



**DEPARTMENT OF
NATURAL RESOURCES**

**OFFICE OF THE COMMISSIONER
OF PUBLIC LANDS**

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December 24, 2018

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Brad Thompson, Acting State Supervisor
Washington Fish and Wildlife Office
U.S. Fish & Wildlife Service
510 Desmond Drive SE, Suite 102
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Subject: 2018 Forest Practices HCP Annual Report, Incidental Take Permits 1573
(NOAA) and TE 121202-0 (USFWS)

Dear Assistant Regional Administrator Quan and Acting State Supervisor Thompson:

Enclosed, please find the 2018 Annual Report for the *Forest Practices Habitat Conservation Plan* (Forest Practices HCP). The annual report covers the period from July 2017 through June 2018. This report fulfills the State's obligation to "submit periodic reports to the federal Services describing actions taken by the State to implement the Forest Practices HCP" per Section 9.1 of the Implementing Agreement.

A few highlights from the report include:

Forest Practices Board (Board)

- The focus of the Board remained on the completion of the permanent water typing system rule and accompanying technical guidance. The Board approved a fish habitat assessment method (FHAM) in May 2017 as the field protocol for delineating the upper extent of fish habitat within a stream segment. FHAM uses potential habitat breaks (PHBs) to indicate the end of fish habitat. The Board adjusted its original rulemaking timeline because of the complexity of the economic and environmental analyses and additional time needed to conduct a pilot study to inform a PHB validation study. The anticipated date for final adoption of a permanent rule is August 2019.

Adaptive Management Program (AMP)

- An expert scientific panel provided PHB recommendations to the Board at the February 2018 meeting.
- The Compliance Monitoring Evaluation and Research Committee approved two study plans and six final reports to go through Independent Scientific Peer Review.
- The AMP completed three research projects and two phases of active projects.

Road Maintenance and Abandonment Plans

- During the reporting period, 522 miles of forest road were improved. Since 2001, a total of 28,216 miles of forest road have been improved and 6,954 fish passage barriers—approximately 84 percent of those identified—eliminated, opening up 4,170 miles of fish habitat.

Compliance Monitoring

- The 2016-2017 biennial report was completed.
- The Compliance Monitoring Program collected two new samples: a pilot unstable slopes sample and an Eastern Washington Inner Zone Harvest sample.
- All riparian compliance percentages were over 90 percent except for Np (non-fish bearing perennial) activities, which were at 87 percent compliance.
- Roads compliance rate was 95 percent and haul routes compliance rate was 92 percent. Water typing accuracy remained constant at 91 percent.

There are many other accomplishments described in the 2018 Forest Practices HCP Annual Report. The report can be found on the Washington State Department of Natural Resources website at <http://www.dnr.wa.gov/programs-and-services/forest-practices/forest-practices-habitat-conservation-plan>. If you have any questions, please feel free to contact Charlene Rodgers, FPHCP Administrator, at 360-902-1409 or charlene.rodgers@dnr.wa.gov.

The State looks forward to a strong, continuing partnership with NOAA National Marine Fisheries Service and the U.S. Fish and Wildlife Service to conserve federally listed aquatic species and their habitats on Washington's private and state-owned forestlands.

I certify that, to the best of my knowledge, after appropriate inquiries, the information submitted is true, accurate and complete.

Sincerely,



for Hilary S. Franz
Commissioner of Public Lands

c: The Honorable Jay Inslee, Washington State Governor
Washington State Forest Practices Board
Kelly Susewind, Director, Washington State Department of Fish and Wildlife
Maia Bellon, Director, Washington State Department of Ecology

Forest Practices Habitat Conservation Plan

July 1, 2017- June 30, 2018

Annual Report

Washington State Department of Natural Resources

Forest Practices Program, Forest Practices Division

Charlene Rodgers



Acknowledgements

On behalf of Washington State, this report was prepared by the Washington State Department of Natural Resources, Hilary Franz, Commissioner of Public Lands.
2018

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Successful implementation of the Forest Practices Habitat Conservation Plan involves the efforts of all of our partners in resource protection.

Washington Department of Fish and Wildlife
Washington Department of Ecology
Governor's Salmon Recovery Office
Recreation and Conservation Office
Washington Forest Protection Association
Washington Farm Forestry Association
Conservation Caucus
Tribal Governments
Northwest Indian Fisheries Commission
Upper Columbia United Tribes
US Fish and Wildlife Service
National Marine Fisheries Service
US Environmental Protection Agency
Washington State Association of Counties

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1. Introduction to Forest Practices HCP 2018 Annual Report

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In 2005, Washington State submitted the [Forest Practices Habitat Conservation Plan](#) (Forest Practices HCP) with the goal of obtaining Incidental Take Permits (ITPs) from the United States Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS) (collectively, the Services). In 2006, the Services accepted Washington’s Forest Practices HCP and under the authority of the Endangered Species Act, the Services issued Incidental Take Permits to Washington State. The implementation of the Forest Practices HCP is a partnership between the Services and Washington State, which protects public resources including aquatic and riparian-dependent species. This multi-stakeholder effort addresses the habitat needs of all covered aquatic species, including certain fish species that are federally designated as ‘threatened’ or ‘endangered’. The Forest Practices HCP covers more than 9 million acres of nonfederal and non-tribal forestlands in Washington State.

As a part of the Forest Practices HCP Implementing Agreement (IA), the State submits to the Services an annual report describing implementation activities. This year’s annual report covers the period from July 1, 2017, through June 30, 2018.

2018 Report Highlights

Highlights of the Forest Practices HCP implementation from July 1, 2017, through June 30, 2018, include:

Forest Practices Board

During this reporting period, the focus of the Forest Practices Board (Board) remained on the completion of the permanent water typing system rule and accompanying technical guidance. The Board approved a fish habitat assessment method (FHAM) in May 2017 as the field protocol for delineating the upper extent of fish habitat within a stream segment. Part of the application of FHAM includes the identification of field measurable geomorphic features—called potential habitat breaks—which with reasonable certainty impede upstream fish movement indicating the end of fish habitat.

The Board adjusted its original rulemaking timeline because of the complexity of the economic and environmental analyses and additional time needed to conduct a pilot study to inform the potential habitat break (PHB) validation study. The anticipated date for final adoption of a permanent rule is August 2019. See Section 2.4 for background information and discussion on the work accomplished toward completion of the permanent water typing system.

Other Board work included:

- The Board adopted a rule providing for the acceptance of electronically submitted forest practices applications, signatures and payment.
- The Board amended the public disclosure fee schedule to align with the statutory changes made to the Public Records Act (chapter 42.56 RCW).
- Facilitator-lead discussions were initiated with the Timber, Fish and Wildlife (TFW) Policy Committee caucus principals for the efficiency improvement review of the Adaptive Management Program (AMP) processes.

Adaptive Management Program

- An expert scientific panel presented potential habitat breaks (PHB) recommendations to the Board at the February 2018 meeting. The Board directed DNR staff to include three different PHB alternatives in the development of rule language and the subsequent economic and environmental analyses.
- The AMP completed three research projects and two phases of active projects: (1) Literature Review and Synthesis Related to the Salvage of Fire Damaged Timber, (2) Literature Synthesis of the Effects of Forest Practices on Non-glacial Deep-Seated Landslides and Groundwater Recharge, (3) Van Dyke's Salamander Project, (4) Type N Experimental Buffer Treatment in Hard Rock Lithologies, and (5) Wetland Mapping Tool.
- The Compliance Monitoring Evaluation and Research Committee (CMER) approved two study plans and six final reports to go through Independent Scientific Peer Review (ISPR).

Forest Practices Operations

- Forest Practices Operations staff processed 4,657 Forest Practices Applications/Notifications (FPA/Ns) and 726 water type modification forms (WTMFs).
- Operations developed two guidance documents for forest practices staff: (1) an update of the Forest Practices Hydraulic Project (FPHP) checklist guidance; and, (2) an update of the dispute resolution guidance.
- Operations conducted a review of how well the established processes for reviewing FPAs associated with potentially unstable landforms were carried out by staff, and provided a summary report.
- Region and Division operations staff were involved in planning and conducting statewide training on water typing protocol surveys.

Small Forest Landowner Office

- There were 33 new eligible applications received under the Forest Riparian Easement Program (FREP), but no forestry riparian conservation easements were acquired during the reporting period because the legislature did not pass a state capital budget until 7 months into the biennium. Since the 2001 start of this conservation easement program, the State has purchased 367 easements. As of June 30, 2018, the backlog of unfunded, eligible easement applications was 157.

- The Family Forest Fish Passage Program (FFFPP) completed the removal of 17 fish passage barriers, which made 44 miles of upstream habitat assessable to fish. Since the beginning of the program in 2003, 401 barriers to fish passage have been removed, making accessible approximately 924 miles of fish habitat. As of June 30, 2018, there were 1086 eligible landowners on the waiting list for FFFPP.

20-acre Exempt Riparian Forestland

- Forest practices applications utilizing the small forest landowner 20-acre exempt rule (non-conversion FPAs) along fish-bearing waters comprised approximately 3.4 percent (140 out of 4,082 FPAs) of all approved applications submitted during the 2018 reporting period.
- Of the 846 watershed administrative units (WAUs) in the state, 222 have a possible reduction in the potential recruitment of large woody debris (LWD) resulting from the cumulative total of non-conversion FPAs utilizing the 20-acre exempt rule. Of these, all but six currently have the potential of less than one percent cumulative reduction in function as measured by the potential recruitment of LWD to streams. The six WAUs with more than one percent potential reduction all show less than three percent cumulative potential reduction of riparian function in the WAU and are, therefore, not yet near or past the threshold of 10 percent.
- No forest practices applications associated with 20-acre exempt parcels were received in the bull trout areas of concern.

Alternate Plans

- There were 186 (48 large forest landowner and 138 small forest landowner) alternate plans approved as part of an FPA during the reporting period. Two were small forest landowner long-term forest practices applications.

Rivers and Habitat Open Space Program (RHOSP)

- The number of conservation easements purchased under the RHOSP have not changed from last year's annual report because the Washington Legislature did not pass a State Capital budget until seven months into the biennium. RHOSP has established 1,121 acres of conservation easements on channel migration zones and 25 acres of conservation easements on critical habitats of state-listed threatened and endangered species since the inception of this conservation easement program in 2001.

Enforcement

- There were 13,517 active (non-expired) FPAs at the end of the reporting period. During this time, DNR issued 78 Notices to Comply and 41 Stop Work Orders. Of these enforcement actions, 108 were for violations of the forest practices rules.
- There were five civil penalties and five Notices of Intent to Disapprove (NOID) issued during this reporting period.

Compliance Monitoring (CMP)

- The 2016-2017 biennial report was completed. The Compliance Monitoring Program (CMP) collected two new samples: a pilot unstable slopes sample and an Eastern Washington Inner Zone Harvest sample.
- All riparian compliance percentages were over 90 percent except for Np (non-fish bearing perennial) activities, which were at 87 percent compliance.
- Roads compliance rate was 95 percent and haul routes compliance rate was 92 percent.
- Water typing accuracy remained constant at 91 percent
- The Independent Scientific Peer Review (ISPR) analysis of the FY 2014-15 Biennial Compliance Report was completed. For more information, please see the 2016-17 Biennial Compliance Report <https://www.dnr.wa.gov/programs-and-services/forest-practices/rule-implementation>. The review team:
 - determined the current statistical approach regarding the sampling procedure and construction of the ratio estimator for compliance was generally sound;
 - recommended a more thorough Appendix A containing the technical details of the sample selection process be included in the biennial report; and
 - recommended using a jackknifed form of the ratio estimator to be incorporated into the data analysis. This change was incorporated into the data analysis for the 2016-17 Biennial Compliance Report.

Training, Information, Education.

- The training program continued to focus on re-establishing a routine training cycle with a schedule providing needed classes, including, core classes offered regularly with a predictable schedule.
- Training included compliance monitoring – 20 people; Unstable Slopes – 38 people; Channel Migration Zone – 23 people; and, Washington Contract Logger Association – 160 people.
- The State invested in equipment needed for eLearning and began recording class training sessions for future use in webcasts, video lecture, and fully interactive online courses. Moving in the direction of eLearning will increase accessibility of classes to both internal and external customers

Road Maintenance and Abandonment Planning (RMAP) for Large Forest Landowners

- Fifty-five RMAPs have approved extensions to complete remaining RMAP work by October 31, 2021.
- In calendar year 2017, 384 miles of forest road were improved.
- During the reporting period, Washington Department of Fish and Wildlife (WDFW) biologists reviewed 993 FPHPs, which included 156 concurrence-required project reviews and 611 standard FPHPs and they participated in 226 pre-application reviews.
- Since 2001, 28,078 miles of forest roads were improved to meet forest practices standards and 7,230 fish passage barriers have been eliminated, opening up 4,180 miles of fish habitat.

Cultural Resources

- Throughout the reporting period, the high-level, facilitated discussions relative to the protection of tribal cultural resources continued among the State, tribes, and forest landowners. The discussions included a systematic review of the current forest practices application/notification (FPA/N) process and have resulted in an ongoing development of potential changes to FPA/N questions, the screening and review processes, and training for landowners. The discussions are ongoing.
- During this reporting period, 32 forest practices applications required a landowner/tribal meeting, and all had the meeting requirement fulfilled.

Information Technology

- In this reporting period, 4,657 FPA/Ns were received or renewed and entered into the Forest Practices Application Review System (FPARS). As of June 30, 2018, there were 1,546 reviewers receiving email notification of FPA/Ns.
- During this reporting period, 768 Informal Conference Notes (ICN), 14 Notices of Conversion to Non-forestry Use, 121 Notices to Comply (NTC) and 43 Stop Work Orders (SWO) were entered into the Forest Practices Enforcement Tracking System.
- Staff processed 726 Water Type Modification Forms (WTMFs) resulting in updates to approximately 1,035 stream miles. These updates included stream type upgrades to approximately 59 miles of stream and stream type downgrades to approximately 142 miles of stream, including new tributary streams. As of June 2018, the WTMFs backlog was 33. This number is slightly higher than last fiscal year (FY2017) when it was 29.
- The Forest Practices Online Project (fpOnline project) has completed the second discovery phase of the project. Where the first discovery phase documented the requirements from the work processes at a high level to support a search for potential technologic solutions, the second discovery phase resulted in production of a range of information system alternatives that informed DNR's procurement option evaluation and provided better cost estimates for requesting funding for implementation. As well, a set of 45 distinct opportunities for improvement were identified, some of which could be acted on opportunistically outside the proposed main system development project; 19 of these were implemented during the reporting period.

2. Forest Practices Board

[Appendix: Background on Forest Practices Board](#)

2.1 Forest Practices Board Rule Making Activity (July 1, 2017 – June 30, 2018)

Water Typing System

The Board continues to work on developing a permanent water typing system rule. The Board will consider draft rule language at their May 2019 meeting to initiate rule making. Rule adoption is expected in August 2019. See Section 2.4 for additional information.

Electronic Signature

The Board adopted rules in February 2018 to allow for electronic submission of Forest Practices Applications and Notifications (FPA/N), signatures, and payments when a system is available. This rule became effective April 9, 2018.

Public Record Request Fees

Legislation in 2017 (House Bill 1595) amended the Public Records Act by allowing agencies two options for collecting fees during a public records request. The Board chose to use the statutory default fee amounts described in RCW 42.56.120. This rule became effective April 9, 2018.

2.2 Forest Practices Board Manual Activity (July 1, 2017 – June 30, 2018)

No sections of the Board Manual were amended during this reporting period.

2.3 Anticipated Forest Practices Board Direction

Anticipated Rule Making Activity

Water Typing System

The focus of the Board remains on a permanent water typing system rule. The Board postponed adoption of a permanent rule until August 2019 to provide the time needed to complete a thorough environmental and economic analysis for rule making and to complete a Pilot study of the PHB validation study. The work needed to complete this rulemaking will continue through the next reporting period.

Adaptive Management Program Review

At their May 2017 meeting, the Board heard several TFW caucuses and the AMPA identify inefficiencies within the AMP and a presentation from the AMPA of suggested improvements to the AMP processes. As a result, the Board established a board subcommittee to evaluate the recommendations from the AMPA. To meet these objectives, the committee hired (through DNR) a neutral, independent facilitator to work with the caucuses through a series of meetings to discuss perspectives on the AMP in advance of meetings with TFW principals aimed at renewing commitment to TFW principles. The expected outcome of this work is a renewed spirit of

cooperation and commitment from the caucuses to make the AMP successful. Ultimately, this effort could lead to rule making.

Anticipated Board Manual Revision Activity

Board Manual Section 13, Guidelines for Determining Fish Use for the Purposes of Typing Waters

The Board will replace this section of the manual with the guidance in Board Manual Section 23 when approved. The approval will occur when the Board adopts a new permanent water typing system rule. The new fish habitat assessment method protocols focus on the delineation of fish habitat using specific stream characteristics, instead of solely relying on the detection of fish use through electrofishing surveys.

Board Manual Section 16, Guidelines for Evaluating Potentially Unstable Slopes and Landforms

The Board accepted the TFW Policy Committee recommendations to conduct an AMP review of concerns brought forward through an unstable slopes proposal initiation. The AMP review may further inform Board Manual Section 16 regarding identification of potentially unstable slopes. See AMP section under “Unstable Slopes Proposal Initiation” for more information.

Board Manual Section 23, Guidelines for Field Protocol to Locate Mapped Divisions between Stream Types and Perennial Stream Identification

Board Manual Section 23 will be a newly developed manual section, which will replace Section 13. The development of guidelines for locating the division between Type F (fish habitat) and Type N (non-fish habitat) waters are occurring concurrently with the drafting of permanent water typing system rule. The manual section will feature guidance to determine fish habitat through the application of a fish habitat assessment methodology and the incorporation of improved practices for conducting protocol electrofishing surveys.

Section 23 will also contain guidelines for locating the division between Type Np and Ns (non-fish seasonal) waters (locating the upper most point of perennial flow). The work to develop recommendations on a methodology to locate the uppermost point of perennial flow will occur after the guidance for delineating the breakpoint between Type F and N waters is complete and the TFW Policy Committee has negotiated a revised method for determining the uppermost point of perennial flow.

2.4 Permanent Water Typing System

In 2014, the TFW Policy Committee began work on developing recommendations for a permanent water typing system rule. TFW Policy Committee’s work involved an evaluation of all the components in the current rule as well as the process in Board Manual guidance for delineating the break between Type F and N waters (F/N). All parties agreed that the new process would delineate the Type F/N break based on specific geomorphic features, which serve as surrogates for delineating the end of fish habitat rather than by the current method of determining fish use (primarily through electrofishing).

The TFW Policy Committee developed a Type F matrix as the framework for evaluating the necessary elements for a permanent rule. This matrix guided the work for the TFW Policy Committee through 2015 and 2016. Several technical presentations and field trips occurred to inform the committee in the application of the current rule and the use of electrofishing surveys. The Board requested the TFW Policy Committee present their recommendations on the development of each element of the Type F matrix in November 2016.

The Board accepted several of the rule recommendations informing the new water typing system in November 2016. Based on TFW Policy Committee's consensus recommendation on conceptual rule language—retaining existing elements in WAC 222-16-030 and -031—the Board directed DNR staff to file a Proposal Statement of Inquiry (CR 101) in November 2016 with an understanding that formal rule making would not occur until final draft language and an economic and an environmental analysis was complete.

Policy presented and the Board approved additional elements for the water typing system rule at the Board's May 2017 meeting. The Board approved elements included:

- The majority opinion for the definition of off-channel habitat;
- Acceptance of previous concurred Type F/N break points established through water type modification forms as established final regulatory break points;
- The fish habitat assessment methodology for delineating fish habitat (FHAM); and
- Having the Adaptive Management Program Administrator convene an expert scientific panel to determine the appropriate metrics, based on the best available scientific information, for the potential habitat breaks (PHB) to be used to implement FHAM.

The FHAM is the central component for identifying the upper extent of fish habitat. The expert scientific panel presented a report outlining its PHB recommendations to the Board at the February 2018 meeting. At that time, several stakeholders petitioned the Board to consider not one set of PHBs, but an evaluation of three sets of alternative PHBs. The Board agreed and directed DNR to include three PHB alternatives in the development of rule language and the subsequent economic and environmental analyses.

Stakeholder meetings for the development of draft rule, Board Manual guidance, and guidance on the elements for analysis in the Cost Benefit Analysis began in early 2018 and will continue as needed, into mid-2019. The Board established the May 2019 meeting as the time it would review the draft water typing system rule package. If the Board approves the package, it would then direct initiation of formal rule making with the goal of permanent water typing system rule adoption in August 2019. DNR will request a delayed effective date for the rule package of early 2020 for training purposes prior to the rules becoming effective.

An important step for the new water typing system is to assure the rule identified PHBs represent the end of fish habitat. In May 2018, the Board approved a pilot study to determine the appropriate ways to measure PHBs and funded a full PHB validation study. The pilot phase of

the study is set to begin in July 2018 with the validation study beginning spring of 2019. The Board may elect to modify the permanent water typing system rule in the future, if the validation study shows that the adopted PHBs are not the appropriate geomorphic stream features to eliminate upstream fish movement.

3. Adaptive Management Program

[Appendix: Background on Adaptive Management Program](#)

AMP Efficiency and Effectiveness Improvement

The Board has prioritized working on efficiency and effectiveness improvements for the AMP. See Section 2.3 for more information.

3.1 CMER Work Plan and Activities

The 2017-2019 Biennium Compliance Monitoring Evaluation and Research (CMER) Work Plan, found at <http://www.dnr.wa.gov/about/boards-and-councils/forest-practices-board/cooperative-monitoring-evaluation-and-research>, (on the right side of the screen under “Files”) describes 100 projects, however the Adaptive Management Program (AMP) has 105 total projects. This discrepancy is due to new projects that were proposed after the Work Plan was approved. Approximately 44 projects have been completed and 23 projects are ongoing and 38 projects have yet to be initiated (i.e., will be developed in the future). The most recent updated CMER Work Plan was presented to the TFW Policy Committee in April 2018. For the ongoing projects in FY 2018, there are three in the Stream Typing Rule Group, seven in the Type N Riparian Prescriptions Rule Group, seven in the Type F Prescriptions Rule Group, one in the Unstable Slopes Rule Group, one in the Roads Rule Group, and four in the Wetlands Protection Rule Group.

From July 1, 2017, to June 30, 2018, three projects and two phases of active projects were completed and approved by CMER, and considered for action by the TFW Policy Committee. Of these projects, three were effectiveness and two were rule tool type projects. Three were in the Type N Riparian Prescriptions Rule Group, one was in the Unstable Slopes Rule Group, and one was in the Wetlands Protection Rule Group. The completed projects are described below.

