WASHINGTON STATE DEPARTMENT OF
Natural Resources

PETER GOLDMARK
Washington State Commissioner of Public Lands

MEMORANDUM

TO: Forest Practices Board

FROM: Jim Hotvedt, Adaptive Management Program Administrator

DATE: October 17, 2011

SUBJECT: Final Report – Ten Years of Federal Funding in Support of Implementing the Adaptive Management Program

Let me begin by announcing that Jim Peters, NWIFC, has stepped down as Policy co-chair and has been replaced by Adrian Miller. Adrian is the Associate Director of Forest Management for Longview Timber, Corp. I want to thank Jim for his service as a Policy co-chair and welcome Adrian to Policy, both as a representative of Longview Timber, Corp and as Policy's new co-chair.

Over the last decade (2000-2011), over $25 million in federal funding (Pacific Coastal Salmon Recovery Fund) was spent to support implementing the 1999 Forests and Fish Report, including funding for development of the Adaptive Management Program, the Forest Practices Habitat Conservation Plan, 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. The first of the seven interagency agreements between the Washington State Recreation and Conservation Office (the "pass through" agency for the federal funds) and the Department of Natural Resources was executed on June 6, 2000 and the seventh agreement terminated as of April 15, 2011.

These funds were spent on the adaptive management research and monitoring program ($17.0 million), development of information systems ($4.9 million), field implementation ($2.3 million), and field equipment ($0.4 million). Approximately 130 contracts were administered to execute ninety projects that covered a range of topics related to the forest practices rules and that are at various stages of development or completion. Approximately 32 projects were completed and 24 projects are yet ongoing (i.e., undergoing study design development or currently being implemented or reviewed).

The DNR used the initial Pacific Coastal Salmon Recovery Funds to design and construct hydrography and forest roads databases, map upland slopes and update landslide inventories, increase staffing capacity for field work to implement new Forest and Fish rules, and improve public access and review of proposed forest practice activities (commonly referred to as FPARS). A CMER Work Plan was developed that currently consists of over 90 projects related to forest practices rules: 27 related to rule tools, 61 to effectiveness monitoring, 7 to extensive monitoring and 2 to intensive monitoring. Thirty two (32) projects have been

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completed: 15 related to development of rule tools, 16 to effectiveness monitoring projects, 5 to effectiveness projects, and 1 to an extensive status and trends monitoring design project. Three (3) effectiveness monitoring and 2 extensive status and trends monitoring projects will be completed soon. Fifty three (53) reports were completed between 2000 and 2011, either wholly or partially funded by the Pacific Coastal Salmon Recovery Fund. An additional five reports should be completed within the next year.

Attached is a final report entitled "2000-2001 Forests and Fish Agreement Implementation Funding by the Pacific Coastal Salmon Recovery Fund" submitted to the Salmon Recovery Funding Board, Washington State Recreation and Conservation Office, this past July. Among other topics, the report covers the 1999 Forests and Fish Agreement, the goals and structure of the Adaptive Management Program, how the $25 million in federal funds were used, and Adaptive Management Program products and outcomes generated from the funding.

JEH/
Attachment

NATURAL RESOURCES

Final Report

2000-2011 Forests and Fish Agreement Implementation Funding by the Pacific Coastal Salmon Recovery Fund

Through the
Washington State Salmon Recovery Funding Board
Washington State Recreation and Conservation Office

By the

Adaptive Management Program
Forest Practices Division
Washington State Department of Natural Resources

July 2011

WASHINGTON STATE DEPARTMENT OF
Natural Resources
Peter Goldmark - Commissioner of Public Lands

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Introduction/Background

In 1974, the Washington State Legislature passed the Forest Practices Act. The Forest Practices Act sought to balance the protection of Washington's resources with the maintenance of a viable forest industry through the regulation of certain timber industry operations including logging and silviculture practices. The Forest Practices Act also established the Washington Forest Practices Board (the Board) as an independent state agency. The Forest Practices Act charged the Board with the responsibility of adopting forest practice rules, as well as protecting public resources while maintaining a viable timber industry. However, reaching this balance proved a challenging task.

Over time, the forest practices rules and associated guidance were more fully developed through a number of collaborative multi-stakeholder agreements. The first of these collaborative agreements, the Timber Fish and Wildlife (TFW) Agreement of 1987, was negotiated between Washington State, Washington treaty tribes, the timber industry, and environmental groups as an alternative to on-going litigation between the timber industry and tribes.

Since the Timber, Fish and Wildlife (TFW) Agreement of 1987, the state of Washington's Forest Practices regulatory program has taken a unique approach to the protection of fish, wildlife and water quality. Rather than creating rule and policy through litigation, the TFW Agreement laid the foundation for cooperative management of public resources on the state's forestlands. Agencies, tribes, landowners and conservation groups decided to work cooperatively to protect and restore public resources.

Significant program accomplishments and a long-term commitment of the participants resulted in the 1999 Forest and Fish Report, leading to permanent forest practices rules adopted in 2001 and subsequent approval of the first habitat conservation plan (HCP) in the nation to cover a state-wide regulatory program for over nine million acres of state and private forestland. The HCP is a critical pillar of the state's salmon recovery strategy and is key to the overall effort of recovering listed salmon. In consultation with the United States Environmental Protection Agency, the Washington State Department of Ecology also granted federal Clean Water Act assurances (CWA assurances) as part of the 1999 Forests and Fish Report. The HCP and accompanying Clean Water Act assurances provide regulatory stability for forest landowners and the timber industry - a multi-billion dollar industry in the state.

Timber, Fish, and Wildlife Agreement

The political climate of Washington State through the 1970s and 1980s provided the impetus for the development of the TFW process. The 1974 "Boldt" decision (U.S. vs. Washington, 384 f.Supp.312) held that all tribes that signed treaties in 1855 with the federal government in what is now Washington State were entitled to harvest 50% of fisheries production in off-reservation fishing grounds in the state. Phase II of the Boldt decision required state protection of hatchery fish and aquatic habitats that support fisheries, and led to uncertainty regarding the extent of the

tribes' authority in resource management. The issues (e.g., rights to hatchery fish and habitat protection) continued to be litigated for many years. Through negotiation, the tribes and industry agreed that joint implementation of the Phase II decision was in their best interests and they agreed to forgo further litigation.

In 1986, the Washington State Forest Practices Board proposed new regulations concerning riparian zone protection and cumulative effects, resulting in contentious disputes between many stakeholders. The success of the negotiations between the tribes and the state's major industries inspired other interests to consider collaborative problem solving to discuss the potential for collaborative negotiation to resolve the state's forest resources conflicts. In 1986, the leaders of these organizations decided to work together in a collaborative TFW process. Representatives of the environmental groups, timber interests, and the Departments of Natural Resources, Wildlife, Game, and Ecology were interested in avoiding litigation and eager to take part in what was then still a new collaborative problem-solving approach.

Stakeholder groups requested that the Forest Practices Board delay its new rules until they could work out the TFW Agreement and the Board agreed with an expected deadline of December 1986. In July of 1986, the "timber, fish, and wildlife" negotiations opened between Washington treaty tribes, the timber industry, environmental groups and state governmental agencies. An agreement was finalized in 1987 and called the Timber, Fish, and Wildlife Agreement. The Washington State Legislature then accepted the recommendations of the negotiation and amended the Forest Practices Act to follow the recommendations made in the Timber, Fish, and Wildlife Agreement.

The collaborative approach to dispute resolution for natural resources management was a pioneering effort. The TFW Agreement to this day has greatly influenced environmental problem solving in Washington State and elsewhere. The collaborative processes served as a model for other processes such as the 1999 Forests and Fish Report.

Forests and Fish Report

Three issues emerged in the mid-1990s that led to the creation of emergency rules, as well as permanent rule changes, in Washington forest practices regulations. First, an increasing number of streams in Washington did not meet the water quality standards of the Federal Clean Water Act. By 1998, the U.S. Environmental Protection Agency and Washington State Department of Ecology had placed more than 660 streams on the 303(d) list because they did not meet the standards outlined in the Clean Water Act.

The second issue arose over the accuracy of water typing maps. Water typing base maps were used to establish fish presence or absence in order to implement appropriate forest practice rules. In the early 1990's biologists with tribes and environmental groups reported sightings of fish further upstream than maps recognized.

The third issue was the pending listing of several species of salmonids in Washington State as threatened or endangered under the Federal Endangered Species Act. In 1991, the federal

government officially listed Pacific Chinook salmon as endangered under the act. Over the next several years, the federal government also listed coho, chum, pink, and sockeye salmon and steelhead trout as either threatened or endangered in rivers and streams across the Northwest. By 1999, the National Oceanic and Atmospheric Administration National Marine Fisheries Service and the United States Fish and Wildlife Service had listed seven species of salmonids as either threatened or endangered. As a result of these listings, new standards would likely be required in the state of Washington to protect these species from further decline.

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 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 12 million acres of private and state-owned forestland. This module later became the 1999 Forests and Fish Report.

The primary result of the first meeting to launch the forestry module, in May 1997, was the establishment of the forests and fish process, based in large part upon the TFW process. The TFW Policy Group decided a collaborative approach, like that used in the TFW Agreement, was better than a top down approach for determining the recommendations of the forestry module. Therefore, the TFW Policy Group decided to use their group as a forum to address the forestry module.

In addition to the original members of the TFW Policy Group, two new caucuses were invited to participate. The federal caucus comprised of the U.S. Fish and Wildlife Service, the U.S. National Marine Fisheries Service, and the U.S. Environmental Protection Agency would represent federal organizations and address federal environmental protection requirements, in particular the listing of threatened and endangered species and 303(d) regulation. A local government caucus would represent local governments regarding issues of implementation and coordination at the local level.

The negotiation focused on four key goals: (1) to provide compliance with the Endangered Species Act for aquatic and riparian-dependent species on non-federal forestlands; (2) to restore and maintain riparian habitat on non-federal forestlands to support a harvestable supply of fish; (3) to meet the requirements of the Clean Water Act for water quality on non-federal forestlands; and (4) to keep the timber industry economically viable in the state of Washington. The best available science was to be used to approach these issues.

All participants recognized that the goals of Washington's statewide Salmon Recovery Strategy could not be fully met by contributions from any single sector of the economy. The Forests and Fish Report reflected the commitment of the forestry sector to contribute to the recovery of

salmon and certain other riparian and aquatic species and to the restoration of related riparian ecosystems. The authors of the report agreed to support efforts to secure comparable contributions from all sectors of Washington State and to do so in a way which equitably apportioned the additional burdens and costs associated with recovering salmon, bull trout and other aquatic and riparian species among these sectors.

The participants also recognized that the tribes must be involved in forest management decisions that affect the aquatic resources upon which their treaty fishing rights depend. Accordingly, the Forests and Fish Report provided for tribal participation in all phases of the regulation of forest practices including, without limitation, the development of forest practices rules by the Forest Practices Board; watershed analysis; restoration, compliance, effectiveness and validation monitoring; scientific research; and the implementation of rules and forestry prescriptions through such mechanisms as interdisciplinary teams.

The authors agreed to use all reasonable efforts to support the expeditious implementation of the recommendations contained in the Forests and Fish Report. 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; to the Forest Practices Board's adoption of permanent rules implementing the recommendations of the report; to the provision of adequate funding for the implementation of the recommendations contained in the Forests and Fish Report; to the receipt of federal assurances relating to the Endangered Species Act and the Clean Water Act; and to continued support from the authors for the completion of the tasks and implementation of the provisions specified in the report.

The authors of the 1999 Forests and Fish Report included the United States Fish and Wildlife Service, the National Oceanic and Atmospheric Administration (NOAA) through the National Marine Fisheries Service, the United States Environmental Protection Agency, the Office of the Governor of the State of Washington, the Washington State Department of Natural Resources, the Washington Department of Fish and Wildlife, the Washington State Department of Ecology, Indian tribes and tribal organizations, the Washington State Association of Counties, the Washington Forest Protection Association, and the Washington Farm Forestry Association.

Washington State Forest Practices Rules

The earliest version of Washington State's forest practices standards and rules appeared in the Forest Practices Act of 1974. These were later revised through a number of collaborative multi-stakeholder agreements, the first being the TFW Agreement of 1987.

Using the recommendations provided in the Forests and Fish Report, the Washington State Legislature passed the 1999 Salmon Recovery Act, also called the "Forest and Fish Law," and directed the Forest Practices Board to adopt rules consistent with the report. The Forest Practices Board adopted emergency rules in January 2000 and permanent rules became effective in May 2001. The rules apply to approximately 9.3 million acres of private, state, and local government land.

The authors of the 1999 Forests and Fish Report recognized that current scientific knowledge fell short of providing definitive scientific answers to all of the water quality and fish habitat resource questions. Gaining answers to some of these questions in a timely manner and having confidence that new rules would respond to new scientific findings was a critical element for the federal and state agency agreement on the provisions of Forests and Fish Report. Consequently, the Forests and Fish Report recommended creation of an adaptive management program. Indeed, in the adoption of permanent rules, the 1999 Legislature directed the Forest Practices Board to incorporate the scientifically based adaptive management process described in the 1999 Forests and Fish Report. Further, Washington State law requires that any changes to the permanent rules and any new rules covering aquatic resources adopted by the Forest Practices Board be consistent with recommendations resulting from the scientifically based adaptive management process established by the board, unless otherwise made by order of a court or through legislation (RCW 76.09.370).

Adaptive Management

At the start of the TFW process, Stewart Bledsoe, leader of the timber industry, was purported to state, "We will go where the truth takes us", meaning that science would guide decision-making about forest practices and resource protection. This approach represented a transition by the technical experts and scientists who provided research upon which the forest practices policy discussions were based. This landmark "ground up" approach worked especially well with the science-based forest resource issues on the negotiating table. The goal of the process was to develop a management plan for timber, fish, wildlife, water quantity and quality, and cultural resources in Washington state.

The TFW Agreement called for the use of adaptive management as a framework for managing forest practices. This landmark approach to natural resource management required the use of best available scientific data from monitoring and evaluation of forest practice activities. The agreement established a Cooperative Monitoring, Evaluation and Research Committee (CMER) to implement the adaptive management program.

CMER was formed to address ongoing scientific questions and to conduct ongoing research and monitoring using the best available science. From 1988 to 1997 CMER implemented the monitoring, evaluation, and research goals of TFW and submitted reports to the Forest Practices Board recommending actions for improving forest practices. Between 1988 and 1997, CMER focused its activities on TFW goals, and from 1997 until today, it has focused on the goals and recommendations of the 1999 Forests and Fish Report.

Uncertainty was an issue throughout the Forests and Fish Report negotiations. It was not possible in the brief span of the negotiations to resolve all the issues of scientific uncertainty facing negotiators. Therefore, Forests and Fish Report recommendations, many of which later became regulations, were based on limited scientific information. Forests and fish negotiators documented these areas of uncertainty in an appendix to the Forests and Fish Report known as Schedule L-1, which forms the base of the adaptive management research and monitoring program.

In addition, the U.S. Fish and Wildlife Service and NOAA Fisheries require an adaptive management strategy for HCPs that pose a significant risk to Endangered Species Act listed species. The federal agencies define adaptive management as "a method for examining alternative strategies for meeting measurable biological goals and objectives and then, if necessary, adjusting future conservation management actions according to what is learned". The Forest Practices Adaptive Management Program was therefore 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 design, project execution and the interpreted results.

Washington State Forest Practices Habitat Conservation Plan and Clean Water Act Assurances

Developing a habitat conservation plan was one of the implementation measures resulting from the 1999 Forests and Fish Report. The federal Endangered Species Act (ESA) prohibits the take of endangered and threatened species. Because of the direct impact of Washington forest practices on salmon and other aquatic species listed under the ESA, Washington forest practices regulations required the approval of two federal agencies, the United States Fish and Wildlife Service (USFWS) and NOAA Fisheries. Section 10(a)(1)(B) of the ESA allows applicants to submit a habitat conservation plan (HCP) to ensure that the proposed actions are also in compliance with federal regulations. If the HCP is approved, a permit may be issued that allows for the incidental take of a listed species while conducting otherwise lawful activities. This permit is known as an Incidental Take Permit. The Washington State Department of Natural Resources (DNR) therefore created and submitted an HCP for the Washington forest practice rules negotiated during development of the Forest and Fish Report and implemented through permanent rules in 2001 in order to ensure the regulations were also in compliance with the ESA and Clean Water Act. After developing an Environmental Impact Statement, NOAA Fisheries and the USFWS issued Incidental Take Permits to Washington State for listed aquatic species based on the protective measures described in the Forest Practices HCP. The permit was issued June 5, 2006 and is intended to last for 50 years.

The purpose of the federal Clean Water Act (CWA) is to restore and maintain the nation's water quality. The Washington State Water Pollution Control Act designates the Washington Department of Ecology (Ecology) as the agency responsible for carrying out provisions of the Federal Clean Water Act on behalf of the Environmental Protection Agency within the state of Washington. In order to gain assurances under the CWA, a representative of Ecology serves on the Forest Practices Board and facilitates Ecology's co-adoption of the Washington forest practices rules that apply to water quality, and ensures that all current and future forest practice rules are consistent with state and federal water quality standards.

