	M	7.1.2 – PM is recommended by SAG, not appointed; plus other edits		**S**	**YES**	Will change. However, not sure CMER wants to approve all project managers as they would need to identify grounds for not approving – used "should be"
112	P D	7.1.2 – substantial wordsmithing throughout		**E**	**Partial**	In coordination with DSH comments
113	D	7.1.2 – Primary responsibilities…: bullet 1 – delete parentheses and text within to replace with "and cooperates"; delete "all"; replace "project scope of work" with "implementation plan"	p.7-3	**E**	**YES**	
114	D	7.1.2 – Primary responsibilities…: bullet 3 – delete "facilitate contracting" and replace with "develop RFPs or RFQQs, select contractors, monitor contract performance, and provide input on"		**E**	**YES**	Since contractor selection is done by committee, will replace "select contractors" with "review proposals."
115	D	7.1.2 – Primary responsibilities…: bullet 4 – change "solve" to "resolve" and "problems" to "issues"		**E**	**YES**	
116	D	7.1.2 – Primary responsibilities…: bullet 5 – not sure what "the identification" means		**E**	**YES**	Will delete "the identification"
117	B	7.1.2 – Primary responsibilities…: bullet 5 – Change "study" to "project" and add "or unless another PM is designated by consensus of SAG".		**S**	**YES**	
118	D	7.1.2 – Primary responsibilities…: bullet 6 – similar to bullet 1		**E**	**YES**	Will delete bullet 6 as redundant
119	D	7.1.2 – Primary responsibilities…: bullet 8 – add "and response to those reviews" at end of sentence		**E**	**YES**	

D = Dave Schuett-Hames; P = Bob Palmquist; M = Doug Martin; W = WDFW (Jackson & Hunter); R = Mary Raines; C = Chris Mendoza; B = Sally Butts   *p.* 11 of 173

120	D	7.1.2 – delete "may be rotated between SAG members, but" and replace with "a new PM may be assigned by consensus" and end sentence. Start last sentence with "A…" par 2, sent 2		**E**	**Partial**	Comment clear, edits not. Will revise sentences to meet comment intent.
121	D	7.1.2 – delete first two sentences in 3rd paragraph		**E**	**YES**	
122	W	7.1.2 – Edit first sentence, fourth para "It is encouraged…"		**E**	**YES**	Revised wording per #120
123	D	7.1.2 – delete last two sentences in 4th paragraph: these decisions should be left to the SAGs		**S**	**NO**	CMER has made clear it wants PM and PI roles filled by separate persons unless CMER chooses otherwise.
124	M	7.1.3 – Use Nancy's version of Comp Project Tracking form?		**SR**	**NO**	Too late for this year. That form is still under development.
125	B	7.1.3 – Change "Cochairs are expected to track ..." to "It is suggested that PMs should track ..." par 1, sent 3		**S**	**NO**	Disagree. Co-chairs may delegate, but they are the "ultimately responsible" party and need to keep this level of oversight.
126	B	7.1.3 – The column headings for the Comprehensive Project Summary form in App. I are vague. The first three are fine, but the remaining need to be clarified as to what specific information is desired.	p.7-4	**E**	**YES**	Will add lead-in sentence and bullets under paragraph similar to next paragraph regarding PM project tracking minimum information
127	B	7.1.3 – Change "will" to "should" in line 3 of para. 2 ("The PM will maintain project step tracking forms ...")		**S**	**Partial**	Will change to "is expected" in keeping with previous paragraph language.
128	P	7.1.3 – Minor wordsmithing		**E**	**YES**	
129	P	7.1.3 – add to sentence; "Project tracking information will be submitted monthly or on an agreed upon frequency to the AMPA and CMER co-chairs."		**E**	**Partial**	Frequency issue dealt with in next paragraph – adding here would be redundant
130	W	7.1.3 – Appendix I: All of these forms makes the job more complex (in my opinion). It would help me as a project manager to have one checklist that you can follow to make sure that you are covering everything. We saw an example of one at an earlier meeting years ago.		**S**	**NO**	What's here is a starting point and may change in the future.
131	M	7.1.3 – Appendix I: Tracking within a step is too detailed and is unnecessary. Not recommended		**S**	**NO**	Use of forms is optional.
132	M	7.1.3 – Project ID code: Unless this is truly used by the DNR computer, this is unnecessary. Ask Geoff		**S**	**NO**	Code modified for broader application. Keep for now. Clear ID is needed.
133	B	7.1.4 – This section should be moved up front. I think many of the forms will be very helpful and will be used by SAGs. However, I think some of the paragraphs	p.7-5	**E**	**NO**	There is currently high sensitivity to the need/use of CMER forms. Current layout helps to de-emphasize and focus on the