- 1. Literature Review and Synthesis Related to the Salvage of Fire Damaged Timber:** This project was a focused literature review and synthesis that summarized the best available science on the potential effects of salvage logging in riparian areas following fires. A major finding from the review was a paucity of literature about the effects of salvage logging in riparian areas, which is likely due to most modern-day fires occurring on federal lands, where salvage logging and salvage-related research have been largely absent. As stated in the findings report prepared for the TFW Policy Committee: “The results of this literature review demonstrate that while there has been some increased understanding of soil compaction and erosion processes post-fire, and some increased understanding of the need for active reforestation where fire intensity was high, the existing literature is not sufficient to answer the key questions which were posed in the review.” The key questions were organized in “A” and “B” questions. “A” questions focus on the ecological effects of post-fire salvage logging and “B” questions focus on restoration issues. The key questions were:

Question A1: *Are there significant differences between harvest methods in burned areas that potentially pose a greater risk to aquatic resources?*

Question A2: *To what extent does application of logging slash on skid trails affect sediment delivery to streams?*

Question A3: *Is there a difference in sediment delivery between salvage logging on snow covered versus non-snow covered land?*

Question A4: *Does soil disturbance from logging in burned areas increase erosion and delivery of sediment to streams?*

Question A5: *Do different logging methods change the above impacts?*

Question A6: *What effects does hydrophobic soil have on erosion and sediment delivery?*

Question B1: *To what extent does leaving standing and dead trees within the RMZ contribute to riparian function?*

Question B2: *To what extent does down wood reduce erosion and sediment delivery to streams and wetlands?*

Question B3: *To what extent does the risk of sediment delivery change with stream and side slope gradients, different soil types, or with the intensity of the burn?*

Question B4: *To what extent do live standing trees and dead standing trees immediately adjacent to or over the streambank contribute to bank stability?*

Question B5: *Are there any differences in bank stability benefits provided by standing trees vs. stumps?*

Question B6: *To what extent do standing trees provide levels of shade that will mitigate the warming of streams or wetlands?*

Question B7: *Is buffer width critical and does this vary by stream size?*

Question B8: *To what extent are there differences between the rates of large woody delivery over time to streams where the burned RMZ is left in place, compared to one that is harvested and then replanted or allowed to reseed naturally after fire?*

Question B9: *Are there biogeographic areas that require or do not require replanting after salvage harvest?*

Question B10: *To what extent does excessive dead standing and/or down wood post-fire affect the reforestation of the upland forest stand and the riparian area?*

Question B11: *To what extent do standing dead or down trees help promote the establishment of new seedlings post-fire whether planted or naturally re-seeded?*

CMER approved the final report in October 2017. Even though little information was identified to sufficiently answer the key questions, TFW Policy did not identify this project as a high priority; therefore, neither TFW Policy Committee nor the Board will take action at this time.

2. Literature Synthesis of the Effects of Forest Practices on Non-glacial Deep-Seated

Landslides and Groundwater Recharge: This project was a focused literature review to summarize the best available science on the effects of forest practices on deep-seated landslides in non-glacial materials. The synthesis found extensive peer-reviewed literature on non-glacial deep-seated landslides; however, there is limited information on forest practices effects on these features. The studies reviewed provide information from which answers to questions posed can be inferred, but those inferences are hypothetical. This literature review and synthesis provides information to aid the Upslope Processes Scientific Advisory Group (UPSAG) in the development of a Deep-Seated Landslide Research Strategy to assess the

effectiveness of the Forest Practices Rules, to evaluate the Forest Practices Board Manual 16 guidelines for deep-seated landslides, and to determine what degree performance targets specified by Schedule L-1 are being met. The synthesis identifies knowledge gaps and provides recommendations for filling those gaps. CMER approved the final report in September 2017 and in October 2017, the TFW Policy Committee decided no action would be taken regarding changes to the Forest Practices rules, but the information will be used to develop the Deep-seated research landslide strategy and future CMER projects.

- 3. Van Dyke's Salamander Project:** This project reviewed and synthesized published literature related to Van Dyke Salamanders and information on geographical region distribution, moisture requirements and temperature utilization patterns, life history considerations, habitat utilization patterns, interspecific species interactions, and effects of forest management. The literature suggests that the management objective of maintaining viable populations may hinge on the effectiveness of riparian buffers to maintain suitable conditions near occupied habitats, most importantly, streams and seeps. It also shows fundamental differences may exist in habitat utilization and surface activity patterns among the three geographic regions that must be understood in order to correctly interpret forestry impacts on the species. The resulting report identifies knowledge gaps and informs the design of a potential field study to determine if Forest Practices Rules maintain conditions that support this species. CMER approved the final report in June 2018. Even though knowledge gaps were identified, TFW Policy did not identify this project as a high priority at this time therefore action will not be taken by Policy or the Board at this time.
- 4. Type N Experimental Buffer Treatment in Hard Rock Lithologies:** This project completed the first phase, which included pre-harvest and two years post-harvest data sampling. Phase 2 of the study (extended post-harvest sampling) is currently active. This study assesses the effects of three riparian buffer strategies (compared to unharvested reference basins) in basins with basalt or other hard rock lithologies. Initial field sampling included amphibians, water quality (temperature, turbidity, nutrients and suspended sediment concentration), riparian stand characteristics, LWD, riparian shade, litterfall, stream discharge, and detritus and macroinvertebrate export. Data on downstream effects on stream temperature and fish populations have also been collected. CMER approved the first phase final report in June 2018. The results from the first phase of this project provide a substantial gain in understanding the degree to which Type Np Forest Practices rules meet the Resource Objectives and Performance Targets outlined in Schedule L-1 of the FPHCP. A few of the key findings of the study are:

 - Results indicate neither the Type N rules, nor the other two buffer treatments, were effective in preventing warmer stream temperatures. Water temperature remains elevated at most sites seven years after harvest.
 - The results also informed the baseline densities of stream-associated amphibians throughout managed forest landscapes.
 - Suspended sediment levels were generally low in these sites and were not able to detect a treatment effects in any of the riparian buffer treatments, including the 0 percent treatment.
 - Results from this study indicate that harvest can affect both peak flows and baseflow hydrology (increases).

- This study is among a few that addresses the prevalence, characteristics and short-term function of small wood in headwater streams.

5. Wetland Mapping Tool: This project consists of two phases. Phase 1 developed a screening tool to detect likely wetland locations in forested and non-forested settings in the Pacific Northwest. This tool uses remotely sensed data with a Geographic Information System (ArcGIS) to identify physical conditions potentially conducive for wetland development. This tool seeks to differentiate those locations that have high intrinsic potential for wetland development from those that have low intrinsic potential. CMER approved the Phase 1 report in October 2017. Phase II will calibrate the wetland identification model to predict the probability of wetlands by type on forestlands of western Washington.

Independent Scientific Peer Review

Two study plans and six final reports were approved by CMER to go through Independent Scientific Peer Review (ISPR) in FY 2018.

Study plans in ISPR

- **Unstable Slope Criteria Project: An Evaluation of Hillslopes Regulated under Washington Forest Practices Rules:** This project will evaluate the accuracy and lack of bias of the criteria for identifying unstable landforms in predicting areas with a high risk of instability.
- **Potential Habitat Break Validation/Evaluation:** This project will validate potential habitat breaks used in the fish habitat assessment methodology for water typing. It will identify features that can be used to identify the end of fish habitat, thus the Type F/N regulatory break.

Final reports in ISPR

- **Type N Experimental Buffer Treatment Amphibian Genetics Project:** This project assessed the genetic response of three stream-associated amphibian species (coastal tailed frog, Cope's giant salamander, and coastal giant salamander) before and after three different riparian buffer treatments of small headwater basins to an unharvested reference basin. This report compares changes in genetic diversity across one generation (7-8 years post-harvest) to results from the analysis of demographic data collected at the same study sites in the two years post-harvest.
- **Hardwood Conversion Study:** This study investigated the economic outcomes of harvesting deciduous trees and reestablishing conifers in Riparian Management Zones at eight riparian hardwood harvest conversion areas. Data about tree regeneration and residual stand conditions were collected at each site four and ten years post-harvest.
- **Eastside Type F Riparian Effectiveness Monitoring (Bull Trout Overlay add-on):** This project collected data on changes in vegetation, buffer integrity, and LWD recruitment at 18 eastside Type F sites that were harvested utilizing the eastern Washington riparian buffer prescriptions and pairing them with untreated control sites. Data were collected at one year post-harvest and five years post-harvest.

- Extensive Riparian Status and Trends Monitoring – Temp, Type F/S Westside: This project is intended to develop unbiased estimates of the frequency distribution of Type F/N stream temperatures across Forest Practices HCP lands in western Washington. Along with stream temperature measurements, air temperature, shade, riparian vegetation type, LWD, and several channel measurements were collected.
- Eastside Modeling Evaluation Project: This project uses the riparian stand data collected from Phase 1 of the Eastern Washington Riparian Assessment Project to model current riparian stand conditions to estimate the extent to which current riparian stands achieve the three FFR eastside riparian objectives. ISPR began in FY 17 and has carried over into FY 18.
- Buffer Integrity-Shade Effectiveness: This project examined the effects of three levels of shade reduction on stream associated amphibian density, body condition, and spatial distribution, as well as water temperature, primary productivity, litterfall and macroinvertebrates. The final report went to ISPR in mid-2013, has gone through several rounds of revisions, and continues to be revised.

Projects in-progress

In addition to the completed projects and those currently in ISPR listed above, progress is being made on 15 projects. Two of these 15 projects are described in the “Lean Process Section” of this AMP section. Of these 15 projects, one is extensive, ten are effectiveness, and four are rule tool type projects. Three are in the Wetland Protection Rule Group, four are in the Type N Riparian Prescriptions Rule Group, three are in the Type F Riparian Prescriptions Rule Group, three are in the Stream Typing Rule Group, one is in the Roads Rule Group, and one is in the Unstable Slopes Rule Group.

- Westside Type F Riparian Prescription Effectiveness Project: The purpose of this project is to determine how stand conditions respond over time to the Westside Type F riparian prescriptions and to evaluate the effectiveness of the prescriptions in meeting Forest Practices HCP resource objectives and performance targets. Sites are currently being selected for project implementation.
- Eastside Type N Riparian Effectiveness Project: This study will determine if, and to what extent, the prescriptions found in the Type N Riparian Prescriptions Rule Group are effective in achieving performance targets and water quality standards, particularly as they apply to sediment and stream temperature in eastern Washington. Sites are currently being selected for project implementation.
- Type N Experimental Buffer Treatment Project in Soft Rock Lithologies: This project is a field experiment analogous to the Hard Rock project but implemented on more erodible (soft rock, largely marine sedimentary) lithologies. Two years of pre-harvest data collection has been completed. Harvesting of the study sites was completed in 2015 and post-harvest data is currently being collected and analyzed.
- Extended Type N Experimental Buffer Treatment Project on Hard Rock Lithologies: Project description is above in section “Completed projects”. Phase I of this project was

completed in June 2018. The extended resample was initiated in 2012 and will be completed in the fall of 2020.

- Extensive Riparian Status and Trends Monitoring – Vegetation, Type F/N Westside and Eastside Projects: A literature synthesis was completed in June 2015 on the use of remote sensing to evaluate the cost and value of various remote sensing tools to quantify 13 riparian forest metrics. The literature review included recommendations for a pilot project to determine if remote sensing can be used in place of traditional fieldwork. The pilot project was started in November 2015 on Westside sites and the final report is currently in CMER review.
- Wetland Mapping Tool: This project consists of two phases. Phase I is completed and is described above in the completed projects section. A contractor is hired to implement Phase II which will calibrate the wetland identification model (deliverable of Phase I) to predict the probability of wetlands by type on forestlands of western Washington.
- Westside Type N Buffer Characteristics, Integrity, and Function Project: This project evaluated the effectiveness of the Westside Type N riparian prescriptions, including survival of buffer leave trees, stand condition and trajectory over time, and changes in riparian functions, including shade, LWD recruitment, and soil disturbance/stream-bank protection. Field data were collected three, five, and ten years post-harvest. The final report is currently in CMER review.
- Wetland Management Zone Effectiveness Monitoring Project: This project will evaluate wetland functions to determine if the target of no net loss of hydrologic function, Clean Water Act assurance targets, and hydrologic connectivity are being achieved. The Wetlands Scientific Advisory Group is currently hiring a contractor for scoping and study design development.
- Road Prescription-Scale Effectiveness Monitoring: This project will inform surface erosion sediment reductions from site-specific measures by empirical sampling of effectiveness of road maintenance, road surface erosion, sediment production, sediment delivery and hydrologic connectivity, coupled with detailed physical modeling.
- Small Forest Landowner Alternative Plan Template Review: This project originated from the TFW Policy Committee as part of a strategy to consider a small forest landowner alternative plan template that was presented to the Forest Practices Board. The template is being reviewed to see if it is supported by best available science, follows credible scientific/statistical protocols, and the scientific strength of the findings are based on supporting literature.
- Riparian Characteristics and Shade Response: This project will quantify how stream shade responds to a continuum of buffer management treatments of varying intensity across a range of stand types common to forestlands covered under the FPHCP. This project is currently in scoping.
- LiDAR Based Water Typing Model/Default Physical Criteria Assessment Project: The accuracy of the current default physical criteria has not been validated, and research describing the physical characteristics at the upstream extent of fish distribution is limited. The magnitude of difference between the last fish and the default physicals is also unknown. The Instream Scientific Advisory Group is currently scoping this project.

- Fish/Habitat Detection Using Environmental DNA (eDNA): This project will assess potential landscape-scale differences in fish distribution patterns within managed and unmanaged forestlands. The potential application of using eDNA sampling to accurately and consistently identify the upstream extent of fish presence and/or fish habitat will be evaluated. The Instream Scientific Advisory Group is currently scoping this project.
- Identifying distribution boundaries at the upper extent of fish in streams using environmental DNA: This project will investigate the upper end of fish distributions in streams by comparing traditional electrofishing techniques to eDNA detection. The project will assess whether eDNA can accurately identify the upper boundary of end of fish distributions and compare those data to electrofishing data. Data is currently being collected.

Lean Process

The Forest Practices Board directed CMER to implement a “piloted” lean process improvement (Lean) for a limited number of new projects with the intent of increasing efficiency in the development of the scoping and study design phases. As part of the Lean process, small teams (referred to as Technical Writing and Initiation Groups, or TWIGs) of qualified scientists and technical personnel in the area of expertise specified are assembled *in lieu* of a larger group of technical personnel referred to as a scientific advisory group (SAG). The premise is that this smaller team of experts will be more effective and efficient than a SAG in developing scoping documents and study designs. Three projects have completed the Lean process and are currently in the implementation phase. These projects are Roads Prescription-Scale Effectiveness, Westside Type F Riparian Prescription Effectiveness, and Eastside Type N Riparian Effectiveness (ENREP). Two projects are currently in the Lean process, which are described below.

- Forested Wetland Effectiveness Project: This project will look at the effectiveness of forest practices prescriptions to protect, maintain, and restore wetlands and associated aquatic resources. The TWIG is working on drafting a study design.
- Unstable Slope Criteria Project: An Evaluation of Hillslopes Regulated under Washington Forest Practices Rules: This project will evaluate the accuracy and lack of bias of the criteria for identifying unstable landforms in predicting areas with a high risk of instability. The study plan for this project is currently in ISPR.

3.2 TFW Policy Committee Activity (July 1, 2017 – June 30, 2018)

General Policy Activity

The TFW Policy Committee has worked on several priorities that were directed by the Forest Practices Board. The major topics are summarized below.

Permanent Water Typing System

TFW Policy Committee continues to monitor the work of an independent scientific panel, CMER Technical work group, and the AMPA, who are investigating a number of criteria that would be

used to identify potential habitat breaks (PHB) needed as part of a fish habitat assessment methodology (FHAM) that will be used to help determine the F/N break. The Board identified three possible sets of criteria to be considered for identification of potential habitat breaks. A pilot study will be undertaken to help inform the criteria and protocols that will then be used to develop and implement a validation study. DNR is working on new Board Manual Chapter 23 language, which will provide guidelines for a field protocol to locate mapped divisions between stream types and perennial stream identification. DNR will evaluate the effectiveness of the new rule to determine if implementation of a new rule results in improved protection of aquatic resources above those currently provided by the existing rule.

Small Forest Landowner Template Subcommittee

The Policy subcommittee continues work on the conifer restoration template and conifer harvest template for riparian zones. They continue to track progress with the consultant reviewing the Small Forest Landowner Alternative Plan template. The subcommittee is currently reviewing the draft final report.

Unstable Slopes Proposal Initiation

On February 10, 2016, the Forest Practices Board accepted a proposal initiation (PI) from the DNR to address issues raised by the Conservation Caucus at the November 10, 2015, Board meeting. The specific components of the PI are focused on concerns raised from the Conservation Caucus regarding the development of Board Manual Section 16, “Guidelines for Evaluating Potentially Unstable Slopes and Landforms.” The proposal contained information required for consideration in the AMP, including recommended tasks that appeared to be necessary to address the PI components. In March 2016, the AMPA provided Policy with recommendations for how Policy could respond to the six elements of the PI. Policy convened an Unstable Slopes PI subgroup to deliberate the issues. Several of the tasks outlined in Policy’s recommended actions have been addressed and informed through two literature reviews of glacial and non-glacial deep seated landslides (see 1 and 2 under 3.1 above) and the development of the Unstable Slopes Criteria TWIG (see Lean Process above). Upslope Process Scientific Advisory Group continues to work on the deep-seated research landslide strategy. This will lead to the development of future CMER projects.

Budget Subcommittee

Policy formed a budget subcommittee to discuss criteria necessary to prioritize TFW Policy Committee’s future work as it related to the Master Project Schedule (MPS). These priorities will also help TFW Policy Committee develop future AMP budget recommendations. TFW Policy Committee (with input from CMER) used these criteria when reviewing the FY 2019 Budget and MPS during their March and April meetings to prepare the budget recommendations that were presented and approved at the Policy and FPB meeting in May 2018 to establish a proposed budget for the 2019-2021 biennium.

Clean Water Act Projects

Policy is reviewing how the outcome of the Clean Water Act (CWA) projects will meet the CWA assurances milestones in the near term. One of the CWA milestones is to look at the status of roads belonging to small forest landowners and the progress that has been made to bring those roads up to Forests and Fish Report standards. Washington Farm Forestry Association, Ecology, and DNR have put together voluntary surveys for landowners to obtain this information. Policy has also developed guidance for the Uppermost Point of Perennial Flow, a CWA project. CMER has completed a landscape-scale mass wasting study design, and began the study design process to examine rule-identified landforms and forested wetland effectiveness.

3.3 Clean Water Act (CWA) Assurances

Please see Appendix 3 for [CWA assurances history](#) and [Appendix 1](#) for the latest information on CWA Milestone status.

3.4 Electrofishing Associated with AMP Research

The Services' Incidental Take Permits cover electrofishing conducted for research and monitoring by the Adaptive Management Program. No electrofishing surveys were conducted between July 1, 2017, and June 30, 2018, as part of the Adaptive Management Program's research and monitoring.

4. Forest Practices Operations

[Appendix: Background on Forest Practices Operations](#)

Forest Practices Operations has three over-arching functions: FPA/N processing, FPA/N compliance, and FPA/N enforcement. This section focuses on topics that have had the largest impact on workload during this reporting period.

There were approximately 94 full-time positions statewide in Forest Practices Operations. Of the 94 positions, 64 were field positions, which indicates no change in staff numbers from the FY 2017 reporting period.

4.1 Forest Practices Application/Notification Workload

Forest Practices Operations staff processed 4,657 FPA/Ns during this reporting period. The table below provides a breakdown of this information by DNR region.

Table 1: Fiscal Year FPA/N Totals by Decision Type (FY 2018)

Region	Approved	Closed/Withdrawn	Disapproved	Renewed	Total by Region
Northeast	770	41	34	61	906
Northwest	513	33	18	14	578
Olympic	487	26	0	65	578
Pacific Cascade	1,449	44	20	71	1,584
South Puget Sound	669	62	19	60	810
Southeast	194	2	5	0	201
Total by Decision	4,082	208	96	271	4,657

Closed means the applicant withdrew the FPA/N.

Additionally, there were 13,517 active (not yet expired) approved and renewed FPA/Ns statewide, 140 (1 percent) fewer active FPA/Ns than during the prior reporting period.

4.2 Priority Project Work

Unstable Slopes

Following the expectations in the October 2016 memo, *Recommendations based on internal review of forest practices program pre-approval process for evaluating FPAs associated with potentially unstable landforms*, forest practices operations staff conducted a follow-up review of processed FPA/Ns that contained criteria that required additional office and/or field review by the forest practices science team. The purpose of the follow-up review was to evaluate

improvement of past practices and the implementation of new practices. The review was conducted selecting all FPA/Ns meeting specific criteria. The criteria were FPA/N Questions 11 and/or 12 checked “Yes”; an attached geotechnical memo, letter, or report; a positive screening result showing either a portion or all of the unit area of an FPA/N located in a “High/Very High Landslide Hazard Zonation” screen and/or fell on the “Landslide Inventory Polygons” screen. Twenty percent of Class III FPA/Ns were selected, as well as one-hundred percent of Class IV FPA/Ns. The main improvement seen in FY 2018 was documentation of FPA/N review, site visits, etc., within the Forester Checklist.

Water Typing Season training

Through February and March, a statewide training on the upcoming water typing season was conducted by division and provided to staff in all regions. Region staff then provided the same training to stakeholders at statewide TFW meetings. The intent of this training was to emphasize that protocols for fish use surveys in the 2018 water typing season would be conducted in the same manner as previous years, following WAC 222-16-031 and an existing agency guidance memo. One of the main topics presented was adequate documentation on behalf of both the proponent when submitting the Water Type Modification Forms (WTMF) and the reviewers when making comments and non-concurrences on the WTMFs.

Forest Practices Hydraulic Projects

Forest practices engineers assisted foresters in the regions with review of 102 forest practices applications involving hydraulic projects or road construction. This involves either pre-approval reviews, review of the design paperwork, participation on interdisciplinary teams and compliance post installation.

4.3 Forest Practices Program Guidance

DNR Forest Practices created three guidance documents between July 1, 2017, and June 30, 2018. The following is a summary description of the written guidance that has been shared with forest practices staff:

Table 2: Summary of Written Guidance Issued to DNR Forest Practices Staff July 1, 2017 – June 30, 2018

Date	Reason for guidance	Accomplishment
12/7/2017	To document expectations for the forest practices hydraulic project checklists	This memo documented expectations to ensure statewide consistency in the acceptance of FPA/Ns with hydraulic projects and released updated FPHP checklists.
2/20/2018	Update informal dispute resolution process	This memo presented updated informal dispute resolution guidance (replacing a November 1, 2010, memo).

2/27/2018	Summary of the 2017 unstable slopes process review	This memo documents the improvements and success based on the work resulting from the 2016 unstable slopes process review.
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4.4 Washington Department of Fish and Wildlife contribution to Forest Practices Operations (as written by WDFW)

Forest Practices Hydraulic Projects (FPHP)

WDFW’s goal, pertaining to FPHPs, is to review all FPAs containing FPHPs in order to help assure that fish protection standards are met and project approvals are timely and successful for landowners. It is important to note that each FPA may have multiple FPHP projects, which may be a combination of projects requiring WDFW concurrence, and other “standard” projects pertaining to Shorelines of the State (Type S) and F streams that require WDFW review and comment. Therefore, WDFW has tracked numbers of individual projects rather than numbers of FPAs. From July 1, 2017, through June 30, 2018, WDFW biologists reviewed 993 FPHPs, which included 156 concurrence-required project reviews and 611 standard FPHPs. WDFW encourages landowners to engage in pre-application consultation and on-site technical assistance to identify the optimal project-operating season as often as the opportunities arise. During this period, WDFW provided consultation on 226 pre-application site visits. This accounted for roughly 2,883 hours of staff time spent on FPHPs. Area habitat biologists in some areas have noted that it appears that pre-application reviews and consultations are decreasing.

Water Typing/Resource Identification and Wildlife Reviews

Other forest practices operational work conducted by WDFW biologists included: review of over 1,180 occurrences of either water type modification forms or participation in field reviews as appropriate to validate those proposed water types; participation on ID teams for various forest practices issues; road maintenance and abandonment plan review; review and technical assistance on alternate plans for both large and small forest landowners; and, technical assistance on other aquatic resource protection issues. This accounted for approximately 2,030 work hours. Biologists also reviewed and commented to the DNR regional offices on FPAs that had potential wildlife conflicts. Wildlife-related work accounted for approximately 2,055 work hours.

5. Small Forest Landowner Office

[Appendix: Background on Small Forest Landowner Office](#)

5.1 Forestry Riparian Easement Program

Since FREP began, funding has not kept up with demand. There remains a backlog of eligible applications waiting funding to acquire the easements. There were delays in purchasing Forestry Riparian Easements in the first half of this biennium. The FREP was without funding during the first seven months of this biennium and no easements were purchased during FY2018. However, 36 new applications were received and three applications were determined to be ineligible for the program. As a result, as of July 1, 2018, the backlog of FREP applications is 157.