The Forest Practices HCP is characterized as a "programmatic" habitat conservation plan. Unlike most habitat conservation plans, which cover a defined land base and ownership, the Forest Practices HCP is linked to Washington's forest practices regulatory program, which regulates forest practices activities on primarily non-federal and non-tribal forestlands in the state. Forest

practices activities on these lands must comply with the state's Forest Practices Act (chapter 76.09 RCW) and rules (title 222 WAC). The purpose of the Forest Practices HCP is to assure those conducting forest practice activities, covered by or subject to the DNR's Forest Practices regulatory program, will also be in compliance with the Endangered Species Act for covered threatened and endangered species.

Funding

The 1999 Forests and Fish Report contained an extensive adaptive management program intended to provide research and monitoring to address uncertainties related to the effects of forestry practices on salmon habitat and water quality. Over the last decade, the Washington Forest Practices Adaptive Management Program has received federal funding to support the adaptive management program essential to implementing the agreement that all parties, including federal agencies, agreed to. In addition to funding development of the Forest Practices HCP, the information in the following two chapters provides a comprehensive summary of key Forest Practices Adaptive Management components funded through the federal program.

Washington State Forest Practices Adaptive Management Program

The authors of the 1999 Forests and Fish Report recognized that current scientific knowledge fell short of providing definitive scientific answers to all of the water quality and fish habitat resource questions raised during negotiations. Gaining answers to some of these questions in a timely manner and having confidence that new rules would respond to new findings was a critical element for the federal and state agency agreement on the provisions of Forests and Fish Report. Consequently, 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 Forests and Fish Report. Pursuant to that direction, the Forest Practices Board adopted an 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 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" (Washington State Forest Practices Rules, WAC 222-12-045).

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. Three desired outcomes of the Forest Practices Adaptive Management Program include

- 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.

The Adaptive Management Program envisioned in the Forests and Fish Report contains all of the important elements for successful adaptive management:

- Stakeholders came together to use data, information, pertinent literature, and baseline measures in deciding on management recommendations in the Forests and Fish Report;

- The Forests and Fish Report developed overall performance goals and policy objectives, resource objectives, and measurable performance targets (See Schedule L-1, Appendix A);
- The Forests and Fish Report recommended that protocols and standards be developed and used in study designs, statistical sampling, testing hypotheses, and independent peer review;
- Implementation of the Forests and Fish Report relies on a number of models to describe relationships and predict outcomes important to the protection of fish habitat and water quality;
- Recommendations include effectiveness monitoring to determine if the implementation of rules is meeting the resource objectives and validation monitoring to test the resource objective against achievement of overall goals of the Forests and Fish Report; and
- The Forests and Fish Report included a systematic process based on science and policy oversight to revise objectives, targets, and protection measures.

The Forest Practices Adaptive Management Program envisioned in the 1999 Forests and Fish Report includes planning, budgeting, and project management; technical and policy review; and dispute resolution. It also provides a formal process for making adjustments to performance targets and forest practices as appropriate and practical for achieving the resource goals. The recommendations placed final authority in the hands of the Forest Practices Board.

Program Biological Goals

Under the 1999 Forests and Fish Report recommendations, forest practices rules are designed to meet specific biological goals within the context of maintaining the sustainable, economic viability of the timber industry. The biological goals were establish at the outset of forests and fish discussions: "Forest practices, either singly or cumulatively, will not significantly impair the capacity of aquatic habitat to:

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

Research and Monitoring

Monitoring is a key component of the Forest Practices Adaptive Management Program.

> Compliance monitoring is intended to answer the question*: Are forest practices being conducted in compliance with the prescriptions contemplated in the Forests and Fish Report?* The Washington State Department of Natural Resources continues to conduct compliance monitoring as part of it's responsibility to administer forest practices rules.

Effectiveness monitoring and research is intended to answer the questions*: Will the recommended prescriptions produce forest conditions and processes that achieve resource objectives within the context of natural spatial and temporal variability inherent to forest ecosystems? And are there less costly alternative prescriptions that would be effective in producing conditions and processes that meet resource objectives?* Effectiveness monitoring is intended to be conducted over a sufficient time period to account for forest development toward target conditions.

Validation monitoring and research is intended to answer the question: *Are the resource objectives appropriate to achieve the overall performance goals?* Research and monitoring will be designed to validate or verify the assumptions underlying the resource objectives.

Adaptive Management Program Elements

The Forests and Fish Report recommended a well-organized structure for conducting adaptive management. The Forest Practices Board established the Forest Practices Adaptive Management Program by rule, designating the required elements. The Board sets resource objectives and priorities for action, recommends budgets, and provides fiscal and management oversight of the program. The board is also the final step of dispute resolution among stakeholders (subject to legal appeal) and is responsible for enacting necessary forest practices rule changes.

The Forest Practices Adaptive Management Program elements adopted by the board include "key questions" and resource objectives, participants, a research and monitoring proposal process, an independent scientific review process, and a dispute resolution process, among others.

Key Questions and Resource Objectives

Based upon recommendations from the Forests and Fish Policy committee (Policy), the Forest Practices Board established key questions and resource objectives (See Schedule L-1, Appendix A). Projects are designed to address the key questions in the order and subject to the priorities identified by the Board.

Resource objectives are intended to meet the overall performance goals. Individual resource objectives are defined for each key aquatic condition or process affected by forest practices such as water temperature, large woody debris or fish passage. 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 measurable criteria that define specific, attainable forest conditions or processes for each resource objective. Final resource objectives and performance targets were agreed upon by stakeholders and recommended to the board during early implementation of the 1999 Forest and Fish Report (see Schedule L-1, Appendix A).

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.

Participants

Initially, the Forest Practices Board identified the following entities to participate in the program: The Cooperative Monitoring, Evaluation and Research Committee (CMER), a policy committee, the adaptive management program administrator, and other participants as directed to conduct the independent scientific peer review process. Additional participants in the program include a CMER coordinator, research and monitoring project managers, a contract specialist, and CMER scientific staff.

CMER

The Board established 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 may also continue research and education in terrestrial resource issues.

CMER is made up of members that have expertise in a scientific discipline that enables them to be most effective in addressing forestry, fish, wildlife, and landscape process issues. Members represent timber landowners, environmental interests, state agencies, county governments, federal agencies, and tribal governments and organizations from a scientific standpoint.

CMER's charge is to conduct objective scientific inquiry into questions posed by the Board and Policy and to provide technical information and consensus-based recommendations to the Board. In fulfilling this charge, CMER

- Develops and maintains a work plan to accomplish the tasks assigned by Policy and the Board,
- Recommends research priorities and spending requests to Policy and the Board,
- Establishes a set of protocols and standards for CMER research and monitoring,
- Carries out the research and monitoring specified in the work plan through the use of internal CMER resources and the external contracting authority of DNR,
- Uses generally accepted scientific and statistical techniques,
- Evaluates cause-and-effect relationships between forest practices and detectable effects on public resources,
- Summarizes monitoring results into periodic reports to Policy and the Board,
- Synthesizes research results into coherent analysis of rule effectiveness, and
- Evaluates impacts of any alternative prescriptions tested during effectiveness research.

The scientific inquiry CMER conducts falls into the following categories:

- Testing the effectiveness of the forest practices rules for the protection of aquatic resources,
- Testing the validity of the resource objectives for aquatic resources,
- Monitoring the condition of aquatic resources on lands governed by forest practices rules, and
- Conducting other forest-practices-related research as directed by the Forest Practices Board.

CMER does not make policy recommendations. As part of scientific synthesis, however, CMER identifies the policy implications (e.g., scientific certainty, potential resource risks, management scale) of its research and monitoring results in a report. A report may include an analysis of the likely effects that various levels of resource protection would have on the resource. Such analyses are intended to inform Policy and the Board in the determinations they must make of acceptable levels of resource and management risk.

POLICY COMMITTEE

The Forest Practices Board established a collaborative forum managed by a policy committee (Policy). Policy membership includes 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, and U.S. Environmental Protection Agency). Caucus representatives are committed to consensus-based decision making and a willingness to support and implement the 1999 Forests and Fish Report recommendations. Policy recommends resource objectives; recommends CMER research priorities and associated funding; and forwards CMER research and other reports to the Board with recommendations.

ADAPTIVE MANAGEMENT PROGRAM ADMINISTRATOR

The Forest Practices Board created an independent program administrator to oversee the program and support CMER. The program administrator typically has credentials as a program manager, scientist, and researcher.

The Adaptive Management Program Administrator is a DNR employee assigned full time to the forest practices adaptive management program. In conjunction with the responsibility for managing the full adaptive management program, the Adaptive Management Program Administrator is the lead administrator for CMER. Working within the consensus decision-making process of CMER, the program administrator is responsible for managing an efficient, unbiased research and monitoring program.

In addition to other responsibilities related to the Adaptive Management Program, the Adaptive Management Program Administrator transmits CMER reports and funding recommendations to Policy; transmits CMER reports and Policy recommendations to the

Forest Practices Board; manages the adaptive management program, including research and monitoring projects, contracting, budgets, and work plans; ensures the scientific integrity of the program, including appropriate scientific peer review; and coordinates website postings and manages the content of the site with the assistance of the CMER coordinator.

SCIENTIFIC REVIEW COMMITTEE

The Forest Practices Board established a scientific peer review process, which uses an independent Scientific Review Committee, to determine if the scientific studies that address program issues are scientifically sound and technically reliable; and to provide advice on the scientific basis or reliability of CMER's reports. The Scientific Review Committee is currently coordinated through the University of Washington. Final reports of CMER funded studies must go through independent scientific peer review. Other products typically reviewed include, but are not limited to, study designs.

CMER COORDINATOR

A CMER coordinator is employed by the Department of Natural Resources. The coordinator schedules regular monthly meetings and arrange locations, distributes correspondence and information to the CMER committee, assists CMER co-chairs and the Adaptive Management Program Administrator with agenda development, gathers and distributes all background materials relating to the agenda, records meeting minutes and decisions and distributes them, assists with CMER meeting management, assists in scheduling the CMER annual science conference, maintains records of all CMER and Policy meetings and any SAG distributions that are important for the record or CMER activities, and assists with website postings and content management of the site.

PROJECT MANAGERS

Project managers (currently two) are employed by the Department of Natural Resources to manage CMER research and monitoring projects. Project managers maintain project accountability, communication, and facilitate CMER administrative tracking.

The project managers monitor the performance of all project participants and cooperators in implementing and completing project tasks; communicate project progress, problems, and problem resolution to CMER; develop RFPs or RFQQs, review contractor proposals, monitor contract performance, and provide input on budgeting, schedule, and scope changes; work with CMER, CMER scientific advisory groups (SAGs), and principal investigators to resolve technical issues; facilitate coordination among scientists and landowners; facilitate and monitor all technical reviews and response to those reviews; and facilitate archiving of all data and documents.

CONTRACT SPECIALIST

CMER contracts are administered through the Department of Natural Resources and managed by a contract specialist. Contracts are subject to a multitude of statewide Washington State Office of Financial Management requirements, DNR policies, and other legal constraints. The contract specialist ensures that all requirements are strictly followed in order to develop legally sound contracts.

The contract specialist implements DNR and Washington State Office of Financial Management contracting procedures, including determining appropriate types of contracts, conducting the bidding process, handling out-of-scope work or contract amendments, managing the process for closing out a contract once it is completed, and maintaining records.

CMER STAFF

CMER staff located in the Northwest Indian Fisheries Commission provides scientific staff support for CMER research and monitoring projects. CMER staff may work with SAGs to manage projects, assist in study scoping and design, conduct literature reviews, and help in project implementation and data analysis. CMER staff also assists with annual revisions to the CMER work plan and other general scientific tasks under the direction of the Adaptive Management Program Administrator. CMER staff currently includes two riparian ecologists and a geomorphologist.

Research and Monitoring Proposal Process

A process has been established by the Forest Practices Board for managing adaptive management proposals and approved projects, which include proposal initiation; proposal approval and prioritization by CMER, Policy and the Forest Practices Board; CMER implementation of the proposal; independent scientific peer review**;** CMER committee technical recommendations to Policy; and Policy petitions to the Forest Practices Board for amendment, if appropriate.

The adaptive management process is a continuous loop. It involves the Forest Practices Board, Policy, the Adaptive Management Program Administrator, CMER, and a process for independent scientific peer review. The process begins with policy questions about the effectiveness of the forest practices rules in meeting established resource objectives, the validity of the resource objectives for achieving the Forests and Fish Report goals, or other forest practices matters. The board raises these policy questions itself or draws them from Policy or public comment. After receiving recommendations from Policy or the general public, the Board prioritizes questions that require scientific investigation and refers them to CMER, which responds by developing a work plan of scientific investigation and a budget. CMER recommends the 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.

CMER is responsible for completing the necessary scientific investigations, securing peer review through an independent scientific review process, and synthesizing the results into reports for Policy and the board. Reports include technical analysis and evaluation of implications for resources and operations. By using research results to analyze risk and uncertainty, CMER seeks to inform Policy and the Board of the potential consequences of policy action or inaction. All final reports are available to the general public.

Policy has the opportunity to review CMER reports, consider the political and economic elements of the Forest Practices Act and the Board's goals, and develop consensus recommendations to the Board for rule or guidance changes.

The Adaptive Management Program includes a dispute resolution process in the event there is a failure to reach timely agreement at any stage of the process. Under the Forest Practices Act, the Board is ultimately 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). Consequently, the Board is ultimately responsible for responding to monitoring and research findings and making changes in rules that may be necessary to meet the goals that the Board has established.

CMER program review

Another element of the Forest Practices Adaptive Management Program established by the Forest Practices Board is the CMER program review process. A peer review process is expected to be established every five years to review all work of CMER and other available, relevant, data, including recommendations from the CMER staff. Such a review was conducted by Stillwater Sciences in 2009.

Dispute resolution process

If consensus cannot be reach through the adaptive management program process, participants can have their issues addressed through a dispute resolution process adopted by the Board. 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; or the failure of participants to act on Policy recommendations on a specified schedule.

CMER Work Plan

CMER follows a comprehensive work plan to guide its research and monitoring activities. The purpose of the CMER work plan is to present an integrated strategy for conducting research and monitoring to provide credible scientific information to support the Forest Practices Adaptive Management Program. The plan is revised annually in response to research findings of CMER or the scientific community, changing technology, changes in policy objectives and priorities, and funding.

The work plan describes the organization of the CMER research and monitoring strategy and the approaches used to address research and monitoring questions relevant to forest practices adaptive management. It also provides an overview of CMER's research and monitoring program. After CMER, Policy, and subsequent Forest Practices Board review and approval, the work plan presents the annual work plan activities, including project prioritization, scheduling, and budget allocations.

The FY2012 CMER Work Plan consists of over 90 projects covering a range of topics related to the forest practices rules. These projects are at various stages of development or completion. Approximately 32 projects have been completed and 24 projects are ongoing (i.e., undergoing study design development or currently being implemented or reviewed). The work plan is organized in a hierarchical format consisting of rule groups, programs, and projects.

Organization

At the highest level, the CMER work plan is organized by forest practices "rule groups." 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 11 rule groups are 1) Stream typing, 2) Type N riparian prescriptions, 3) Type F riparian prescriptions, 4) Channel migration zones, 5) Unstable slopes, 6) Roads, 7) Fish passage, 8) Pesticides, 9) Wetland protection, 10) Wildlife, and 11) Intensive watershed-scale monitoring to assess cumulative effects. Although the rule group divisions are somewhat arbitrary, they provide a useful framework for developing a research and monitoring strategy.

Critical research and monitoring questions are identified at the rule group level to address information gaps related to scientific uncertainty and resource risk associated with the rules. Once research and monitoring questions are identified, research and monitoring programs are developed to address them. Programs consist of one or more related projects designed to strategically address a set of related scientific questions. Thirty-two (32) programs containing multiple projects at various stages of development are identified in the FY2012 CMER Work Plan. A description of each current program, including its purpose and objectives and the strategy for accomplishing them, is in the work plan.

One or more projects comprise a program within the rule group structure. A CMER 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. Federal funding discussed later in this report has supported work in each of these steps.

