

3. Adaptive Management Program

3.1 Introduction

This chapter provides a brief background on the Forest Practices Adaptive Management Program (AMP) and accomplishments to date. In large part, those accomplishments occur through the Cooperative Monitoring, Evaluation and Research Committee (CMER) projects. The CMER's work plan presents an integrated strategy for conducting research and monitoring to provide scientific information to support the Adaptive Management Program. Section 3.6 lists websites that give detailed information on the work plan and projects.

Section 3.7 contains information on electro-fishing activities associated with Adaptive Management Program projects. The Services specifically requested this information through the conditions that govern the Incidental Take Permits.

3.2 Adaptive Management Program

In response to water quality and aquatic endangered species issues, the Washington State Forest Practices Board adopted emergency water typing rules in 1996 and salmonid emergency rules in 1998. In addition, in 1997 the governor formed a Joint Natural Resources Cabinet and charged it with creating a salmon recovery plan for Washington State by June of 1998. A "Salmon Recovery Strategy" developed by the state called for the protection of salmon habitat through forest, agriculture and urban modules.

The Joint Natural Resources Cabinet turned to the Timber, Fish, and Wildlife (TFW) organization to develop recommendations for the forestry module. The module would result in a set of recommendations to the Forest Practices Board and the Governor's Salmon Recovery Office to respond to fish listings and water quality problems in Washington State covering about 9.3 million acres of private and state-owned forestland. This module later became the 1999 [*Forests and Fish Report*](#).

The authors of the *Forests and Fish Report* agreed to use all reasonable efforts to support the expeditious implementation of the recommendations contained in it. The authors' commitments, however, were subject to:

- the Washington State Legislature's adoption of a statutory package providing for implementation of the report prior to July 1, 1999;
- the Forest Practices Board's adoption of permanent rules implementing the recommendations of the report;
- the provision of adequate funding for the implementation of the recommendations contained in the *Forests and Fish Report*;
- the receipt of federal assurances relating to the Endangered Species Act and the Clean Water Act; and

- continued support from the authors for the completion of the tasks and implementation of the provisions specified in the report.

The *Forests and Fish Report* recommended an Adaptive Management Program to address the effectiveness of the forest practices prescriptions in meeting resource objectives, the validity of the resource objectives for achieving the overall goals, and basic scientific uncertainties in the ecological interactions among managed forests, in-stream functions, and fish habitat. The 1999 Legislature referenced the 1999 *Forests and Fish Report* in the Salmon Recovery Bill (Engrossed Substitute House Bill 2091), in which it directed the Forest Practices Board to adopt rules that were consistent with the recommendations of the report. Following that direction, the Forest Practices Board adopted the Adaptive Management Program, a formal science-based program.

The purpose of the [Forest Practices Adaptive Management Program](#) is to provide science-based recommendations and technical information to assist the Forest Practices Board in determining if and when it is necessary or advisable to adjust rules and guidance for protecting aquatic resources to achieve resource goals and objectives. The program was created to ensure that programmatic changes will occur as needed to protect resources; to ensure that there is predictability and stability in the process; and to ensure that there are quality controls applied to scientific study designs, project execution and the interpreted results.

From 2000-2011, more than \$25 million in federal funding through the Pacific Coastal Salmon Recovery Fund was spent to help implement the 1999 *Forests and Fish Report*, including funding for development of an Adaptive Management Program, a multi-landowner Forest Practices Habitat Conservation Plan (Forest Practices HCP), and information systems; for designing and implementing research and monitoring projects, workshops, and science conferences; and for field implementation of forest practices rules related to aquatic resources.

A significant outcome of the federal funding was the establishment and implementation of the Forest Practices Adaptive Management Program covering aquatic species on state and private forestlands in Washington State. The Adaptive Management Program is governed by an official state rule-making body (the Forest Practices Board), and includes a policy committee and a science committee. As significant as the program itself, was the unique model of collaborative decision-making used in developing the program. In addition, an independent scientific peer review process was established to ensure the rigor and integrity of the adaptive management research and monitoring projects and reports.

Another significant outcome of the federal funding was the early emphasis on developing ‘rule tools’—projects designed to develop, refine or validate tools (e.g., models, methods and protocols) used to implement the Forest Practices Rules that support the 1999 *Forests and Fish Report*. These projects have helped define, test, or refine protocols, models, and guides that allow the identification and location of rule-specified management features, such as the Last Fish/Habitat Model (a method for evaluating streams for typing), landslide screens, or the

achievement of specified stand conditions, such as the ‘desired future riparian condition’ (DFC) basal area target. Target verification projects were designed to confirm riparian function performance targets developed during Forests and Fish Report negotiations that authors identified as having a weak scientific foundation, such as the desired future condition basal area targets for Type F streams.