The table below summarizes the Forestry Riparian Easement Program's acquisition activity over time.

Table 3: Forestry Riparian Easement Program Application Numbers by Fiscal Year

State of WA, Dept. of Natural Resources Forest Practices Division		Small Forest Landowner Office Forestry Riparian Easement Program									
Easement Application Numbers by Fiscal Year											
		FY 2001-2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018	Totals
Queue Balance at Start of Fiscal Year	-	95	85	102	113	134	127	136	124	-	-
Applications Received	406	13	20	26	34	24	21	29	36	609	609
Easements Purchased	278	12	0	13	6	19	9	30	0	367	367
Applications Ineligible / Rejected	33	11	3	2	7	12	3	11	3	85	85
Queue Balance at End of Fiscal Year	95	85	102	113	134	127	136	124	157	-	-
Conservation Acres Purchased	4,793	148	0	110	122	166	133	396	0	5,868	5,868

5.2 Family Forest Fish Passage Program

In the 2017 legislative session, DNR requested \$10 million to correct approximately 10 percent of the fish barriers on the FFFPP waiting list and received \$5 million. In the 2017 field season, the FFFPP completed 17 fish barrier removal projects opening 44.5 miles of upstream fish habitat. Below is a table showing the FFFPP accomplishments since its creation in 2003. As of June 30, 2018, there were 1086 eligible landowners on the waiting list for FFFPP.

Table 4: Family Forest Fish Passage Program Accomplishments since 2003

Numbers and Costs	FY 2017	Cumulative Since 2003
Eligible Small Forest Landowner Applications	100	1118
Eligible Barriers	100	1,533
Barriers Corrected	17	401
Stream Miles Made Accessible	44.5	924.5
Cost of Completed Projects	\$2.3 million	\$37.4 million

5.3 Long-Term Applications

The Long-Term Application permit process was implemented in 2007, and DNR has seen a steady increase in Long-Term Applications since that time. As of June 30, 2018, DNR’s Forest Practices Activity Review database reported 263 approved Long-Term Applications for small forest landowners. This was an increase of 21 Long-Term Applications approved during this reporting period.

5.4 Stewardship and Technical Assistance for Small Forest Landowners

In 2018, the Division integrated the Forest Stewardship and the Small Forest Landowner Technical Assistance Programs into a single program under the Small Forest Landowner Office. Retirement of the long-time DNR Forest Stewardship Program Manager provided an opportune time to make changes that would continue to provide both stewardship and technical assistance programs while making best use of existing and anticipated funding and better serving the small forest landowners.

The supervisory position was converted to a field-based one that now provides both traditional Forest Stewardship *and* technical assistance services. This provides more “boots on the ground” to help address the needs expressed by small forest landowners for assistance. The duty station was shifted from Olympia to eastern Washington to better serve the concentration of small forest landowners in that area.

At the same time the new position was created, the duties of the two existing and funded forest stewardship foresters serving western Washington were also modified to include providing technical assistance services, so that they too deliver both forest stewardship and technical assistance services to small forest landowners.

5.5 Small Forest Landowner Office Outreach

The Small Forest Landowner Office conducts extensive outreach and training efforts designed to educate and inform small forest landowners regarding the management of their land and the various financial assistance programs available to them. The staff in the SFLO participated in 11 Coached Planning courses, taught at three Family Forest Owner Field Days, and provided educational expertise and promoted the SFLO programs at over 30 venues across Washington State.

Currently, the SFLO's three Stewardship & Technical Assistance Foresters are funded predominantly through federal USDA Forest Stewardship dollars with a small amount funded through General Fund State dollars. On average, each Forester conducts approximately 80 site visits per year to help landowners manage their lands to improve health and habitat, and to provide technical assistance regarding forest practices related issues. Collectively, the SFLO foresters receive over 800-landowner assistance requests each year. These requests are via email, phone call, or office visits.

The Small Forest Landowner office now has a growing list of subscribers to the Small Forest Landowner Newsletter, which totals over 6,000 subscribers. The newsletter is distributed quarterly. Landowners can subscribe at www.dnr.wa.gov/sflo or request by email to sflo@dnr.wa.gov. Readers can catch up on [Archived Small Forest Landowner News editions](#).

6. 20-Acre Exempt Riparian Forestland

[Appendix: Background on 20-acre Exempt FPA Incidental Take conditions](#)

6.1 20-Acre Exempt Forest Practices Application Data

Of the 4,657 forest practices applications processed throughout the reporting period, 4,082 were approved, and of those, 140 were new, approved non-conversion 20-Acre Exempt applications adjacent to fish-bearing streams.

[Appendix 2b and 2c: Maps of 20-acre exempt FPAs](#)

Table 5: 20-Acre Exempt Forest Practices Applications (July 2017 – June 2018)

20-Acre Exempt Forest Practices Applications with Specific Characteristics	Number
Number of 20-Acre Exempt applications with fish-bearing water	145
Number of 20-acre Exempt applications that were conversions with fish-bearing water	5
Number of 20-Acre Exempt applications with fish-bearing water that were not conversions	140
Number of 20-Acre exempt applications that were in Bull Trout Areas of Concern	0

Twenty-acre exempt non-conversion applications along fish-bearing water comprised approximately 3.4 percent of all approved applications submitted during Fiscal Year 2018 reporting period. Twenty-acre exempt conversion FPA/Ns are not included in the calculation because the Incidental Take Permits do not cover FPA/Ns that are conversions.

6.2 Type Np Water Leave Tree Requirement

There were 25 Forest Practices Applications associated with 20-acre exempt parcels that had Type Np waters during FY 2018. Eighteen applications were conditioned according to the Np guidance memo (see Appendix 3 for explanation) or did not propose harvest within 29 feet of the Np water. One application did not have any statement on the FPA and six applications had language that described where the leave trees were left rather than stating the leave tree requirements detailed in WAC 222-30-023(3).

6.3 Potential Large Woody Debris (LWD) Reduction in Function

[Appendix 2a: Potential Reduction in Function by WAU](#)

Estimated percent of loss of potential large woody debris recruitment in each watershed administrative unit (WAU) containing 1 or more 20-acre exempt FPA/s over the elapsed twelve-year period of the Incidental Take Permits can be found in Appendix 2a. There are 846 WAUs in Washington State, of which 222 have had 20-acre exempt FPAs approved.

Table 6: Potential Large Woody Debris Reduction in Function Data (July 2017 – June 2018)

WAU Reduction in Function Information	Number
Percent WAUs with potential large woody debris recruitment reduction	26%
Number of WAUs with less than 1% potential reduction in function	216
Number of WAUS with 1% or greater reduction in function	6
Max percent potential loss of function in any individual WAU	2.1%

Currently, in-office calculations indicate that each WAU affected by 20-Acre Exempt applications, except for six, have less than one percent potential cumulative reduction in function relative to standard forest practices prescriptions. The six WAUs: Copper Creek (1.197%), Diobsud Creek (2.097%), Muck Creek (2.002%), Smith Point (1.226%), Upper Little Pend Oreille River (1.192%), and Wanacut (2.049%) all have less than three percent potential cumulative reduction in function. None of the six WAUs with potential reduction in function over one percent are near the 10 percent threshold ([explained in Appendix 3](#)) established in the Incidental Take Permits. One-hundred and one WAUs indicate a potential of reduction in function between 0.1 and 0.9 percent: and the remaining 115 WAUs listed in Appendix 2 show the possibility of less than 0.1 percent reduction in function since the 2006 issuance of the Incidental Take Permits.

6.4 Watershed Administrative Unit and Water Resource Inventory Area Thresholds

Currently, there are no WAUs approaching the 10 percent threshold for reduction in function; therefore, there are also no areas currently at risk for reaching the 15 percent stream threshold.

6.5 Bull Trout Areas of Concern

There were no forest practices applications associated with 20-Acre Exempt parcels in the bull trout areas of concern during the reporting period.

7. Alternate Plans, Rivers and Habitat Open Space Program

[Appendix: Background on Alternate Plan FPAs and Rivers and Habitat Open Space Program](#)

7.1 Alternate Plans

The following table shows the number and status of forest practices applications submitted that included an Alternate Plan during the period from July 1, 2017, to June 30, 2018:

Table 7: Current Fiscal Year Forest Practices Applications with Alternate Plans (FY 2018)

Landowner Type	Status of Forest Practices Applications with Alternate Plans				Total
	Approved	Disapproved	In Review	Closed Out*	
Small	138**	4	10***	1	153
Large	48	0	5	0	53
Total	186	4	15	1	206

***Closed Out** means that the applicant asked that the FPA be withdrawn and closed.

**This includes 3 long-term applications (LTAs).

***This includes 1 long-term application.

7.2 Rivers and Habitat Open Space Program

There is \$1,000,000 allocated for the Rivers and Habitat Open Space Program for the FY 2017-2019 funding period.

There are currently 11 qualifying applications, four for channel migration zones easement applications and seven for critical habitat state easement applications. This biennium had three new qualifying applications; two CMZ easement applications and one critical habitat state easement application that was determined to be ineligible. Just under 40 percent of the funds in the program were allocated in the 15-17 biennium to CMZ habitat and the remaining 60 percent of the funds were used to purchase a conservation easement on habitat recognized as critical habitat state. The break out for the 17-19 biennium is unknown at this time.

The following chart shows the budget allocated by the Washington State Legislature for the Rivers and Habitat Open Space Program, and the acres purchased since the program's inception.

Table 8: Rivers and Habitat Open Space Program Budget and Acres Purchased

Fiscal Year	Budget Allocated	Amount Spent	Number of Transactions	Acres Purchased/Channel Migration Zones	Acres Purchased/Critical Habitat
01-03	\$1,000,000	\$1,000,000	3	387	0
03-05	\$1,000,000	\$500,000	5	197	0
05-07	\$2,000,000	\$0	0	0	0
07-09	\$2,200,000	\$2,200,000	4	339	0
09-11	\$500,000	\$460,000	4	119	0
11-13	\$0	\$0	0	0	0
13-15*	\$500,000	\$500,000	1	0	25
15-17	\$1,000,000	\$840,000	2	40	39
17-19**	\$1,000,000	\$0	2	EST 40	EST 40
Total	\$8,200,000	\$5,500,000	19	1,082	64

*13-15 was the first year money was allocated for Critical Habitat State

** The FY 17-19 information on this Table are estimates because the 17-19 biennium has not ended. These numbers may change based on updated information. Therefore, the estimates are not added into the total.

8. Enforcement

[Appendix: Background on Enforcement](#)

During the reporting period, the DNR Forest Practices Program had approximately 64 field staff statewide who completed compliance visits and enforced the Forest Practices Act and rules.

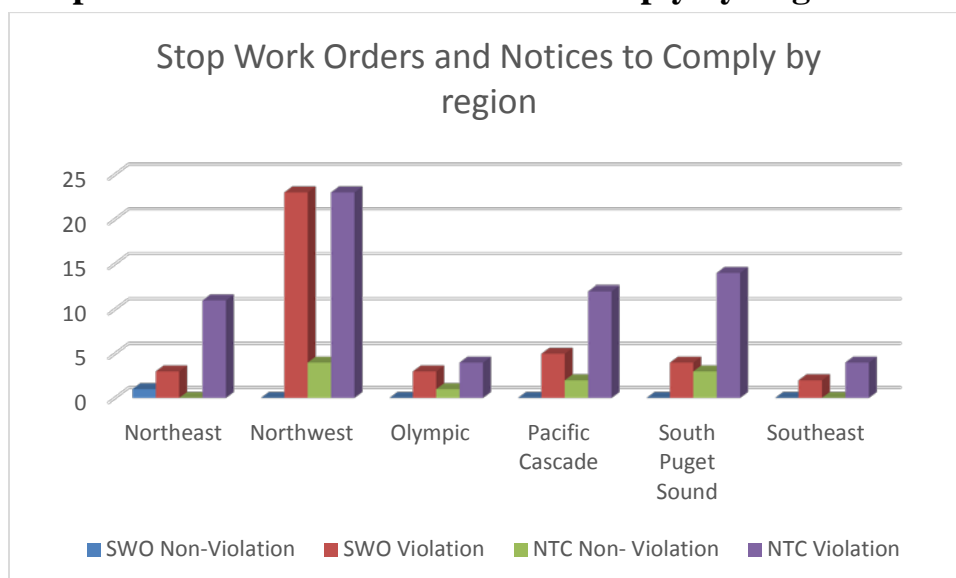
8.1 Stop Work Orders and Notices to Comply

The following table shows stop work order and notice to comply enforcement activity between July 1, 2017, and June 30, 2018. There were a combined 108 violation stop work orders and notices to comply this period as compared to an average of 89 over the last 3 years.

Table 9: Fiscal Year Stop Work Orders and Notices to Comply (FY2018)

DNR Region	Stop Work Orders		Notices to Comply		Total
	Non-Violation	Violation	Non-Violation	Violation	
Northeast	1	3	0	11	15
Northwest	0	23	4	23	50
Olympic	0	3	1	4	8
Pacific Cascade	0	5	2	12	19
South Puget Sound	0	4	3	14	21
Southeast	0	2	0	4	6
Total	1	40	10	68	119

Figure 1: Stop Work Orders and Notices to Comply by Region



8.2 Fiscal Year Civil Penalties and Notices of Intent to Disapprove

Notices of Intent to Disapprove (NOID) and civil penalties are used when multiple violations have occurred over time. Table 10 shows the number of civil penalties and NOIDs that became Final Orders (that is, all appeal processes had concluded) from July 1, 2017, through June 30, 2018. Five civil penalties and five NOIDs were issued during the reporting period (compared to an average of three civil penalties and one NOID over the last three years); all issued in Olympic and Northwest Regions (Table 10).

Table 10: Fiscal Year Civil Penalties and Notices of Intent to Disapprove (FY2018)

Region	Civil Penalties	Notice of Intent to Disapprove
Southeast	0	0
Northwest	3	1
South Puget Sound	0	0
Northeast	0	0
Pacific Cascade	0	0
Olympic	2	4
Total	5	5

8.3 Stop Work Order and Notice to Comply Ratios

There were 119 stop work orders and notices to comply issued this period versus an average total of 117 over the last three years.

Table 11: Fiscal Year Enforcement Data Summary (FY2018)

Number of active Forest Practices Application/Notifications (FPA/Ns) through June 30, 2016 (See chapter 4 for information about FPAs received or renewed during Fiscal Year 2017.)	13,517*
Number of Notice To Comply / Stop Work Orders issued for violations	108
Ratio of Notice To Comply / Stop Work Orders violations to total number of active FPA/Ns (108/13,517)	0.79%
Number of Notice To Comply / Stop Work Orders issued for non-violations	11
Ratio of Notice To Comply / Stop Work Orders non-violations to total number of active FPA/Ns (11/13,517)	0.08%
Total number of documents issued (violation & non-violation)	119
Ratio of all documents issued to total active FPA/Ns (119/13,517)	0.88%

*Approved and/or Renewed FPA/Ns

9. Compliance Monitoring Program

[Appendix: Background on Compliance Monitoring Program](#)

9.1 Compliance Monitoring Program (CMP) Reports and Findings

The *2016-2017 Biennial Forest Practices Compliance Monitoring Report*

<https://www.dnr.wa.gov/programs-and-services/forest-practices/rule-implementation> summarizes results for the two-year (2016 & 2017) sampling period in which randomly selected and approved forest practices applications were assessed for compliance with the forest practices rules.

2016-2017 Biennial Report

During the 2016-2017 field seasons, data were collected for all the standard sample prescriptions and trend analysis was conducted. A 2017 field season unstable slopes sample was conducted for the first time and the data was analyzed. Eastern Washington Inner Zone Harvest analysis was also conducted for the first time. An Independent Scientific Peer Review concluded with proposed study design changes that were ultimately included in the 2016-2017 biennial CMP report (see below for more information).

Independent Scientific Peer Review

A peer review of the 2014-2015 Biennium Forest Practices Compliance Monitoring Report and current sampling and analytical methodology was conducted through the Independent Scientific Peer Review Committee (ISPR) of the University of Washington and the Cooperative Monitoring, Evaluation and Research Committee in spring 2017. The review team determined that the current statistical approach regarding the sampling procedure and construction of the ratio estimator for compliance was generally sound. The review team recommended that a more thorough Appendix A containing the technical details of the sample selection procedure be included in the biennial report. The review team also recommended that a “jackknifed” form of the ratio estimator be incorporated into data analysis. Jackknife analysis requires recalculation of ratio estimates leaving out one sample each time. For example, if there were 13 samples being used to estimate desired future condition1 (DFC1) compliance, 13 ratio estimates would be calculated from the data, using 12 samples per estimate. The 13 estimates are then averaged to come up with a less biased estimate of DFC1 compliance. Jackknife ratio estimates can be compared to original ratio estimates to determine the sample size at which the difference between the two estimates becomes negligible. By using a jackknifed form of the ratio estimator, bias may be reduced yielding a more accurate variance estimate. The jackknifed ratio estimator was incorporated into the data analysis for the 2016-17 Biennial Compliance Report.

Riparian Prescription Compliance Monitoring Standard Sample Findings

The 2016-17 rule prescription compliance rates range from 87 to 100 percent, indicating relatively high compliance with forest practice rules. The uncertainty bounds maintain the half-

width 95 percent confidence interval target of +/-6% except for the Np prescription, which had a lower compliance rate and higher variance than expected based on historic estimates. The Np sample size, relative to the expected population size, will be adjusted for the next biennia to reflect these differences.

For the first time, compliance monitoring for an eastern Washington inner zone harvest prescription was conducted. Eastern Washington inner zone harvests are similar to desired future condition harvests in western Washington; timber harvest is permitted within the inner zone. Due to a small population size, the prescription was analyzed as a census. Fifty-one rules were evaluated, 49 rules were compliant resulting in a 96 percent compliance rate.

Table 12: 2016 Riparian Prescription Compliance Monitoring Standard Sample Findings

Riparian Prescription type	Percent (%)Compliant	Number Observed
Statewide Type F or S No Outer Zone Harvest	95%	24
Statewide Type Np Activities	87%	35
Statewide Type Ns Activities	100%	31
Statewide Type A&B Wetlands	92%	43
Statewide Forested Wetlands	100%	17
Western WA Desired Future Condition 1	92%	20
Western WA Desired Future Condition 2	95%	13
Eastern WA Inner Zone Harvest	96%	7*

*Eastern Washington Inner Zone prescription was conducted as a census study (complete enumeration).

Statewide Water Typing Findings

Observed typing accuracy, as reported in the CMP biennial reports, increased from 83 percent during the 2008-2009 biennium to 90 percent during the 2012-2013 biennium and increased again to 91 percent for the 2014-2015 biennium, the 2016-2017 typing accuracy remained constant at 91 percent.

During the 2016-2017 biennium, the Compliance Monitoring Program evaluated 183 riparian related prescriptions involving typed water or wetlands. The number of typed water and wetlands that were either accurately typed (154) or overtyped (protected) (12) totaled 166 compliant water types for a 91 percent compliance rating.

The total number of typed waters (including over-typed, under-typed, and indeterminate) or wetlands where the compliance monitoring field team found 29 discrepancies or 16 percent of the total observed in 2016 and 2017. The inconsistencies occurred when typed water was either under-classified on the forest practices application (for example, the forest practices application depicts a Type Np water that is found to actually be a Type F stream); or over-classified (for

example, the forest practices application depicts a Type F water that is found to actually be a Type Np stream); or indeterminate (that is, not enough information was available to accurately make a water type determination). The number of waters under-classified was 14, or 7.6 percent of the 183 observed waters or wetlands. This means that 7.6 percent of the observed waters or wetlands may have received less protection than provided by forest practices rules due to the misclassification error. The number of waters or wetlands over-classified was 12, or 6.5 percent of the 183 observations. This means that 6.5 percent of the observed waters or wetlands received more protection than required by the forest practices rules. The number of waters or wetlands indeterminate was 3, or 1.6 percent of the 183 observations. This means that 1.6 percent of the observed waters or wetlands could not be typed by the compliance monitoring field team. Indeterminate observations are the result of natural physical impediments such as blowdown, steep slopes, or rock slopes, which preclude field staff from safely or adequately assessing water type or the indicated water-typing break is physically located on another landowner's property. The compliance monitoring field team does not trespass.

Roads and Haul Routes Findings

During the 2016-2017 biennium, 125.5 of the sampled 132 rules were compliant for the Roads prescription sample, resulting in a 95 percent compliance rate.

During the 2016-2017 biennium 28.2 miles of haul routes were assessed. For 26.1 miles of the 28.2 miles of haul routes evaluated, no delivery or de minimus sediment delivery were observed, resulting in a compliance rate of 92 percent

Unstable Slopes

The potentially unstable slopes pilot study was developed to evaluate compliance with the FPA. Forest Practices Applications containing potentially unstable rule identified landforms (RILs) were assessed for the unstable slopes pilot study. The design objective for this study is to evaluate mitigation efforts communicated in the FPA/N, compare that to pre-FPA/N conditions, and identify where deviations from the FPA/N landowner stipulations occurred. The focus of the unstable slopes pilot study was on overall FPA/N compliance as opposed to individual rule compliance. Thus, the unstable slopes prescription was comprised of FPA/N compliance only questions. This change of focus from typical, individual rule compliance monitoring analyses was due to the lack of field measurable rules within the rule identified landform prescription type.

To qualify overall FPA compliance for unstable slopes prescriptions, "yes/no determinations" were produced by a DNR Qualified Expert ([WAC 222-10-030\(5\)](#)) when answering the following questions related to FPA RIL compliance:

- Did the landowner identify all potentially rule identified unstable landforms in/around the harvest area?
- Did the landowner apply mitigation for all potentially unstable rule identified landforms as identified on their FPA (Question 31)?

- Did harvest occur within the no harvest mitigation area associated with potentially rule identified unstable landforms?
- If a geotechnical memo, letter or report prepared by a QE was submitted as part of the FPA, was the mitigation, as identified in their report, implemented by the landowner?

For the 2017 Unstable Slopes sample, 43 FPA/Ns were selected for review from a total population of 978 FPA/Ns. Three samples had no answerable questions and were excluded from analysis. The resulting analyzed Unstable Slopes sample size was 40 and 119 questions were evaluated.

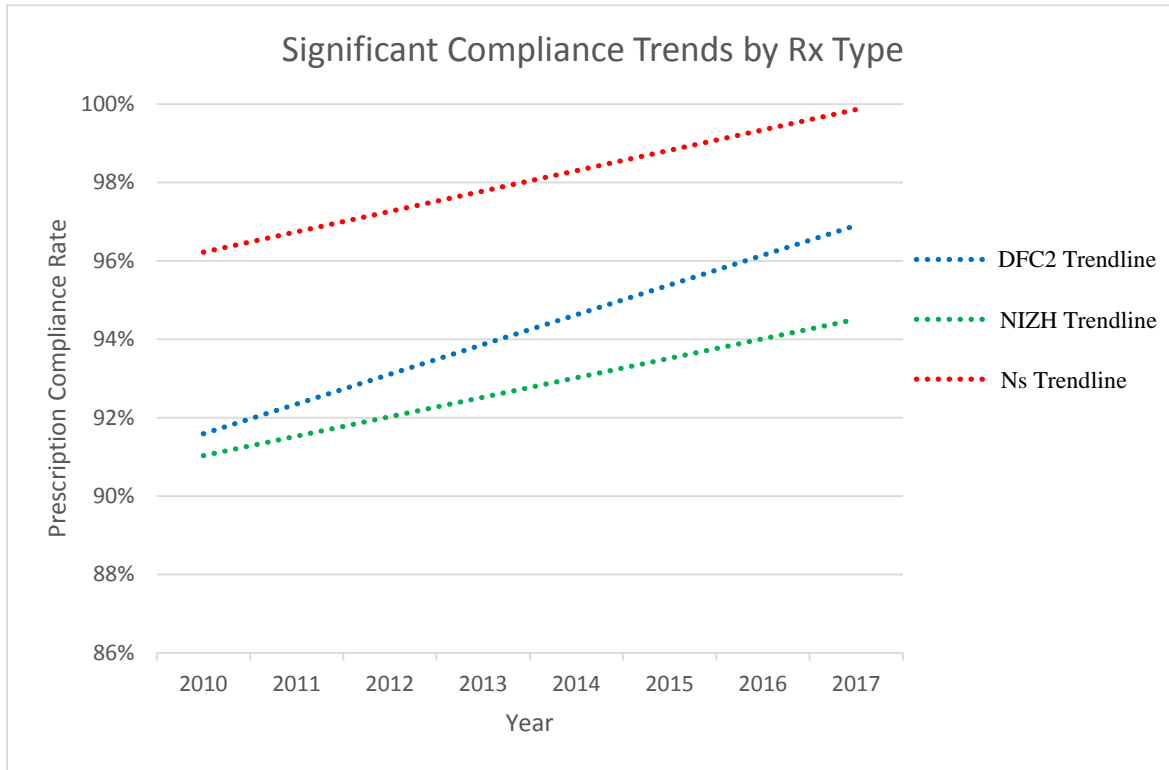
Table 13. 2017 Statewide Unstable Slopes Compliance Results

Unstable Slopes	
Sample Size	40
Mean Cluster Size	3.0
Questions Evaluated	119
Questions ‘yes’	109
Mean ‘yes’	91.62%
95% Confidence Interval	(85%, 98%)

Trend Analysis Findings

Trends of yearly increasing prescription compliance rates were observed for Desired Future Condition option two (0.94%), No Inner Zone Harvest (0.77%), and Non-fish bearing seasonal streams (0.55%) (Figure 2). No statistically significant trends were observed for Desired Future Condition option 1, Non-fish bearing perennial streams, A & B wetlands, Forested wetlands, and Roads.