Programs

CMER research and monitoring programs utilize a variety of approaches that address critical questions at different spatial and temporal scales. The work plan incorporates an integrated research and monitoring approach that includes effectiveness monitoring to evaluate prescription effectiveness at the site or landscape scale; extensive status and trend monitoring to evaluate status and trends of resource condition indicators across forest lands regulated by forest practices; and intensive/validation monitoring to identify causal relationships and document cumulative effects at the watershed scale. CMER also conducts rule implementation tool projects to develop, refine, or validate science-based management tools necessary for implementing the rule(s) (e.g., predictive models, protocols, etc.) or for establishing performance standards. These approaches are summarized below:

> *Effectiveness Monitoring:* Effectiveness monitoring programs are designed to evaluate the performance of the prescriptions in achieving resource goals and objectives. Effectiveness monitoring differs from the other approaches in that it is directed at prescription effectiveness, primarily at the site scale.
>
> *Extensive Status and Trends Monitoring:* Extensive monitoring programs evaluate the current status of key watershed input processes and habitat condition indicators across Forest Practices HCP lands and document trends in these indicators over time as the forest practices prescriptions are applied across the landscape. Extensive monitoring provides a statewide, landscape-scale assessment of the effectiveness of forest practices rules to attain specific performance targets on Forest Practices HCP lands. Extensive monitoring is designed to provide report-card-type measures of rule effectiveness (i.e., to what extent are Forest Practices HCP performance targets and resource condition objectives being achieved on a landscape scale over time) that can be used to determine the degree to which progress is consistent with expectations.
>
> *Intensive Monitoring (Cumulative Effects) and Validation Monitoring:* Intensive monitoring is designed to evaluate cumulative effects of multiple forest practices at the watershed scale. Analysis of these effects improves our understanding of the causal relationships and effects of forest practices rules on aquatic resources. Intensive monitoring integrates the effects of multiple management actions over space and through time within the watershed. Evaluation of monitoring data requires an understanding of the effects of individual actions on a site and the interaction of those responses through the system. Evaluating biological responses is similarly complicated, requiring an understanding of how various management actions and site conditions interact to affect habitat conditions and how aquatic resources respond to these habitat changes. Taken

together, these evaluations will address the Adaptive Management Program's objectives for validation monitoring. This sophisticated level of understanding of physical and biological systems is expected to be achieved with an intensive, integrated monitoring effort.

Rule Implementation Tool Development: Rule implementation tool projects are designed to develop, refine or validate tools used to implement the forest practices rules. Methodology tool development projects develop, test, or refine protocols, models, and guidance that are designed for the identification and location of forest practices rule–specified management features, such as the Last Fish/Habitat Model, landslide screens, Np/Ns breaks and sensitive sites, or the achievement of specified stand conditions, such as the desired future condition (DFC) basal area target. Target verification projects consist of studies designed to verify assumptions and targets developed during Forests and Fish Report negotiations that authors identified as having a weak scientific foundation (such as the DFC basal area targets for Type F streams), or that have been established in the methodology tool development projects.

Rule implementation tools differ from tools needed to implement a specific monitoring program or project. For example, the Road Surface Erosion Model (commonly known as WARSEM) is a tool necessary to implement several projects in the Roads Rule Group Effectiveness Monitoring Program. Monitoring implementation tools are typically included with the effectiveness monitoring programs.

As stated earlier, the FY012 CMER Work Plan is organized by rule groups. For each rule group, the work plan contains one or more of the programs described above.

Project Prioritization

CMER's long-term goal is to address the full range of critical questions identified in the FY2012 CMER Work Plan (or subsequent revisions), while recognizing that availability of funding, time, and human resources limit the number of projects that can be developed and implemented each year. In order to focus effort and resources on the most critical issues for forest practices adaptive management, CMER prioritizes proposals for research and monitoring at both the program and project levels. Establishing priorities allows CMER to pursue the most pressing research and monitoring issues in an orderly manner over time.

The first step in CMER's initial prioritization process was to rank the relative importance of proposed programs in meeting Forest Practices HCP goals and objectives. The program prioritization strategy was to rank effectiveness/validation monitoring and extensive status and trend monitoring programs on the basis of scientific uncertainty and risk to aquatic resources, to evaluate the importance of rule implementation tool programs by consulting with DNR and then establishing priorities on a project basis, and to defer integration of the intensive monitoring program into the work plan until further scoping and coordination with other efforts occurs.

Effectiveness monitoring and extensive status and trend monitoring programs were ranked initially by CMER in 2002 by asking two questions: 1) How certain are we of the science and/or assumptions underlying the rule? And 2) how much risk is there to aquatic resources if the science or assumptions underlying the rule are incorrect?

These questions were selected as the criteria to rank programs, because the need for scientific information to inform adaptive management is most critical when there is a high level of scientific uncertainty concerning the interaction between forest practices, watershed processes, and aquatic resources; and where the sensitivity of the processes and aquatic resources to potential disturbance creates the greatest risk of resource impacts. Policy accepted the rankings and instructed CMER to use them as the basis for prioritizing effectiveness/validation and extensive status and trend monitoring projects.

The second stage of prioritization occurs at the project level in order for CMER to make annual recommendations to Policy and the Forest Practices Board concerning scheduling and allocation of funding among the projects developed by CMER. Projects are prioritized based on (1) the extent to which projects are deemed essential to inform the Forest Practices Adaptive Management Program, (2) input from DNR on their importance in improving implementation of forest practices rules, (3) status of projects relative to Policy decisions on adaptive management, and (4) the need to follow through and complete work already underway.

While Policy has in past years approved CMER's work plan priorities, Policy must also consider annual/biennial state budget fluctuations and other factors associated with meeting milestones in accordance with the Forest Practices HCP and/or Clean Water Act assurances. Policy made a decision in 2009 to prioritize CMER projects according to whether or not they were answering critical questions associated with meeting the Clean Water Act assurances.

Federal Funding

As mentioned earlier, the authors – including the federal services - agreed to use all reasonable efforts to support the expeditious implementation of the recommendations contained in the 1999 Forests and Fish Report. The authors' commitments were, in part, subject to the provision of adequate funding. To support the Forest Practices Adaptive Management Program, the Washington State Department of Natural Resources received seven federal grants funded through the Pacific Coastal Salmon Recovery Fund administered by the Washington State Recreation and Conservation Office Salmon Recovery Funding Board to carry out adaptive management and other tasks essential to implementing the Forests and Fish Report that all parties including NOAA Fisheries, U.S. Fish and Wildlife Service, and U.S. Environmental Protection Agency require. Over the past ten years this federal funding has supported adaptive management and other tasks essential to implementing the historical 1999 Forests & Fish Report.

Pacific Coastal Salmon Recovery Fund

The Pacific Coastal Salmon Recovery Fund (PCSRF) was established through a federal FY2000 appropriation to provide grants to the states and tribes for the purpose of assisting state, local and tribal salmon recovery efforts. The PCSRF was requested by the President and the governors of the states of Washington, Oregon, California and Alaska in response to listings of coastal salmon and steelhead runs under the Endangered Species Act and the need to form lasting partnerships with state, local, and tribal governments and the public for saving Pacific salmon and their important habitats.

Congress appropriated $58 million dollars for the PCSRF in FY2000 to be used for 1) salmon habitat restoration; 2) salmon stock enhancement; 3) salmon research; and 4) implementation of the Pacific Salmon Treaty Agreement and related agreements. Of the $58M PCSRF appropriation, $50M was distributed to the states, $6M to Pacific coastal tribes, and $2M for Columbia River tribes. Of the $50M PCSRF for the states, $18M was distributed to Washington state.

In accordance with the FY2000 Appropriations Conference Report (H. Rept. 106-479), the $18 million PCSRF funds provided to the Washington State Salmon Recovery Funding Board were distributed for salmon habitat projects, other salmon recovery activities, and to implement the "Washington Forests and Fish Agreement" authorized by the Washington State Legislature. The Salmon Recovery Funding Board was created by the Washington state legislature in 1999 to effectively invest state and federal funds for salmon recovery projects. The Washington State Salmon Recovery Funding Board entered into an MOU with National Marine Fisheries Service through its administrative office, the Washington State Interagency Committee for Outdoor Recreation, a state agency (sense renamed the Washington State Recreation and Conservation Office, or RCO).

The Washington State Salmon Recovery Funding Board provided $4.0M of the PCSRF funds to DNR to support Washington's Forest and Fish Report in accordance with the Conference Report (H. Rept. 106-479). The DNR used these initial PCSRF funds to design and construct hydrography and forest roads databases, map upland slopes and update landslide inventories, increase staffing capacity for field work to implement new Forest and Fish rules, and improve public access and review of proposed forest practice activities.

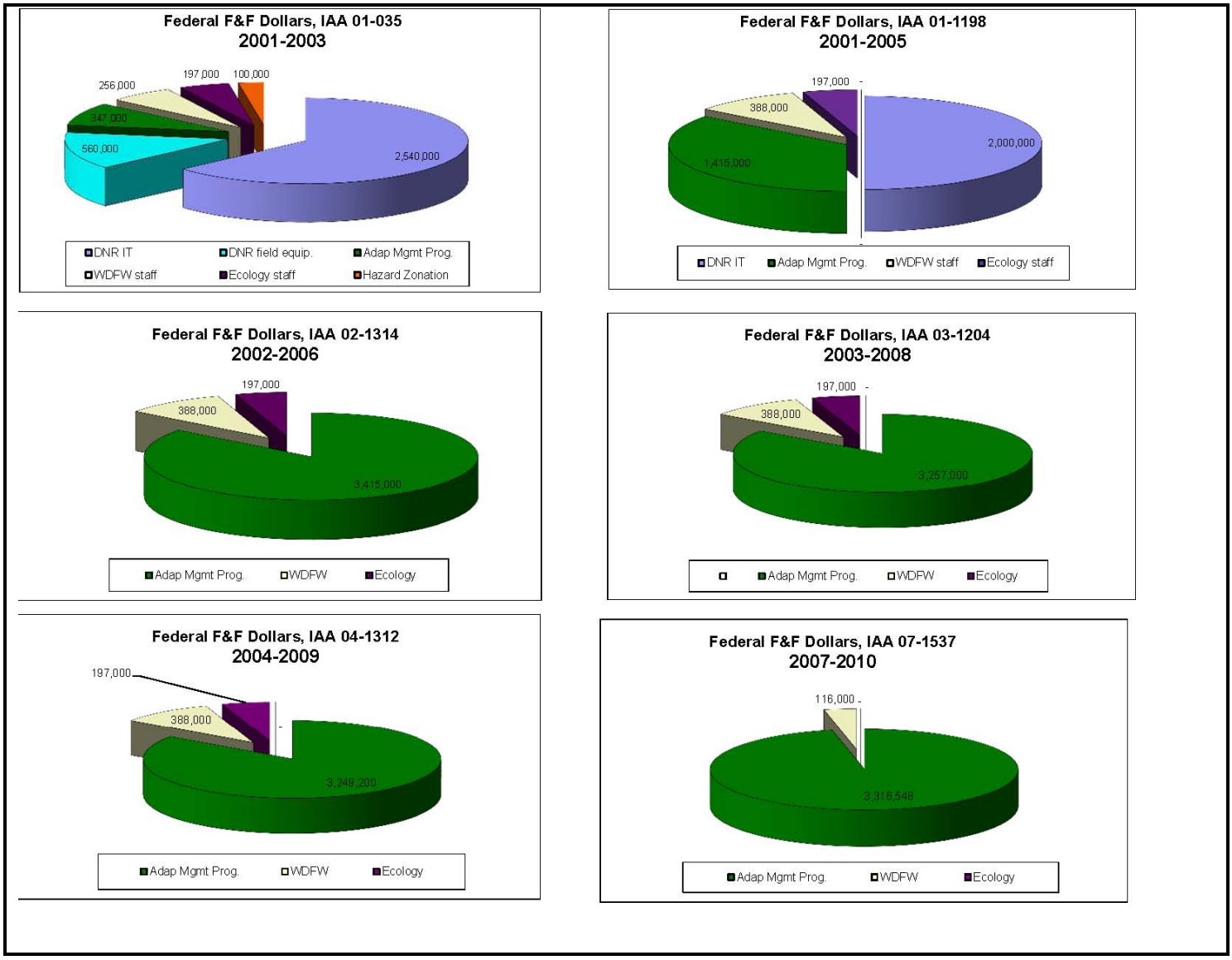
Federal Grants

Over the last decade (2000-2011), over $25 million in federal funding has been spent to support implementing the 1999 Forests and Fish Report, including funding for development of an Adaptive Management Program, a multi-landowner Forest Practices Habitat Conservation Plan, 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.

The first of the seven interagency agreements between the Recreation and Conservation Office and the Department of Natural Resources was fully executed as of June 6, 2000 and the seventh terminated as of April 15, 2011. The primary method for implementing the research and monitoring components of the Adaptive Management Program has been to contract with private consultants, non-profit interest-based organizations, tribes and tribal organizations and state agencies. Contracts covered project management, field work, research and monitoring studies, and independent peer reviews of the research projects. Approximately 130 contracts have been administered to execute ninety projects that cover a range of topics related to the forest practices rules and that are at various stages of development or completion. Approximately 32 projects have been completed and 24 projects are ongoing (i.e., undergoing study design development or currently being implemented or reviewed). (See previous chapter on the CMER work plan.)

The bulk of the federal funds have supported the science component of the Adaptive Management Program through the Cooperative Monitoring Evaluation and Research Committee (CMER). CMER represents members from federal and state agencies, tribes, private landowners, environmental groups, and other stakeholders. Forests and fish research and monitoring programs in the state are coordinated through CMER. Information flowing from the Adaptive Management Program has been widely distributed throughout the scientific and forestry communities for use in forest management throughout the nation.

A total of $25,558,748 was granted to support implementation of the responsibilities related to forest practices rules for aquatic resources in support of the Forests Practices Adaptive Management Program. Figure 1 illustrates the allocated funding levels among the seven federal grants spanning ten years.



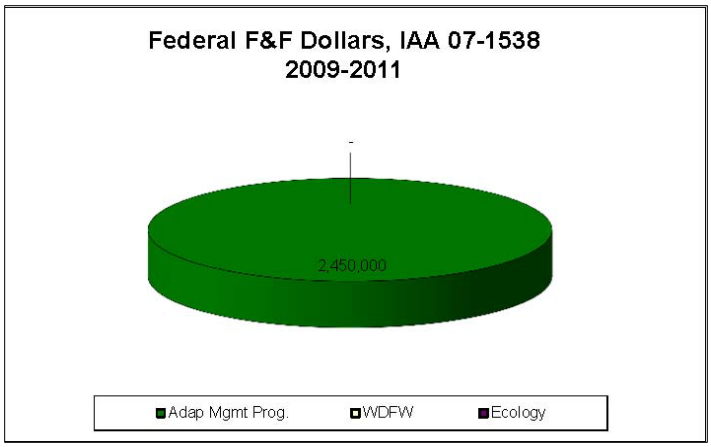


Figure 1. Federal Forests & Fish Grants

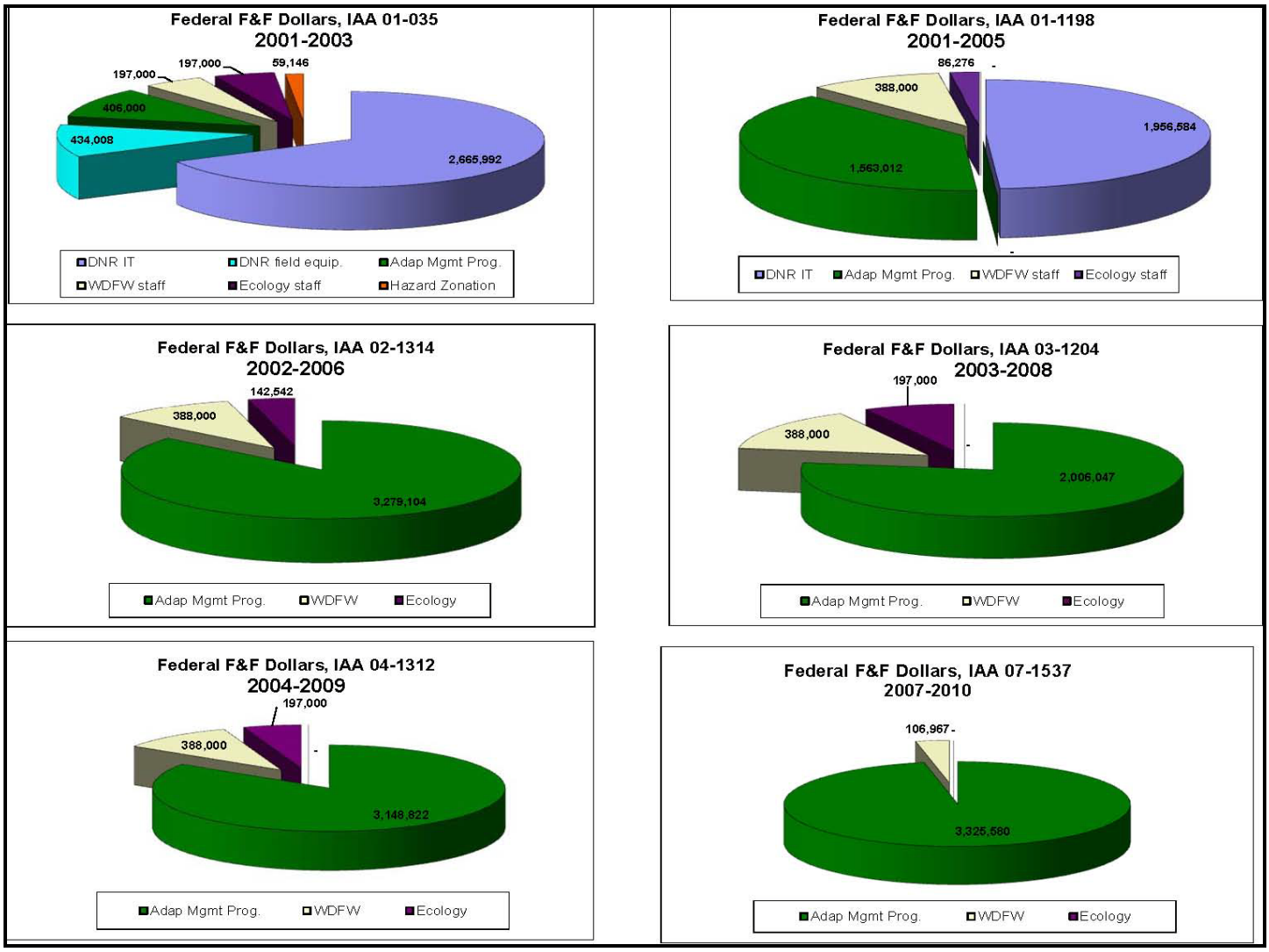
Note: Landslide Hazard Zonation has been incorporated into the Adaptive Management Program.