A report entitled *Monitoring Design for the Forestry Module* of the Governor’s Salmon Recovery Plan, July 2002, was commissioned by TFW Policy Committee to “develop a comprehensive framework for collection, analysis and interpretation of data related to effectiveness monitoring” for rules derived from the 1999 *Forests and Fish Report*. The report is a conceptual framework for a coordinated monitoring plan with examples of how specific types of monitoring could be conducted and how an effective monitoring program could be structured. Development of the 1999 *Forests and Fish Report* and subsequent Washington State laws and Forest Practices Rules were based on the best available science at the time. Both the report and the rules were developed in a collaborative, transparent process, with many stakeholders involved. Another outcome of providing funding for establishment and support for the Forest Practices Adaptive Management Program is the continued participation by many stakeholders, including tribes and tribal organizations, state agencies, federal agencies, landowner groups, counties, and the conservation caucus. The open, transparent, collaborative process continues to be used in the Adaptive Management Program to review and suggest revisions to Forest Practices Rules and guidance on state and private forest lands based on findings from research and monitoring and other information.

The Forest Practices Adaptive Management Program research and monitoring efforts that were funded have led to revisions in the Washington State Forest Practices Rules, to guidance in the Board Manual, and in guidance for small forest landowners. For example, the rules containing the target threshold for the riparian Desired Future Condition basal area have been revised; and a small landowner fixed-width buffer template has been developed in cooperation with small landowner representatives and added to the Forest Practices Board Manual.

3.3 Cooperative Monitoring, Evaluation and Research Committee History

The Cooperative Monitoring Evaluation and Research Committee (CMER) represents the science component of the Adaptive Management Program and oversees research and monitoring. The CMER Work Plan describes the various research and monitoring programs, associated projects and work schedule. Schedule L-1 from the [Forests and Fish Report](#) (U.S. Fish and Wildlife Service, 1999) and a revised Board-approved Schedule L-1 (2001) serve as the foundation for the work plan, and more specifically guide the development of projects described in the [2014 CMER Work Plan](#).

It is likely that research and monitoring priorities will change over time as adaptive management proceeds, new information becomes available, and improvements are made to forest practices based on these scientific findings. Major research priorities presented in the CMER Work Plan

have not changed substantially at the program level since the most-recent prioritization in 2002. However, at the project level some reprioritization took place in 2010 to answer questions related to Clean Water Act (CWA) assurances in a timelier manner. While at the discretion of the Board, changes to resource objectives, performance targets and research and monitoring priorities typically would be reviewed and agreed to by the TFW Policy Committee.

While the first few years of the Adaptive Management Program focused on rule tools, in the last few years, the program has focused much of its effort on effectiveness monitoring and extensive (status and trends) monitoring projects. The effort to more-fully integrate research and monitoring across spatial and temporal scales is ongoing and will continue in Fiscal Year (FY) 2014 (July 1, 2013 to June 30, 2014).

3.4 CMER Work Plan and Activities

The CMER Work Plan is intended to inform participants, the Forest Practices Board, the TFW Policy Committee and the public about CMER activities. The [2014 CMER Work Plan](#) can be found on the “[Forest Practices Adaptive Management Program](#)” web page (see section 3.6 below) under the “Files” header. The current 2014 CMER Work Plan contains more than 95 projects. Approximately 36 projects have been completed and 17 projects are ongoing (i.e., undergoing study design development, or being implemented or reviewed). The CMER Work Plan is updated annually.

The programs in the work plan originally were prioritized based on the level of scientific uncertainty and resource risk as related to the priorities of Schedule L-1 in the *Forests and Fish Report* (U.S. Fish and Wildlife Service, et.al., 1999) and incorporated into the Forest Practices HCP (Washington DNR, 2005). CMER projects address the needs of higher priority subjects first to ensure that the most important questions about resource protection are answered before the questions with lower scientific uncertainty or lower resource risk. Projects were re-prioritized in 2010 to focus on Clean Water Act assurances; re-prioritized in the Master Schedule proposed in the 2012 HCP settlement agreement; and again revisited in bringing the settlement before TFW Policy for adoption in the 2014 CMER Work Plan. The plan is a dynamic document that is revised annually in response to research findings, changes in the Forest Practices Board and TFW Policy Committee objectives, and available funding.