Figure 2: Compliance Trend Lines for DFC2, NIZH, and Ns Prescription Types



9.2 Future Plans for the Compliance Monitoring Program

With the addition of forest practices hydraulic projects to DNR forest practices applications in December 2013, the Compliance Monitoring Program has been working on developing and incorporating methodology for an ongoing study to help determine the FPHP compliance rate. The Compliance Monitoring Program will also continue to sample unstable slopes every other year.

9.3 Compliance Monitoring Funding

DNR's Forest Practices Program actively seeks state funding from the legislature and support from the program's partner agencies and tribes to effectively implement the Compliance Monitoring Program. Since 2006, DNR has provided funding through interagency agreements to support at least one full-time staff each from the Department of Ecology and the Department of Fish and Wildlife. However, beginning in September 2017, WDFW ceased compliance monitoring field participation due to a decision by DNR and WDFW managers to devote more of the available funding to work in other forest-practices-related areas.

10. Training/Information/Education

[Appendix: Background on Training](#)

The focus of the Forest Practices Training Program this year was to expand the training courses offered from the previous year. Several additional trainings were added to the training calendar allowing us to offer new multi-day workshop classes on a regular and predictable schedule. The effort to reestablish core classes and routinely provide them on a regular and predictable schedule began last year and has continued during this reporting period. Multiple day workshop classes now take place in both the spring and the fall. New multi-day Forest Practices Program trainings were also offered during this reporting period.

Continuing on this theme, the Forest Practices Program intends to bolster the Training Program catalog of training courses provided over the next year with additions of multi-day classes on forest practices hydraulic projects and bankfull width. These new courses are intended to be added to the training rotation.

With video camera equipment and editing software, the program is now capable of developing courses that can be accessed much more easily for both internal and external customers. Class training sessions are now being recorded for further use in several new presentation styles. We are currently planning to use training sessions to create webcasts, video lecture, and fully interactive online courses. The Training Program is targeting 2019 to provide some online courses.

10.1 Single/Multiple Day Forest Practices Program Trainings

Single/Multiple Day Forest Practices Program training is provided for complex subjects, which require larger blocks of time. Region staff that are trained during single/multiple day forest practices training sessions share the information they learn in the class with landowners, where appropriate, and other stakeholders at region TFW meetings or through special TFW meetings to ensure the information is quickly implemented.

10.2 Single/Multiple Day Workshop Classes

Compliance Monitoring

20 people attended the training.

Unstable Slopes

38 people attended the training for the spring session.

Channel Migration Zone (CMZ) Training

Channel Migration Zone Training was added in FY 2017 to the training calendar. This multi-day workshop training was provided in the spring of 2017 and will run on a regular cycle of two

classes per year, in the spring and in the fall. Much like Unstable Slopes Training, the demand for this class is very high.

23 people attended training for the spring session

Washington Contract Logger Association (WCLA) Training

160 WCLA members attended the training

10.3 Single Presentation Trainings

Training provided to Forest Practices Staff

Training topics this year included use of the Hydraulic Project Checklist, stream typing, Forest Practices Application Mapping Tool (FPRAM) and State Environmental Policy Act (SEPA).

After these short-duration training opportunities, the participants share the information they learn with other region program staff as well as stakeholders when applicable.

Training Conducted by Region Staff

Regions completed or sponsored many training presentations and meetings during the reporting period. The topics varied widely and included, but were not limited to: enforcement documents, bank full width/water typing, archaeological/historical protection, channel migration zones, compliance monitoring results, water type modification forms, road maintenance plans, hydraulic projects, alternate plans, and general forest practices rule topics.

10.4 Small Forest Landowner Training

The Small Forest Landowner Office provides a variety of informational outreach opportunities to small forest landowners and other DNR staff around the state. Reporting on Small Forest Landowner Training and Community Outreach has been reported in this section in past reports; however, starting with this 2018 Forest Practices HCP Annual Report, we will be reporting the Small Forest Landowner information in Section 5 – Small Forest Landowner Section.

Explanation on historical reporting can be found in Appendix 3 of this report.

11. Road Maintenance and Abandonment Planning for Large Forest Landowners

[Appendix: Background on Road Maintenance and Abandonment Plans](#)

11.1 Road Maintenance and Abandonment Plan Implementation

RMAP specialists continue to work with the 55 landowner RMAPs that received approved extensions up to October 2021. RMAPS that were not extended, but were not completed by October 31, 2016, have been reviewed and appropriate compliance actions have been taken. Notices to Comply (NTC) were issued to pertinent landowners, directing compliance with the rules before the end of the 2017 operating season. All landowners except one were in compliance by that time. One civil penalty was issued for non-compliance with the RMAP deadline and for not meeting the timeline of the NTC.

Following are four tables:

- *Statewide Road Maintenance and Abandonment Plan Accomplishments for landowners with extensions for the 2017 reporting year;*
- *Statewide Road Maintenance and Abandonment Plan Accomplishment Report 2001-2017 by Region;*
- *Statewide Cumulative Road Maintenance and Abandonment Plan Accomplishment Report by Year;* and
- *Fish Passage Barrier Information for Large Landowners*

These tables detail the progress that has been made by forest landowners from July 2001 through December 2017. The information provided is derived from data supplied by landowners as part of their annual accomplishment report review. Appendix 3 has a description of each reporting element in the tables. In addition, several of the descriptions include reasons why some reporting element numbers fluctuate over the years, and provides additional in-depth information about why earlier accomplishment reports included data, which differ from this report.

Table 14: Statewide Road Maintenance and Abandonment Plan Accomplishment Report 2017 for Landowners with Extensions by Region

DNR Region	Number of approved RMAPs	Miles of forest road assessed	Miles of forest road identified needing improvement*	Miles of road improved	Miles of road abandonment	Miles of orphaned roads
Northeast	2	7,625	372	281	5	0
Northwest	6	1,917	288	78	19	198
Olympic	17	6,099	766	93	0	171
Pacific Cascade	24	13,520	2,246	512	11	170
South Puget Sound	3	3,258	109	34	7	177
Southeast	3	386	0	25	0	1
Statewide Totals	55	32,805	3,781	1,023	42	717

The content of this table is based upon data provided by landowners who are responsible for the facts and accuracy of the information presented herein.

The numbers in columns 1 and 2 can change based on changes in land ownership.

Note:*Beginning with the 2011 RMAP reporting cycle (January 1, 2011, to December 31, 2011), landowners provided a new data element — “miles of forest road identified needing improvement”— see Appendix 3 for explanation. The data were first incorporated in the 2012 *Forest Practices HCP Annual Report*.

Table 15: Statewide Road Maintenance and Abandonment Plan Accomplishment Report 2001-2017 by Region								
DNR Region	Number of approved RMAPs	Miles of road improved	Miles of road abandonment	Miles of orphaned roads	Number of fish passage barriers identified	Number of fish passage barriers corrected	Miles of fish habitat opened	Total of RMAP checklists from small forest landowners
Northeast	89	6,147	312	96	838	834	465	4,815
Northwest	27	3,607	1,350	691	523	477	150	1,858
Olympic	38	1,975	147	245	1,819	1,402	587	1,126
Pacific Cascade	61	12,404	928	246	3,168	2,933	1,929	3,908
South Puget Sound	26	1,482	554	787	932	645	296	1,354
Southeast	15	2,463	610	862	989	939	753	681
Statewide Totals	256	28,078	3,901	2,927	8,269	7,230	4,180	13,742

**Table 16: Statewide Cumulative Road Maintenance and Abandonment Plan
Accomplishment Report by Year**

Year	Number of Approved RMAPs & Submitted Checklists	**Total # of RMAP Checklists from Small Forest Land-owners	***Miles of Forest Road Identified Needing Improvement	Miles of Road Improved	Miles of Road Abandoned	Miles of Orphaned Roads	Miles of Habitat Opened	# of Fish Passage Barriers Corrected
2001-2002	4,066	---	---		645	502	52	46
2001-2003	5,530	---	---		1,007 / *362	1,246	175/ *123	355 / *309
2001-2004	7,401	---	---		1,587 / *580	1,944	647 / *472	1,217 / *908
2001-2005	8,419	---	---		1,856 / *269	2,107	775 / *128	1,363 / *146
2001-2006	9,950	---	---		2,068 / *212	2,313	982 / *207	1,819 / *456
**2001-2007	107	8,121	---	13,140	2,153 / *85	2,293	1,221/ *239	2,248 / *429
2001- 2008	130	8,628 / *507	---	15,019/ *1,879	2,431 / *278	2,305	1,448/ *227	2,871 / *623
2001-2009	126	8,804 / *176	---	16,195/ *1,176	2,621/ *190	2,305	1,569/ *121	3,141/ *270
2001-2010	262	9,187 / *383	---	18,475/ *2,280	2,915/ *294	2,333	1,772/ *203	3,769/ *628
2001-2011	247	9,696/*509	7,413	18,738/ *263	3,090/*175	2,393	2,189/ *417	4,258/*489
2001-2012	254	10,268/*572	7,568	20,026/ *1,288	3,275/*185	2162	2659/ *470	4,846/*588
2001-2013	263	10,971/*703	8,886	22,793/ *2,767	3,417/*142	2,356	3,130/ *471	5,298/*452
2001-2014	266	11,854/*883	7,811	24,282/ *1,489	3,550/*133	2,059	3,419/ *89	5,730/*823
2001-2015	260	12,632/*778	7,202	25,589/ *1,307	3,833/*282	2,231	3,507/ *88	6553/*356
2001-2016	253	12,813/*181	6,421	27,694/ *2105	3,895/*62	2,926	4,180/ *673	6,956/*403
2001-2017	256	13,742/ *929	3,781****	28,078/ *384	3,901/6	2,927****	4,180	7,230\274

* Number represents the increase from the previous year's report.

** Beginning in reporting year 2007 and thereafter, checklists have been separated from the 'Number of Approved RMAPs' and tracked separately.

*** This was a new reporting element beginning with the 2011 RMAP reporting cycle.

**** Starting in 2017, only 55 RMAPs are active and submitting annual reports.

Note: Miles of Road Abandoned for 2001-2012 was changed to 3,275 miles (from 5,002 miles previously reported in the 2013 FPHCP Annual Report) due to an error in the 2012 data for NW Region. The number of miles of road

abandoned in NW Region for 2001-2012 was 1,075 miles (not 2,801 miles as previously reported in the 2013 FPHCP Annual Report.

Fish Passage Barriers

In addition to the fish barrier information in the above tables, the following table, “*Fish Passage Barrier Information for Large Landowners*” displays how many barriers have been repaired cumulatively since 2001; the total repaired in calendar year 2017, and the percent of total repaired as of December 31, 2017.

Table 17: Fish Passage Barrier Information for Large Forest Landowners

DNR Region	Number of fish passage barriers identified*	Number of fish passage barriers corrected from 2001-2017	Number of fish passage barriers corrected in 2017	% of total fish passage barriers corrected as of 12/31/2017
Northeast	838	834	8	99%
Northwest	523	477	5	91%
Olympic	1,819	1,402	103	77%
Pacific Cascade	3,168	2,933	140	92%
South Puget Sound	932	645	17	69%
Southeast	989	939	1	95%
Totals	8,269	7,230	274	87%

*This number may fluctuate annually as water types are confirmed and/or modified.

11.2 Extension of RMAP Deadline

The August 9, 2011, Forest Practices Board rule change allowed landowners to extend the deadline for completing the roadwork scheduled in their RMAPs until October 31, 2021. Fifty-five RMAPs were granted requested extensions.

11.3 Beyond the Numbers

Due to the substantive scale of the landscape and locations where the RMAP program is being implemented, there is the possibility of some discrepancies in data reporting. This may result in the discovery of fish passage barriers which should have been listed on annual reports and corrected but were not. DNR has incorporated this likelihood into its enforcement strategy and will be treating these as “new discovery” fish passage barriers. The landowner will be given a Notice to Comply directing the landowner to submit a repair plan acceptable to the department, preferably by the end of the subsequent operating season.

11.4 Washington Department of Fish and Wildlife Participation (written by WDFW)

Biologists from the Washington State Department of Fish and Wildlife (WDFW) provide an essential role in the review and implementation of RMAPs. WDFW biologists reviewed RMAPs and the associated forest practices hydraulic projects, and assisted landowners and DNR to assure that project plans and designs would be successful and meet fish protection standards. Since integration of WDFW's hydraulic code into forest practices rules, WDFW is no longer able to track which FPHPs are specifically associated with RMAPs. However, most of the FPHPs pertaining to fish-bearing streams are road related. Therefore, the numbers of FPHPs reviewed in Section 4 of this report should be a close estimate. From July 1, 2017, through June 30, 2018, WDFW biologists reviewed 993 individual FPHPs, which included 156 concurrence-required project reviews, including the identification of the optimal project-operating season, and 611 individual standard FPHPs (those not requiring concurrence, but pertaining to Type F and S streams) and participated in 226 pre-application reviews. It is important to note that each FPA can have multiple FPHPs.

12. Cultural Resources

[Appendix: Background on Cultural Resources](#)

12.1 Landowner/Tribe Meeting Update

During this reporting, 32 Forest Practices Applications required a landowner-tribe meeting. This requirement was redeemed in all instances.

Process

The Forest Practices Program funded one FTE in the Washington Department of Archaeology and Historic Preservation (DAHP). Through an interagency agreement, DNR provided specific funding to DAHP for a staff position for database administration and Forest Practices Application and Notification review. For FY2018, DNR provided \$187,722 for this DAHP staff position.

12.2 WAC 222-20-120 Updates

The TFW Cultural Resources Roundtable did not meet during FY2018. DNR, DAHP, tribes and landowners continue to meet at a high level under the guidance of a professional facilitator to discuss and review protection of tribal cultural resources through DNR Forest Practices Applications under the authority of WAC 222-20-120. The facilitation services allows leadership from all parties to express deeply held views and for all parties to gain an in-depth understanding of the important cultural programs to tribal communities.

To this end, tribal leadership and policy staff, forest landowners on state and private forestlands, and the State (DNR and DAHP) are engaging discussions relative to tribal cultural resources protections. This includes systematic review of current process and development of best practices. The conversation is ongoing, with completion targeted for FY 2019. The group is interested in a recommitment to the principles of the Timber, Fish and Wildlife Agreement of 1987 and of the 1999 Forests and Fish Report, and is interested in establishing increased funding to increase protection of cultural resources and develop planning, protection and management strategies for tribal cultural resources.

12.3 Update on Timber/Fish/Wildlife Cultural Resources Roundtable

The Cultural Resources Roundtable will remain in hiatus until the efforts of the facilitated process are completed. The Roundtable, when reconvened, is expected to continue its important role in the implementation of the Forest practices rules. The Roundtable will continue to implement commitments in the *Cultural Resources Protection and Management Plan* as appropriate.

13. Washington State Legislature

In 1974, the Washington State Legislature passed the Forest Practices Act (Act) declaring:

“forest land resources are among the most valuable of all resources in the state; that a viable forest products industry is of prime importance to the state's economy; that it is in the public interest for public and private commercial forestlands to be managed consistent with sound policies of natural resource protection; that coincident with maintenance of a viable forest products industry, it is important to afford protection to forest soils, fisheries, wildlife, water quantity and quality, air quality, recreation, and scenic beauty” (RCW 76.09.010).

The Act was the State’s first comprehensive law addressing the impacts of forest practices on the environment. The Act also created the Forest Practices Board, giving the Board rule making authority, which sets the specific standards that are the basis for the Forest Practices Program.

Each year, DNR monitors laws being considered and passed by the Washington State Legislature for those that could affect the Forest Practices Program and possibly the Forest Practices HCP.

During the legislative session, DNR requested and gained a legislative sponsor in the Senate for a bill to create a required pre-FPA application review process before landowners submitted FPAs that included road construction, harvesting or other defined forest practices in or around potentially unstable slopes or on high-hazard snow avalanche slopes. The objective was to have thorough, complete FPAs when submitted, so that DNR and other stakeholders could review complete proposals within the 30-day period established by law. [Senate Bill 6235](#) had a public hearing but did not move out of its Senate committee. Forest Practices continues to look at what options might be possible to implement through policy on this issue instead of through law.

14. Information Technology Tools

[Appendix: Background on Information Technology Tools](#)

14.1 Forest Practices Application Review System

There were 4,657 FPAs processed in FPARS and 1,546 reviewers receiving email notification.

14.2 Forest Practices Enforcement Tracking (FPETS) System

The Forest Practices Program entered 768 Informal Conference Notes, 14 Notices of Conversion to Non-forestry Use, and 121 Notices to Comply, 2 Civil Penalties, and 43 Stop Work Orders into FPETS.

14.3 Forest Practices Risk Assessment Mapping

The Program queries more than 100 map layers.

14.4 DNR Hydrography Data Layer and Water Type Updates

DNR GIS staff entered approximately 5,386 GIS stream segment (number of segments depend on how stream was input into GIS) updates representing approximately 1,035 miles into the hydrography data set based on 726 WTMFs.

These updates included Stream type upgrades to approximately 59 miles of stream and stream downgrades to approximately 142 miles of stream. As of June 2018, the Water Type Modification Forms backlog was 33. This number is slightly higher than last fiscal year (FY 2017) when the backlog was 29 WTMFs.

14.5 Road Maintenance and Abandonment Plan Point Data Set

Revised datasets are posted periodically to the Forest Practices RMAP Program stakeholder review site. DNR published revised versions of the Forest Practices RMAP point dataset in September 2017, December 2017, March 2018 and June 2018. The forest practices RMAP specialists in DNR regional offices continued to work diligently to update this data, providing many barrier replacement dates, and other data items that were previously missing.

14.6 Forest Practices Online Project

The next generation of business solution to be developed and employed by the Forest Practices Division is currently termed Forest Practices Online (fpOnline). FpOnline will be an integrated business information system that will enable conducting forest practices business almost entirely online. Unlike the current system (Forest Practices Application Review System), which was designed 18 years ago as a reviewer notification system, fpOnline will integrate the forest practices business systems and databases allowing forest practices staff, proponents, and Forest Practices Application/Notification (FPA/N) reviewers to more efficiently conduct business with the Forest Practices Program.

The Forest Practices Online Project (fpOnline project) has completed the second discovery phase of the project. Where the first discovery phase documented the requirements from the work processes at a high level to support a search for potential technologic solutions, the second discovery phase resulted in production of a range of information system alternatives that informed DNR's procurement option evaluation and provided better cost estimates for requesting funding for implementation. As well, a set of 45 distinct opportunities for improvement were identified, some of which could be acted on opportunistically outside the proposed main system development project; 19 of these were implemented during the reporting period.

** NOTE: A data error occurred in the 2017 FPHCP report and inaccurate numbers provided for the DNR Hydrography Data Layer and Water Type Updates. The following information is correct for the July 1, 2016 – June 30, 2017 (2017 annual report) date range:*

Staff processed 745 Water Type Modification Forms resulting in updates to approximately 893 stream miles. These updates included stream type upgrade to approximately 48 miles of stream and stream type downgrade to approximately 65 miles of stream. As of June 2017, the Water Type Modification Forms backlog was 29. This is the lowest backlog DNR has achieved. The fiscal year (FY) 2016 backlog was 172.

15. Forest Practices Program Budget

15.1 Introduction

In 2017 the Governor and Washington State Legislature passed the 2017-2019 biennial operating budget bill which mandated a fund shift for the Forest Practices Program and appropriated General Fund-State (GF-S) funding for the Adaptive Management Program. This enacted budget included a funding shift from the State Toxics Control Account (Toxics) to replace 23 percent of the GF-S appropriation for the Forest Practices Program. Another fund shift of \$1.5 million in GF-S proviso for the Forest Practices Adaptive Management Program was replaced by the equivalent amount from the Forests and Fish Support Account (FFSA) in this budget package.

In addition to the above-mentioned funding sources, the Forest Practices Program continued to provide core programs utilizing the Forest Practices Application Account (FPAA) to fund the implementation of hydraulic project integration, and the FFSA to support project management and participation grants in the AMP. These foundational elements sustain the state’s Forest Practices HCP and federal Clean Water Act assurances.

The 2017-2019 biennial allocation for the Forest Practices Program exceeded the \$22.7 million funding level minimum, measured in 2005 dollars, as identified in the 2012 Settlement Agreement. The Forest Practices base biennial allocation by funding source and legislative fund shifts is reflected below (Table 18).

Table 18: 2017-2019 Biennium Operating Allocation with Personal Consumption Expenditure (PCE) Conversion in 2005 dollars

2017-2019 Base Allocation by Activity	GF-State	GF-State Proviso /Fund Shift for AMP	Forests & Fish Support Account (FFSA)	Forest Practices Application Account (FPAA)	TOXICS	TOTAL FUNDS
Forest Practices Act & Rules	13,289,400		188,000	1,500,800	6,426,200	21,404,400
Adaptive Management Program	521,400	3,280,000	12,009,800			15,811,200
Small Forest Landowner Program Development	300,000				121,000	421,000
					950,600	950,600
TOTALS	14,110,800	3,280,000	12,197,800	1,500,800	7,497,800	38,587,200
PCE Conversion (2005 dollars)	11,548,659	2,684,440	9,983,008	1,228,295	6,136,401	31,580,804

15.2 2017-2019 Biennial Allocation by Activity

The Forest Practices Program is organized into four functional activities. Table 19 below lists program components and the funding source within each functional activity.

Table 19:2017-2019 Forest Practices Program Functional Activity Components

Functional Activity	Activity Components	Funding Source
Forest Practices Act & Rules (Operations)	Application Processing, Compliance Monitoring, Enforcement, RMAPS, IT/GIS Development & Support & Stakeholder Assistance Training	GF-State & Toxics
	Department of Archeology & Historic Preservation Interagency agreement for GIS/Spatial data on forest practices applications with cultural resources.	FFSA
	Forest Practices Applications with activities carried out in water, such as the construction, removal, or replacement of a culvert or bridge. Department of Fish & Wildlife Interagency agreement for consultation on forest practices hydraulic projects.	FPAA
Adaptive Management Program	Adaptive Management Research/Monitoring Projects & Administration Staff & Project Management Staff	GF-State & FFSA
	Participation grants to tribes /tribal organizations; Participation grants to non-profits; & Interagency agreements with Ecology & Fish and Wildlife Departments.	FFSA
Small Forest Landowner Office	SFLO Program and Operations	GF-State & Toxics
Program Development	Forest Practices Board; Rule Making/Board Manual; Forest Practices Habitat Conservation Plan; and Clean Water Act Assurances.	Toxics

15.3 2017-2019 Biennium Operating Expenditures by Activity

The Forest Practices Program expended a total of \$16.8 million in fiscal year 2018. A total of \$2.5 million was expended from the Toxics account. Approximately \$465,675 of the FPAA was spent continuing to finance an interagency agreement with WDFW for consultation on forest practices hydraulic projects, statewide engineering assistance, and office/field staff in six regions.