The Department of Natural Resources expended all but $872,646 of the federal grants. These funds have been spent on adaptive management ($17,043,003), development of information systems ($4,881,911), field implementation ($2,317,829), and field equipment ($443,360). Table 1 reflects these federal expenditures by state fiscal year (July 1 through the following June).

Table 1 – Forests & Fish Grant Expenditures
By State Fiscal Year (July 1 – June 30)

Funded Activity	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	Total
Hydrolayer Database /Water Typing	$250,000	$1,213,175	$674,363	$572,077	$257,020	$185,039						$3,151,674
GIS /Forest Roads Layer		$309,000		$66,910								$375,910
Forest Practices Permit System (FPARS)	$803,824	$291,168										$1,094,992
Field Work Equipment DNR	$418,254	$15,458	$296	$3,020					$6,332			$443,360
Forests &Fish Implementation DFW	$197,000		$89,000	$164,530	$318,223	$271,943	$120,529	$100,166	$101,885	$5,082		$1,368,359
Forests &Fish Implementation DOE	$106,875	$79,554	$96,847	$21,003	$304,825	$54,563	$221,497	$64,306				$949,470
Hazard Zonation Mapping		$29,941	$17,146	$146,285	$63,247		$2,717					$259,335
Forests & Fish Adaptive Management Program/DNR				$247,227	$389,880	$537,190	$326,430	$393,300	$341,259	$21,077	$6,420	$2,262,781
CMER Research and Monitoring Program Areas	$63,632	$867,527	$530,257	$1,247,184	$872,534	$972,139	$870,912	$2,405,968	$2,515,229	$1,194,561	$289,156	$11,829,098
CMER Staff (NWIFC)	$102,368	$145,000	$343,000	$391,141	$304,825	$343,004	$364,625	$378,474	$456,498		$122,188	$2,951,124
Total	$1,941,953	$2,950,823	$1,750,909	$2,859,376	$2,510,553	$2,363,878	$1,906,709	$3,342,214	$3,421,203	$1,220,719	$417,764	$24,686,102

Figure 2 illustrates the actual expenditures among the four major activity functions (adaptive management, development of information systems, field implementation, and field equipment) across the seven federal grants. The research and monitoring products generated from the funding are described in detail in the following chapter.



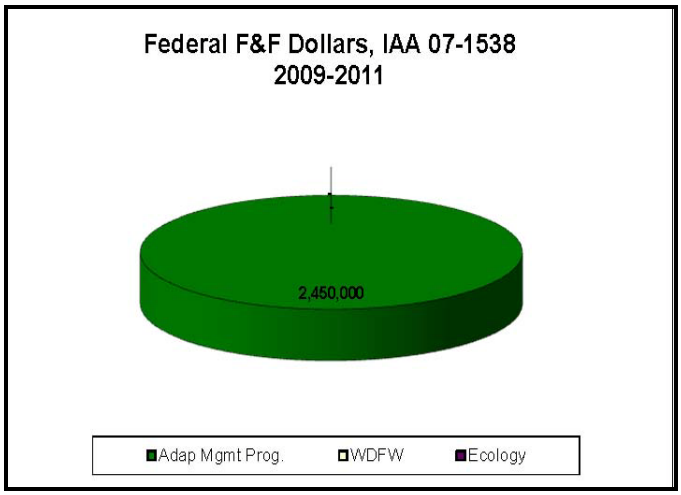


Figure 2. Federal Forests & Fish Grant Expenditures

Note: Landslide Hazard Zonation has been incorporated into the Adaptive Management Program.

Adaptive Management Program Products

The previous chapter summarized ten years of funding history for Forest and Fish Report implementation by the Pacific Coastal Salmon Recovery Fund through the Washington State Recreation and Conservation Office acting on behalf of the Salmon Recovery Funding Board. Approximately $17.0 million was spent on the adaptive management program, $4.9 million on information management systems, $2.3 million on field implementation, and $0.4 million on field equipment.

Table 2. CMER Projects, Objectives, and Targets provides a comprehensive summary of 97 CMER projects associated with the Adaptive Management Program. For each project, the table displays the status; the task type; forests and fish goals; and resource objectives and performance targets addressed by the project. Definitions and other information can be found notes at the bottom of the table.

For example, the first project listed is "Last Fish/Habitat Prediction Model Development". The status is "complete" and the task type is "RIT" (rule implementation tool). The project addressed forests and fish goals centered around fish by directly ("D") measuring in-stream/wetland habitat objectives/targets, including fish and amphibian habitat identification, substrate, and flow ("In-Str/Wet Hab").

A number of questions can be answered by referring to this table. For example, how many projects are planned and what is their status? Which projects directly address forests and fish goals related to fish, amphibians, or water quality? Which projects directly or indirectly address any particular L-1 performance target, such as riparian/wetland shade? Which projects are related to effectiveness monitoring, intensive monitoring, or extensive status and trends monitoring? And, which projects address multiple resource objectives and performance targets? For an example of the latter question, the Type N Experimental Buffer Treatment in Hard Rock Lithologies project directly measures the three forests and fish goals (fish, amphibians, and water quality) and directly measures nine resource objectives and targets. In addition it addresses two other issues – windthrow and intermittent flow.

Of the 97 projects list in Table 2, 27 are related to rule tools, 61 to effectiveness monitoring, 7 to extensive monitoring and 2 to intensive monitoring. Thirty two (32) of the 97 projects have been completed. Of the 32 completed projects, 15 were related to development of rule tools, 11 were "research and development" projects related to effectiveness monitoring programs, 5 were effectiveness projects, and 1 was an extensive status and trends monitoring design project. Of projects soon to be completed, 3 are effectiveness monitoring and 2 are extensive status and trends monitoring projects.

Field Implementation (Field implementation - $2.3 million)

Federal funding was provided to support start-up and other costs for field staff in the Department of Natural Resources and Washington Department of Fish and Wildlife to assist landowners in implementing and ensuring compliance with the new forest practice rules resulting from the 1999 Forests and Fish Report. DNR hired staff, including small forest landowner educational assistance foresters, to implement the forest and fish rules. Salaries and benefits were covered by state funding; however, one-time equipment costs were covered by federal funds.

The Washington Department of Fish and Wildlife also hired staff to enable the department to implement its responsibilities for aquatic resources under the forest and fish rules. Staff hired by the department were field positions, located in various locations throughout the state. Examples of responsibilities associated with these positions included reviewing and providing comments on forest practices applications regarding compliance with the aquatic habitat protection stands of the forest and fish rules; participating in multi-agency development and review of forest road maintenance and abandonment plans, conducting reviews of landowner proposed alternate plans to protect aquatic resources which deviated from standard rules, conducting bull trout habitat field reviews, conducting stream type verification, and identifying and reporting suitable in-channel and off-channel fish habitat enhancement sites. Support through federal funding lasted from 2000 through 2007, after which support came from state funds.

Field Equipment (Field equipment - $0.4 million)

As stated in the field implementation section above, one-time equipment costs were covered by federal funds. These equipment costs included vehicles, computers and other equipment required by staff hired by the Department of Natural Resources to implement the forest and fish rules. Costs associated with all other equipment purchases were integrated with the total costs of individual projects, such as the rule tool projects discussed under the rule tool section below.

Rule Tools (Information Management Systems -$4.9)

The earliest projects associated with implementing key components of the 1999 Forest and Fish Report and subsequent RCWs and WACs supported through the Pacific Coastal Salmon Recovery Fund were rule implementation tool projects to develop, refine, or validate science based management tools necessary for implementing the rule(s) (e.g., predictive models, protocols, etc.) or for establishing performance standards. The products of these projects were classified as “rule tools.”

Two types of rule tool projects were identified. The first type were methodology tool development projects to develop, test, or refine protocols, models, and guides that allow the identification and location of forest practices rule-specified management features, such as the Last Fish/Habitat Model, landslide screens, Np/Ns breaks and sensitive sites, or the achievement of specified stand conditions, such as the desired future condition (DFC) basal area targets. The second type of rule tool projects were riparian and other functional target verification projects

consisting of studies designed to verify performance targets developed during forests and fish negotiations that authors identified as having a weak scientific foundation, such as the DFC basal areas targets for Type F streams.

The first two contracts with the Recreation and Conservation Office (at that time called the Interagency Committee for Outdoor Recreation) Salmon Recovery Funding Board included funding for three rule tool programs. The first was to build accurate, up-to-date geographic information systems to show streams and fish habitat on private and state forestland so fish habitat could be better protected and monitored (the "hydro" data layer). Another rule tool development program was to improve the public's *ability* to *review* and comment on proposed forest practice *activities* on private and state forest land ("forest practices *permit* system", or FPARS). Finally, a third rule tool development program was to map unstable slopes ("landslide hazard zonation" mapping) to reduce landslides into streams resulting from forest practices.

Improved maps with new water type classifications to identify fish use for planning forest practices was released for Western Washington in 2005 and for Eastern Washington in 2006. A new online forest practices application review system (FPARS) was implemented in 2002. FPARS allows forest practice permit applicants to access application forms from the web. The new internet-based computer system improved both the processing of state forest practices applications and the public's ability to review proposed forest operations that require a permit. Finally, screening tools were developed, including GIS-based maps, to assist in the identification of potentially unstable landforms. These projects were managed by the Washington Department of Natural Resources directly, rather than through CMER.

The rule tool discussion above provides examples of rule tool projects supported by the federal Pacific Coastal Salmon Recovery Fund. Other rule tool projects developed by the Forest Practices Adaptive Management Program can be found in Table 2 (see projects labeled "RIT" in column labeled "Task Type"). The table contains 27 rule tool projects; however, it does not include the substantial early effort developing the hydro layer and FPARS system, which were not CMER projects, per se. Of the 27 rule tool projects listed in Table 2, 15 have been completed. For more information on the rule tool projects under the various forest practices rule groups, see the FY2012 CMER Work Plan.

Research and Monitoring (Adaptive Management - $17.0 million)

In addition to other objectives for implementing the Forest and Fish Report, funding was provided to the Forest Practices Adaptive Management Program to evaluate the effectiveness of the new forest and fish rules to protect salmon habitat and to adopt "adaptive management" to improve protection as needed. The Department of Natural Resources oversees adaptive management research and monitoring through CMER.

In addition to the Forest Practices Adaptive Management Program, funding was provided to the Washington State Department of Ecology's Environmental Assessment Program to plan and implement field monitoring programs to measure the effectiveness of the forest and fish rules. Staff were provided to assist CMER in implementing the Forest Practices Adaptive Management

Program research and monitoring program, including scoping and prioritization of research and monitoring projects, development of study designs, and oversight assistance on specific research and monitoring projects. Examples of specific projects on which staff at the Department of Ecology provided major oversight included three extensive monitoring studies: the Extensive Riparian Status and Trend Monitoring – Temperature, Type F/S Westside; the Extensive Riparian Status and Trend Monitoring – Temperature, Type F/S Eastside; and the Extensive Riparian Status and Trend Monitoring – Temperature, Type Np Westside.

Initially, a major effort was placed by CMER into developing research projects and schedules that would validate performance targets and assess the effectiveness of rules in achieving resource objectives based on the Forest and Fish Report's research priorities. Products of federal funding for research and monitoring projects included research and monitoring reports, per se; scoping documents; study designs; quality and assurance (QA/QC) plans; field data collection manuals; literature reviews; technical guidelines and protocols; model validation; workshops; and science conferences. Most of the literature reviews, technical guideline and protocol development projects, model validation projects, and workshops were precursors to projects directly related to either effectiveness or extensive monitoring. The FY2012 CMER Work Plan contains detail about the purpose and status of these projects, as well as their links to adaptive management. (See CMER Work Plan under "Files" on the Forest Practices page on the DNR web site http://www.dnr.wa.gov/BusinessPermits/Topics/FPAdaptiveManagementProgram/Pages/fp_am_program.aspx).

An early product of the research and monitoring program was development of a plan entitled "Monitoring Design for the Forestry Module of the Governor's Salmon Recovery Plan." The report provided an overall design of the monitoring program for the new forest practice rules based on the 1999 Forest and Fish Report. The monitoring design team's charge was to develop an integrated monitoring approach that provided a framework for collecting new information to support the Adaptive Management Program. The plan contained three distinct but related components: prescription monitoring (or effectiveness monitoring), extensive monitoring (or status and trends monitoring), and intensive monitoring (or cumulative effects monitoring of multiple forest practices and validation monitoring). This plan has served as a pivotal reference document in developing the CMER work plans.

Of the 97 CMER projects listed in Table 2, 70 are related to effectiveness, extensive or intensive monitoring program. Of those, 17 have been completed, 3 have completed drafts that have gone through the Independent Scientific Peer Review Process (ISPR) and are now awaiting finalization, 1 has a completed draft currently in the ISPR process, 1 has a completed draft soon to be sent through the ISPR process, 18 are in progress (study designs complete and either currently in or ready for field implementation), 8 are currently being scoped, and 26 have been "delayed".

Although all projects in Table 2 were identified by Policy and CMER as needed, the "delayed" projects are those that were initially classified as lower priority; whose priorities changed after initial scoping; whose priorities were lowered based on results from other, related completed or nearly completed studies; that are awaiting completion of other, related studies that are likely to

provide intellectual content to the study; that are waiting for available funding or human resources; and similar reasons.

Table 3. Selected Forest Practices Adaptive Management Program Products lists many of the research and monitoring related products developed by the Forest Practices Adaptive Management Program. The list is grouped into categories of products: draft publication manuscripts, draft reports, edited documents, manuals, manuscripts, protocols, reports, scoping papers, study plans, and study proposals. The list is not comprehensive, although great effort was placed into looking back through ten years of files, both paper and electronic, for all final reports (or draft reports if final reports were not completed and sent through the formal CMER review process). Fifty three (53) reports were completed between 2000 and 2011, either wholly or partially funded by the federal Pacific Coastal Salmon Recovery Fund through the Washington State Recreation and Conservation Office Salmon Recovery Funding Board. An additional 5 reports should be completed within the next year: 1) Evaluation of the effectiveness of the current TFW shade methodology for measuring attenuation of solar radiation to the stream; 2) Results of the Westside type N buffer characteristics, integrity, and function study; 3) Extensive riparian status and trends monitoring program – stream temperature Phase 1: Eastside type F/S monitoring report; 4) Extensive riparian status and trends monitoring program – stream temperature Phase 1: Westside type F/S/N monitoring report; and 5) The mass wasting effectiveness monitoring project: a post-mortem examination of the landslide response to the December 2007 storm in Southwestern Washington.

Most of the reports listed in Table 3 can be found on the Forest Practices web page on the Washington State Department of Natural Resources web site, or http://www.dnr.wa.gov/BusinessPermits/ForestPractices/Pages/Home.aspx under links to TFW Research Publications or Completed Cooperative Monitoring, Evaluation and Research Projects. All the documents listed in Table 3 are contained on electronic discs forwarded to the Washington State Recreation and Conservation Office along with this report.

Public Outreach

CMER holds regular monthly meetings attended by CMER members, Scientific Advisory Group (SAG) co-chairs, and other interested parties. SAGs meet on a monthly basis. Completed CMER research is forwarded to a Policy, also made up of members representing the stakeholder groups. As with CMER, they meet monthly to consider CMER studies and other forest practices issues and to make recommendations to the Washington Forest Practices Board. The Washington Forest Practices Board is an independent state agency, chaired by the Commissioner of Public Lands, which sets minimum standards for forest practices. In all cases, meetings are open to the public and meeting dates and agendas are posted on the Meetings & Events section of the Forest Practices page on the Washington State Department of Natural Resources web site, or http://www.dnr.wa.gov/BusinessPermits/ForestPractices/Pages/Home.aspx. Other examples of public outreach include science conferences and workshops.

Science conferences

CMER hosts annual science conferences as an avenue for sharing scientific research results to the public. The science conferences focus on progress made or completed projects designed to answer Adaptive Management Program key questions from the 1999 Forests and Fish Report. The adaptive management key questions of interest are related to the effectiveness of the forest practices rules at producing conditions that achieve resource objectives and performance targets, and whether the objectives and targets are the right ones to achieve forests and fish performance goals. CMER has hosted seven science conferences since 2004. Typically these are held all day in the Olympia area with specific sessions dedicated to CMER funded scientific projects. The last four science conferences have been videotaped and can be found at the following link: http://www.dnr.wa.gov/AboutDNR/BoardsCouncils/CMER/Pages/Home.aspx.