		preceding this section indicate that forms will or must be done by PM.				information needed, not how it is recorded. Over time, the use of forms may become more accepted and this will be reflected in the manual by moving it forward.
134	P	7.1.4 – multiple wordsmithing	p.7-5	**E**	**YES**	
135	M	7.1.4 – Forms: They probably won't be used. So, no use including?		**S**	**NO**	Forms are optional but useful.
136	B	~~7.1.4~~7.2 – How can the scoping paper be recommended, but then it must be approved. This seems contradictory and might deter SAGs from doing scoping papers if they must have CMER approval. 1st sent.		**S**	**YES**	Will change to "CMER may request, or the SAG may recommend that a scoping paper be completed to clarify the context and focus of the proposed project."
137	W	7.2 – change "highly" to "strongly" in first sentence		**E**	**YES**	
138	D	7.2 – Delete first two sentences and add new intro per edits		**S**	**YES**	
139	M	7.2 - Please define the purpose of a Scoping Paper in the first paragraph?		**S**	**YES**	
140	P	7.2 – wordsmithing		**E**	**YES**	Since Dave provided most of the information in this section, I applied his comments to meet all concerns
141	R	7.2 - For a step (scoping) that is recommended (not required) there are too many elements "required" and too many details specified, which results in little flexibility to develop a cogent or succinct document useful for communicating an approach or approaches to a project. The recommended format does not produce a scoping document that is easy to read, and not all the required minimum elements applied to the 3 projects we were scoping.		**S**	**YES**	
142	D	7.2.1 – Delete all – overview captured in 7.2		**S**	**YES**	
143	P	7.2.1 – wordsmithing		**E**	**YES**	
144	R	7.2.2 - The purpose of our [UPSAG's] scoping effort is to float an approach(es) for conducting 3 effectiveness monitoring projects for the purpose of getting incremental buy-in by CMER and policy prior to investing a lot of work in developing a monitoring design. As a scoping exercise, only the elements A-E seem to apply. For these effectiveness monitoring projects, the best available science comparison does not apply as we have no current information on the		**S**	**NO**	Useful guidelines for some projects. Will keep all elements but make intro less prescriptive. – now in 7.2.1

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		effectiveness of the FFR rules. The BAS comparison seems appropriate for some projects, but should not be "required" for all. Bob filled in the BAS table for one project and it doesn't tell us anything and is distracting until you figure that out. This section needs to be revised to be less prescriptive and to focus on the purpose of a scoping paper, which is to explore approaches to conducting projects. To that end, we need to provide the context for the project (FFR, CMER workplan) (items A-D) and the proposed approach(es), and not much else.				
145	M	7.2.2 - This is too detailed and most of the requirements unnecessary. Just list typical items that may be helpful to the proponents. You don't need sections A-H		**S**	**NO**	Brief descriptions of elements will be helpful to some users.
146	D	7.2.2 – add "requirements to end of (D); delete "study approach" in (E); delete all of (F); delete "review/study" in (G)		**E**	~~**YES**~~ **Partial**	~~Dave said so~~BAS important, but reduced text – other change details in #155-168 below
147	P	7.2.2 – wordsmithing		**E**	**NO**	Using Dave's comments
148	P	7.2.2 (A) – change title from "Context" to "Project Identification"	p.7-6	**E**	**NO**	Using Dave's comments
149	P	7.2.2(A) "…lead author's name…" Not clear - how does lead author differ from project manager or principle investigator? What responsibilities does the lead author have?		**E**	**YES**	Changed to "PI's" name
150	P	7.2.2 (A) - minor wordsmithing		**E**	~~**YES**~~ **Partial**	No title change per Dave
151	D	7.2.2(B) – Delete first sentence, add new. This is a key step. We want people to think, clarify and distill, not just parrot the preliminary work. Revise second sub-heading, delete last sentence and add new sentence		**S**	**Partial**	Mixture of Bob and Dave's comments. Maintained sentence to identify rules, guidance, etc. as important for understanding source. Also added some of Dave's hidden comment to paragraph
152	P	7.2.2(B) - The two sub-headings appear redundant. The description of "Issue or problem" requests the factors appearing under "Identify the factors". Please clarify. Change language as noted		**S**	**Partial**	
153	D	7.2.2(C) – nearly complete rewrite		**S**	**Partial**	Mixture of Bob and Dave's comments.
154	P	7.2.2(C) – substantive language change		**S**	**Partial**	