Roughly, \$4.2 million of the FFSA continued to support project support, participation grants to tribal, non-profit public interest organizations and state agency involvement in the AMP. The AMP expended the entire \$1.6 million GF-State proviso for research/monitoring projects. The expenditures for this fiscal year are reflected in Table 20. These expenditures do not include the

full time equivalent (FTEs) and budget for the federally funded portion of the forest stewardship program or state capital funding utilized through the Small Forest Landowner Office.

Table 20: Forest Practices Program FY 2018 Expenditures (July 1, 2017 – June 30, 2018)

FY 2018 Expenditures by Activity	GF-State	GF-State Proviso	FFSA	FPA	TOXICS	TOTAL FUNDS
Forest Practices Act & Rules	7,488,932		86,885	465,675	2,033,288	10,074,780
Adaptive Management Program	228,864	1,640,000	4,217,309			6,086,173
Small Forest Landowner Program Development	162,136				65,395	227,531
					425,142	425,142
TOTALS	7,879,932	1,640,000	4,304,194	465,675	2,523,825	16,813,626

15.4 Forest Practices Program Full Time Employees

The Forest Practices Program utilized 95 percent of the statewide-allotted FTEs. Some Division employees in positions normally funded by capital programs during the time before the 17-19 capital budget was approved were temporarily employed in the AMP and the SFLO. This accounts for the FTE variance in those two programs.

The statewide program experienced a position vacancy rate of 3 percent during fiscal year 2018. The reasons for this are primarily due to promotions, retirements, transfers, and delayed recruitments. Forest Practices program staff also participated in DNR's statewide wildfire response program, which contributed to the differences in charging to the base forest practices program (that is, when staff is engaged in firefighting, employee time is not charged to the forest practice program). This staffing difference accounted for approximately 2 percent of the FTE under-utilization during fiscal year 2018. Table 21 reflects the actual FTEs utilized during this fiscal year.

Table 21: Forest Practices Program Full-Time Equivalent

2017-2019 Allocation by Activity	17-19 BN* FTEs	Actual FY 18 FTEs	Difference
Forest Practices Act & Rules	106.12	100.15	5.97
Forest Practices Manage Adaptively	5.25	5.71	(0.46)
Small Forest Landowner	2.00	2.17	(0.17)
Program Development	4.52	4.29	0.23
TOTALS	117.89	112.32	5.57

*BN = biennium

16. Washington Timber Harvest Report

16.1 Introduction

The following Washington State Timber Harvest Report¹ summary provides a historical record of timber harvest activities, by landowner class from 1990 to 2017. Volumes in million board feet.

Table 22: Timber Harvest Report

Calendar Year	State Total	Forest Practices Habitat Conservation Plan and other Aquatic HCPs						Federal/Tribal Nat'l Forests, BLM , Others
		FPHCP, other Aquatic HCPs ²	Western WA	Eastern WA	Private ³	DNR ⁴ (state lands)	Other Public ⁵ (county, etc.)	
1990	6,032	5,017	4,159	859	4,330	657	30	1,015
1991	5,276	4,390	3,585	806	3,822	535	33	886
1992	5,203	4,549	3,692	858	4,030	476	43	654
1993	4,521	3,991	3,135	862	3,513	461	17	530
1994	4,355	3,952	3,116	836	3,619	323	10	403
1995	4,622	4,236	3,332	904	3,720	496	20	386
1996	4,536	4,179	3,247	931	3,544	600	35	357
1997	4,497	4,066	3,190	884	3,390	645	31	431
1998	4,297	3,901	3,067	835	3,319	546	36	396
1999	4,717	4,257	3,320	937	3,580	662	15	460
2000	4,507	4,083	3,191	893	3,507	559	17	424
2001	4,041	3,638	2,825	813	3,116	496	26	403
2002	3,901	3,497	2,685	814	3,000	457	40	404
2003	3,377	3,241	2,759	481	2,697	510	34	136 *
2004	3,787	3,691	3,134	556	3,052	588	51	96 *
2005	3,571	3,490	2,914	576	2,864	594	32	81 *
2006	3,324	3,249	2,682	567	2,786	404	59	75 *
2007	3,264	3,169	2,593	576	2,685	448	36	95 *
2008	2,757	2,653	2,297	357	2,067	515	71	104 *
2009	2,217	2,116	1,877	239	1,423	641	52	101 *
2010	2,737	2,619	2,337	283	1,828	764	27	118 *
2011	2,984	2,876	2,529	347	2,206	637	33	108 *
2012	2,739	2,657	2,311	347	2,182	442	33	82 *
2013	3,298	3,088	2,673	415	2,525	513	50	210
2014	3,389	3,090	2,693	396	2,457	585	48	299
2015	3,003	2,729	2,248	481	2,237	462	31	274
2016	2,997	2,599	2,250	349	2,030	534	34	398
2017	2,953	2,658	2,307	350	2,087	529	41	295

*Tribal data is not included in these years

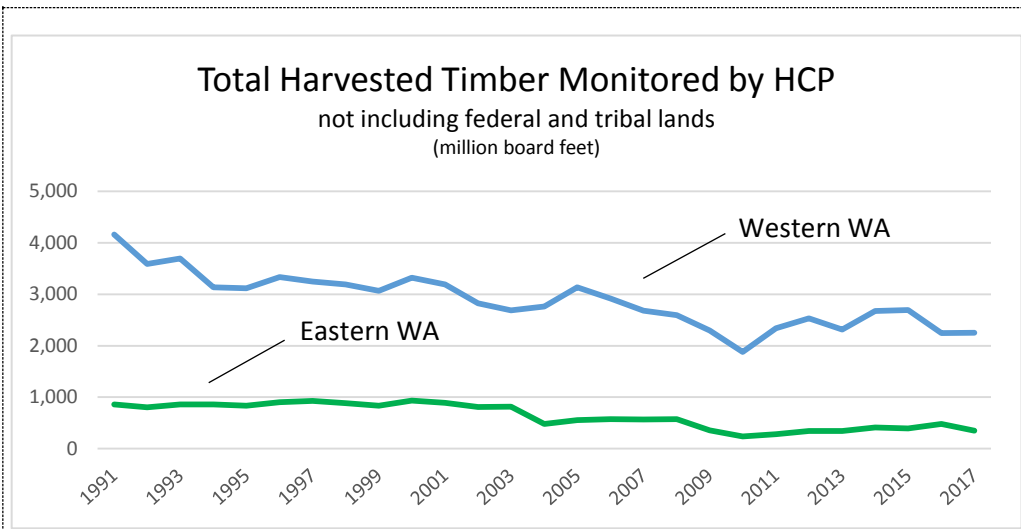
¹Timber harvest statistics are based on data gathered by the Washington Department of Revenue.

²Total FPHCP and other Aquatic HCPs = Western WA + Eastern WA + Private + DNR + Other Public

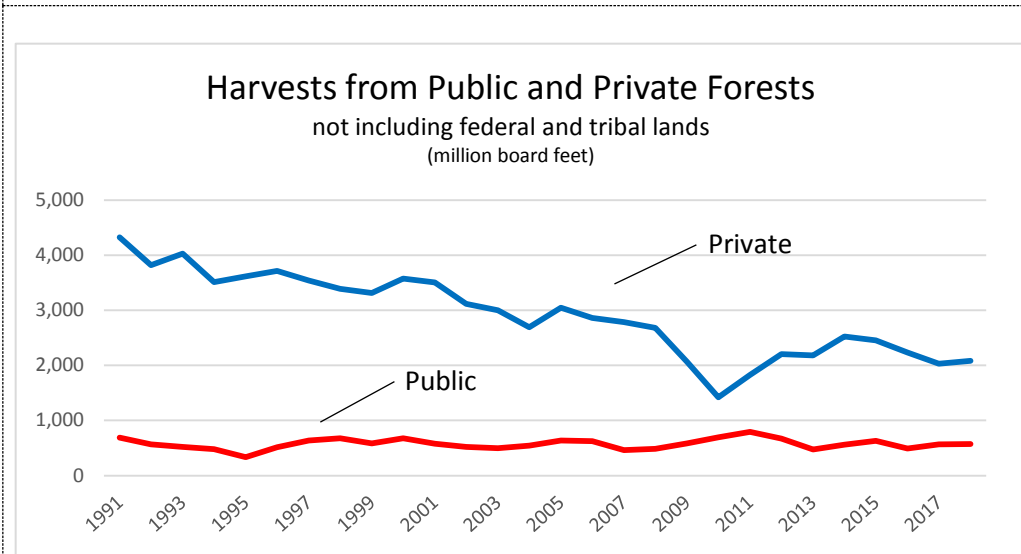
³Private includes large forest landowners, small forest landowners and industrial forest owner.

⁴Harvests from lands managed by the Washington State Department of Natural Resources (DNR).

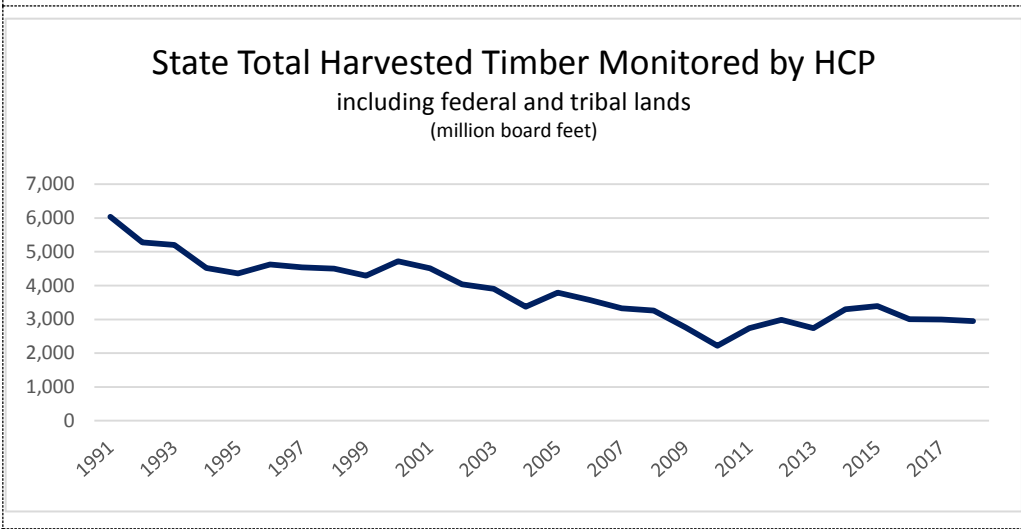
⁵Includes public lands owned by cities, counties, public utilities, and state agencies other than DNR.



Western Washington's high rainfall and unique topography creates a zone of high timber productivity. The timber harvested west of the cascades contributes around 85% of Washington State's total timber harvest, totaling over 2 billion board feet in 2017. Eastern Washington's harvests average quite a bit less than Western Washington's but still add nearly half a billion board feet annually.



The majority of timber harvested in Washington comes from privately owned forests. Of the 22 million acres of forested land in Washington, 43% is privately owned. After a recession in 2008, harvest numbers were reduced but have been mostly on the rise since 2010. Timber harvests from publicly owned lands have remained at relatively stable annual levels and account for around 20% of Washington's non-tribal and non-federal timber harvests.



In 2017, Washington's total timber harvest was near 3 billion board feet, the majority of which came from private timber harvests in Western Washington. Harvest totals on federal and tribal lands account for 10 percent of timber harvested in the state with state and other public land harvests making up 20 percent.

Appendix



Appendix 1: Clean Water Act Assurances



STATE OF WASHINGTON DEPARTMENT OF ECOLOGY


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Memorandum

January 24, 2018

TO: Forest Practices Board

FROM: Mark Hicks, Ecology Forest Practices Lead 

SUBJECT: Clean Water Act Milestone Update

The Washington State Department of Ecology (Ecology) committed to provide the Forest Practices Board (Board) with periodic updates on the progress being made to meet milestones established for retaining the Clean Water Act 303(d) Assurances (Assurances) for the forest practices rules and associated programs. Our last update to the Board occurred at your Nov 2017 Board meeting.

Under Washington state law (Chapter 90.48 RCW and 76.09.040 RCW) forest practices rules are to be developed so as to achieve compliance with the state water quality standards and the federal Clean Water Act (CWA). The Assurances establish that the state's forest practices rules and programs, as updated through a formal adaptive management program (AMP), will be used as the primary mechanism for bringing and maintaining forested watersheds in compliance with the state water quality standards. The Assurances were originally granted in 1999 as part of the Forests and Fish Report (FFR) and spell out the terms and conditions of how Section 303(d) will be applied to lands subject to the FFR. Those original Assurances were to last for only a ten year period. After conducting a review of the program and hearing from stakeholders that they were committed to making the program work, Ecology conditionally extended the assurances for another ten years. This extension was based on the expectation that the program meet a list of process improvements and performance objectives. These are the milestones reported on in this update.

The 2009 milestones were established to create a path of steady improvement in gathering information critical for assessing the effectiveness of the rules in protecting water quality as mandated by state law. Equally important, was the intent to encourage process changes that would lead to cooperators working more productively together to create a more effective research program to test and adjust the rules long-term.

Enclosed are two tables showing the milestones and summarizing their current status. The first table shows the non-CMER project milestones. These milestones are implemented outside of the Cooperative Monitoring, Evaluation, and Research (CMER) program and are largely within the control of the Forest Practices Operations Section of the Department of Natural Resources (DNR) or the Timber Fish and Wildlife Policy Committee (Policy). **Changes in status since our last briefing and points of note are highlighted in red font.**

Although, progress continues to be made to move numerous milestones forward, no milestones have been completed since the Board's November 2017 meeting.

Please contact me if you have any questions or concerns (360) 407-6477.

Enclosure

Summary of CWA Assurances Milestones and current status:

Non-CMER Project Milestones		
	Summarized Description of Milestone	Status as of January 2018¹
2009	July 2009: CMER budget and work plan will reflect CWA priorities.	Completed October 2010
	September 2009: Identify a strategy to secure stable, adequate, long-term funding for the AMP.	Completed October 2010
	October 2009: Complete Charter for the Compliance Monitoring Stakeholder Guidance Committee.	Completed December 2009
	December 2009: Initiate a process for flagging CMER projects that are having trouble with their design or implementation.	Completed November 2010 The product developed that met this milestone is complicated and not being used. The Adaptive Management Program Administrator has stated his intention to refine the process. Any remedy that ensures problems are identified and resolved efficiently would continue to satisfy this milestone.
	December 2009: Compliance Monitoring Program to develop plans and timelines for assessing compliance with rule elements such as water typing, shade, wetlands, haul roads and channel migration zones.	Completed March 2010
	December 2009: Evaluate the existing process for resolving field disputes and identify improvements that can be made within existing statutory authorities and review times.	Completed November 2010
	December 2009: Complete training sessions on the AMP protocols and standards for CMER, and Policy and offer to provide this training to the Board. Identify and implement changes to improve	Completed May 2016

Non-CMER Project Milestones		
	Summarized Description of Milestone	Status as of January 2018¹
	performance or clarity at the soonest practical time.	
2010	January 2010: Ensure opportunities during regional RMAP annual reviews to obtain input from Ecology, WDFW, and tribes on road work priorities.	Completed September 2011
	February 2010: Develop a prioritization strategy for water type modification review.	Completed March 2013
	March 2010: Establish online guidance that clarifies existing policies and procedures pertaining to water typing.	Completed March 2013
	June 2010: Review existing procedures and recommended any improvements needed to effectively track compliance at the individual landowner level.	Completed November 2010
	June 2010: Establish a framework for certification and refresher courses for all participants responsible for regulatory or CMP assessments.	Completed September 2013
	July 2010: Assess primary issues associated with riparian noncompliance (using the CMP data) and formulate a program of training, guidance, and enforcement believed capable of substantially increasing the compliance rate.	Completed August 2012
	July 2010: Ecology in Partnership with DNR and in Consultation with the SFL advisory committee will develop a plan for evaluating the risk posed by SFL roads for the delivery of sediment to waters of the state.	Underway DNR, Ecology, and representatives of the small forest landowner caucus are working together to try and develop a solution that will inform the condition of SFL roads. Discussions are leading towards a combination of a self-directed survey with a field validation sample.
	July 2010: Develop a strategy to examine the effectiveness of the Type N rules in protecting water quality at the soonest possible time that	Underway

Non-CMER Project Milestones		
	Summarized Description of Milestone	Status as of January 2018¹
	includes: a) Rank and fund Type N studies as highest priorities for research, <u>b) Resolve issue with identifying the uppermost point of perennial flow by July 2012</u> , and c) Complete a comprehensive literature review examining effect of buffering headwater streams by September 2012.	TFW Policy has reactivated work to complete this milestone. After reaching a tentative agreement on how to handle identification of the Upper Most Point of Perennial Flow during the wet season, Policy agreed to recommend the Board direct DNR to establish a technical work group to resume development of Board Manual 23.
	October 2010: Conduct an initial assessment of trends in compliance and enforcement actions taken at the individual landowner level.	Completed November 2010
	October 2010: Design a sampling plan to gather baseline information sufficient to reasonably assess the success of alternate plan process.	Completed December 2014 DNR satisfied this milestone by releasing an Alternate Plan <u>Guidance memo (12-10-14) designed to strengthen the overall process for issuing alternate plans.</u> Efforts remain pending for DNR to conduct a review to assess whether the guidance is being effectively used.
	December 2010: Initiate process of obtaining an independent review of the Adaptive Management Program.	Underway DNR is working with the state auditor's office about performing an audit.
2011	December 2011: Complete an evaluation of the relative success of the water type change review strategy.	Completed March 2013 DNR rechecked the current status of the review process used in the regional offices. They found differences in the extent the original processes had been maintained. No assessment was made of

Non-CMER Project Milestones		
	Summarized Description of Milestone	Status as of January 2018¹
		whether this affected cooperators ability to contribute to an effective review.
	December 2011: Provide more complete summary information on progress of industrial landowner RMAPs.	Completed September 2011
2012	October 2012: Reassess if the procedures being used to track enforcement actions at the individual land owner level provides sufficient information to potentially remove assurances or otherwise take corrective action.	Completed June 2012
	Initiate a program to assess compliance with the Unstable Slopes rules.	Completed October 2017
2013	November 2013: Prepare a summary report that assesses the progress of SFLs in bringing their roads into compliance with road best management practices, and any general risk to water quality posed by relying on the checklist RMAP process for SFLs.	Off Track <i>Described above for July 2010 milestone.</i>

CMER Research Milestones		
	Description of Milestone	Status as of January 2018¹
2009	Complete: <u>Hardwood Conversion – Temperature Case Study</u> (Completed as data report)	Completed June 2010
	Study Design: <u>Wetland Mitigation Effectiveness</u>	Completed October 2010
2010	Study Design: <u>Type N Experimental in Incompetent Lithology</u>	Completed August 2011

CMER Research Milestones		
Description of Milestone		Status as of January 2018¹
	Complete: <u>Mass Wasting Prescription-Scale Monitoring</u>	Completed June 2012
	Scope: <u>Mass Wasting Landscape-Scale Effectiveness</u>	Underway
	Scope: <u>Eastside Type N Effectiveness</u>	Completed November 2013
2011	Complete: <u>Solar Radiation/Effective Shade</u>	Completed June 2012
	Complete: <u>Bull Trout Overlay Temperature</u>	Completed May 2014
	Implement: <u>Type N Experimental in Incompetent Lithology</u>	On Track
	Study Design: <u>Mass Wasting Landscape-Scale Effectiveness</u>	Earlier Stage Underway
2012	Complete: <u>Buffer Integrity-Shade Effectiveness</u>	Underway This study has been delayed since concerns were identified in 2013. Changes in response to the second round of ISPR review comments still need to be completed and transmitted back to ISPR for approval.
	Literature Synthesis: <u>Forested Wetlands Literature Synthesis</u>	Completed January 2015
	Scoping: <u>Examine the effectiveness of the RILs in representing slopes at risk of mass wasting.</u>	Completed April 2017

CMER Research Milestones		
Description of Milestone		Status as of January 2018¹
	Study Design: <u>Eastside Type N Effectiveness</u>	Underway ISPR approved study design awaiting CMER concurrence.
2013	Scoping: <u>Forested Wetlands Effectiveness Study</u>	Completed December 2016
	<u>Wetlands Program Research Strategy</u>	Completed January 2015
	Scope: <u>Road Prescription-Scale Effectiveness Monitoring</u>	Completed March 2016
	Study Design: <u>Examine the effectiveness of the RILs in representing slopes at risk of mass wasting.</u>	Underway Draft study approved to send to ISPR in January 2018.
	Implement: <u>Eastside Type N Effectiveness</u>	Earlier Stage Underway Discussed above for 2012 study design.
2014	Complete: <u>Type N Experimental in Basalt Lithology</u>	Underway Findings report drafted but not yet approved by CMER for delivery to Policy.
	Study Design: <u>Road Prescription-Scale Effectiveness Monitoring</u>	Underway
	Scope: <u>Type F Experimental Buffer Treatment</u>	Complete December 2015
	Implementation: <u>Examine the effectiveness of the RILs in representing slopes at risk of mass wasting</u>	Earlier Stage Underway Discussed above for 2013 study design.

CMER Research Milestones		
Description of Milestone		Status as of January 2018¹
	Study Design: <u>Forested Wetlands Effectiveness Study</u>	Underway Draft ready for submittal to CMER.
2015	Complete: <u>First Cycle of Extensive Temperature Monitoring</u>	Underway Undergoing final post ISPR revision.
	Scope: <u>Watershed Scale Assess. of Cumulative Effects</u>	Off Track Project intended to follow other effectiveness monitoring studies which remain behind schedule.
	Scope: <u>Amphibians in Intermittent Streams (Phase III)</u>	Not Progressing Project milestone exists only if needed to fill research gaps left from Type Np Experimental in Basalt Lithology. The Type Np Basalt study is expected to be completed in 2018, so Policy established 2019 as a date to begin this study; if questions were not addressed.
2017	Study design: <u>Watershed Scale Assess. of Cumulative Effects</u>	Off Track Discussed above for 2016 Scoping.
	Study Design: <u>Amphibians in Intermittent Streams (Phase III)</u>	Not Progressing Discussed above for 2015 scoping.
2018	Complete: <u>Roads Sub-basin Effectiveness</u>	Earlier Stage Underway
	Implement: <u>Watershed Scale Assess. of Cumulative Effects</u>	Off Track Discussed above for 2016 Scoping.
	Complete: <u>Type N Experimental in Incompetent Lithology</u>	On Track

CMER Research Milestones		
Description of Milestone		Status as of January 2018¹
2019	Complete: <u>Eastside Type N Effectiveness</u>	Earlier Stage Underway Discussed above for 2012 study design.

Status terminology:

- “Completed”** - milestone has been satisfied (includes those both on schedule and late).
- “On Track”** - work is occurring that appears likely to satisfy milestone on schedule.
- “Underway”** - work towards milestone is actively proceeding, but likely off schedule.
- “Earlier Stage Underway”** – project initiated, but is at an earlier stage (off schedule) than the listed milestone.
- “Not Progressing”** - no work has begun, or work initiated has effectively stopped.
- “Off Track”** - 1) No work has begun and inadequate time remains, 2) key stakeholders are not interested in completing the milestone, or 3) attempt at solution was inadequate and no further effort at developing an acceptable solution is planned.