CMER sponsored workshops

A remote sensing workshop for riparian studies was held in 2006 at the University of Washington. This workshop was held to share the evaluation of the most suitable instrumentation and imagery to use for evaluating the potential accuracy of a suite of riparian variables that address CMER extensive, prescription effectiveness, and intensive watershed scale monitoring questions. The accuracy, cost, and feasibility of the different resolutions of remotely sensed data and other non-aerial photographic remote methods were discussed and compared with an audience of experts. A link to the videotaped workshop follows: http://www.ruraltech.org/video/2006/wadnr_remote_sensing/index.asp.

A workshop on the review of available literature related to wood loading dynamics in and around eastern Washington was held in 2004 with DNR and CMER representatives in order to reassess the project plan and provide a preliminary review of the sources and availability of numeric information. The workshop included discussions of the preliminary draft literature database and answers to four (4) questions addressed by the CMER review.

Outcomes of Funding by the Pacific Coastal Salmon Recovery Fund

The outcomes generated from the federal funding for establishment and support of the Forest Practices Adaptive Management Program via the federal Pacific Coastal Salmon Recovery Fund have been extensive, from development of annual CMER work plans and a CMER Protocols and Standards Manual to a Forest Practices Habitat Conservation Plan to rule-tool development to specific research and monitoring projects.

A significant outcome of the federal funding was the establishment and implementation of a formal Forest Practices Adaptive Management Program covering aquatic species on state and private forestlands in Washington State, a program that involves an official state rules making body, a policy committee and a science committee. As significant as the program itself, a unique model of collaborative decision-making was used – and continues to be used – in development of 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.

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. That open, transparent, collaborative process continues to be used in the Adaptive Management Program to review and revise forest practices rules on state and private lands based on research and monitoring projects and other information supported by the Pacific Coastal Salmon Recovery Fund.

The Washington State Forest Practices Habitat Conservation Plan was prepared as part of an ongoing process to provide protection of aquatic species while also providing a regulatory climate conducive to a viable forest products industry. The habitat conservation plan covers over 9 million acres of state and private forestland and represents a unified and coordinated conservation effort among state, federal, tribal and local governments, environmental interests, and small and large forest landowners. The plan will help preserve healthy forests and clean streams for wild salmon and other aquatic species, provide for a healthy forest products industry, and secure the sustainable and responsible management of our forests, now and for future generations.

Federal funding also supported forest and fish implementation by the Washington State Department of Fish and Wildlife. These funds were used to support agency field staff to assist landowners in implementing and ensuring compliance with the new forest practice rules. These funds supported such responsibilities as reviewing and providing comments on forest practices applications regarding compliance with the aquatic habitat protection standards of state forest practices forest and fish emergency rules and the subsequent permanent riparian protection rules, participating in multi-agency development and review of forest road maintenance and

abandonment plans (RMAPs), conducting reviews of landowner proposed alternate plans to protect aquatic resources which deviated from stand rules, conducting bull trout habitat filed reviews, conducting stream type verification, and identifying and reporting suitable in-channel and off-channel fish habitat enhancement sites.

The Washington State Department of Ecology was also supported through the federal funds to implement forest and fish implementation. The department developed a monitoring program designed to measure the effectiveness of the forest and fish rules at large spatial scales. Department scientists also participate in CMER.

Another significant outcome of the federal funding was early emphasis on the development of rule tools. Rule tool development projects were designed to develop, refine or validate tools used to implement the forest practices rules promulgated by the Forest Practices Board in support of the 1999 Forests and Fish Report. Methodology tool development projects developed, tested, or refined protocols, models, and guides that allowed the identification and location of forest practices rule-specified management features, such as the Last Fish/Habitat Model, landslide screens, or the achievement of specified stand conditions, such as the desired future riparian condition basal area target (DFC). Target verification projects were designed to verify riparian function performance targets developed during Forests and Fish Report negotiations that authors identified as having a weak scientific foundation, such as the DFC basal area targets for Type F streams.

While initial funding from the Pacific Coastal Salmon Recovery Fund was supporting development of the Adaptive Management Program organizational structure and early rule tool development, funding was also being used to develop a comprehensive, integrated research and monitoring program, applying the concepts of adaptive management. CMER developed a comprehensive work plan, now updated annually, as well as a CMER Protocols and Standards Manual designed to provide information and guidelines concerning the role, structure, governance, and activities of CMER. The work plan contains over 90 identified priority projects, organized by forest practices rule group.

A report entitled Monitoring Design for the Forestry Module of the Governor's Salmon Recovery Plan July 2002 was commissioned by Forest and Fish Policy to "develop a comprehensive framework for collection, analysis and interpretation of data related to effectiveness monitoring" for rules derived from the Forest and Fish Report (1999). The report is a conceptual framework for a coordinated monitoring plan with specific examples of how specific types of monitoring may be conducted. The report provides a collective vision for how an effective monitoring program could be structured. The vision of the authors was that this report will continue to change as new components are developed, methods are tested, modified and improved, new technologies become available, and the availability of resources changes over the years.

Another outcome of providing funding for establishment and support for the Forest Practices Adaptive Management Program is the continued participation by multiple stakeholders in the program, including tribes and tribal organizations, state agencies, federal agencies, landowner groups, counties, and the conservation caucus. Participation is at both the policy and science

levels. Although the various stakeholders come to the table with different values and interests, they continue to talk and collaborate in setting Adaptive Management Program agendas and priorities.

Although only a few stakeholder representatives may actively participate at Policy or in CMER, maintenance of Forest Practices Adaptive Management Program web pages provide transparency and information to both participants and the general public about the program, including meeting dates, locations, and agendas; meeting notes or minutes; completed research and monitoring reports; information on active projects; and more.

As state earlier, the purpose of the Forest Practices Adaptive Management 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." Although the permanent forest practices "forest and fish" rules adopted by the Forest Practices Board in 2001 were based on the best available science at the time, there were gaps in the science, leading to uncertainty in the science underlying a rule, including the causal relationships underlying the conceptual foundation for the prescriptions and assumptions about prescription effectiveness and resource response when the prescription is applied on the ground. The current 2012 CMER Work Plan contains over 90 projects either completed, on-going, or planned to address these issues.

Finally, the Forest Practices Adaptive Management Program research and monitoring efforts funded through the Pacific Coastal Salmon Recovery Fund have already led to revisions in the Washington state forest practices rules and in guidance to small forest landowners. For example, the rules containing the target threshold for the riparian desired future conditions basal area target has 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.

Table 2: CMER Projects, Objectives, and Targets

				Direct Measure of FFR Goals			Direct or Indirect Measurement[1] of Objectives & Targets (D = direct; I = indirect; L = literature; ? = probable if implemented in future)												Other Important Issues		
Rule Group/ Program	CMER Projects	Status	Task Type	Fish	Amphib	WQ	In-Str Temp	Rip/ Wet Shade	Rip/ Wet Stand[2]	In-Str/ Wet LWD	Rip/ Wet Litter	In-Str/ Wet Hab[3]	Strm Bnk ELZ[4]	Mass Wast-ing	Rd Sed Runoff	Peak Flow	Wet-land	Fish Passage	Wind-throw	Ground-water	Intermit Flow[5]
Stream Typing Rule Group																					
Stream Typing Program (Rule Tool)																					
	Last Fish/Habitat Prediction Model Development	complete	RIT	yes	---	---	---	---	---	---	---	D	---	---	---	---	---	---	---	---	---
	Annual/Seasonal Variability	complete	R&D	yes	---	---	---	---	---	---	---	D	---	---	---	---	---	---	---	---	---
	Last Fish/Habitat Prediction Model Field Performance	complete	RIT	yes	---	---	---	---	---	---	---	D	---	---	---	---	---	---	---	---	---
Type N Riparian Prescriptions Rule Group																					
Type N Delineation Program (Rule Tool)																					
	Perennial Initiation Point Survey: Pilot Study	complete	RIT	---	---	---	---	---	---	---	---	D	---	---	---	---	---	---	---	---	D
Sensitive Site Program (Rule Tool)																					
	SAA Sensitive Sites Identification Methods	complete	RIT	---	yes	---	---	---	---	---	---	D	---	---	---	---	---	---	---	---	---
	SAA Sensitive Sites Characterization	complete	RIT	---	yes	---	---	---	---	---	---	D	---	---	---	---	---	---	---	---	D
Type N Riparian Effectiveness Program																					
	Westside Type N Buffer Characteristics, Integrity, and Function (BCIF)	in prog	EFF	---	---	---	I	D	D	D	---	I	D	---	---	---	---	---	D	---	---
	Type N Exp Buffer Treatment Feasibility Study	complete	R&D	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	Type N Exp Buffer Treatment in Hard Rock Lithologies	in prog	EFF	yes	yes	yes	D	D	D	D	D	D	D	---	D	D	---	---	D	---	D
	Type N Exp Buffer Study in Soft Rock Lithologies	in prog	EFF	---	---	yes	D?	D?	D?	?	?	?	D?	---	D?	D?	---	---	D?	I	I?
	Windthrow Frequency, Distribution, and Effects	delayed	EFF	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	D?	---	---
	Eastside Type N Buffer Characteristics, Integrity, and Function (BCIF)	delayed	EFF	---	---	yes	D?	D?	D?	D?	---	---	D?	---	---	---	---	---	D?	---	---
	Eastside Type N Forest Hydrology	in prog	RIT	---	yes	yes	I	---	I	---	---	---	---	---	---	---	---	---	---	I	D
	Eastside Type N Riparian Effectiveness	delayed	EFF	---	yes	yes	D	D	D	D?	D	D	D	---	D?	D?	---	---	D	---	D
Type N Amphibian Response Program (Effectiveness)																					
	SAA Detection/Relative Abundance Methodology	complete	R&D	---	yes	---	---	---	---	---	---	D	---	---	---	---	---	---	---	---	D
	Type N Exp Buffer Treatment in Hard Rock Lithologies[6]	in prog	EFF	yes	yes	yes	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	Tailed Frog Literature Review	in prog	R&D	---	yes	---	L	L	L	L	L	L	L	L	L	L	---	---	L	---	L
	Tailed Frog Meta-Analysis	in prog	R&D	---	yes	---	---	---	---	---	---	I	---	---	---	---	---	---	---	---	I
	Tailed Frogs and Parent Geology	scoping	R&D	---	yes	---	---	---	---	---	---	D?	?	?	?	---	---	---	?	---	?
	Dunn's Salamander	complete	R&D	---	yes	---	---	D	D	---	D	---	---	---	---	---	---	---	---	---	---
	Buffer Integrity - Shade Effectiveness	in prog	EFF	---	yes	yes	D	D	---	---	---	D	---	---	---	---	---	---	I	---	---
	Amphibian Recovery	complete	EFF	---	yes	yes	D	D	D	D	---	D	I	---	---	---	---	---	D	---	I
	Amphibians in Intermittent Streams	scoping	R&D	---	yes	---	?	?	---	?	---	D?	---	---	---	?	---	---	---	---	D?
Extensive Riparian Status and Trendss Monitoring Program																					
	Extensive Riparian Status and Trends Monitoring - Temperature, Type Np Westside	in prog	EXT	---	---	yes	D	D	I	D	---	D	D	---	---	---	---	---	---	---	---
	Extensive Riparian Status and Trends Monitoring - Temperature, Type Np Eastside	in prog	EXT	---	---	yes	D	D	I	D	---	D	D	---	---	---	---	---	---	---	---
	Extensive Riparian Status and Trends Monitoring - Vegetation, Type Np Westside and Eastside	scoping	EXT	---	---	---	?	?	?	---	?	---	---	---	---	---	---	---	?	---	---

(Table cont. next page; see final page for notes)

(Table 2: CMER Projects, Objectives, and Targets cont.)

				Direct Measure of FFR Goals			Direct or Indirect Measurement[1] of Objectives & Targets (D = direct; I = indirect; L = literature; ? = probable if implemented in future)												Other Important Issues		
Rule Group/ Program	CMER Projects	Status	Task Type	Fish	Amphib	WQ	In-Str Temp	Rip/ Wet Shade	Rip/ Wet Stand[2]	In-Str/ Wet LWD	Rip/ Wet Litter	In-Str/ Wet Hab[3]	Strm Bnk ELZ[4]	Mass Wast-ing	Rd Sed Runoff	Peak Flow	Wet-land	Fish Passage	Wind-throw	Ground-water	Intermit Flow[5]
Type F Riparian Prescriptions Rule Group																					
DFC Validation Program (Rule Tool)																					
	DFC Target Validation	complete	RIT	---	---	---	---	---	D	---	---	---	---	---	---	---	---	---	---	---	---
	DFC Plot Width Standardization (scoping)	delayed	R&D	---	---	---	---	---	?	?	---	?	---	---	---	---	---	---	---	---	---
	FPA Desktop Analysis (includes field analysis)	complete	RIT	---	---	---	---	---	D	---	---	---	---	---	---	---	---	---	---	---	---
	DFC Site Class Map Validation (scoping)	delayed	RIT	---	---	---	---	---	?	---	---	---	---	---	---	---	---	---	---	---	---
	DFC Trajectory Model Validation	delayed	R&D	---	---	---	---	---	?	?	---	---	---	---	---	---	---	---	---	---	---
	DFC Aquatic Habitat	delayed	R&D	---	---	---	---	---	?	?	---	?	---	---	---	---	---	---	---	---	---
	Pathways of Riparian Stand Development to Maturity	delayed	R&D	---	---	---	---	---	?	---	---	---	---	---	---	---	---	---	---	---	---
	Red Alder Growth and Yield Model (coop. contribution)	in prog	R&D	---	---	---	---	---	D	---	---	---	---	---	---	---	---	---	---	---	---
Eastside Type F Riparian Rule Tool Program																					
	Eastside Disturbance Regime Literature Review	complete	R&D	---	---	---	---	L	L	L	L	---	---	L	---	---	---	---	L	---	---
	Eastside LWD Literature Review	complete	R&D	---	---	---	---	L	L	L	L	L	---	---	---	---	---	---	L	---	---
	Eastside Temperature Nomograph	incomplete	RIT	---	---	yes	D	D	---	---	---	---	---	---	---	---	---	---	---	---	---
	Eastern WA Riparian Assessment (Phase 1)	complete	R&D	---	---	---	---	D	D	D	D	D	---	---	---	---	---	---	D	---	---
	Eastside Type F Channel Wood Characterization	scoping	R&D	---	---	---	---	D	I	D	I	D	---	---	---	---	---	---	D	---	---
Bull Trout Habitat Identification Program (Rule Tool)																					
	Bull Trout Presence/Absence Protocols	complete	RIT	yes	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	Bull Trout Habitat Prediction Models	complete	RIT	yes	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	Yakima River Radiotelemetry	in prog	R&D	yes	---	---	---	---	---	---	---	D	---	---	---	---	---	---	---	---	---
Westside Type F Riparian Effectiveness Program																					
	Westside Type F Riparian Prescription Monitoring	scoping	EFF	---	---	---	?	?	?	?	---	?	?	---	---	---	---	---	?	---	---
	Type F Experimental Buffer Treatment	delayed	EFF	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	Type F Performance Target Validation	delayed	EFF	---	---	---	---	---	?	?	---	?	?	---	---	---	---	---	---	---	---
Eastside Type F Riparian Effectiveness Program																					
	Eastern Washington Riparian Assessment (Phase 2)	in prog	EFF	---	---	---	---	I	D	I	---	---	---	---	---	---	---	---	I	---	---
	BTO Temperature (Eastside Riparian Shade/Temperature)	in prog	EFF	---	---	yes	D	D	D	---	---	---	---	---	---	---	---	---	---	---	D
	Solar Radiation/Effective Shade	in prog	EFF	---	---	---	I	D	---	---	---	---	---	---	---	---	---	---	---	---	---
	Eastside Type F Riparian Effectiveness Monitoring (BTO add-on)	in prog	EFF	---	---	---	---	---	D	D	---	I	D	---	---	---	---	---	D	---	---
	Groundwater Conceptual Model	incomplete	R&D	---	---	---	I	---	---	---	---	---	---	---	---	---	---	---	---	I	---
Hardwood Conversion Program (Effectiveness)																					
	Riparian Hardwood Conversion	in prog	EFF	---	---	---	---	---	D	---	---	---	---	---	---	---	---	---	?	---	---
	Riparian Hardwood Conversion - Temperature Component	in prog	EFF	---	---	yes	D	D	---	---	---	I	---	---	---	---	---	---	---	---	---
	Annotated Bibliography: Riparian Hardwood Conversion	in prog	R&D	---	---	---	?	---	L	---	---	---	---	---	---	---	---	---	---	---	---
	WDOE Water Temperature Modeling	complete	R&D	---	---	---	I	I	I	---	---	---	---	---	---	---	---	---	---	---	---
Extensive Riparian Status and Trends Monitoring Program																					
	Extensive Riparian Status and Trends Monitoring - Temperature, Type F/S Westside	in prog	EXT	---	---	yes	D	D	I	D	---	D	D	---	---	---	---	---	---	---	---
	Extensive Riparian Status and Trends Monitoring - Temperature, Type F/S Eastside	in prog	EXT	---	---	yes	D	D	I	D	---	D	D	---	---	---	---	---	---	---	---
	Extensive Riparian Status and Trends Monitoring - Vegetation, Type F/S Westside and Eastside	scoping	EXT	---	---	---	?	?	?	---	?	---	---	---	---	---	---	---	?	---	---
Intensive Monitoring/Cumulative Effects Program: No projects yet identified.																					