155	W	7.2.2(D) – [GAP]: something needed here on how identification of the specific objectives of the study should be linked to how the study contributes directly or indirectly to FFR resource goals and objectives, and how it can inform rule		S	Partial	Mixture of Bob and Dave's comments.
156	D	7.2.2(D) – new language to fill gap		S	Partial	
157	P	7.2.2(D) – substantive new language to fill gap		S	Partial	
158	D	7.2.2(E) - substantive new language to fill gap	p.7-7	S	Partial	Mixture of Bob and Dave's comments.
159	P	7.2.2(E) – substantive new language to fill incomplete section		S	Partial	
160	W	7.2.2(E) – [GAP]: addresses advantages and disadvantages should include tradeoffs that arise in addressing selected elements, for example, between cost and power linked to sample size.		S	Partial	
161	D	7.2.2(F) – delete all	p.7-8	S	Partial	Will keep first paragraph and delete rest including Appendix L. Best Available Science an important element of the AMP, but needs stakeholder work to refine before putting in CMER PSM.
162	P	7.2.2(F) – multiple wordsmithing		E	Partial	First paragraph only as others now deleted
163	D	7.2.2(G) – delete all: should be done in conjunction with the Study Plan - not the scoping paper.		S	Partial	Discussed with Dave: Keep G title; delete all bullets; add new sentence that works with "Recommended Approach" to identify which one chosen and provide rationale.
164	P	7.2.2(G) – change title from "Recommended Review/Study Approach" to "Proposed Management Plan"		S	NO	
165	R	7.2.2(G) - Item G is miss-titled, as a preferred approach is identified in E. Study Approach Options. Regardless, what is listed in item G is a degree of detail inappropriate to a scoping document. Some of these items may be considerations in the discussion of approach options, but we are certainly not going to spend a lot of time developing project management considerations when what we are trying to convey and get buy-in on is the conceptual approach. The information required in item G is an element of a final study design, not a scoping paper.		S	~~YES~~ **NO**	
166	D	7.2.2(H) – delete all: should be done in conjunction with the Study Plan - not the scoping paper.		S	NO	Need to do as early as possible to avoid waste of resources.