Appendix 2: FPAs Associated with 20-Acre Exempt Parcels

Appendix 2a: Potential Loss of LWD Recruitment

Estimated Potential Percent Loss of Large Woody Debris Recruitment Potential, by Watershed Administrative Unit (WAU)	
Watershed Administrative Unit	Percent (%) Reduction in LWD Function in WAU
Abernathy	0.068
Acme	0.105
Anderson Creek	0.026
Antonie Creek	0.022
Bangor-Port Gamble	0.508
Bear River	0.072
Bellingham Bay	0.128
Black River	0.012
Bogachiel	0.053
Blanchard Creek	0.037
Bunker Creek	0.261
Camano Island	0.318
Camas Valley	0.033
Carbon	0.121
Carpenter	0.141
Cathlapotl	0.295
Cedar Creek/Chelatchie Creek	0.676
Chehalis	0.319
Chehalis Headwaters	0.006
Chehalis Slough	0.102
Chimakum	0.065
Chinook	0.027
Church Creek	0.343
Cloquallum	0.125
Coal Creek	0.382
Columbia River/Rock Creek	0.018
Colvos Passage/Carr Inlet	0.199
Conboy	0.042
Connelly	0.148

Copper Creek	1.197
Corkindale	0.102
Cottonwood Creek	0.023
Cowlitz River/Mill Creek	0.119
Damfino	0.218
Davis Creek	0.153
Day Creek	0.259
Deadman Creek/Peone Creek	0.191
Delameter	0.061
Delezene Creek	0.138
Deming	0.063
Diobsud Creek	2.097
Discovery Bay	0.047
Dragoon Creek	0.115
Drayton	0.583
Dungeness Valley	0.031
Dyes Inlet	0.273
East Creek	0.013
East Stranger Creek	0.087
East Fork Hoquiam	0.180
East Fork Humptulips	0.102
EF Satsop	0.006
Electron	0.033
Elk Creek	0.014
Elk River	0.078
Everett	0.040
Ferndale	0.366
French-Boulder	0.098
Friday Creek	0.918
Germany	0.101
Gibson Ck.	0.203
Gilligan	0.191
Grays Bay	0.045
Great Bend	0.046
Haller Creek	0.087
Hamilton Creek	0.044
Hansen Creek	0.503
Harstine Island	0.146
Hoko	0.004

Hope Creek	0.204
Horseshoe Falls	0.705
Huckleberry Creek	0.023
Hutchinson Creek	0.149
Independence Creek	0.168
Jim Creek	0.048
Johns River	0.058
Jordan	0.067
Key Peninsula	0.299
Kiona Creek	0.152
L. Pilchuck Creek	0.066
L.Snoqualmie River/Cherry Creek	0.005
Lacamas	0.187
Lacamas Lake	0.365
Lake Crescent	0.181
Lake Merwin	0.440
Lake Whatcom	0.128
Liberty Miller - Appletree	0.614
Lilliwaup	0.025
Lincoln Creek	0.070
Little Boulder Creek	0.177
Little Deep Creek	0.040
Little Spokane/Deer Creek	0.050
Little Washougal	0.240
Little White Salmon River	0.017
Long Beach	0.135
Lost Creek	0.517
Lower Chehalis/Elizabeth Creek	0.175
Lower Coweeman	0.318
Lower Cowlitz	0.376
Lower Deschutes	0.126
Lower Dosewllips	0.185
Lower Elochoman	0.192
Lower Humptulips River	0.042
Lower Kalama	0.210
Lower Little Pend Oreille	0.074
Lower Middle Snoqualmie	0.028
Lower Naselle	0.053
Lower NF Stillaquamish	0.144

Lower Newaukum	0.670
Lower Pilchuck Creek	0.213
Lower Pilchuck River	0.289
Lower Quinault	0.173
Lower Riffe Lake	0.109
Lower Skokomish	0.162
Lower Salmon Creek	0.171
Lower Snoqualmie River/Cherry Crk.	0.108
Lower Willapa	0.304
Lower Wind	0.044
Lower Wishkah	0.042
Lynch Cove	0.221
Magee Creek	0.125
Mashel	0.036
Mason	0.160
McLane Creek	0.049
MF Satsop	0.034
Middle Humptulips	0.044
Middle Sauk	0.014
Mill Creek	0.019
Mill Creek/Clugton Creek	0.034
Mitchel	0.039
Moran Creek	0.076
Mox Chehalis	0.123
Mt Zion	0.034
Muck Creek	2.002
Naselle Headwaters	0.009
Nemah	0.037
NF Granite Creek	0.034
NF Newaukum	0.048
Nineteen Creek	0.185
Nookachamps	0.015
North Headwaters	0.048
North-Middle Forks Deer Creek	0.095
Ohop	0.044
Olequa	0.311
Onion Creek	0.037
Ostrander	0.421
Otter Creek	0.077

Packwood Lake	0.383
Palix	0.003
Patit Creek	0.046
Pend Oreille/Cedar Creek	0.032
Pend Oreille/Deer Creek	0.031
Pilchuck Mtn.	0.013
Port Angeles	0.153
Porter Canyon	0.091
Possession Sound-N. Elliot Creek	0.120
Quilceda Creek	0.346
Quillisascut Creek	0.517
Quinault Lake	0.208
Raging River	0.028
Reese Creek	0.056
Rock Creek	0.212
S. Sinclair Inlet	0.060
Salmon Creek	0.066
Salt Creek	0.318
Samish Bay	0.087
Samish River	0.215
Sammamish River	0.039
San Juan	0.032
Satsop	0.153
Scatter Creek	0.076
Sekiu	0.022
Sequim Bay	0.297
Siebert McDonald	0.062
SF Chehalis	0.009
SF Skokomish	0.070
SF Skykomish River	0.018
SF Willapa	0.076
Silver Lake	0.226
Skookum	0.015
Smith Creek	0.049
Smith Point	1.226
Sol Duc Lowland	0.027
Sol Duc Valley	0.042
Squalicum Creek	0.112
St. Peter-Lambert	0.078

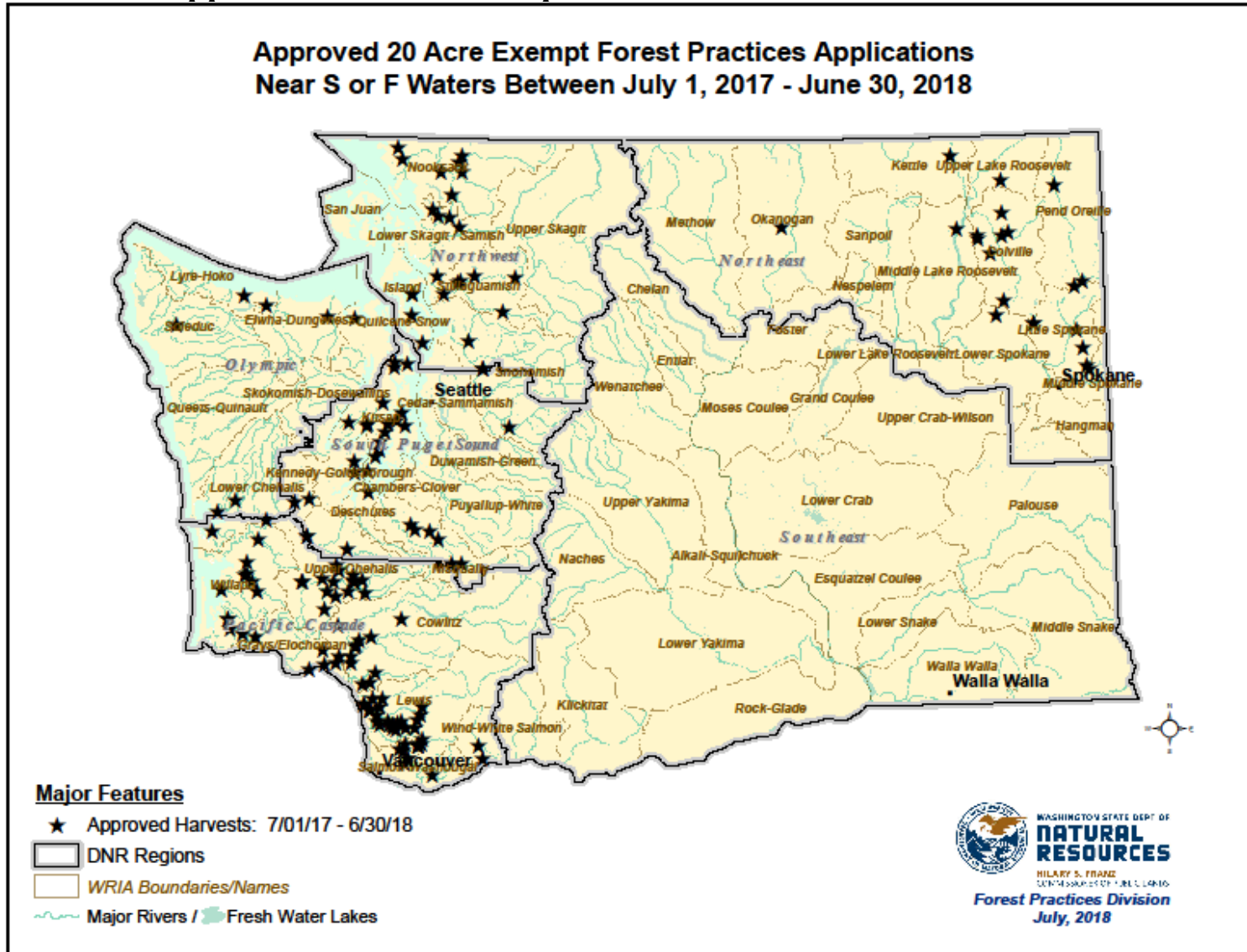
Stahley Mtn.	0.214
Stillaguamish Flats	0.096
Stillwater	0.044
Sultan River	0.037
Sumas River	0.143
Sutherland Aldwell	0.319
Tacoma Creek	0.114
Tanwax Creek	0.446
Toandos Peninsula	0.064
Toutle River	0.267
Trout Creek	0.515
Upper Chehalis/Cedar Creek	0.047
Upper Chehalis/Rock Creek	0.099
Upper Coweeman	0.069
Upper Little Pend Oreille River	1.192
Upper NF Stilly	0.095
Vancouver	0.644
Vashon Island	0.051
Vedder	0.733
Verlot	0.071
Vesta Little N.	0.013
Wanacut	2.049
Warnick	0.084
West Fork/Mid Fork Hoquiam	0.073
West Fork Wasougal	0.069
Whidbey Island	0.494
White Salmon/Buck Creek	0.027
Wilkeson	0.032
Willapa Headwaters	0.019
Winston Creek	0.025
W. Kitsap	0.025
Wishkah Headwaters	0.076
Woodland Creek	0.619
Woods Creek	0.065
Wynochee River System	0.049
Yacolt	0.550
Yelm Creek	0.684

NOTE: Table includes a 2016 recalculation of fish bearing stream length by WAU on Forest Practices HCP covered lands to align report calculations with current GIS data.

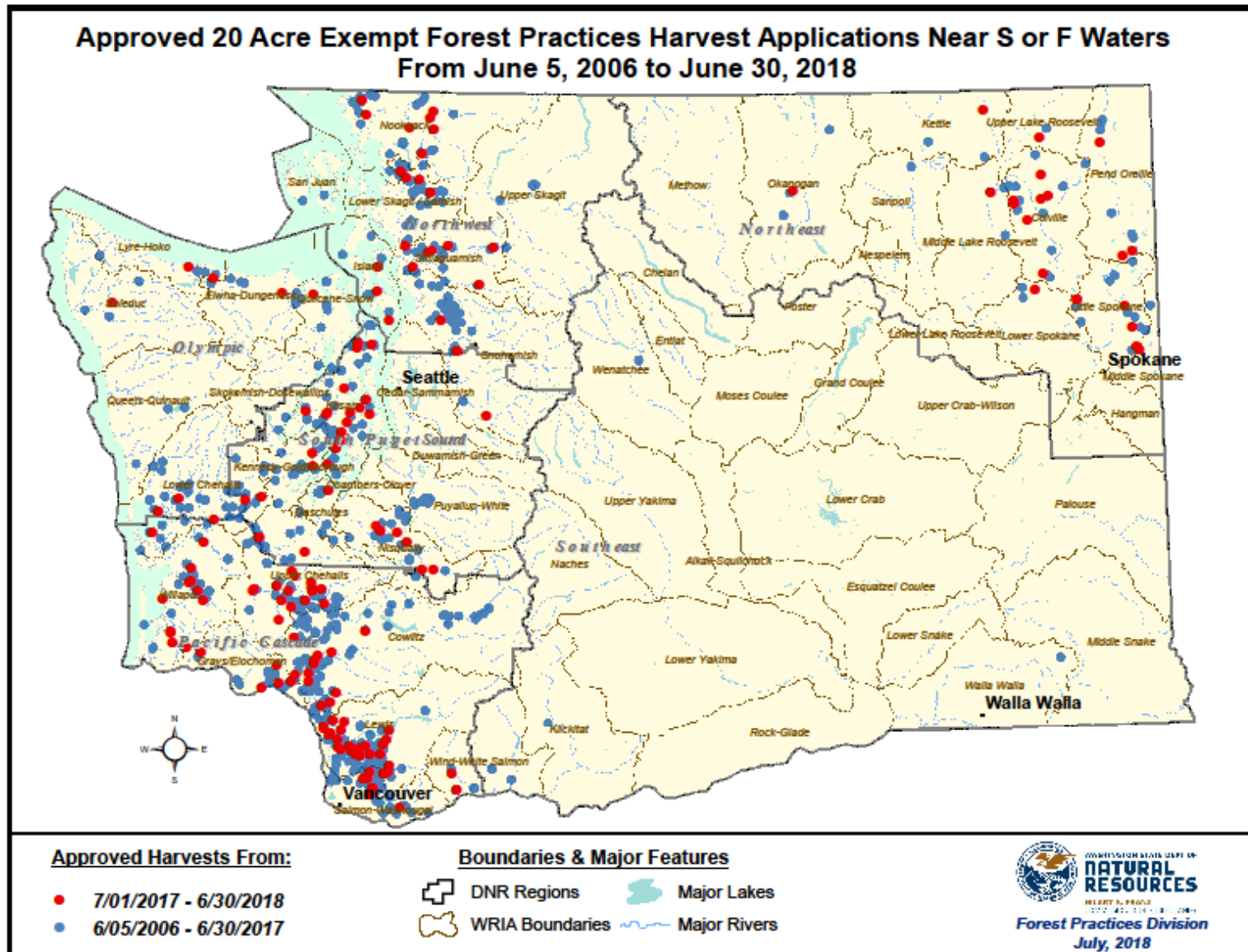
The table above shows estimated percent of loss (relative to standard forest practices prescriptions) of potential large woody debris recruitment in each WAU containing one or more 20-acre exempt FPAs over the elapsed twelve-year period of the Incidental Take Permits. There are 846 WAUs in the state, of which 222 have had 20-acre exempt FPAs approved. Currently, in-office calculations indicate that each WAU affected by 20-Acre Exempt applications, except for six, have less than one percent potential cumulative reduction in function relative to standard forest practices prescriptions. The six WAUs: Diobsud Creek (2.097%), Muck Creek (1.895%), Smith Point (1.226%), Upper Little Pend Oreille River (1.192%), Copper Creek (1.197%) and Wanacut (2.049%) all have less than three percent potential cumulative reduction in function. None of the six WAUs with potential reduction in function over one percent are near the 10 percent threshold ([explained in Appendix 3](#)) established in the Incidental Take Permits. One-hundred and one WAUs indicate a potential of reduction in function between 0.1 and 0.9 percent: and the remaining 115 WAUs listed in the above table show the possibility of less than 0.1 percent reduction in function since the 2006 issuance of the Incidental Take Permits.

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Appendix #2b: Approved 20-Acre Exempt FPAs near S or F Waters 7/1/17 – 6/30/18



Appendix #2c: Approved 20-Acre Exempt FPAs near S or F Waters 6/5/06 – 6/30/18



Appendix 3: History and Background for the Forest Practices Habitat Conservation Plan Reporting Elements

Introduction to Forest Practices HCP

Washington State’s Forest Practices stakeholders (those interested in regulation of forest practices), focused on regulatory changes for habitat protection measures for aquatic resources on non-federal, non-tribal forestlands from the mid-1990’s to the early 2000’s. Three emerging concerns propelled the State toward change during this time; multiple listings of threatened and endangered salmonids, forest stream water quality issues, and water-typing inconsistencies that affected forest practices applications.

In the mid-1990s, 660 Washington stream segments were identified as not meeting Federal Clean Water Act (CWA) water quality standards and were placed on the CWA 303(d) list. The CWA requires each state to develop and adopt water quality standards that are approved by the Environmental Protection Agency (EPA). The CWA solution for stream segments affected by non-point source pollution, such as pollution resulting from timber harvest, is the development of a “plan of control” written by state agencies. The Department of Ecology (Ecology), the state agency that protects water quality in Washington, uses forest practices rules, some of which Ecology co-adopts, as the primary tool for a “plan of control” when forest practices are a potential contributor to water pollution. Given the growing list of streams found on the 303(d) list at the time, Ecology turned toward forest practices rulemaking to address potential forestry impacts to water quality.

Concurrently, the accuracy of forest practices water type base maps used to establish fish presence and absence – for purposes of determining and implementing appropriate forest practices protection measures -- was in question. In the early 1990s, biologists often reported finding fish farther upstream in some areas than the official stream typing maps recognized. In 1996, Timber, Fish, and Wildlife (TFW) a group of forest stakeholders, developed an emergency forest practices rule recommendation to address water typing issues that resulted in the Board’s adoption of new emergency water typing rules until a more permanent solution could be implemented. These emergency rules changed the water typing definitions by modifying the gradient and width criteria for fish-bearing waters. However, revised permanent forest practices rules were still needed to improve water typing accuracy.

Ultimately, multiple listings of threatened and endangered salmonids under the Endangered Species Act (16 U.S.C. 1539) (ESA) played the heaviest role in the regulatory change efforts to protect Washington's aquatic resources. Salmon are an integral part of life in northwestern United States and the collective impact of losing these iconic fish led the State to prioritize development of solutions to prevent the potential loss.

In October 1996, TFW, upon the urging of representatives from National Marine Fisheries Service and the Environmental Protection Agency, agreed to tackle the immense task of negotiating and developing a rule package solution for the above, three concerns. TFW invited two new caucuses - federal agencies and county representatives- to join the rule package negotiation efforts with the traditional TFW caucuses; state agencies, tribes, forest landowners, and conservationists. The federal caucus was invited to the table to ensure the final product would reflect the Federal Government's requirements for protection for listed species and clean water and the counties were invited because of their shared management of natural resources and the potential impact on listed aquatic species and water quality.

Concurrently in 1997, Governor Locke in consideration of the State's potential loss of salmon, formed a Joint Natural Resources Cabinet and charged it with creating a salmon recovery plan for Washington State with an initial deadline of June of 1998. A "Salmon Recovery Strategy" developed by the Cabinet called for the protection of salmon habitat through forest, agriculture, and urban modules. The Joint Natural Resources Cabinet turned to TFW to develop recommendations for the forestry module portion of the state's salmon recovery plan, resulting in the TFW negotiations becoming known as the "Forestry Module".

All forest stakeholders were looking to TFW to resolve forestry impacts on water quality, water typing, and threatened and endangered salmon species through rule regulatory change. As a stopgap measure for impacts on salmon, the Board adopted an emergency rule in 1998 to protect riparian habitat temporarily until permanent rules could be developed and implemented. The emergency rule made all forest practices activities within 100 feet of a stream or river that served as habitat for a listed species, subject to review under State Environmental Policy Act (SEPA).

TFW forestry module negotiations for a permanent solution to forest stakeholder concerns formally began November 1997 and ended September 1998. Though the TFW negotiations did not produce a final TFW consensus product, (TFW follows a consensus decision-making model), the intense work of the TFW participants laid the foundation for a framework and comprehensive set of recommendations. Five out of six TFW caucuses (after the Conservation caucus left the negotiating table) continued working and produced a five-caucus consensus product that was recorded in a set of recommendations called the Forest and Fish Report (1999). The stated goals in the Forests and Fish Report (FFR) were:

- 1) “To provide compliance with the Endangered Species Act for aquatic and riparian-dependent species on non-federal forest lands;
- 2) To restore and maintain riparian habitat on non-federal forest lands 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.” (1999 Forests and Fish Report)

The recommendations in the Forests and Fish Report applied to approximately 12.7 million acres of private and state-owned forestland.

The Washington State Legislature incorporated the Forest and Fish Report recommendations into the 1999 Salmon Recovery Act, directing the Forest Practice Board (Board) to adopt permanent forest practices rules that reflected the recommendations in the Forests and Fish Report with the option of adopting emergency rules first. Subsequently, the Board adopted emergency rules in January 2000 and permanent rules were adopted in May 2001 becoming effective July 1, 2001.

The Forests and Fish Report and forest practices rules developed two broad regulatory protection strategies designed to minimize and mitigate forestry-related impacts and conserve habitat for aquatic resources. The first was called the Riparian Conservation Strategy, which included protection measures implemented in and adjacent to surface waters and wetlands, including the water typing system, riparian and wetland management zones, and channel migration and equipment limitation zones. The second was called the Upland Conservation Strategy, which provides measures aimed at protecting aquatic resources by minimizing and mitigating upslope forest impacts, including forest road condition, and stream crossings, and unstable slopes and rain-on-snow hydrology. These measures are intended to limit excess coarse and fine sediment delivery to surface waters and wetlands, and to maintain hydrologic regimes.

A final step in gaining compliance with the Endangered Species Act for aquatic and riparian dependent species, was obtaining Incidental Take Permits (ITPs) under the Endangered Species Act. The State developed the [Forest Practices Habitat Conservation Plan](#) (Forest Practices HCP) as a vehicle to obtain the ITPs and submitted it to the United States Fish and Wildlife Service (USFWS) and National Marine Fisheries Service (NMFS) (collectively, the Services) in 2005. An ITP assures landowners and the State that as long as they follow the protection measures and forest practices program as described in the HCP, they are protected from certain types of liability in the case of incidental take (defined as harass, harm pursue, hunt, shoot, wound, kill, etc.) of listed threatened or endangered species during a covered forest practices activity.

In 2006, the Services accepted Washington’s Forest Practices HCP and under the authority of the Endangered Species Act, the Services issued Incidental Take Permits (one from each agency) to Washington State. The ITPs put Washington State forest practices in a position of compliance with the Endangered Species Act for those species covered by the HCP. The HCP covers approximately 9.3 million acres of forestland (not including forestlands already covered by an aquatic species HCP) and provides coverage for 53 fish species and seven amphibian species. The implementation of the Forest Practices HCP is a partnership between the Services and Washington State, which protects public resources (specifically aquatic and riparian-dependent species). This multi-stakeholder effort addresses the habitat needs of all covered species.

Three state agencies—the Washington State Department of Natural Resources (DNR), the Washington Department of Fish and Wildlife (WDFW), and the Washington Department of Ecology (Ecology)—work together to ensure implementation of the Forest Practices HCP. DNR provides the majority of staff positions that oversee implementation of the HCP due to the authority given the department in the Forest Practices Act (Chapter 76.09 Revised Code of Washington (RCW)) and Rules (Title 222 Washington Administrative Code (WAC)). However, both WDFW and Ecology have dedicated office and field staff time to support the various functions of the Forest Practices Program and the implementation of the Forest Practices HCP. A portion of the work that WDFW and Ecology conduct is funded through Interagency Agreements 16-44 and 16-149 respectively. WDFW and Ecology support includes participation in the following:

- The Adaptive Management Program (AMP)
- The Compliance Monitoring Program (CMP)
- The Family Forest Fish Passage Program (FFFPP)
- The review of Road Maintenance and Abandonment Plans (RMAPs)
- Consultation on Forest Practices Hydraulic Project Approvals (FPHPs)
- The development of chapters in the Forest Practices Board Manual (Board Manual)
- The evaluation of water type change proposals
- The review of Forest Practices Applications/Notifications (FPA/Ns)
- Interdisciplinary Teams (ID Teams)

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Forest Practices Board

The Forest Practices Board sets the public resource protection standards that are the basis for the Forest Practices Program. The State’s Forest Practices Act established the Board’s authority in 1974 as an independent state agency responsible for the adoption of rules for forest practices on nonfederal and non-tribal forestlands. The legislature directed the Board to protect public resources while maintaining a viable forest products industry. “Public resources” are defined as water, fish and wildlife, and capital improvements of the state or its political subdivisions.