CMER takes on many other ad hoc projects in addition to their normal course of business. One project taken on in FY10 included developing a table that shows how resource goals, objectives and performance targets are addressed by the studies found in the CMER Work Plan. The table can be found as an appendix to the Fiscal Year [2014 CMER Work Plan](#) (Washington Cooperative Monitoring, Evaluation, and Research Committee, 2013). For each project, the table displays the status, task type, goals, resource objectives, and performance targets addressed by the project. Construction of this table has allowed the committee to review all of its projects in a comprehensive way. It provides valuable information to the Policy and CMER committees for their assessments and decisions about where to focus efforts. It also helps answer questions about

the balance of types of research and monitoring undertaken, e.g., ‘rule tools’ vs. monitoring. The table is revised annually along with the Work Plan.

In the FY 2014 CMER Work Plan, under each research and monitoring program is a section titled “Link to Adaptive Management.” This section was added to the work plan primarily to help the TFW Policy Committee and the Board understand how critical questions are being addressed by the projects. Knowledge gained, gaps identified, and recommendations for addressing gaps are discussed for each critical question. The “Link to Adaptive Management” section is updated annually as projects are completed. The intent is to have this section completed for every program within the work plan.

Two projects were completed, approved by CMER and considered for action by the Policy Committee in FY 2013. The projects were:

- The mass wasting effectiveness monitoring project: An examination of the landslide response to the December 2007 storm in Southwestern Washington (aka Post-Mortem report), and
- Extensive riparian status and trends monitoring program - stream temperature phase I: eastside type F/S monitoring project final report.

The post-mortem project addressed the forest practices rules that identify potentially unstable landforms that require additional review when proposed for management. The study evaluated the extent of landslide occurrence within harvest units (treatments) that were characterized by stand age and the extent of harvest activity on rule-identified landforms, and from road segments defined by road condition. The study addressed the functional target for sediment from the 1999 Forests and Fish Report, including the following performance targets related to sediment delivery 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.

Study results suggest the buffer treatments have reduced landslide impacts in comparison to unbuffered harvest practices.

The eastside type F extensive riparian status and trends monitoring report informs 1999 Forests and Fish Report functional objectives for

- “Heat/water temperature-*water quality standards*”, and
- “LWD/organic inputs-*LWD counts*”

and performance targets for

- “Shade-*canopy cover*”.

Instream temperature, riparian shade, and instream LWD were directly measured in the eastside status and trends monitoring study. The cumulative distribution functions for each of the measured variables provide an objective, baseline description of the resource in question (stream

temperature, canopy closure, and site descriptors). The study found substantial between-year variability in stream temperature due to differences in weather. As a result, between-year variability will need to be considered in the design of a trend monitoring program since the variability will affect the ability to detect temperature trends.

The TFW Policy Committee has not recommended changes to rules or guidance resulting from these reports as yet. Discussions were still underway in the TFW Policy Committee at the end of FY 2013 on how to respond to the results of these two reports.

Three other draft reports were approved by CMER to go through Independent Scientific Peer Review (ISPR) in FY 2013:

- Effectiveness of riparian management zone prescriptions in protecting and maintaining shade and water temperature in forested streams of Eastern Washington,
- Stream-associated amphibian response to manipulation of forest canopy shading, and
- Review and synthesis of literature on tailed frogs (genus *ascaphus*) with special reference to managed landscapes.

CMER implemented one new field project during FY 2013, the eastside type N forest hydrology project which aims to answer the following questions: What are the spatial and temporal characteristics of surface base flow in Type N streams across eastern Washington? What landforms, management activities, and/or independent physical characteristics (e.g., geology, climate, etc.) are related to different base flow characteristics across eastern Washington Forest Practices HCP lands? And, is there a set of readily identified characteristics that can be used to group and/or remotely identify streams that exhibit similar hydrologic characteristics?

The brief description and status of “[Active CMER Projects](#)” can be found on the Forest Practices Adaptive Management Program web-page under “related links” (See section 3.6). There also is a link to final reports for completed projects under this same header. Agendas of CMER and TFW Policy Committee meetings can be found under “related links” on the [CMER webpage](#).