(Table cont. next page; see final page for notes)

(Table 2: CMER Projects, Objectives, and Targets cont.)

				Direct Measure of FFR Goals			Direct or Indirect Measurement[1] of Objectives & Targets (D = direct; I = indirect; L = literature; ? = probable if implemented in future)												Other Important Issues		
Rule Group/ Program	CMER Projects	Status	Task Type	Fish	Amphib	WQ	In-Str Temp	Rip/ Wet Shade	Rip/ Wet Stand[2]	In-Str/ Wet LWD	Rip/ Wet Litter	In-Str/ Wet Hab[3]	Strm Bnk ELZ[4]	Mass Wast-ing	Rd Sed Runoff	Peak Flow	Wet-land	Fish Passage	Wind-throw	Ground-water	Intermit Flow[5]
Channel Migration Zone Rule Group																					
CMZ Delineation Program																					
	CMZ Screen and Aerial Photo Catalog and CMZ Boundary Identification Criteria	delayed	RIT	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	Consistency and Accuracy of CMZ Boundary Delineations	delayed	RIT	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
CMZ Validation Program: No projects yet identified.																					
Unstable Slopes Rule Group																					
Unstable Landform Identification Program (Rule Tool)																					
	Shallow Rapid Landslide Screen for GIS (Westside)	complete	RIT	---	---	---	---	---	---	---	---	---	---	I	---	---	---	---	---	---	---
	Shallow Rapid Landslide Screen for GIS (Eastside)	delayed	RIT	---	---	---	---	---	---	---	---	---	---	?	---	---	---	---	---	---	---
	Technical Guidelines for Geotechnical Reports	complete	RIT	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	Regional Unstable Landforms Identification (Deep-Seated Screen)	complete	RIT	---	---	---	---	---	---	---	---	---	---	I	---	---	---	---	---	---	---
	Landform Hazard Classification System and Mapping Protocols	complete	R&D	---	---	---	---	---	---	---	---	---	---	I	---	---	---	---	---	---	---
	Landslide Hazard Zonation (priority 1 and 2 watersheds)	complete	RIT	---	---	---	---	---	---	---	---	---	---	D	---	---	---	---	---	---	---
	Landslide Hazard Zonation (priority 3 watersheds)	incomplete	RIT	---	---	---	---	---	---	---	---	---	---	D	---	---	---	---	---	---	---
Glacial Deep-Seated Landslides Program (Rule Tool)																					
	Model Evapo-Transpiration in Deep-Seated Landslide Recharge Areas	complete	RIT	---	---	---	---	---	---	---	---	---	I	I	---	---	---	---	---	I	---
	Evapo-Transpiration Model Refinement	delayed	R&D	---	---	---	---	---	---	---	---	---	---	I?	---	---	---	---	---	---	---
	Landslide Classification	delayed	RIT	---	---	---	---	---	---	---	---	---	---	I?	---	---	---	---	---	I	---
	Groundwater Recharge Modeling	delayed	R&D	---	---	---	---	---	---	---	---	---	---	I?	---	---	---	---	---	D	---
	Board Manual Revision	delayed	RIT	---	---	---	---	---	---	---	---	---	---	I?	---	---	---	---	---	I	---
Mass Wasting Effectiveness Monitoring Program																					
	Testing the Accuracy of Unstable Landform Identification (aka Accuracy and Bias)	scoping	EFF	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	Mass Wasting Effectiveness Monitoring (aka Post-Mortem)	in prog	EFF	---	---	---	---	---	---	D	---	I	I	D	D	I	---	---	---	---	---
	Mass Wasting Landscape-Scale Effectiveness Monitoring	delayed	EFF	---	---	---	---	---	---	---	---	---	---	D?	---	---	---	---	---	---	---
	Mass Wasting Buffer Integrity and Windthrow Assessment	delayed	EFF	---	---	---	---	---	---	---	---	---	---	?	---	---	---	---	?	---	---
Mass Wasting Validation Program (Intensive)																					
	Method to Assess Harmful Cumulative Sediment Inputs	delayed	RIT	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Roads Rule Group																					
Road Sub-Basin-Scale Effectiveness Monitoring Program																					
	Road Sub-Basin-Scale Effectiveness Monitoring (Phase 1)	complete	EFF	---	---	I	---	---	---	---	---	---	---	---	D	I	---	I	---	---	---
	Road Surface Erosion Model Update	complete	RIT	---	---	---	---	---	---	---	---	---	---	---	D	---	---	---	---	---	---
	Road Surface Erosion Model Validation/Refinement	delayed	R&D	---	---	---	---	---	---	---	---	---	---	---	?	---	---	---	---	---	---
Road Prescription-Scale Effectiveness Monitoring Program																					
	Effectiveness of RMAP Fixes	delayed	EFF	---	---	---	---	---	---	---	---	---	---	---	D?	---	---	---	---	---	---
	Road Prescription-Scale Effectiveness Monitoring	delayed	EFF	---	---	---	---	---	---	---	---	---	---	---	D?	I	---	I	---	---	---
Roads Validation Program and Cumulative Sediment Effects																					
	Intensive Watershed-Scale Monitoring to Assess Cumulative Effects	delayed	INT	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

(Table cont. next page; see final page for notes)

(Table 2: CMER Projects, Objectives, and Targets cont.)

				Direct Measure of FFR Goals			Direct or Indirect Measurement[1] of Objectives & Targets (D = direct; I = indirect; L = literature; ? = probable if implemented in future)												Other Important Issues		
Rule Group/ Program	CMER Projects	Status	Task Type	Fish	Amphib	WQ	In-Str Temp	Rip/ Wet Shade	Rip/ Wet Stand[2]	In-Str/ Wet LWD	Rip/ Wet Litter	In-Str/ Wet Hab[3]	Strm Bnk ELZ[4]	Mass Wast-ing	Rd Sed Runoff	Peak Flow	Wet-land	Fish Passage	Wind-throw	Ground-water	Intermit Flow[5]
Channel Migration Zone Rule Group																					
CMZ Delineation Program																					
	CMZ Screen and Aerial Photo Catalog and CMZ Boundary Identification Criteria	delayed	RIT	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	Consistency and Accuracy of CMZ Boundary Delineations	delayed	RIT	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
CMZ Validation Program: No projects yet identified.																					
Unstable Slopes Rule Group																					
Unstable Landform Identification Program (Rule Tool)																					
	Shallow Rapid Landslide Screen for GIS (Westside)	complete	RIT	---	---	---	---	---	---	---	---	---	---	I	---	---	---	---	---	---	---
	Shallow Rapid Landslide Screen for GIS (Eastside)	delayed	RIT	---	---	---	---	---	---	---	---	---	---	?	---	---	---	---	---	---	---
	Technical Guidelines for Geotechnical Reports	complete	RIT	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	Regional Unstable Landforms Identification (Deep-Seated Screen)	complete	RIT	---	---	---	---	---	---	---	---	---	---	I	---	---	---	---	---	---	---
	Landform Hazard Classification System and Mapping Protocols	complete	R&D	---	---	---	---	---	---	---	---	---	---	I	---	---	---	---	---	---	---
	Landslide Hazard Zonation (priority 1 and 2 watersheds)	complete	RIT	---	---	---	---	---	---	---	---	---	---	D	---	---	---	---	---	---	---
	Landslide Hazard Zonation (priority 3 watersheds)	incomplete	RIT	---	---	---	---	---	---	---	---	---	---	D	---	---	---	---	---	---	---
Glacial Deep-Seated Landslides Program (Rule Tool)																					
	Model Evapo-Transpiration in Deep-Seated Landslide Recharge Areas	complete	RIT	---	---	---	---	---	---	---	---	---	I	I	---	---	---	---	---	I	---
	Evapo-Transpiration Model Refinement	delayed	R&D	---	---	---	---	---	---	---	---	---	---	I?	---	---	---	---	---	---	---
	Landslide Classification	delayed	RIT	---	---	---	---	---	---	---	---	---	---	I?	---	---	---	---	---	I	---
	Groundwater Recharge Modeling	delayed	R&D	---	---	---	---	---	---	---	---	---	---	I?	---	---	---	---	---	D	---
	Board Manual Revision	delayed	RIT	---	---	---	---	---	---	---	---	---	---	I?	---	---	---	---	---	I	---
Mass Wasting Effectiveness Monitoring Program																					
	Testing the Accuracy of Unstable Landform Identification (aka Accuracy and Bias)	scoping	EFF	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	Mass Wasting Effectiveness Monitoring (aka Post-Mortem)	in prog	EFF	---	---	---	---	---	---	D	---	I	I	D	D	I	---	---	---	---	---
	Mass Wasting Landscape-Scale Effectiveness Monitoring	delayed	EFF	---	---	---	---	---	---	---	---	---	---	D?	---	---	---	---	---	---	---
	Mass Wasting Buffer Integrity and Windthrow Assessment	delayed	EFF	---	---	---	---	---	---	---	---	---	---	?	---	---	---	---	?	---	---
Mass Wasting Validation Program (Intensive)																					
	Method to Assess Harmful Cumulative Sediment Inputs	delayed	RIT	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Roads Rule Group																					
Road Sub-Basin-Scale Effectiveness Monitoring Program																					
	Road Sub-Basin-Scale Effectiveness Monitoring (Phase 1)	complete	EFF	---	---	I	---	---	---	---	---	---	---	---	D	I	---	I	---	---	---
	Road Surface Erosion Model Update	complete	RIT	---	---	---	---	---	---	---	---	---	---	---	D	---	---	---	---	---	---
	Road Surface Erosion Model Validation/Refinement	delayed	R&D	---	---	---	---	---	---	---	---	---	---	---	?	---	---	---	---	---	---
Road Prescription-Scale Effectiveness Monitoring Program																					
	Effectiveness of RMAP Fixes	delayed	EFF	---	---	---	---	---	---	---	---	---	---	---	D?	---	---	---	---	---	---
	Road Prescription-Scale Effectiveness Monitoring	delayed	EFF	---	---	---	---	---	---	---	---	---	---	---	D?	I	---	I	---	---	---
Roads Validation Program and Cumulative Sediment Effects																					
	Intensive Watershed-Scale Monitoring to Assess Cumulative Effects	delayed	INT	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

(Table cont. next page; see final page for notes)

(Table 2: CMER Projects, Objectives, and Targets cont.)

				Direct Measure of FFR Goals			Direct or Indirect Measurement[1] of Objectives & Targets (D = direct; I = indirect; L = literature; ? = probable if implemented in future)												Other Important Issues		
Rule Group/ Program	CMER Projects	Status	Task Type	Fish	Amphib	WQ	In-Str Temp	Rip/ Wet Shade	Rip/ Wet Stand[2]	In-Str/ Wet LWD	Rip/ Wet Litter	In-Str/ Wet Hab[3]	Strm Bnk ELZ[4]	Mass Wast-ing	Rd Sed Runoff	Peak Flow	Wet-land	Fish Passage	Wind-throw	Ground-water	Intermit Flow[5]
Fish Passage Rule Group																					
Fish Passage Effectiveness/Validation Monitoring Program																					
	No projects listed under this program.																				
Extensive Fish Passage Monitoring Program																					
	Extensive Fish Passage Trends Monitoring (Design)	complete	EXT	---	---	---	---	---	---	---	---	---	---	---	---	---	---	I	---	---	---
Pesticides Rule Group																					
Forest Chemicals Program (Effectiveness): No projects yet identified.																					
Wetlands Protection Rule Group																					
Wetland Mapping Tools Program (Rule Tool)																					
	DNR GIS Wetlands Data Layer	delayed	RIT	---	---	---	---	---	---	---	---	---	---	---	---	---	I	---	---	---	---
	Hydrogeomorphic Wetland Classification System	delayed	RIT	---	---	---	---	---	---	---	---	---	---	---	---	---	I	---	---	---	---
	Overlay Project	delayed	R&D	---	---	---	D?	D?	D?	D?	D?	D?	---	D?	D?	D?	D?	D?	D?	I?	D?
Forested Wetlands Effectiveness Program																					
	Forested Wetlands Literature Review and Workshop	complete	R&D	---	---	---	L	L	L	L	L	L	---	L	L	L	L	L	L	L	L
	Forest Practices and Wetlands Systematic Literature Review	scoping	R&D	yes	yes	yes	L	L	L	L	L	L	---	L	L	L	L	L	L	L	L
	Statewide Forested Wetlands Regeneration Pilot	complete	EFF	---	---	---	---	---	D	---	---	---	---	---	---	---	D	---	---	---	---
	Wetland/Stream Water Temp Interactions	delayed	EFF	---	---	yes	D?	D?	D?	---	---	---	---	---	---	---	D	---	---	D?	---
	Wetlands Hydrologic Connectivity	delayed	EFF	yes	yes	yes	D?	D?	D?	---	---	D?	---	---	D?	D?	D?	D?	---	D?	D?
Wetlands Mitigation Program																					
	Wetlands Mitigation Effectiveness (Pilot Study)	delayed	EFF	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	Wetlands Mitigation Effectiveness (Phase 1)	delayed	EFF	---	---	yes	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	Wetlands Mitigation Effectiveness (Phase 2)	delayed	EFF	yes	yes	yes	D?	D?	D?	?	?	I?	---	D?	D?	I?	D?	I?	D?	I?	D?
Wetland Management Zone Effectiveness Monitoring Program																					
	Wetland Management Zone Effectiveness Monitoring	delayed	EFF	yes	yes	yes	D	D	D	D	D	D	D	D	D	I?	D	D	D	I?	D?
Wetland Intensive Monitoring Program																					
	Wetlands Intensive Monitoring	delayed	INT	yes	yes	yes	D?	D?	D?	D?	?	D?	?	D?	D?	D?	D?	D?	D?	D?	?
Wildlife Rule Group																					
Wildlife Program																					
	RMZ Resample	in prog	EFF	---	yes	---	---	---	D	---	---	---	---	---	---	---	---	---	---	---	---
Intensive Watershed-Scale Monitoring to Assess Cumulative Effects																					
	No programs or projects yet identified.																				

NOTES

Status:

In Progress: Site selection, data collection, analysis, or report writing (in prog)

Complete: Final CMER approved report (complete)

Scoping: Currently being scoped (scoping)

Delayed: Planned, but not yet scoped; or delayed due to funding, prioritization, etc. (delayed)

Task Type:

Monitoring Type: Effectiveness (EFF); Intensive/Cumulative Effects (INT); Extensive Status and Trends (EXT)

Rule and Project Tools: Rule Implementation Tools (RIT) needed to correctly implement the rules; includes accurately delineating prescription boundaries
Research & Development (R&D) includes literature reviews and development of research protocols

[1] Direct or Indirect Measurement: Direct = actual field measurement; Indirect = modeling/correlations, etc.

[2] Riparian/Wetland Stand Objectives/Targets include windthrow, potential LWD recruitment, DFC basal area targets, and other stand conditions, etc.

[3] In-Stream/Wetland Habitat Objectives/Targets include fish and amphibian habitat ID, substrate, flow, etc.

[4] Stream Bank/Equipment Limitation Zone (ELZ) includes bank erosion, delivery of sediment from the ELZ

[5] "Intermit Flow" refers to spatially intermittent flow below the uppermost point of perennial flow in Type Np streams.

[6] Type N Exp Buffer Treatment in Hard Rock Lithologies: This project is repeated in three programs (Type N Effectiveness, Amphibian Response, and Wildlife); however, the designation of functions is shown only once in order to not overdesignate projects that address those functions. The functions are designated under the Type N Effectiveness Program.