Forest practices rules marked with an asterisk (*) pertain to water quality protection and are amended only by agreement between the Board and Ecology.

The Board consists of 13 members: the Commissioner of Public Lands or the Commissioner's designee; four additional state agency directors or their designees; and eight members appointed by the governor. The represented agencies are the state departments of Natural Resources, Commerce, Ecology, Agriculture, and Fish and Wildlife. The governor-appointed members include a member representing a timber products union, a forest landowner who actively manages his or her land, an independent logging contractor, an elected county commissioner or council member, and four general public members whose affiliations are not specified in the Forest Practices Act. The membership of the Board as of June 30, 2018, was:

- Stephen Bernath, Commissioner of Public Lands Designee, Chair
- Heather Ballash, Department of Commerce
- Tom Laurie, Department of Ecology
- Patrick Capper, Department of Agriculture
- Jeff Davis, Department of Fish and Wildlife
- Lisa Janicki, Skagit County Commissioner
- Noel Willet, timber products union representative
- Bob Guenther, general public member and small forest landowner
- Carmen Smith, general public member and independent logging contractor
- Paula Swedeen, general public member
- Tom Nelson, general public member
- David Herrera, general public member
- Brent Davies, general public member

Forest Practices is a dynamic environment with on-going new information and scientific knowledge that can indicate the need for change to protective measures at any point in time. The Board addresses this need for change by adopting/revising rules to protect public resources while maintaining a viable timber industry. When developing proposed rules for the Board to consider, TFW Policy Committee strives to develop rules that fit the criteria of rules that are implementable, repeatable, and enforceable.

In addition to adopting rules, the Board provides guidance through the Forest Practices Board Manual, an advisory technical supplement to the rules. The Board Manual guides field practitioners and DNR regulatory staff when implementing certain rule provisions. The forest practices rules and Board Manual largely represent the state's protection measures for public resources related to forestlands.

The Board is also a key structural component of the forest practices Adaptive Management Program and empowers three of the five primary structural components engaged in the process, including:

- The Cooperative Monitoring, Evaluation and Research Committee (CMER)
- The Timber/Fish/Wildlife Policy Committee (TFW Policy Committee)
- The Adaptive Management Program Administrator (AMPA)

The Board itself and the Independent Scientific Peer Review Committee (ISPR) are the fourth and fifth structural components of the adaptive management process. For more information, refer to the Adaptive Management Program section below.

Since the Board's 1976 creation, there have been a few large-scale seminal rule adoption/revision packages.

- 1976 adoption of the initial forest practices rules,
- 1982 package for adoption for threatened and endangered species, reforestation, and slash disposal,
- 1988 package for riparian management zones (RMZ), alternate plans, cultural resources, and ID teams,
- 1992 package for wetlands, watershed analysis, Class IV-special forest practices, stream temperature, wildlife reserve trees and down logs, and chemicals and fertilizer use,
- 2001 package for RMZ, roads, unstable slopes and other aquatic species habitat protection measures.

Forest Practices Board Manual

The Board Manual is an advisory technical supplement to the forest practices rules. WAC 222-12-090 directs DNR to develop Board Manual sections, each of which provides guidance for implementing a specific rule or set of rules. DNR develops and amends sections of the Board Manual in cooperation with Departments of Fish and Wildlife, Agriculture, Ecology, affected tribes, and interested parties having appropriate expertise. The development or modification process typically begins with a working group identifying key elements and progressing to drafting Board manual language with DNR in the lead. During this development phase, any interested party may comment on a draft. For Board Manual sections providing guidance for rules protecting aquatic resources, a final draft is presented to the TFW Policy Committee for review and approval, after which the Board considers and approves/disapproves the final draft for inclusion in the Board Manual.

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Adaptive Management Program

The *Forests and Fish Report* included provisions for a science-based adaptive management program, which looks at 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. In concert with *Forests and Fish Report* recommendations, the Services require the inclusion of an adaptive management strategy as an integral component of approved habitat conservation plans.

The Board, when it adopted the permanent “Forests and Fish” rules in 2001, incorporated adaptive management program (AMP) (WAC 222-12-045) as a formal science-based program. Schedule L-1 from the *Forests and Fish Report* served as the foundation for the Adaptive Management Program, and more specifically guides the development of research and monitoring projects.

The purpose of AMP 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 forest practices rules and guidance for protecting aquatic resources. The program helps to ensure that: programmatic changes will occur as needed to achieve the goals of *Forests and Fish* as well as other Board goals; there is predictability and stability in the process of change so landowners, regulators, and public can be prepared; and there are quality controls applied to scientific study designs, project execution, and the interpreted results.

AMP is governed by the Board, which directs and approves funding allocation for the implementation of the Program. AMP includes a policy committee (TFW Policy Committee), a science committee (Cooperative Monitoring and Research Committee), and an AMP Administrator who oversees the AMP, determines applicability of proposals to AMP and supports the CMER Committee. The unique model of collaborative decision-making used by TFW applies also in the AMP program itself. In addition, an independent scientific peer review process (ISPR) was established to ensure the rigor and integrity of adaptive management research and monitoring projects and reports.

CMER is the research component of the AMP. Its purpose is to advance the science needed to support the AMP process. CMER reviews existing science and contributes original research to the program. For AMP, best available science is considered relevant science from all credible sources. CMER follows a consensus decision-making model and is comprised of scientists from forest landowners, conservationist, state agencies, county governments, federal agencies, and tribal governments. The Board approves membership of voting CMER members. Potential members are those who have a demonstrated background in research and represent the science, not the position of their caucus.

The TFW Policy Committee considers scientific findings from CMER and makes recommendations to the Board related to potential forest practices rule amendments and guidance changes. The function of the TFW Policy Committee is to develop solutions to issues that arise in the Forest Practices Program. The TFW Policy Committee provides the forum for discussions and problem solving for the ongoing implementation of the Forest Practices Act and rules while following a consensus decision-making model. This includes the development of board manual sections (see above FP Board section for more information). These issues may be raised by science reports on rule or program effectiveness or policy questions on implementation of forest practices. Solutions may include the preparation of rule amendments and/or guidance recommendations. TFW Policy Committee also assists the Board by providing guidance to CMER and recommendations on adaptive management issues. The committee consists of one caucus principal, or their designee, from conservationist interests, industrial private timber landowners, nonindustrial private timber landowners, western Washington tribal governments, eastern Washington tribal governments, county governments, DNR, other natural resource state agencies (includes: state departments of Fish and Wildlife, and Ecology as one vote), and federal agencies.

The Adaptive Management Program administrator is a full-time DNR employee and is responsible for overseeing the program, supporting CMER and reporting to the TFW Policy Committee and the Board. The Administrator coordinates the flow of information between the TFW Policy Committee and CMER.

The Independent Scientific Peer Review Committee is contracted to perform an independent peer review of CMER and other scientific forest practices program work products to ensure they are scientifically sound and technically reliable.

From 2000 to 2011, more than \$25 million in federal funding provided through the Pacific Coastal Salmon Recovery Fund was spent to help implement the 1999 Forests and Fish Report. This included funding for development of an adaptive management program, a multi-landowner Forest Practices Habitat Conservation Plan (Forest Practices HCP), and information systems. Funds were primarily used to design and implement research and monitoring projects, workshops, and science conferences.

The federal funding early on was used for developing scientific ‘rule tools’—projects designed to develop, refine or validate tools (e.g., models, methods and protocols) used to implement the Forest Practices Rules that support the 1999 *Forests and Fish Report*. These projects have helped define, test, or refine protocols, models, and guides that allow the identification and location of rule-specified management features, such as landslide screening tools or the achievement of specified forest stand conditions, such as the ‘desired future riparian condition’ basal area target for Type F (fish-bearing) streams. Target verification projects were designed to confirm riparian

function performance targets developed during Forests and Fish Report negotiations that authors identified as having a weak scientific foundation, such as the desired future condition basal area targets. Now CMER's focus has shifted from rule tools to effectiveness and extensive status and trends projects. Effectiveness monitoring evaluates forest practices prescription effectiveness in achieving resource goals and objectives at the site or landscape scale. Extensive status and trends monitoring evaluates the status and trends of resource condition indicators over time as the forest practices prescriptions are applied across Forest Practices HCP lands. Results from these types of projects will inform if forest practices rules are effectively protecting natural resources or if changes are necessary and recommendations made to the Board.

Since its establishment in 2001 AMP research and monitoring efforts have led to revisions in the Forest Practices Rules, guidance in the Board Manual, and guidance for small forest landowners.

CMER Work Plan and Activities

The CMER Work Plan is a dynamic document that is revised biennially in response to: research findings; changes in the Forest Practices Board and the TFW Policy Committee objectives; and, available funding. The Biennium CMER Work Plan, found at <http://www.dnr.wa.gov/about/boards-and-councils/forest-practices-board/cooperative-monitoring-evaluation-and-research>, (on the right side of the screen under "Files") describes CMER projects. The CMER Work Plan is updated biennially and presented to the TFW Policy Committee at their regular April meeting.

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

The purpose of the MPS is to have a planning document that will help the Adaptive Management Program forecast when projects can be implemented, sequence projects for efficiencies, keep the budget within projected revenue and complete the critical projects that are already on the MPS by 2030. In addition, development of the MPS provides the Adaptive Management Program with a tool to evaluate its progress, which meets requirements of the 2012 HCP Settlement Agreement.

Clean Water Act Assurances

Upon the completion of the Forests and Fish Report in 1999, Ecology with EPA approval agreed to provide Clean Water Act assurances to the State of Washington for a period of ten years. It was assumed ten years would be sufficient time to determine if implementation of the revised rules and Forest Practices Program, including adaptive management, were effective in meeting water quality standards, or putting impaired waters on a trajectory to meeting standards. In 2009, Ecology reviewed Clean Water Act assurances and produced a report that concluded that while much had been accomplished there remained work to be done. In particular, Adaptive Management Program research and monitoring projects designed to determine if the rules were effective in meeting water quality standards were not yet complete. Consequently, Ecology was unable to provide conclusive evidence of rule effectiveness. The report contained a list of milestones for the forest practices program, including the Adaptive Management Program with a schedule for individual research and monitoring projects that were deemed important for retaining the Clean Water Act assurances. Ecology conditionally extended Clean Water Act assurances based on satisfactory accomplishment of milestones.

The 2009 report was transmitted to the Board in October of that year. Ecology committed to providing the Board with periodic updates on the progress being made to meet milestones established for retaining the CWA Assurances for the forest practices rules and associated programs. See Appendix 1 for the latest status report.

Adaptive Management Program Websites

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

Adaptive Management Program:

<http://www.dnr.wa.gov/programs-and-services/forest-practices/adaptive-management>

CMER:

<http://www.dnr.wa.gov/about/boards-and-councils/forest-practices-board/cooperative-monitoring-evaluation-and-research>

Electrofishing Report

One of the conditions in the incidental take permits relates to electrofishing used in adaptive management research and monitoring. United States Fish and Wildlife Service and National Marine Fisheries asked for an accounting of any electrofishing related to Adaptive Management research and monitoring. However, the ITPs do not cover electrofishing used during operational water typing. Refer to the [NMFS ITP](#) “Specific Conditions number 4” which states: “This incidental take permit does not apply to operational water typing by individual landowners: these activities would need incidental take authorization through other means.”

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Forest Practices Operations

Forest Practices Operations is responsible for administering and enforcing the forest practices rules on approximately 12.7 million acres of private, state, and other nonfederal public forestlands. Washington forest practices rules protect forestland public resources and establish some of the highest standards for resource protection on forestlands in the nation. They give direction on how to implement Washington's Forest Practices Act and Forest Practices HCP.

Forest Practices Operations has three over-arching functions: processing/reviewing Forest Practices Application/Notifications, Forest Practices Application/Notifications compliance, and Forest Practices Application/Notifications and forest practices rule enforcement. Forest Practices Operations consists of both office and field staff. Forest practices field forester positions are directly responsible for reviewing, complying and enforcing Washington's Forest Practices Act and rules on active FPA/Ns (typically valid for 3 years).

Program Guidance:

Forest practices program guidance supplements the forest practices rules and Board Manual. The complexity of the forest practices rules, details of program administration and variability in the forested environment pose unique challenges for landowners and DNR forest practices staff in implementing the forest practices rules across the landscape. Situations arise in which neither the rules nor the Board Manual provide enough specificity to resolve a particular implementation issue. Therefore, DNR Forest Practices Program develops internal guidance when necessary, which provides direction consistent with established program goals, resource protection objectives, and performance targets. New guidance or changes to existing guidance are internally communicated to region forest practices staff in writing. Guidance affecting cooperating agencies, organizations, and landowners is shared outside the agency.

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Small Forest Landowner Office

The Small Forest Landowner Office (SFLO) serves as a resource and focal point for small forest landowner concerns and policies. Its mission is to promote the economic and ecological viability of small forest landowners while protecting public resources. The office was created as a requirement of the 1999 Salmon Recovery Act, which directed the adoption of the Forests and Fish rules. The State Legislature recognized that the Forests and Fish rules would have a disproportionate economic effect on small, family-owned forests. To help small landowners to

navigate the regulatory system, the legislature authorized the creation of a Small Forest Landowner Office within DNR to provide technical assistance to small forest landowners.

It is estimated that small forest landowners manage approximately half of the private forest acreage in the state. Their forests tend to be concentrated in the lower elevation habitats along lakes and streams, which are key locations for providing ecosystem functions. Their forests also tend to be subject to development pressures, making it especially important to support them in their efforts to maintain their land in forestry. Due to population growth and a shrinking commercial forestland base, these landowners' forests face demands for timber, fish, wildlife, and water protection, recreational uses, and aesthetics.

The Small Forest Landowner Office focuses on several efforts including small forest landowner assistance through the Forestry Riparian Easement Program (FREPP), the Family Forest Fish Passage Program (FFFPP), and the Stewardship & Technical Assistance Program, as well as outreach to inform landowners of the various assistance programs available to them. Another program administered by the office, which assists both small and large forest landowners, is the Rivers and Habitat Open Space Program (RHOSP). For more information, see RHOSP section below.

Forestry Riparian Easement Program

Provisions included in the 1999 Salmon Recovery Act established the Forestry Riparian Easement Program. This easement program acknowledges the importance of small forest landowners and the potential for a disproportionate financial effect of forest practices riparian protection rules on them.

The Forestry Riparian Easement Program compensates eligible small forest landowners for “qualifying timber” within riparian management zones in exchange for a 50-year conservation easement. “Qualifying timber” includes those trees that the landowner is required to leave unharvested in the riparian zone because of forest practices rules protecting Washington’s aquatic resources. Landowners cannot cut or remove any qualifying timber during the life of the easement. The landowner still owns the property and retains full access, but has “leased” the trees and their associated riparian function to the state. The Washington State Legislature has allocated funding for the program since 2002.

Fish Passage Barriers

The Washington State Legislature established the Family Forest Fish Passage Program in 2003 (RCW 76.13.150) to provide a cost share program to help small forest landowners comply with the Forests and Fish rule requirement for the removal of fish passage barriers. The voluntary program allows these landowners to sign up for assistance to correct fish passage barriers on their forest road stream crossings. The program is a continuing success, recognized as a model for interagency cooperation and for assisting landowners.

In general, the 2003 law required:

- Washington State was required to create a cost-share program that would provide from 75-to-100 percent of the cost of removing fish barriers on small forest landowner lands.
- Washington State was required to annually rate and then rank barriers and repairs based on specific criteria explained below in “WDFW Ranking”.
- Washington State was required to relieve landowners, who sign up for the program, of any forest practices obligations to fix a fish passage barrier until funding is made available to complete the project.

Three state agencies and a stakeholder group cooperate to manage and fund the program:

- The Washington State Department of Natural Resources Small Forest Landowner Office is the main point of contact for program information, assisting landowners, providing outreach, and coordinating additional funding sources.
- The Washington State Department of Fish and Wildlife is responsible for evaluating the barrier, assessing habitat quality of the stream, and ranking barriers for correction.
- The Washington State Recreation and Conservation Office (RCO) administers program funding and provides information on program contracts, billing, and reimbursement.
- The Washington Farm Forestry Association (WFFA) represents the small forest landowner community on the steering committee; providing program oversight and assisting with project approval.

WDFW Ranking of Fish Passage Barriers for the Family Forest Fish Passage Program

Program legislation (RCW 77.12.755) directs the repair of the worst barriers first starting with barriers lowest in the watersheds. To identify and prioritize the worst barriers, WDFW rates the barriers enrolled in the FFFPP on the following criteria:

- How many fish species benefit from the repair?
- What will be the amount and quality of habitat opened?
- What is the degree of fish barrier (that is, the degree to which fish are prevented from moving up or down stream)?
- What are the number and location of other barriers and the degree of those barriers?
- Is there concurrence from lead entity watershed groups (groups that take the lead on salmon habitat recovery plans in the watershed) on the repair?
- What is the cost effectiveness of the project?

Projects are scored to provide an initial list that is evaluated by the three state agencies DNR, RCO, and WDFW. This information, along with project cost estimates, is provided to the FFFPP Steering Committee for final funding decisions.

Information on the fish passage barriers obtained during site visits is placed in the WDFW Fish Passage Barrier Inventory. The inventory includes those stream crossings that have been identified through Washington State Department of Transportation inventories, local government inventories, barriers identified in FFFPP stream surveys, and local inventories funded by the Salmon Recovery Funding Board.

When a small forest landowner signs up for the FFFPP, they are then relieved of responsibility to correct that fish passage barrier until it becomes a funded high priority for correction under FFFPP, or if the barrier becomes a threat to public resources. If a landowner does not sign up for the FFFPP, it is the landowner's responsibility to correct the fish passage barrier.

In addition to providing adequate funding, the two greatest challenges for the FFFPP are filling data gaps in the fish passage barrier inventory information and getting the word out to landowners who would benefit from the program. DNR and cooperating partners continue to pursue funding for inventory related work.

Long Term FPAs

Washington's forest practices rules allow a landowner to apply for a forest practices permit to engage in forest practices, which is valid for three years, and in certain cases up to five years. Permits are renewable under certain conditions. The three-year permit works well for those who frequently conduct forest practices such as timber harvesting and road building. Landowners who harvest small volumes of timber and harvest infrequently often find that the application process can be complex, time consuming, and challenging.

To ease the paperwork burden and allow more flexibility in timing harvests with the market, small forest landowners may apply for a Long-term permit that is valid for up to 15 years. To prepare for a longer period, landowners need to plan further ahead than the typical permit requires, while the flexibility will allow landowners to react quickly to changing markets and unforeseen events such as forest health problems or weather related disturbance.

Stewardship & Technical Assistance for Small Forest Landowners

The SFLO Stewardship & Technical Assistance Foresters assist small forest landowners in understanding the forest practices rules, timber harvest systems, small forest landowner alternate plan templates, 20-acre exempt harvest rules, long-term applications, low impact harvest activities, road construction techniques, and any other forest practices rule related issues. The Stewardship and Technical Assistance Foresters also help landowners assess resource conditions and forest health, identify potential problems and opportunities, and discover recommended management practices to help them achieve their objectives. The program helps landowners develop and implement a Forest Stewardship Plan to guide future management and help them qualify for financial assistance, current use taxation, recognition, and certification programs.

Small Forest Landowner Outreach

The Small Forest Landowner Office communicates with agencies and the public to foster a mutual understanding, promote public involvement, and influence actions with the goal of serving as a resource and focal point for small forest landowners' concerns and policies.

One of the challenges of the Small Forest Landowner Office is reaching small forest landowners to make them aware of technical, educational, and cost-share assistance programs to protect water quality, fish and wildlife habitat, improve forest health, reduce the risk of wildfire, and help small forest landowners retain their forestland.

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20-Acre Exempt Forest Practices Applications

The 1999 Washington State Legislature exempted certain forestland parcels from some riparian protection measures in the forest practices rules derived from the 1999 Forests and Fish Report. Exempt parcels include those that are 20 contiguous acres or less and are owned by individuals whose total ownership is less than 80-forested acres statewide. These parcels are commonly referred to as “exempt 20-acre parcels.” While not subject to some forest practices riparian protection rules, exempt 20-acre parcels must still provide protection for public resources in accordance with the Forest Practices Act and rules.

In arriving at their ESA permitting decisions in 2006, the federal Services concluded that they would condition the Incidental Take Permits regarding 20-acre exempt forest practices. ITP conditions specify:

- The permits require leave trees left along Type Np (non-fish-bearing, perennial) waters for riparian function.
- The permits establish eligibility criteria for coverage of 20-acre exempt parcels under the Incidental Take Permits. The ITPs will not cover 20-acre parcels that do not meet the eligibility criteria.
- The permits define coverage thresholds for 20-acre exempt parcels in watershed administrative units (WAUs) and water resource inventory areas (WRIAs).
- The permits identify certain spawning and rearing habitat of bull trout (also known as “Bull Trout Areas of Concern”) where Incidental Take Permit coverage may not apply.

Type Np Water Leave Tree Requirement

[Washington Administrative Code](#), requires trees to be left on Np waters on 20-acre exempt parcels where needed to protect public resources, defined as water, fish, and wildlife. The Services concluded that leaving trees along Np waters is necessary in most situations. The Forest Practices HCP Incidental Take Permits say, “permittee (Washington State) shall require trees to

be left along Type Np waters under the 20-acre exemption unless such leave trees are not necessary to protect covered species and their habitats.” In order to implement this permit condition, a guidance memo was written September 26, 2006, and delivered to DNR region forest practices staff clarifying that “henceforth Forest Practices Applications (FPA/Ns) should be conditioned to require leave trees along Type Np waters within exempt 20-acre parcels unless DNR determines this is not necessary”. See the 2007 Forest Practices HCP Annual Report for a copy of the guidance memo. Leave-tree requirements are detailed in [WAC 222-30-023\(3\)](#): “...leave at least 29 conifer or deciduous trees, 6 inches in diameter or larger, on each side of every 1000 feet of stream length within 29 feet of the stream. The leave trees may be arranged to accommodate the operation.”

Thresholds for Watershed Administrative Units and Water Resource Inventory Areas

In the Incidental Take Permits, the Services defined permit coverage thresholds for WAUs and WRIAs. The Services placed a 10 percent threshold on cumulative reduction in riparian function (as measured by the amount of recruitable large woody debris such as snags and tall trees that could fall across a stream or other water body) within a watershed administrative unit for 20-acre exempt parcels. Additionally, the Services placed a 15 percent stream length threshold within water resource inventory areas. The 15 percent threshold is based on the cumulative stream length of the affected streams within each WAU in the WRIA that has reached the 10 percent threshold. When a threshold within a watershed administrative unit or water resource inventory area is reached, the Incidental Take Permits will not cover subsequent FPAs on 20-acre exempt parcels within those WAUs or WRIAs unless the landowner chooses to follow standard RMZ rules. Washington State has adopted a method, approved by the Services, to estimate potential cumulative percent reduction of potential large woody debris recruitment function, by WAU, and percent cumulative stream length affected, by WRIA.