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167	P	7.2.2(H) – minor wordsmithing		**E**	**YES**	
168	W	7.2.2(H) – Revisions to what? Do you mean that policy may have comments that we would have to respond to, etc.? If so, why is this necessary to document?		**E**	**YES**	Delete reference to revisions
169	D	7.3 – add "s" to Review	p.7-9	**E**	~~**YES**~~ **NO**	Not consistent with other headings
170	M	7.3 - Yes, but more importantly, they identify what is known and not known about a specific subject: add new language as noted		**S**	**YES**	
171	P	7.3 – substantive clarification language added		**S**	**YES**	Clarified "latter" review to "early phase" review
172	M	7.3.1 – delete "SAG": The default for every document is CMER approval. The SAG's facilitate this process		**S**	**YES**	Will delete entire reference to approval—not needed here.
173	D	7.3.1 – "conclusions and recommendations" are not necessarily the range		**E**	**YES**	Discussed with Dave: Delete "~~with conclusions and~~ recommendations." kept conclusions and added discussions
174	P	7.3.1 – wordsmithing		**E**	**YES**	Except for #173
175	D	7.3.2 – minor edit	p.7-10	**E**	**YES**	
176	P	7.3.2 – change "context" to "background" and minor edits		**E**	**YES**	
177	P	7.3.2(A) – change title from "Context" to "Background" and add substantive new language to clarify		**S**	**YES**	
178	P	7.3.2(C) – add substantive new language to clarify		**S**	**YES**	Replaced "synthetic" with "synthesis"
179	P	7.3.2(D) – wordsmithing		**E**	**YES**	
180	M	7.4 – revise second and third sentences as noted: These are the critical components, not implementation stuff		**E**	**YES**	Mixture of Dave, Bob, and Doug comments
181	D	7.4 – multiple wordsmithing		**E**	**YES**	
182	P	7.4 – multiple wordsmithing		**E**	**YES**	
183	P	7.4 - I am not sure how a study plan differs from an implementation plan. Presently, isn't project implementation included in the study plan?		**E**	**NO**	The rationale for separating the two types of plans is provided in the Implementation Plan section.
184	D	7.4.1 – wordsmithing and comment: need a more compelling statement identifying the purpose of a study plan in 1st paragraph; wordsmithing in 3rd paragraph	p.7-11	**E**	**YES**	
185	M	7.4.1 – delete that a study plan must be approved by the		**S**	**YES**	Will also delete end of sentence.

		SAG: CMER may approve a study plan without SAG approval.				
186	P	7.4.1 – multiple wordsmithing		**E**	**NO**	Used Dave's comments
187	P	7.4.1 - Somewhere a discussion of why a person would want to develop both a study plan and an implementation plan. is there an advantage to developing a study plan before an implementation plan? If so, what is it?		**E**	**YES**	Add suggested language
188	D	7.4.2 – 1st paragraph on the approval process is out of place at the beginning of a section on document creation - move or delete.		**E**	**YES**	Deleted
189	M	7.4.2 – General: Don't need the A-H detail as some of it may not fit each case. Rather, just list what needs to be addressed		**S**	**NO**	Brief description of each possible element will be helpful to some users.
190	W	7.4.2 – make numbering system consistent in text and box		**E**	**YES**	
191	P D	7.4.2 – wordsmithing and change "context" to "background"		**E**	**YES**	
192	M	7.4.2 - This list (A-L) may or may not fit. Rather than a list just indicate the areas that need to be addressed as shown in my edits above		**E**	**NO**	Brief description of each possible element will be helpful to some users.
193	D	7.4.2 – add new second key element "Purpose/ objectives/ critical questions; delete "L) budget"		**S**	**Partial**	Keeping budget as useful information and needs iterative adjustments as process moves forward
194	D	7.4.2 (A) to (L) - use numbers instead to match table	p.7-12	**E**	~~**YES**~~ <u>**NO**</u>	<u>Format is to use capitol letters</u>
195	P	7.4.2(A) – change "Context" to "Background" and replace section w/ multiple new language		**E**	~~**YES**~~ <u>**Partial**</u>	<u>Changed (i) and (ii) to new sub-heading per Dave #196</u>
196	D	7.4.2(A)(i) – change (i) to new (2) and use new title; (ii) delete last sentence		**S**	**YES**	
197	D	7.4.2.(B) – complete rewrite		**S**	**YES**	
198	P	7.4.2(B) - replace section w/new language		**S**	**Partial**	Used Dave's comments. Put issue of noting changes from the scoping document up in lead paragraph to provide global context <u>–</u> <u>now "C"</u>
199	P	7.4.2(F) – wordsmithing		**E**	**YES**	<u>Now "G"</u>
200	P	7.4.2(G) – add new last sentence	p.7-13	**S**	**Partial**	Put issue of noting changes from the scoping document up in lead paragraph to provide