Table 3. Selected Forest Practices Adaptive Management Program Research and Monitoring Products

Product type	Product
Draft manuscript	Terrestrial salamander wood utilization in managed landscapes: implications for forestry - draft. 2008. Hayes, M.P. et al. CMER (no number)
Draft report	Draft case study reports, hardwood conversion study. 2010. Duck Creek Associates. CMER (no number)
Draft report	Riparian survey - draft. 2000. M McGowan and D. Smith. TFW (no number)
Draft report	Summary of Dunn Salamander (*Plethodon dunni*). Hayes, M.P. CMER (no number)
Draft report	Water typing consolidation for last fish/last habitat data in nine Western Washington basins - draft. White, M.L. TFW (no date)
Edited document	Fiscal Year 2012 CMER Work Plan. 2011.
Edited document	Mass wasting prescription-scale effectiveness monitoring project (post-mortem) study design. 2008. Dieu, J. et al.
Edited document	Pacific Northwest forested wetland literature survey synthesis paper. 2005. Cooke Scientific Services, Inc. CMER 04-406
Field manual	Mass wasting prescription-scale effectiveness monitoring project (post-mortem) field manual. (No date) Phillips, J. et al.
Manual	Washington road surface erosion model (WARSEM) manual. 2004. Dube', K. et al. CMER (no number)
Manuscript	Amphibian use of seeps and stream reaches in non-fish bearing stream basins of Southwest Washington state, USA. (No date). Hayes, M.P. et al.
Protocol	Landslide hazard zonation project protocol, version 2.1. 2006. UPSAG. CMER (no number)
Report	2003 Last fish surveys for Eastern Washington water typing model development final report. 2003. Cole, M.B. et al. CMER 02-197
Report	A field analysis of riparian site attribute and stand inventory data from approved forest practices applications along west-side type F streams. 2010. McConnell, S.P. and J. Heimburg. CMER 10-1003
Report	A review and synthesis of available information on riparian disturbance regimes in Eastern Washington. 2002. Concurrent Technologies Corporation. CMER 02-205
Report	Amphibian use of seeps and stream reaches in non-fish bearing stream basins in Southwest Washington - a preliminary analysis - year 2000 annual report. 2002. Hayes, M.P. et al. TFW-LWAG9-02-001

Table 3. Selected Forest Practices Adaptive Management Program Research and Monitoring Products

Product type	Product
Report	An overview of the DFC model and an analysis of Westside Type F riparian prescriptions and projected stand basal area per acre. 2007. McConnell, S.P. CMER 07-701
Report	An overview of the DFC model and an analysis of Westside type F riparian prescriptions and projected stand basal area per acre. 2010. McConnell, S.P. CMER 10-1002
Report	Analysis of factors affecting stream temperature to assist the development of hardwood conversion guidelines for small forest land owners. 2007. Nicoleta, C. and J. Janisch.
Report	Analysis of movement patterns of stream-dwelling salmonids in response to three survey methods. 2003. Peterson, J.T., et al. CMER 01-104
Report	CMER/RSAG temperature workshop - 2001 summary report. 2002. EDAW, Inc. and Mason, Bruce and Girard, Inc. CMER 02-213
Report	Comparison of GIS-based models of shallow land sliding for application to watershed management. 1999. Shaw, S.C. and L.M. Vaugeois. TFW-PR10-99-001
Report	Comparison of three methods for surveying amphibians in forested seep habitats in Washington. 2007. O'Donnell, R.P. et al. CMER 04-402
Report	Comparison of Two Techniques for surveying headwater stream amphibians. 2007. Hayes, M. et al. CMER 01-101
Report	Cooperative monitoring, evaluation, and research committee (CMER) review of science. 2009. Stillwater Sciences
Report	Data collection for development of Eastern Washington water typing model. 2002. Terrapin Environmental. CMER 01-178
Report	Development of bull trout sampling efficiency models. 2004. Thurow, R.F. et al. CMER 01-105
Report	Dispersion of coastal tail frog (*Ascaphus truei*): a hypothesis relating occurrence of frogs in non-fish-bearing headwater basins to their seasonal movements. 2006. Hayes, M.P. et al. CMER 05-500
Report	Eastern Washington last fish variability characterization resurvey final report. 2003. Cole, M.B. and J.L. Lemke. CMER 02-211
Report	Eastern Washington Type F riparian assessment project, phase 1. 2008. Mason, Bruce and Girard. CMER (no number)
Report	Estimation of multi-season evapotranspiration in relation to vegetation cover for regions with rainy-winter/dry-summer climate. 2003. Sias, J. TFW-UPSAG-01-001
Report	Evaluation of sampling methods for amphibians in headwater basins of non-fish bearing streams: a preliminary analysis - year 2001 annual report. 2002. Hayes, M.P. TFW-LWAG8-02-001
Report	Evaluation of the effectiveness of the current TFW shade methodology for measuring attenuation of solar radiation to the stream - interim report. 2008. Bonoff, M. et al.
Report	Evaluation of the effectiveness of the current TFW shade methodology for measuring attenuation of solar radiation to the stream - draft final report. 2010. Bonoff, M. et al.

Table 3. Selected Forest Practices Adaptive Management Program Research and Monitoring Products

Product type	Product
Report	Evaluation of Western gray squirrel nesting activity on forest practice sites subsequent to harvest in Klickitat County, Washington. 2001. Haegen, M.V. et al. TFW-LWAG4-00-001
Report	Extensive riparian status and trends monitoring program-steam temperature, phase 1: Eastside Type F/S monitoring project. 2010. Ehinger, W. and J. Janisch. CMER 10-1001
Report	Forested wetland regeneration pilot study summary report. 2004. Washington Dept. of Ecology and WetSAG. CMER 03-303
Report	Headwater fishes and their uppermost habitats: a review as background for stream typing. 2000. Trotter, P.C. TFW-ISAG-00-001
Report	Integrated headwater stream riparian management study and recovery of amphibian and invertebrate communities in recently logged coastal range headwater streams. 2003. Jackson, C.R. et al. TFW-LWAG9-01-001
Report	Landscape use and ranging patterns of hairy woodpeckers in the managed forests of Western Washington, preliminary report of field results. 2000. Ripper, D. et al. TFW-LWAG3-00-001
Report	Mass wasting prescription-scale effectiveness monitoring project (post-mortem) quality assurance /quality control (QA/QC) report. 2009. Miskovic, T. and J. Powell
Report	The Mass Wasting Effectiveness Monitoring Project: A Post-Mortem examination of the landslide response to the December 2007 storm in Southwestern Washington - draft final report. 2011. Dieu, J. et al.
Report	Models to predict suitable habitat for juvenile bull trout in Washington state - final report. 2001. Dunham, J.B. and G.L. Chandler. CMER 01-103
Report	Monitoring design for the forestry module of the governor's salmon recovery plan. 2002. Benkert, K. et al. CMER report (no number)
Report	Pacific Northwest forested wetland literature survey synthesis paper. 2005. Cooke Scientific Services, Inc. CMER 04-406
Report	Phase one: intermittent streams (Pd-Pc) available from previous study. 2008. Washington Department of Fish and Wildlife.
Report	Predictive habitat models for the occurrence and abundance of the Olympic tailed frog, Ascaphus truei Stejneger 1899 and the Rocky Mountain tailed frog, Ascaphus montanus (Mittlemand and Myers) 1949: a pilot meta-analysis. 2001. Sutherland, G.D., et al. TFW-LWAG7-01-001
Report	Random selection of predicted end of fish validation points. 2005. EarthRes.I
Report	Review of the available literature related to wood loading dynamics in and around streams in Eastern Washington forests. 2004. Herrera Environmental Consultants Inc. CMER 03-308
Report	Status, distribution, and ecology of the Olympic tailed frog, *Ascaphus truei*, Stejneger 1899 and the Rocky Mountain tailed frog, *Ascaphus montanus*, (Mittleman and Myers) 1949: a literature review. 2001. Wahbe, T.R. et al. CMER (no number)
Report	Suitability of aerial photography for riparian buffer monitoring. 2007. Grotenfendt, R.A. CMER 06-604

Table 3. Selected Forest Practices Adaptive Management Program Research and Monitoring Products

Product type	Product
Report	Survey methods for stream-associated amphibians in Washington: results of a workshop. 2000. Irwin, L.L. TFW (no number)
Report	The development and assessment of the preliminary model for identifying fish habitat in Western Washington. 2003. Conrad, R.H. et al. CMER 03-313
Report	The hydrologic impacts of roads at varying spatial and temporal scales: a review of published literature as of April 2004. 2004. Coe, D. CMER 04-410
Report	Type N experimental buffer treatment study: baseline measures of genetic diversity and gene flow of three stream-associated amphibians. 2011. Spear, S. et al. CMER 06-605
Report	Type N feasibility study. 2008. McIntyre, A.P. et al.
Report	Type N stream demarcation study, phase 1: pilot results. 2005. Palmquist, R. CMER (no number)
Report	Validation of the Western Washington riparian desired future condition performance targets in the Washington state forest practice rules with data from mature, unmanaged, conifer-dominated riparian stands. 2005. Schuett-Hames, D. et al. CMER 05-507
Report	Washington road sub-basin scale effectiveness monitoring first sampling event (2006-2008) report. 2010. Dube', A.S. et al. CMER 08-801
Report	Washington road sub-basin scale effectiveness monitoring, phase 1: 2006 field sampling report. 2006. Watershed Professionals Network
Report	Water temperature evaluation of hardwood conversion treatment sites data collection report. 2010. Hunter, M.A. CMER 05-513
Report	Water temperature evaluation of hardwood conversion treatment sites. 2007. Hunter, M.
Report	Water typing model field performance assessment approach and procedures. 2004. Terrapin Environmental. CMER 02-212
Report	Water typing model field performance assessment pilot study. 2005. Terrapin Environmental. CMER 03-312
Report	Westside RMZs and the DFC model: documentation of their conceptual and methodological development. 2001. Fairweather, S.E. TFW-RSAG1-01-001
Scoping paper	DNR GIS wetlands data layer project scoping - phase 1. 2006.
Study plan	Development of protocol for monitoring riparian vegetation and trends using remote sensing pilot study plan. 2009. Grotefendt Photogrammetric Services, Inc.
Study plan	Eastside type F riparian assessment project phase 1 study plan. 2006. Mason, Bruce and Girard.
Study plan	Eastside type N characterization project forest hydrology study design. 2009. Miller, D.
Study plan	Mass wasting prescription-scale effectiveness monitoring project study design (post-mortem). 2008. Dieu, J. et al.

Table 3. Selected Forest Practices Adaptive Management Program Research and Monitoring Products

Product type	Product
Study plan	Status and trend monitoring for fish passage in Washington fish passage in Washington forestlands: methodology review and preferred study design. 2005. Price, D.M. et al.
Study plan	Status and trend monitoring for fish passage in Washington forestlands: methodology review and preferred study design. 2005. Price, D.M. et al.
Study plan	Study plan for the type N experimental buffer treatment study: addressing buffer effectiveness on stream-associated amphibians, riparian inputs and water quality, and exports to and fish in downstream (type F) waters in basaltic lithologies of the coastal areas and the South Cascades of Washington state. 2005. Hayes, M.P. et al.
Study proposal	Literature review and scoping for a meta-analysis of the tailed frog (*Ascaphus truei*) - a proposal. 2000. Sutherland, G.

Note: Products partially or wholly paid for by the federal Pacific Coastal Salmon Recovery Fund through the Washington State Salmon Recovery Board, Recreation and Conservation Office

APPENDIX A

SCHEDULE L-1

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 the Forest Practices Board's adaptive management rather than in the department's regulatory process.

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 the Forest Practices Board's rules?*

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

2. *Will the rules produce forest conditions and processes that achieve resource objectives as measured by the performance targets, while taking into account the natural spatial and temporal variability inherent in forest ecosystems?*

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

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 Forest Practices Board believes will be met by the rules. 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.	

<u>LWD/Organic Inputs</u>

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'.	

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

Measures	Performance targets			Time-Frame
	• 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.)	

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.

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

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) 0.15-0.25 — West of Crest 0.15-0.25 — East of Crest 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) 6-10 T/yr — West of Crest 2-6 T/yr — East of Crest 1-3 T/yr	
Streambank/ equipment limitation zone disturbance (caused by forest practices)	• Type S&F: no streambank disturbance outside road crossings. • Type N: ≤10% of the equipment limitation zone.	
Fines in Gravel	Less than 12% embedded fines (<0.85 mm).	

<u>Hydrology</u>

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.	

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.	

[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.

WASHINGTON STATE DEPARTMENT OF
Natural Resources

PETER GOLDMARK
Washington State Commissioner of Public Lands

MEMORANDUM

October 13, 2011

TO: Forest Practices Board

FROM: Donelle Mahan, Policy Advisor D.M.
Forest Practices Policy and Services Section

SUBJECT: Forest Practices Board Manual Update

The Department of Natural Resources (DNR) convened a stakeholder group to discuss all potential edits required to update all sections of the board manual. The Forest Practices Board work plan shows the manual sections that will be focused on in 2012.

There were other manuals that the stakeholder group determined to be very important to edit but need other processes to be completed before DNR can convene the stakeholder groups.

- Board Manual Section 2, *Channel Migration Zones and Bankfull Channel Features;* Section 13, *Guidelines for Determining Fish Use for the Purpose of Typing Waters* and Section 23, *Guidelines for Field Protocol to Locate Mapped Division Between Stream Types and Perennial Stream Identification* will be worked on after the Adaptive Management Program's Forests and Fish Policy Committee completes all tasks identified in their water typing strategy.
- Board Manual Section 4, *Guidelines for Clearing Slash and Debris from Type Np and Ns Water*; Section 8, *Guidelines for Wetland Delineation* and Section 19, *Guidelines for Hardwood Conversion* will be initiated after CMER completes research that will inform these manuals.

Additional board manuals are on the list to be started and will be commenced when stakeholder schedules allow: Section 12, *Guidance for Application of Forest Chemicals*; Section 14, *Survey Protocol for Marbled Murrelets*; Section 15, *Guidelines for Estimating the Number of Marbled Murrelet Nesting Platforms*; Section 22, *Guidelines for Adaptive Management Program*; Section 24, *Guidelines for the Interim Modification of Bull Trout Habitat Overlay*; and Section 26, *Guidelines for Large Woody Debris Placement Strategies*.

Please feel free to call me with questions at (360) 902-1396.

DM/

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October 14, 2011

MEMORANDUM

TO: Forest Practices Board

FROM: Walt Obermeyer, Compliance Monitoring Program Administrator

SUBJECT: Status of Compliance Monitoring

2011 Field Sampling

The 2011 Standard field sampling is on schedule at this point having improved field conditions and participant availability. The field teams have completed 87 of 100 standard reviews and completion is anticipated in November.

The water typing and Type A wetland emphasis sample is being implemented as a part of the response to the 2008-09 compliance monitoring report. This is to provide more rapid feedback than the standard sample regarding the accuracy of water types reported on approved FPAs. Fifty FPAs have been selected from those approved during the period May through September. Emphasis sampling began in September and has accelerated through October. Completion is expected in mid-December

Program Development

Compliance Monitoring Program has focused efforts on compilation and analysis of sample data in preparation for preparing the 2010-11 report. Draft results are expected for stakeholder discussion in December. Additionally staff has provided analysis and planning to address the riparian non-compliance Clean Water Assurance milestone.

WO/

WASHINGTON STATE DEPARTMENT OF
Natural Resources

PETER GOLDMARK
Washington State Commissioner of Public Lands

MEMORANDUM

October 17, 2011

TO: Forest Practices Board

FROM: Marc Engel, Assistant Division Manager, Policy and Services

SUBJECT: Rule Making Activity

Following is an update on rule making activity.

Notice of Forest Practices to Affected Indian Tribes – The CR-102 Proposed Rule Making was filed on September 7, 2011. Hearings are scheduled for January 3 in Olympia and January 5 in Ellensburg. The public comment period ends January 6, 2012.

Forestry Riparian Easement Program – Staff will present a rule proposal that implements ESHB 1509 and request your approval to distribute the language for a 30-day review by the counties, Washington Department of Fish and Wildlife, and tribes.

Critical Habitat – Staff will request your approval to initiate rule making through the filing of a CR – 102 at your November meeting. Upon initiation, hearings will be conducted jointly with the Notice of Forest Practices to Affected Indian Tribes rule making. The public comment period will end January 6, 2012.