3.5 TFW Policy Committee Activity (July 1, 2012 – June 30, 2013)

General Policy Activity

The TFW Policy Committee held a budget meeting in April 2013 and reviewed the FY 2014 CMER Work Plan and budget. The Forest Practices Board approved the work plan and budget at its May 2013 quarterly meeting. Most of the FY 2014 research and monitoring projects have been in place for at least a year, with at least four projects likely to be completed by the end of FY 2014. The CMER Work Plan proposes implementing the scoping and study design phases of as many as four new projects during the year.

CMER completed the westside buffer characteristics, integrity and functions (BCIF) study in late FY 2012. In FY 2013, the TFW Policy Committee did not recommend action or changes in rule or Forest Practices Board guidance in response to the study, but did agree to take the following actions in response to the study:

- Request that CMER considers the results of the westside BCIF study with those of the westside type N experimental buffer – hard rock study when CMER completes its findings report and answers the six questions in the Framework for Successful Policy/CMER Interaction;
- Consider the impact of windthrow on riparian function as part of the review process underway for Type N watercourses;
- Request that CMER incorporate windthrow as a component into research and monitoring projects where appropriate;
- In preparation for future research and monitoring on windthrow frequency, distribution, and effects, request that CMER develop a windthrow research and monitoring strategy in its work plan that includes all buffers, including those on Type N and F waters, wetlands, and unstable slopes; and
- Request that DNR provide a briefing to Policy on how DNR incorporates windthrow into its management prescriptions as part of the State Lands HCP.

CMER completed two project reports during FY 2013, described in section 3.4. Neither study has yet resulted in a TFW Policy Committee action or recommendation to the Board. Those study results, and results of studies completed during the up-coming year, will be considered for potential rule or Board guidance changes.

In an effort to improve program efficiency, Policy Committee participants recommended that the Board direct the Adaptive Management Program to review its methods using LEAN process improvement methodologies. In FY 2012, the program conducted an “opportunity assessment” using a LEAN consultant to determine which program processes were most suitable for LEAN reviews. LEAN is typically used to evaluate manufacturing efficiencies. The program chose to conduct a review on CMER processes for developing, reviewing, and approving scoping documents and project study designs. The LEAN review was conducted and CMER agreed to carry out a pilot on two to three studies on its project list using the process that had been developed. CMER is currently developing a study design for the eastside type N buffer effectiveness project using an approach developed through the LEAN review.

In the beginning of FY 2013, the TFW Policy Committee initiated discussions on two priority items: development of a Type N water strategy (how to tackle the issue) and development of a strategy for transitioning from the interim water typing rule (Type F/N Water break) to a permanent rule to ensure protection of fish habitat. The TFW Policy Committee approved a type N water strategy in FY 2013, which was the committee’s highest priority. The purpose of the strategy was to examine the effectiveness of the Type N forest practices rules in protecting water quality including:

- ranking and funding type N water studies as highest priorities for research,
- resolving issues associated with identifying the uppermost point of perennial flow, and
- completing a comprehensive literature review examining the effects of buffering headwater streams.

TFW Policy Committee is currently in discussion about implementation issues associated with the strategy.

In the spring of 2012, the State negotiated a Settlement Agreement with the Forests and Fish Conservation Caucus and the Washington Forest Protection Association concerning the 2006 *Forest Practices Habitat Conservation Plan*, as reported in the FY 2012 Forest Practices HCP Annual Report. The Settlement Agreement establishes a renewed commitment by all parties to collaboration, a streamlined decision making process, a more rigorous schedule for scientific research that will inform needed rule changes over time, and a stronger plan for ensuring that the Adaptive Management Program is adequately funded. To be implemented, some provisions of the Settlement Agreement have to go through the Adaptive Management Program's proposal process, with resultant agreements by all caucuses. During FY2013, TFW Policy Committee agreed on draft changes in WAC 222-12-045 Adaptive Management Program rule language and to Board Manual Section 22 Guidelines for Adaptive Management Program. The Board agreed with the draft rule language and is expected to approve and adopt the final rule during FY 2014. The proposed rules will add three new caucuses to the original set of six, decrease the time for TFW Policy and CMER decisions by reducing the dispute resolution process time lines, and require a CMER master project schedule of research and monitoring projects with periodic check-ins with the Forest Practices Board.