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						global context – see #198
201	D	7.4.2.(H) – delete second sentence		**E**	**YES**	
202	M	7.4.2.(H) - There are thousands of methods, this is but a small sample. Why list?		**E**	**NO**	It is important to highlight and promote CMER-produced methods
203	D	7.4.2(I) – multiple edits		**E**	**YES**	
204	P	7.4.2(I) – add new first and last sentence, and wordsmithing		**E**	**Partial**	Used Dave's comments. Put issue of noting changes from the scoping document up in lead paragraph to provide global context– see #198
205	P	7.4.2(J) – add new last sentence and wordsmithing		**E**	**Partial**	Put issue of noting changes from the scoping document up in lead paragraph to provide global context– see #198
206	D	7.4.2(L) – delete all	p.7-14	**S**	**NO**	Keep budget
207	P	7.4.2(L) – minor wordsmithing		**E**	~~**YES**~~ **Partial**	Reworded w/same intent
208	P	7.5 – wordsmithing and new language to clarify		**E**	**Partial**	Cannot add language that makes this required
209	P	7.5.1 - wordsmithing		**E**	**YES**	
210	P	7.5.2 – reorder list and wordsmithing	p.7-15	**E**	**Partial**	Project summary should come at end as it needs to incorporate elements developed as part of the implementation plan
211	P	7.5.2(A)(i) & (ii) – minor edits and multiple new language		**E**	**YES**	
212	W	7.5.2(A)(ii) – CMER contracts: Some examples might be included such as obtaining appropriate federal and state permits.		**E**	~~**YES**~~ **NO**	~~Added information to~~Examples are in 7.5.2(F)
213	P	7.5.2(B) – minor wordsmithing and add two new sentences at end of section.		**E**	**Partial**	Put issue of noting changes from the scoping or study plan documents ~~up in lead~~ are in 7.5.1 paragraph ~~to provide global context~~
214	W	7.5.2(B) – need appendix reference for CMER Project Tracking Form		**E**	**YES**	Delete reference to a specific form
215	W	7.5.2(B) – Last sentence: Mention should be somewhere about including the requirement that final product will go through all required reviews and the contractor will be required to respond to comments (SAG/CMER/SRC).		**E**	**YES**	

216	P	7.5.2(C)(i) – add "project manager" to coordination duties and question about "Study Summary" not described previously	p.7-16	**S**	**YES**	Will also delete reference to "CMER Study Implementation Coordinator" and change "Study Summary" to "Project Summary." Language is missed holdover from when George McFadden was CMER staff. – Now C(ii)
217	W	7.5.2(C) – add new component (i) "initial research site selection process" and description		**S**	**YES**	
218	P	7.5.2(C)(i) – add new language at bottom of sub-section		**S**	**YES**	Now C(ii) – combined with #219
219	W	7.5.2(C)(i) – add new language at bottom of sub-section		**S**	**YES**	Now C(ii) – combined with #218
220	P	7.5.2(C)(ii) – add new language to 1st paragraph		**E**	**YES**	Now C(iii)
221	P	7.5.2(C)(iii) – add new language to bottom of 1st paragraph and delete second paragraph, plus wordsmithing 3rd paragraph		**E**	**YES**	
222	W	7.5.2(C)(iii) – protocol packages: Is all this necessary?		**E**	**NO**	Not necessary, but important information in preparing to implement a project
223	P	7.5.2(C)(iv) – wordsmithing	p.7-17	**E**	**YES**	
224	P	7.5.2(C)(viii) – wordsmithing, add new language at end of "Data Entry…" to clarify		**S**	**YES**	
225	P	7.5.2(F) – wordsmithing	p.7-19	**E**	**YES**	
226	P	7.5.2(F)(ii) - Ambiguous -- all data collection involves cost -- cost of field crew etc. if nothing else. Does this statement refer to other costs such as purchase of data from a third party?	p.7-20	**E**	**YES**	Rewrite to clarify. Now F(iii)
227	W	7.5.2(F)(ii) - This should be an automatic part of each project; this may not be clear from the sentence indicated.		**E**	**NO**	Providing data on request is enough.
228	W	7.5.2(F)(ii) – add provided "other landowner coordination issues"		**E**	**Partial**	Incorporated into new (ii); old (ii) is now (iii).
229	P	7.5.2(G) – substantive new language to add context		**S**	**YES**	
230	P	7.5.2(H) – wordsmithing		**E**	**YES**	
231	M	7.6 – General: Many of the duties in this section are PI responsibilities. This needs clarification		**S**	**YES**	Discussed with Dave: Need to add information that the line between the PM and PI is currently evolving. Primary distinction between PM and PI is that PM provides oversight for CMER and ensures