If you have any questions feel free to call me at 360.902.1390.

paa/
Attachment

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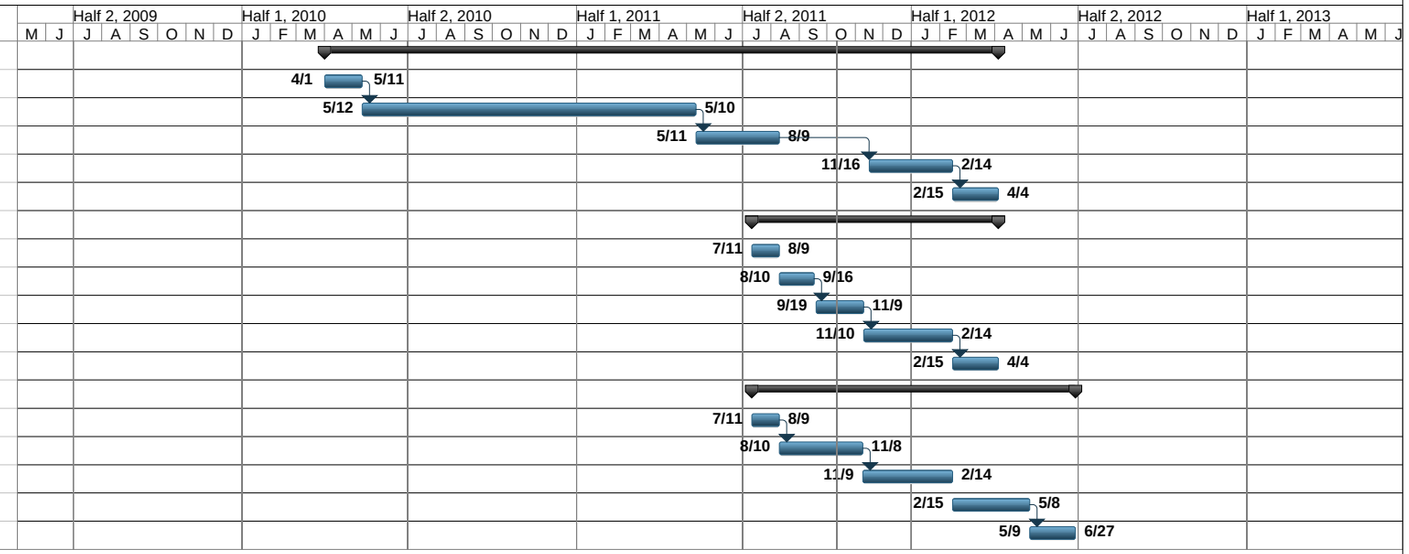
FOREST PRACTICES BOARD
2011 Rule Making Schedule

ID	Task Name	Start	Finish
1	**Notice of FP to Affected Indian Tribes**		
2	CR101	4/1	5/11
3	30 day notice	5/12	5/10
4	CR102 (CBA, SBEIS, SEPA) - WSR 11-17/September 7, 2011	5/11	8/9
5	CR103 - WSR 11-23/December 7, 2011	11/16	2/14
6	Estimated effective date	2/15	4/4
7	**Critical Habitat**		
8	30 day notice	7/11	8/9
9	CR 101	8/10	9/16
10	CR102 (CBA, SBEIS, SEPA) - WSR 11-23/December 7, 2011	9/19	11/9
11	CR103 - WSR 12-??/February 2012	11/10	2/14
12	Estimated effective date	2/15	4/4
13	**Forestry Riparian Easement Program**		
14	CR 101	7/11	8/9
15	30-day	8/10	11/8
16	CR102 (CBA, SBEIS, SEPA) - WSR 12-05/ March 7, 2012	11/9	2/14
17	CR103 - WSR 12-11/June 6, 2012	2/15	5/8
18	Estimated effective date	5/9	6/27



WASHINGTON STATE DEPARTMENT OF
Natural Resources

PETER GOLDMARK
Commissioner of Public Lands

MEMORANDUM

October 10, 2011

TO: Forest Practices Board

FROM: Tami Miketa, Forest Practices SFLO Manager TM

SUBJECT: Small Forest Landowner Office and Advisory Committee

Forestry Riparian Easement Program (FREP)
The Forestry Riparian Easement Program purchases conservation easements to compensate participating small landowners for un-harvestable timber on forested lands primarily along rivers or streams. This year's legislative session resulted in passage of ESHB 1509 FREP reform and capital appropriation funding of $1 million for the 2011-13 biennium. The FREP bill will require forest practices rulemaking to make a few minor changes. One change will allow only for-profit organizations to be eligible for the program. Other changes affect how DNR will process applications, change how the funding is used, as well as perform compliance after an easement is purchased. FREP bill also directs the Chair of the Board to form a group of stakeholders to investigate and recommend potential new long-term funding sources for FREP and report to the legislature by May 31, 2012.

Currently, DNR is conducting extensive field work to mark the boundaries of small forest landowner's riparian easements to prepare them for timber cruising. It is anticipated that 50 riparian easements will be identified and cruised this biennium.

DNR is continuing to receive new applications for FREP. There are currently 82 landowners that have applied for a FRE with a total of 88 applications on file. Once the rulemaking is complete, acquisition will occur for as many eligible applications as money is available. As the FRE program has yet to determine compensation values for individual riparian easements, it is anticipated that the program will provide compensation on approximately 8 Forestry Riparian Easements in 2012.

Rivers and Habitat Open Space Program (R&HOSP)
This conservation easement program is available to both small and large landowners. This year's legislative session resulted in no capital appropriation for the upcoming biennium. However, DNR will continue to maintain a list of names of the landowners expressing an interest in applying for this program in anticipation of a return of funding.

Long Term Applications (LTA's)
A small forest landowner has the option of submitting a long-term application that is valid for up to 15 years. A long-term forest practices application is submitted and reviewed in two steps. There are a total of 77 approved long term applications; this is an increase of 7 approved applications from 08/09/2011.

LTA Decision	LTA Phase 1	LTA Phase 2	TOTAL
Approved	0	77	**77**
Closed	3	3	**6**
Disapproved	1	1	**2**
Rejected	8	0	**8**
Reviewed	2	7	**9**
Validated	13	0	**13**
TOTAL	**27**	**88**	**115**

Family Forest Fish Passage Program (FFFPP)
The Family Forest Fish Passage Program is a cost-share program that helps small forest landowners correct fish passage barriers by providing 75-100 percent of the cost of the correction. To date, 232 barriers have been corrected, reconnecting 485 miles of habitat statewide. The FFFPP was allotted $2 million for the FY 2011-2012 biennium. It is anticipated that For the 12 projects will be funded for the 2012 construction season.

DNR submitted grant proposals for 9 FFFPP projects to U.S. Fish and Wildlife Service (USFWS). The USFWS has funding available through the following programs in which DNR submitted proposals:

Partners for Fish and Wildlife Program
Puget Sound Coastal Program
Fisheries and Fish Passage Program
National Fish Passage Program
Western Native Trout Initiative

In total DNR submitted grant proposals through these 5 programs for $330,000.

The Natural Resources Conservation Service (NRCS) grant funds have $125,000 left to complete 3 FFFPP projects this year.

In total, FFFPP projects will be funded at a cost of approximately $1.2 million dollars, of which $455,000 could potentially be paid through grant dollars.

Small Forest Landowner Outreach

The office in partnership with WSU extension is now producing a quarterly electronic newsletter called *Forest Stewardship Notes* for family forest owners statewide. Landowners can subscribe at either the DNR SFLO or WSU Forestry Extension websites.

Forest Stewardship Program

The Forest Stewardship Program provides on- site forest management technical assistance and in cooperation with WSU extension teaches forestry classes, and hosts family forest owner field days for small forest landowners. A Forest Stewardship Program Wildlife Biologist supports educational programs and provides landowner advisory visits statewide. One Olympia-based stewardship forester serves western WA and seven landowner assistance foresters in Eastern WA.

- Forest Owners Field Days

  Approximately 700 family forest landowners attended three (3) Regional Forest Owners Field Day education events held this summer: Western WA (Jefferson County); Eastern WA (Klickitat County); and ID-WA-MT Interstate Field Day (Shoshone Co, ID). A planning meeting will be held in January to establish tentative dates and locations for 2012 Field Days. Approximately 9,000 landowners have now attended these events at 30 different venues.
- Forest Stewardship Coached Planning Short Courses

  WSU Extension and DNR continue to co-sponsor these 8-week short courses which help participants develop a Forest Stewardship Plan for their property. Fall courses are currently underway in several locations.
- Inter-Agency MOU Regarding Forestry Assistance

  An inter-agency MOU regarding forestry assistance is in its final stages. Signatories will be DNR, WSU Extension, USDA Forest Service, USDA-NRCS, Washington Conservation Commission and Association of Conservation Districts. The MOU will replace the current document which dates back to 1993.
- Integrated Forest Management Plan Guidelines

  DNR is cooperating with USDA-NRCS, the Washington Tree Farm Program, and the WA Dept. of Revenue to develop forest management plan guidelines that will enable landowners to simultaneously meet the "written management plan" requirements of multiple programs administered by several agencies and organizations. This effort complements a similar effort at the national level.
- Ties To The Land Workshops

  WSU Extension, cooperating with the Family Forest Foundation, will soon be announcing "Ties to the Land" Workshops across the state. The workshops are intended to help families plan for intergeneration succession of the land. The workshops are part of a four-state project which is partially funded by a competitive grant from the US Forest Service.
- E WA Forest Landowner Cost-Share Program

  Cost-share funds continue to be available to help Eastern WA landowners reduce wildfire and bark beetle hazards. The program is supported primarily by competitive grant funds from the US Forest Service.

Small Forest Landowner Advisory Committee

The committee consists of seven members, including four members from the SFLO community appointed by the commissioner of public lands from a list of candidates submitted by the Washington Farm Forestry Association, and a representative from the Departments of Ecology and Fish & Wildlife, and a tribal representative. The advisory committee functions as a sub-group of the larger Forest and Fish Policy group. The advisory committee met on October 5 to further discuss ways to encourage greater use of long-term forest practices applications, the status of the small forest landowner's low impact template, review and discuss the draft FREP Reform rule language, and discuss educational opportunities for small forest landowners.

Please feel free to contact me at (360) 902-1415 or tamara.miketa@dnr.wa.gov if you have further questions.

TM/

October 20, 2011

MEMORANDUM

TO: Forest Practices Board

FROM: Timber/Fish/Wildlife Cultural Resources Roundtable Co-Chairs

Jeffrey Thomas, Puyallup Tribe of Indians

Peter Heide, Washington Forest Protection Association

SUBJECT: Quarterly Report of Timber/Fish/Wildlife Cultural Resources Roundtable

The Timber/Fish/Wildlife (TFW) Cultural Resources Roundtable (Roundtable) is pleased to submit the November 2010 quarterly report to the Forest Practices Board.

Again this quarter, the report is in the form of the Roundtable's Action Items list. This list is reviewed every month by the Roundtable and updated to reflect current activities. Changes from the previous August report are in red or italic print.

We look forward to your November meeting to answer any questions you may have. In the meantime, please do not hesitate to contact us:

jeffrey.thomas@puyalluptribe.com and (253) 405-7478/cell

pheide@wfpa.org and (360) 352-1500

Enc.

TFW Cultural Resources Roundtable					*10/18/2011*	*Changes from June in Red or Italics*
Priority	**Action Items**		**Lead**	**Status**	**Next Action**	**Relationship to the CRPMP**
High	1	Seek funding and staff support for the Roundtable's work		On hold due to state budget situation		
High	2	Prepare the cultural resource guidance documents and tools as agreed to in the CRPMP				Educational Program and Commitments
		Scope the guidance/manual project to develop a detailed description and outline of the proposed guidance or manual.		Complete		
		Work products:1) Guidance for TFW stakeholders, 2) Guidance specific to forest landowners, and 3) Guidance specific to Tribes.	*Co-Chairs and Stephanie*	In progress	*Review completed drafts, prepare drafts on remaining sections*	
High	3	Improve knowledge and use of the GLO, historic and current USGS quad maps and other publically available information to identify historic features recognized during 19th century land surveys.	Roundtable	In progress	Take up this issue as an education topic for agencies and landowners.	*Making available tools to improve identification and recognition of cultural resources in the field*
		Include information about historic sites in the instructions for question 7 of the forest practices application.				
High	*4*	*As requested by the FPB, review and comment on a suggestion to amend 222-20-120 Sub-Section (3)(c))(i)*	*Peter*	*Draft proposal out for review*	*Consensus among the caucuses to change the recommendation was not reached. No further action is planned*	*Not related to CRPMP - Roundtable's responsibility under the FPB Charter*
High	*5*	*In time for the 2012 report to the FPB, develop a method for formally assessing the performance CRPMP in accomplishing its purposes as state on page 1 of the plan.*		*Initiated*	*To be taken up at the November meeting*	*Required by the CRPMP. Formerly identified as a biannual review*
Medium	6	Individual caucuses will support funding in the biennium 12-13 budget for a full time position at DAHP for the maintenance of CR data in support of the forest practices risk assessment tool.	Individual Caucuses	Supporting funding for the current 1/2 time position	Retry for full time position during 14-15 biennial budget cycle	DNR Forest Practices Program support

TFW Cultural Resources Roundtable					*10/18/2011*	*Changes from June in Red or Italics*
Priority	**Action Items**		**Lead**	**Status**	**Next Action**	**Relationship to the CRPMP**
	7	Review the state's responsibility for National Historic Preservation Act (NHPA compliance under the Forest Practices HCP)		On Hold	Waiting for DNR to respond to the Yakama Nation's request for a summary of FPHCP compliance under NHPA	
Medium	8	Seek funding for a CR Module pilot project		On hold	Waiting for the next opportunity	Board Manual Section 11 Appendix J
Medium	9	Develop a Logo for the Cultural Resources Roundtable	*Jeffrey*	In progress	Design a contest among tribal artists	Publicity
Low	10	Other CRPMP amendments to consider and further discuss:	Sherri	On hold	Wait for the charter etc. to be completed	CRPMP Support
		Regarding MOUs, consider adding a statement specifying when DNR has a role in implementing MOUs and if there is a role, specifying its nature.				
		Under “Education Program and Commitments,” modify #2 to recognize that agreements are often executed at the field level without the need for higher level contacts				
		Reference a role for the CRPMP in Forest Practices ID team deliberations and preparation of SEPA documents for Class IV Special FPAs				
Low	*11*	Prepare a report to the Forest Practices Board on the impact to cultural resource protection and management when forest land is converted to another use and regulatory responsibility passes to local government (county or city)	Jeff and Pete	On hold	Wait for other higher priority items to be addressed	

TFW Cultural Resources Roundtable					10/18/2011	Changes from June in Red or Italics
Priority		**Action Items**	**Lead**	**Status**	**Next Action**	**Relationship to the CRPMP**
On-Going Tasks						
	1	The Roundtable will: (a) meet monthly; (b) Report quarterly to the FP Board; (c) Review the CRPMP in June each year; (d) Report to the FP Board on the progress of the CRPMP each August.	Co-Chairs	FPB meeting *November 8* , Report due *October 18* .		Annual and quarterly obligation
	2	Give a CRPMP presentation at Regional TFW meetings as new CRPMP support material is released.	All	Next opportunity for TFW presentations after the 20-120 rule and supporting manual is passed by the FPB in Nov 2011		Communication
	3	Emphasize accomplishments when communicating progress on implementing the CRPMP.	All	Post examples of successes and cooperative opportunities on the web site.		Communication
	4	Contact individual FP Board members to “champion” CR Roundtable issues	All	Encourage the establishment of a CR rep on the FPB		Advance the Roundtable's work
Completed Items	1	Cultural Resource Protection and Management Plan (CRPMP)		Completed 2003		
	2	Forest Practices Board adopted the rules recommended in the CRPMP		Completed 2005		
	3	Statutory exemption for sensitive cultural resource information gathered during a watershed analysis CR module or stand-alone CR module		Completed 2005		
	4	Updates to the CRPMP		Completed 2008		

TFW Cultural Resources Roundtable					10/18/2011	Changes from June in Red or Italics
Priority		**Action Items**	**Lead**	**Status**	**Next Action**	**Relationship to the CRPMP**
	5	Recommendation to DNR staff and the Board for changes to the historic site definitions in Class III and Class IV Special definition to correct long standing interpretation issues		Completed 2008		
	6	A recommendation to include a cultural resource question on the Phase II 15-year small landowner permit application.		Completed Spring 2009		
	7	Draft a motion for the Forest Practices Board to request that the staff create a CR page on the Department's forest practices website		Complete (Board action was unnecessary)		
	8	With the support of the Commissioners Office, a Charter for the Timber/Fish/Wildlife Cultural Resources Roundtable (formerly known as TFW Cultural Resources Committee) delivered to the Forest Practices Board		Completed 2011		
	9	Consensus recommendation on changes to WAC 222-20-120 delivered to the Forest Practices Board		Completed 2011		

State of Washington
Department of Fish and Wildlife

Mailing Address: 600 Capitol Way N, Olympia WA 98501-1091, (360) 902-2200, TDD (360) 902-2207
Main Office Location: Natural Resources Building, 1111 Washington Street SE, Olympia WA

October 19, 2011

MEMORANDUM

To: **Forest Practices Board**

From: **David Whipple, Forest Policy Coordinator**

SUBJECT: **UPLAND WILDLIFE UPDATE**

At the August 9, 2011 Forest Practices Board meeting, there was discussion about the marbled murrelet population relative to the Board's Wildlife Work Plan. This memo highlights some recent information and current work relative to the murrelet population.

The 1997 federal Marbled Murrelet Recovery Plan included a recovery strategy of developing and conducting standardized at-sea surveys to estimate marbled murrelet population trends across the range of the species. The recovery plan contains two Conservation Zones in Washington: Zone 1 includes Hood Canal, Puget Sound, the San Juan Islands and the Strait of Juan de Fuca, and Zone 2 includes the outer coast of Washington. Based on the at-sea murrelet surveys of Washington's Zones 1 and 2, there was a 7.31% annual rate of decline in murrelet density from 2001 to 2010.

The last U.S. Fish and Wildlife Service (USFWS) murrelet status report was released in 2009, and so the next regularly scheduled report is not expected until 2014. However, in an effort to better understand possible reasons for the decline, the USFWS is convening an expert panel on October 20 of this year to evaluate the causes of the population decline and the relative importance of the threats and causes of the decline across the range of the species (WA, OR and CA). The panel will consist of individuals with species, habitat, population ecology, and extinction expertise. In addition, the USFWS is sponsoring a stakeholder workshop to occur after the expert panel concludes, which is intended to use the information from the expert panel to develop a list of prioritized actions that could be taken by interested parties to help stem the population decline and further the conservation of the species. The outcomes of the expert panel and stakeholder workshop are expected to be released in early 2012.

The Department of Fish and Wildlife would like to organize a briefing for the Board at a future meeting, possibly as early as February 2012. This timeframe should allow presentation of information from the expert panel and stakeholder workshop, and would provide a better foundation for a board discussion of marbled murrelets and the Wildlife Work Plan.