Clean Water Act Assurances

Upon the completion of the *Forests and Fish Report* in 1999, the Washington State Department of Ecology (Ecology) and the Environmental Protection Agency agreed to provide Clean Water Act assurances to the State of Washington for a period of ten years. It was assumed ten years would be sufficient time to determine if implementation of the revised rules and Forest Practices program—including adaptive management—were effective in meeting water quality standards, or putting impaired waters on a trajectory to meeting standards. Ecology reviewed the Forest Practices Program to determine if the Clean Water Act assurances should be retained and produced a report of their findings in July 2009. On Ecology's webpage [Non-point pollution from Forestry](#), click on: [2009 Clean Water Act Assurances Review of Washington's Forest Practices Program](#) (Washington State Department of Ecology 2009). This report was transmitted to the Forest Practices Board in October 2009.

The report concluded that while much has been accomplished, much remains to be done. In particular, Adaptive Management Program research and monitoring projects designed to determine if the rules are effective in meeting water quality standards are not yet complete. Consequently, Ecology was unable to determine the effectiveness of the rule. The report contained milestones of accomplishments related to the Adaptive Management Program deemed important for Clean Water Act assurances, including a schedule for individual research and monitoring projects. The assurances document also identified some operational milestones that needed to be implemented. Ecology conditionally extended Clean Water Act assurances based on the need to satisfactorily accomplish the milestones. DNR established a project management tracking system for the 22 milestones. The Adaptive Management Program Administrator was

lead on six and co-lead on one of the 22 Clean Water Act milestones. Four of the seven Adaptive Management Program-related milestones have been completed. The remaining three program-related milestones are in various stages of completion. See Appendix #1 for a description and current status of all of the CWA Milestones.

TFW Policy Committee Priorities for Fiscal Year 2014

The TFW Policy Committee prioritized their work list in fall 2012 (FY 2013) and submitted a letter to the Board in August 2012. The priority work items included:

- 1) Implementing high priority Clean Water Act assurance milestones identified in Ecology's July 2009 review, including completion of the type N water strategy discussed above;
- 2) Developing permanent Type F/N water typing rules;
- 3) Improving Adaptive Management Program processes and developing a master schedule of CMER projects based on the Settlement Agreement related to the Forest Practices HCP;
- 4) Developing TFW Policy Committee recommendations to the Forest Practices Board based on the results of the mass wasting (post-mortem) study; and
- 5) TFW Policy decisions on whether or not to take action, including recommendations on changes to rules or board guidance as CMER reports are completed.

The work list that the TFW Policy Committee will forward to the Board for FY 2014 will likely include all work items listed above. Regarding item 1) above, the Type N strategy has been completed and accepted by the TFW Policy Committee; however, the committee will have to agree on how to implement certain recommendations from the strategy, such as how to identify the upper most point of perennial flow during the wet season.

An additional priority in FY 2014 will likely be reviewing proposed changes to hydraulic project rules administered by the Washington Department of Fish and Wildlife, and incorporating any subsequent changes to fish protection standards into forest practices hydraulic project rules.

3.6 Adaptive Management Program Websites

Refer to the following websites (underlined) for more information about the Adaptive Management Program.

[Adaptive Management Program:](http://www.dnr.wa.gov/BusinessPermits/Topics/FPAdaptiveManagementProgram/Pages/fp_am_program.aspx)

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

[CMER:](http://www.dnr.wa.gov/AboutDNR/BoardsCouncils/CMER/Pages/Home.aspx)

<http://www.dnr.wa.gov/AboutDNR/BoardsCouncils/CMER/Pages/Home.aspx>

- [Active CMER Projects:](#)

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

- [Completed CMER Projects:](http://www.dnr.wa.gov/BusinessPermits/Topics/FPAdaptiveManagementProgram/Pages/fp_cmer_completed_projects.aspx)
http://www.dnr.wa.gov/BusinessPermits/Topics/FPAdaptiveManagementProgram/Pages/fp_cmer_completed_projects.aspx

3.7 Electrofishing Report

One of the conditions of the federal Services' Incidental Take Permits relates to electro-fishing. Electro-fishing is used to determine if fish are in a stream. A shocking device is used to stun fish so they can be detected. United State Fish and Wildlife Service and NOAA Fisheries asked for an accounting of any electro-fishing related to HCP Implementation, including Adaptive Management Program research.

Electro-fishing Activity

Research:

Electrofishing conducted for research by the Adaptive Management Program is covered by the Services' incidental take permits. Only two projects have incorporated electro-fishing as part of a research project. One is the Type N Experimental Buffer Study – Hard Rock project and the other the Westside Type N Buffer Effectiveness Study – Soft Rock. Neither project conducted electrofishing in FY 2013 (July 1, 2012 through June 30, 2013).