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						that contract obligations are met. PI does the vast majority of the work, but only what their contract specifies. Will review sections to make consistent.
232	W	7.6 – Why is this redundant to Section 7.5.2(C)?		**E**	**NO**	Previous section concerns planning for this step. This section advises on conducting this step.
233	P	7.6 – wordsmithing		**E**	**YES**	In conjunction w/Dave comments
234	P	7.6.1 – wordsmithing	p.7-21	**E**	**YES**	In conjunction w/Dave comments
235	W	7.6.2 – minor edits first sentence		**E**	**NO**	Use Bob's comments
236	W	7.6.2 – Equipment: include map and photo needs		**E**	**YES**	
237	M	7.6.2 – "PM must collect or verify…": This the PI responsibility		**S**	**YES**	Discussed with Dave: delete "must" and replace with "will provide oversight that the PI will"
238	P	7.6.2 – multiple wordsmithing		**E**	**YES**	In conjunction w/Dave comments
239	M	7.6.3 - PI responsibility	p.7-22	**S**	**YES**	See #231
240	P	7.6.3 – minor edits		**E**	**YES**	
241	W	7.6.3 – bullet Loss…: add "(e.g., low or loss of water flow, disturbance, landowner complications, etc.)"		**E**	**YES**	
242	P	7.6.4 – new language to clarify and delete "Incomplete" status		**S**	**YES**	
243	M	7.7 – General: What the PM is responsible for vs the PI is confused? Most technical reporting is done by PI. PM may prepare simple status or tracking reports. Please clarify the roles		**E**	**YES**	Rewrite and reorganize to clarify oversight role of PM
244	W	7.7 - This entire section needs re-thinking, you have a CMER structure already overburdened with work and process-oriented elements, reporting should be extremely simplified to address solely the objective of expected project progress requirements and issues. You overburden this section and folks will fly out of CMER faster than they have already.		**S**	**Partial**	Rewrite to simplify, to clarify that these are examples of reports that may be needed, and to clarify PM's role
245	P	7.7 – wordsmithing and clarifications		**E**	~~**YES**~~ **Partial**	Some rewording w/same intent
246	M	7.7.1 - What is done by PI and what is PM?	p.7-23	**S**	**YES**	See #~~231~~243: Will clarify that PM will

						conduct where PI is not bound by contract or other delegation not available
247	P	7.7.1 – minor edits		**E**	~~**YES**~~ **NO**	Deleted 1st paragraph
248	P	7.7.2 – substantive wordsmithing and clarifications		**S**	**YES**	w/ PSM work group comments
249	M	7.7.2 – budget expend. & projections: This is defined by DNR contract. PM may not need to do this		**S**	**YES**	Deleted
250	P	7.8 – minor edits. Sent 1	p.7-24	**E**	**YES**	Add "and may result" after "FPB"; delete "their evaluations"; replace with "the re-evaluation"
251	M	7.8.1 – reports should be addressed to a scientific audience – not general. Delete second sentence in first para.		**S**	**Partial**	Rewrite to clarify need for understanding by all CMER participants
252	P	7.8.2 – add new second sentence to link with prior process	p.7-25	**E**	**YES**	
253	M	7.8.2 – add abstract/executive summary (A), introduction (B), and replace recommendations with references (H) to list of key elements.		**E**	**Partial**	Deleted Recommendations as element of report. Elements common to all documents are described in Appendix K. Will clarify relation between Chapter 7 and Appendix K.
254	W	7.8.2 – add introduction, background, objectives to list of key elements		**E**	**Partial**	Will clarify relation between Chapter 7 and Appendix K
255	P	7.8.2(A) - wordsmithing		**E**	**YES**	
256	P	7.8.2(B) – wordsmithing and add new sentence to link with prior process		**S**	**YES**	
257	P	7.8.2(C) – multiple edits and new language		**S**	**YES**	
258	W	7.8.2(C) – add "Each figure and table should stand alone and be clearly understood without the need to search through the text for explanation."		**E**	**YES**	
259	P	7.8.2(D) – substantive wordsmithing and new language		**S**	**YES**	
260	M	7.8.2(E) – Conclusions: If you provide an abstract/executive summary this is generally unnecessary	p.7-26	**S**	**NO**	A Conclusions section is commonly included and considered standard.
261	M	7.8.2(F) – Delete recommendations: Reports provide the technical findings. Recommendations if requested by Policy would probably occur in a separate document		**S**	**YES**	
262	P	7.9.1 – wordsmithing and clarifying language		**E**	**YES**	

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263	M	7.9.1 - We already have the SRC, don't need another acronym		E	~~NO~~ **Partial**	~~SRC does not officially exist. Will change "ISPR" to "SPR" throughout for consistency w/ AMPM~~Manual will not use acronyms – will acknowledge common use of "SRC" but will use "peer review" to describe process in manual.
264	M	7.9.1 – add at end: "The PM is responsible for facilitating the communications and logistics necessary to complete the review process."		E	YES	
265	P	7.9.1(A) – multiple edits and additions, delete yellow-highlighted text		S	YES	
266	M	7.9.1(A) – edit first sentence		E	YES	10.4 *w/ Bob's comments in #265*
267	M	7.9.1(A) – this is a technical document for a technical reader		S	YES	Added clarification
268	P	7.9.1(B) – multiple edits and additions,	p.7-27	S	~~YES~~ **Partial**	No changes to (i) through (vi) as language was previously approved by CMER
269	M	7.9.1(B)(ii)(b) – Six questions: This is unnecessary at this point. Only when the report is submitted to Policy will this be needed	p.7-28	S	NO	This language was previously approved by CMER.
270	M	7.9.1(B)(vi) – add "PM" to list of receivers	p.7-29	E	NO	This is a CMER-approved process and should not be changed by our group. The language does not preclude and I think the common practice will make sure the PM receives all relevant materials.
271	P	7.9.1(C) – multiple edits and additions, delete yellow and blue highlighted text		E	~~YES~~ **Partial**	Revised in consideration with other's comments
271a	M	7.9.1(C) – Delete second paragraph: Unnecessary, see plan of action, below		S	NO	Provides important information on process and sideboards
272	M	7.9.1(C) – change "will" to "may." Para. 3, sent 1		E	Partial	Change from "will" to "is expected to" and moved to 1st paragraph
273	C	7.9.1(C) – missing information on submitting "questions of context"		S	Partial	Already included; moved to make more prominent
274	W	7.9.1(C) – multiple edits to second paragraph		E	YES	
275	M	7.9.1(C) – Response…: edits	p.7-30	S	Partial	All okay except ~~change~~ references to acronyms "SRC~~,~~" "ISPR"~~,~~ or ~~to~~ "SPR" ~~in~~

						~~keeping with proposed AMPM language~~will be changed to "peer review"
276	P	7.9.2 – multiple edits and clarifications	p.7-31	**E**	**Partial**	All okay except: delete "Project Plans, Final reports are othe" to keep generic and ; change "ISPR" to "~~SPR~~peer review"
277	W	7.9.2 – last paragraph: This paragraph is unclear. Availability of what resources? What rationale should be recorded in the subsequent work plan? Overall, this is unclear.		**E**	**YES**	Will change language to clarify intent
		Chapter 8 – Support Services and Requirements				
278	W	8.2 – 3rd para: minor edits	p.8-1	**E**	~~**?**~~ **Partial**	~~Editor will decide.~~Modified with same intent
279	M	8.2 – Much of the material in this section is too detailed for CMER needs. Just provide a summary of the process and point out where CMER interacts		**E**	**NO**	Meets broad range of audience needs/experience
280	W	8.2.2 – process: minor edits	p.8-2	**E**	~~**?**~~ **NO**	~~Editor will decide.~~Not necessary to clarify
281	M	8.2.2.1 – Figure 8.1: Why all the detail? DNR needs to know this, not CMER. Just describe the general process so we have a context.	p.8-3	**E**	~~**Partial**~~ **YES**	~~Some find the overview helpful; will revise and update~~Deleted figure
282	J	8.2.2.2 – Options unclear	p.8-5	**E**	~~**YES**~~ **NO**	~~Will rewrite~~Deleted section
283	W	8.2.2.3 – minor edits first sentence		**E**	~~**?**~~ **NO**	Deleted section~~Editor will decide.~~
		Chapter 9 – Data Gathering, Documentation, and Information Management				
284	M	9.1 – Process Map: too small, simplify	p.9-2	**E**	**Partial**	Delete - Repetitive
285	W	9.1 – process map seems unnecessary		**E**	**YES**	Delete - Repetitive
286	M	9.5.1 – authorship designation by CMER: Not good. Needs to be defined in the contract.	p.9-3	**S**	**YES**	Changed to determined by contract only
		Chapter 10 – Information Access and Communication				
287	M	10.1 – Process map: too small, simplify	p.10-2	**E**	**Partial**	Delete - Repetitive
288	M	10.2.1 – last sentence: change "basing expensive" to "the risk of making"		**E**	**YES**	
		Appendix				
289	M	Appendix A, B, & C – Unnecessary, just reference the		**E**	**NO**	Useful to have at hand ("one-stop

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		WAC or FFR				shopping")
290	M	Appendix G – Why repeat this here? Unnecessary		**E**	**Partial**	Not repeated; this is product, not process as in Chapter 6. Will refer to website.
291	M	Appendix H – Only need to list contacts and put in Appendix E		**E**	**YES**	Will delete H
292	M	Appendix J – Unnecessary, these can be obtained from DNR, give source		**E**	**NO**	These are tools that may be helpful.
293	M	Appendix K – Elements: This section needs to list the main sections that need to be in a document. I suggest you recommend using typical journal formats (e.g., Transactions of American Fisheries Soc) and just reference some journals. Other than the Cover, you only need to list the sections that will be required (e.g., abstract, intro, methods, results, discussion, references, appendix)		**S**	**NO**	Guidelines to provide consistency and help to those who need it.
294	M	Appendix K – title page: add "Washington State" before CMER		**E**	**YES**	
295	M	Appendix K – Title page(2): add provided language to clarify affiliations		**S**	**YES**	
296	M	Appendix K – Citation Info last sentence: This needs to be defined or don't require it.		**E**	~~?~~ **YES**	~~Comment unclear~~Will add example of full citation (use CMER PSM)
297	M	Appendix K – Table of contents: Why require this detail when you have not provided all formatting details. I recommend you drop this and let the document format be defined by the authors. An alternative is to reference a format that is already defined.		**E**	**NO**	Not required. Guidelines to provide consistency and help to those who need it.
298	M	Appendix K – Contributors: A simple address and email is all that is needed.		**E**	**Partial**	Add email to first sentence list and delete last sentence. Extension of contributor information at the author's option is a "may" and provides an accepted alternative way to list contributors.
299	M	Appendix K(2) – delete "prose" from first sentence		**E**	**YES**	
300	M	Appendix K(3) – Introduction: Just identify what should be in this section, not how to do it		**E**	**NO**	Guidelines to provide consistency and help to those who need it.
301	M	Appendix K(4) – Key elements: This is not a typical journal section (delete)		**E**	**Partial**	Clarify use of term and relation to Chapter 7.
302	M	Appendix K(5) – Acknowledgments: The author can define this as appropriate		**E**	**NO**	Guidelines to provide consistency and help to those who need it.

303	M	Appendix K(6) – References: There are a number of formats for different documents. Just reference a specific journal format		**E**	**NO**	Provides some flexibility. Guidelines to provide consistency and help to those who need it.	
304	M	Appendix K – Format conventions: Unnecessary. Author will define as appropriate		**E**	**NO**	Guidelines to provide consistency and help to those who need it.	
305	M	Appendix L – BAS: I don't see the need for this section???		**S**	**NO**	CMER is going to have to define BAS. For now, detail will be removed from section, leaving a brief overview.	
306	M	Appendix M – unnecessary, delete		**E**	~~**Partial**~~ **NO**	Will change to bibliography w/ link to website	

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