Cumulative Reduction in Function Calculation Methodology

A formula called the Equivalent Area Buffer Index (Buffer Index) is used to estimate the percent reduction in function, as measured by potential large woody debris that could be recruited along fish-bearing streams. The Buffer Index was developed for the Forest Practices HCP [Environmental Impact Statement](#) (EIS) (USFWS et. al 2006) as a tool for comparing management alternatives in terms of the level of ecological function conserved through various management practices. The Buffer Index for large woody debris recruitment potential is a quantitative measure that evaluates the potential of a riparian forest to provide trees and other woody debris across and into streams originating from tree mortality, windthrow and bank undercutting. The methodology takes into account management activities within the buffer zone. The Buffer Index value is determined based upon the ‘mature conifer curve of large woody debris recruitment potential’ by McDade et al (1990). It relates the cumulative percent of large woody debris recruitment with the distance from the stream bank in terms of tree height. The EIS for the Forest Practices HCP provides average Buffer Indexes for western and eastern

Washington. These averages are used each year to estimate the potential cumulative reduction in large woody debris recruitment function from 20-acre exempt forest practices applications submitted to DNR since the ITPs were issued in 2006.

Example explaining Buffer Index formula for fish-bearing stream in western Washington

- **Step 1 — Consider a fish-bearing stream (Type F).**

The assumptions for this stream’s Riparian Management Zone include a Channel Migration Zone (CMZ) that is 10-feet wide, followed by a 50-foot core zone of forest along the stream, followed by a 60-foot inner forest zone in which a light selection harvest is assumed (30 percent volume removal), followed by a 45-foot outer zone in which a moderately heavy selection harvest is assumed (70 percent volume removal). This gives a total RMZ width of 155 feet including the 10-foot CMZ. The total RMZ width of 155 feet is based on an average of Site Class II and III areas $[(140+170)/2]$, which represent the most common site classes on forestland covered by the Incidental Take Permits.

- **Step 2 — Refer to the McDade (1990) mature conifer curve.**

The McDade curve has been standardized for 155 feet, as the buffer distance that assumes full protection for the 100-year Site Potential Tree Height. This curve shows the cumulative percentage of large woody debris contribution in relation to the distance from the stream. In our example, we need to determine the percent of the total large woody debris contributed by the different RMZ zones (e.g., 0-10 feet, 10-60 feet, 60-120 feet and 120-165 feet). The values from McDade are 17 percent for the 0-10 foot zone, 62 percent for the 10-60 foot zone, 18 percent for the 60-120 foot zone, and 3 percent for the 120-165 foot zone.

- **Step 3 — Multiply the contribution percentage by the tree retention percentage for each RMZ zone, and sum them up.**

$$(0.17 \times 1.0) + (0.62 \times 1.0) + (0.18 \times 0.7) + (0.03 \times 0.3) = 0.925$$

- **Step 4 — Results**

Therefore, the RMZ on Type F streams in western Washington would provide for an estimated 92.5 percent of large woody debris recruitment potential, given the assumption that full recruitment potential is achieved at a buffer width equal to the 100-year Site Potential Tree Height.

Annual in-office calculations of reduction in function based on proposed harvests

An estimate of potential reduction in function by watershed administrative unit is calculated annually and reported in the Forest Practices HCP annual report. The impact is “potential” because the calculations are based on “proposed” harvests, not “completed” harvests and estimates of stream impact are made in-office from information supplied on the FPA/N, not on-the-ground measurements. Average Buffer Index values are used to calculate the overall possible reduction in function by WAU. The average Buffer Index values used for the annual report calculations are taken from the Final EIS ([Appendix B](#)) for the Forest Practices HCP. These average Buffer Index values were obtained through modeling harvests based on both Forests and Fish Rules, and pre-Forests and Fish Rules. Many assumptions went into the modeling effort including degree of harvest, width of riparian area, stream width, etc. A result of the harvest

modeling was the development of average values for an overall Buffer Index for eastern and western Washington for harvests complying with Forests and Fish Rules, as well as with pre-Forests and Fish Rules.

The EIS average Buffer Index values for Forests and Fish Rules are used in our calculations without modification; however, an additional 15 percent was added to the EIS average Buffer Index values for pre-Forests and Fish rules because the 1999 Salmon Recovery Act required 20-acre exempt landowners to protect an additional 15 percent of riparian trees above pre-Forests and Fish rules. The average reduction in function value was calculated by subtracting the pre-Forests and Fish Rules Buffer Index values from the Forests and Fish Rules Buffer Index values for a percent reduction in function.

Below are the Buffer Index values and reduction in function factors used for the Forest Practices HCP Annual Report.

Buffer Indexes for Western Washington:

Buffer Index average for Forests and Fish Rules = 0.93

Buffer Index average for Rules prior to Forests and Fish = 0.60

Buffer Index average for 20-acre exempt rules = $0.60 \times 1.15 = 0.69$

Average Reduction in function factor = $0.93 - 0.69 = 0.24$

Buffer Indexes for Eastern Washington:

Buffer Index average for Forests and Fish Rules = 0.91

Buffer Index average for Rules prior to Forests and Fish = 0.67

Buffer Index average for 20-acre exempt rules = $0.67 \times 1.15 = 0.77$

Average Reduction in function factor = $0.91 - 0.77 = 0.14$

The estimated number of feet of fish bearing stream potentially affected by harvests through FPA/Ns are tracked throughout the year. The total number of feet of stream length on fish bearing waters in each watershed administrative unit that are potentially affected is calculated for the fiscal year and then multiplied by 0.24 in western Washington and 0.14 in eastern Washington to derive the total stream distance over which large woody debris recruitment functions are reduced in function. These numbers are summed over the years and then divided by the geographic information system (GIS) calculated total fish bearing stream length on lands regulated by forest practices in the watershed administrative unit to determine potential percent cumulative reduction in function.

Appendix 2a contains the cumulative in-office estimates of reduction in function by watershed administrative unit since June 2006. A visual representation of the 20-acre Exempt forest practices applications accounted for in Appendix 2a can be found in Appendices #2b and #2c. The two maps show: 2a) the location of the current reporting period 20-acre exempt applications,

and, 2b) the location of all 20-acre exempt applications since June 2006. Maps showing 20-acre exempt forest practices applications for a particular fiscal year can be found in previous Forest Practices HCP annual reports.

Data Collection for Watershed Administrative Unit Threshold

Cumulative Stream Length for Water Resource Inventory Areas

A total fish-bearing Forest Practices HCP covered stream baseline length was calculated, and is recalibrated periodically for all WAUs and WRIAs, as the DNR hydrography and forest GIS layers are improved. As in-office calculations indicate that the 10 percent threshold may be approaching in watershed administrative units, the State will compare the total Forest Practices HCP covered stream length in each watershed administrative unit to determine when the 15 percent threshold might be reached for the water resource inventory area. DNR will then inform landowners who apply for a forest practices permit associated with a 20-acre exempt parcel that subsequent forest practices applications associated with 20-acre exempt parcels within the area will no longer be covered by the Incidental Take Permits, unless the landowner chooses to apply standard riparian management zone rules on their 20-Acre Exempt forest practice.

Bull Trout Areas of Concern

The USFWS placed conditions on its Incidental Take Permit regarding specific, identified spawning and rearing habitat areas for bull trout. These areas are of concern because of extremely low populations of bull trout. The condition states that the Incidental Take Permits will not cover a forest practice that qualifies for and uses the 20-Acre Exempt riparian rules and falls within these bull trout areas of concern unless the forest practice is shown not to measurably diminish the level of riparian function. If, however, the landowner chooses to apply standard forest and fish riparian buffers instead of 20-acre exempt riparian buffers, the forest practice would not be eliminated from coverage based on usage of 20-acre exempt riparian buffers. The function is measured by potential large woody debris recruitment and is compared to the level of function that would have been provided by the standard forest practices rules. The State and USFWS together developed a process to track forest practices in these bull trout areas of concern. The process was described in the 2009 Forest Practices HCP Annual Report.

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Alternate Plans and Riparian Open Space Program

Alternate Plans

An alternate plan is a tool forest landowners can use to develop site-specific management plans for forest activities regulated under the Forest Practices Act. An Alternate Plan may deviate from the standard forest practices rules, as long as the plan provides protection to public resources at least equal in overall effectiveness to that provided by the Forest Practices Act and Rules. WAC

[222-12-0401](#) describes the Alternate Plan process, including the review by interdisciplinary teams. Any rule prescription not changed as part of an alternate plan must be followed as outlined by rule.

Alternate plans are an option for all forest landowners; however, small forest landowners have exclusivity with respect to alternate plan templates. The forest practices act and rule require developing simple, easy to apply small forest landowner options for alternate plans or alternate harvest restriction on smaller harvest units that may have a relatively low impact on aquatic resources. These alternate plans are intended to provide flexibility to small forest landowners that will still provide protection of riparian functions based on specific field conditions or stream conditions on the landowner's property. Template prescriptions are prescriptions for common situations that are repeatedly addressed in alternate plans. Templates are therefore standardized alternate plans. Currently there are two Templates:

- Template 1. 2004. Small Forest Landowner Western Washington Thinning Strategies for Overstocked Conifer-Dominated Riparian Management Zones, and
- Template 2. 2010. Fixed Width Riparian Buffers for Small Forest Landowner's in Western Washington

Rivers and Habitat Open Space Program

The Rivers and Habitat Open Space Program is used to establish permanent forestland conservation easements between landowners and the State. Eligible for this program are lands with timber located along the area of active channel of a stream that is prone to move, also called channel migration zones and forestland considered habitat for critical habitat for state-listed species identified as threatened or endangered.

Like the Forestry Riparian Easement Program (see Small Forest Landowner section), the original Riparian Open Space Program was a product of the 1999 Salmon Recovery Act. It was codified in the Forest Practices Act and adopted by the Board as a forest practices rule. The 2009 Legislature amended the Riparian Open Space Program to include all unconfined CMZs as well as forestland that contains habitat of state-recognized threatened or endangered species.

The Rivers and Habitat Open Space Program is available to all forest landowners, not just small forest landowners. The Program promotes long-term conservation of aquatic resources and upland habitats.

A channel migration zone is the area where the active channel of a stream is prone to move in the near term. Unconfined channel migration zones are generally larger water bodies, have less than 2 percent gradient and are found in a valley more than four times wider than the bank-full width of the channel. These areas typically have very high ecological value as spawning and rearing habitat for salmon and other fish species. Under the forest practices rules, no timber harvesting

or road construction may occur within channel migration zones due to their ecological importance and sensitivity.

The forest practices rules protect critical habitat of ten upland species, two of which are the northern spotted owl and the marbled murrelet. ‘Critical habitat’ is a designation to protect the important habitat characteristics that will assist in the recovery of the federally threatened or endangered species. Landowners of forests determined to be critical habitat for these species are eligible to grant to the State a perpetual conservation easement under the Rivers and Habitat Open Space Program.

DNR screens applications, prioritizes qualifying applications, and acquires conservation easements based on available funding. Applications for conservation easements for channel migration zones are prioritized separately from applications for habitat of threatened and endangered species. Applications are prioritized based on conservation benefits and landowner management options.

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Enforcement

The Forest Practices Program is responsible for ensuring forest practices activities are conducted in accordance with the Forest Practices Act and rules and any conditions placed on the approved Forest Practices Application/Notification.

FPA/Ns are classified depending on the level of potential risk the proposed activity has on public resources. This classification helps forest practices foresters prioritize compliance inspections. For example, a proposal to construct road in steep terrain where there is potential for sediment delivery to a stream will receive a higher level of compliance inspections than a proposal that has limited road construction on gentle slopes that have no associated risk of sediment delivery to a stream. This targeted approach ensures the most effective and efficient use of the forest practices forester’s time.

Four classes of forest practices

- **Class I** – Class I forest practices activities are determined to have no direct potential for damaging a public resource.
- **Class II** – Class II forest practices activities are determined to have a less than ordinary potential to damage a public resource.
- **Class III** – Class III forest practices activities are determined to have an average potential to damage a public resource.
- **Class IV- Special** – Class IV- Special forest practices activities are determined to have potential for a substantial impact on the environment.

- **Class IV- General** – Class IV- General forest practices activities involve converting forestland to a use incompatible with growing timber or are determined to have a higher potential for a conversion to a use other than forestland.

Regardless of the classification, all forest practices activities must be carried out in compliance with the Forest Practices Act and rules. More detailed information on [forest practices classifications](#) can be found in WAC 222-16-050. The program also places an emphasis on pre-approval review of FPA/Ns to address potential issues prior to FPA/N submittal and ultimately reduces the need for enforcement actions.

Compliance inspections are an important part of a forest practices forester's job in large part because the inspections are a means of ensuring landowner compliance with forest practices rules. Additionally, the information gathered during compliance inspections coupled with the data collected by the Compliance Monitoring Program (section below) can help inform the forest practices program of areas where the program could benefit from modification. Modifications may include things such as providing clarification of rule language or Board Manual chapters, improving forms and administrative processes, developing guidance documents, and/or training. Compliance inspections are an integral component of the continuous forest practices program feedback loop.

When an activity is found to be out of compliance with the forest practices rules, program staff have several enforcement options available: Notices to Comply (NTC), Stop Work Orders (SWO), civil penalties, and Notices of Intent to Disapprove (NOID). Notices of Intent to Disapprove and civil penalties are used when multiple violations have occurred over time. The Forest Practices Act and rules encourage informal, practical, result-oriented resolution of alleged violations and actions needed to prevent damage to public resources. A progressive approach to enforcement is used which begins with consultation and voluntary efforts to achieve compliance while reserving civil penalties (monetary fines) for more serious infractions. Often Informal Conference Notes (ICN) are used to document conversations and decisions, which are not related to enforcement actions, or to document the process when, or if, future enforcement actions may become necessary.

Enforcement documents can be used for violations or non-violations. Violations are forest practices activities that violate the Act or rule or have resulted in damage to a public resource. Non-violations are situations where damage to a public resource has not occurred but the forest practices forester has determined damage is imminent if the activity or condition is not addressed. For example, if an operator does not have adequate road surface drainage on a haul road for use in the rainy season, the operator could be issued a non-violation Notice to Comply requiring the road be improved and maintained so it does not pose a threat to public resources during heavy rain events.

Overall, the intent is to encourage landowners to implement the rules successfully to protect public resources.

The majority of violations do not rise to the level of repeat violation penalties where NOIDs or civil penalties are issued. The majority of initial enforcement actions have proven to bring landowner behavior into compliance with the forest practices rules without a need to take more severe levels of enforcement action. When determining the appropriate level of enforcement a number of factors are taken into consideration. These include:

- Is there failure to comply with the terms or conditions of an FPA/N, NTC, or SWO?
- Is there the existence or probability of more than minor harm to public resources (water, fish, and wildlife) as the result of non-compliance?
- What is the extent of damage to the public resource?
- Is there a history of similar violation by the same landowner or operator?

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Compliance Monitoring Program

CMP was first formally proposed as an essential element for forest practices in the 1999 Forests and Fish Report. Forest practices rules adopted in 2001 included the following rule related to compliance monitoring.

[WAC 222-08-160\(4\)](#):

“DNR shall conduct compliance monitoring that addresses the following key question: *‘Are forest practices being conducted in compliance with the rules?’* DNR shall provide statistically sound, biennial compliance audits and monitoring reports to the Board for consideration and support of rule and guidance analysis. ***Compliance monitoring shall determine whether Forest Practices Rules are being implemented on the ground.*** An infrastructure to support compliance will include adequate compliance monitoring, enforcement, training, education and budget.”

When initial funding for the CMP was allocated by the legislature in 2006, DNR, with input from other stakeholders, developed a compliance monitoring program design and implemented a pilot sampling effort. The CMP has completed annual compliance monitoring sampling every year since the 2006 pilot. The program has also produced biennial reports that provide and explain results of the field reviews.

All completed reports can be found on the compliance monitoring program website:
<http://www.dnr.wa.gov/programs-and-services/forest-practices/rule-implementation>.

CMP is designed to be responsive to evolving needs. DNR's Compliance Monitoring Program uses detailed field protocols to produce statistically reliable compliance determinations. Compliance monitoring provides feedback on how well operators and landowners are complying with the forest practices rules when conducting forest practices activities. The information gained through the CMP (as well as from the daily efforts of onsite region forest practices foresters) provides critical feedback to the Forest Practices Program about where to focus training efforts and where improvements may be needed in forest practices application/notification forms, form instructions, application review, compliance, or enforcement and where rule clarification or board manual revisions are warranted.

The CMP is administered within DNR by a compliance monitoring program manager and is staffed by a manager and a program specialist. Survey teams of four to five professional foresters, geologists, and biologists conduct the monitoring. The professionals come from DNR, Ecology, WDFW, and several tribes. Landowners are invited to attend the field assessments.

Input to the program is provided by the Compliance Monitoring Stakeholder Committee, which includes representatives of DNR, Washington Department of Fish and Wildlife, Department of Ecology, tribes and tribal organizations, the Services, Washington Farm Forestry Association, Washington Forest Protection Association, industrial landowner representatives and the conservation caucus. This forum meets regularly and provides advice on:

- Clarification of rule elements when questions arise,
- Consistent implementation of program protocols, and
- Recommendations from the committee for Compliance Monitoring Program improvement.

Compliance monitoring is limited by mandate and staffing which results in a focused program with a well defined, yet limited, scope. Compliance monitoring does not:

- Focus on individual landowners and compliance specific to those landowners, but rather focuses on the two overall groups of small and large forest landowners.
- Focus on individual region results. All data collected informs the overall population sample for a particular activity.
- Enforce forest practices rule violations: When field reviewers encounter rule violations, the appropriate DNR regional staff is notified for further action.
- Modify water types: However, field reviewers do record observed differences between water type documentation on forest practices applications and on-the-ground physical features.

The Compliance Monitoring Program currently evaluates compliance with those rules considered to have the greatest impact on the protection of aquatic and riparian species and their habitat.

The Compliance Monitoring Program monitors by “rule prescription type”. Prescription types are groupings of similar forest practices rules that apply to a forest practice activity. Forest practices activities are operations such as timber harvest and forest road construction that are subject to forest practices rules. For example, forest practices activity types such as road construction and timber harvest are evaluated based on options available for implementing a particular activity. There are, for example, many options available for harvest in riparian management zones (RMZ) such as desired future condition (DFC) Option 1, and DFC Option 2 and by function/feature being protected such as water quality and wetlands. In compliance monitoring reports, for example, DFC Option 1 is called a prescription type. The compliance monitoring program monitors and reports compliance monitoring findings by each of the prescription types.

The prescription type rule groupings allow for statistical estimation of compliance by those specific rule groups rather than an overall forest practices compliance rate. This enhances the ability to determine where additional training or education or forest practices compliance efforts might be needed to increase compliance with forest practices rules. The compliance monitoring program with stakeholder input determines which forest practices rule prescription types are sampled each year and then estimates the sample size required for each rule prescription to obtain the desired statistical precision. The compliance monitoring field team then collects data from the required number of samples for each rule prescription type.

Some forest practices rules are monitored annually and are referred to as the *standard sample*. In addition, certain rule groups (or prescription types) are monitored periodically and these are known as an *emphasis sample*. The standard sample monitors the following rules:

- Riparian protection ([WAC 222-30-021](#) and [WAC 222-30-022](#))
- Wetland protection ([WAC 222-30-020\(7\)](#) and [WAC 222-24-015](#))
- Road construction, maintenance, and abandonment ([WAC 222-24](#))
- Haul routes for sediment delivery ([WAC 222-24](#))

In addition, the physical criteria of waters (that is, stream width, stream gradient, etc.) are observed to estimate the number of occurrences where water types recorded on forest practices applications are different from what is observed on the ground.

History of Compliance Monitoring Program Design

2006 – A statewide working group led by DNR completed a compliance monitoring program design focusing on RMZ forest practices rules for all typed waters and road activities. The

program design also included a detailed protocol for field assessments, field form revisions, and data collection templates. A pilot sampling effort was completed.

2008 – The Board recommended technical review of the program design. Five reviewers were selected that had operational monitoring experience and the report results were presented to the Board in February of 2008.

2008 – In response to the 2008 review, four significant changes to sampling were implemented for 2008-2009.

1. A protocol was added to capture observed differences between water type classification at the time of application approval and at the time of the compliance review.
2. Compliance with the rules as they are applied on the ground is assessed in addition to compliance with what was stated on the approved application.
3. The Forest Practices Application selection strategy was modified to sample each DNR region proportional to their representation in the entire population of applications statewide. This was to assure representation of each region in the sample.
4. DNR contracted with a professional statistician to review and approve the program design.

2011 – An interim annual report between biennial reports became a required element of the program.

2012 – The Compliance Monitoring Program made significant changes in the sample design to increase confidence in statistical estimates for each prescription type observed. Previously, the design was based on a random selection of forest practices applications stratified by the proportion of the population found in each DNR region. The sample size for each prescription type was dependent on what prescription types were observed on the selected forest practices applications. Beginning in 2012, the sample design randomly selected instances of each sampled prescription type occurring in the population. An estimated sample size was calculated for each prescription type, which met a desired confidence interval for a biennium sample. This change in selection design allowed for some control in the level of statistical confidence in results and provided a larger information set to help determine causes of deviation from the rules. It also added flexibility in the future to add or remove different prescription types from the sample as needed while still providing the desired confidence intervals for each prescription type.

This change instituted in 2012 was designed to improve the confidence of the compliance estimates for the less frequently occurring prescription types. The design included using a finite population correction factor to estimate the sample size needed to provide a $\pm 6\%$ confidence interval (CI) for all prescription types assessed. The $\pm 6\%$ CI was selected because it was perceived to be the best precision achievable within the program budget. As a result, the 2012-

2013 biennium sample saw a modest improvement in confidence but the implementation cost was too high to sustain.

2014 - The Compliance Monitoring Program made significant study design modifications to increase precision in statistical estimates for each prescription type observed. The updated study design divides the number of compliant rules by the number of total sampled rules within each prescription type, resulting in an average compliance rate by prescription. This change increases statistical precision in results and provides more information to help determine causes of noncompliance associated with rule interpretation and implementation. The modified design adds flexibility for future sampling to add or remove different prescription types from the sample as needed, while still providing the desired confidence intervals for each prescription type. Additionally, the No Inner Zone Harvest prescription, and No Outer Zone Harvest prescription have been combined into one sampled prescription. The cluster analysis method has distinct advantages:

- The method requires a smaller sample of FPA/Ns, which allows more flexibility for possible emphasis samples, or sampling upland prescriptions.
- The revised method observes the same prescriptions assessed in the 2012-2013 report, which has not resulted in substantial changes to field data collection procedures.
- The program can use data from previous biennia and produce results using the cluster sampling ratio method, which will allow a comprehensive comparison of compliance trends.
- This method benefits the program in detecting the specific rules or guidance that will require additional clarification and training. This could also inform the adaptive management program about effectiveness monitoring studies that could be engaged by the Cooperative Monitoring Evaluation and Research Committee.

Each analysis method provides a different metric, which are not directly comparable with each other. However, the change from binomial ratio analysis will still allow for analysis of past data using the cluster sampling ratio method because past data were collected with the same method. During this reporting period, the Compliance Monitoring Program analyzed previous biennia data using the cluster analysis method and presented the results in the 2014/ 2015 biennium compliance monitoring report.

2016 – The Compliance Monitoring Program incorporated an ongoing trend analysis project to discern patterns of changes in compliance rates measured over time. Data collected prior to 2014 were transformed to be consistent with current data collections, and analytical protocols. Data for rules were combined and compared through time within each corresponding prescription type. Trends in average compliance with prescriptions and individual rule compliance are tracked to maintain consistency with current methods. Weighted least squares multiple univariate linear

regression was used to predict general trends in average compliance across all prescription types through time.

2017 – The Compliance Monitoring Program submitted the 2014-2015 biennial report, which includes current sampling and analytical methodology for Independent Scientific Peer Review. The program’s goal for submittal of the report and methodology for peer review is a strengthening of the overall statistical validity of the methodology and results. The results from the ISPR will be incorporated into the 2016-2017 CMP biennial report, and subsequent compliance monitoring reports.

2017 – It was determined that an interim annual report will no longer be provided by the CMP.

2018 – Recommendations from Independent Scientific Peer Review were incorporated into the program’s study design and the 2016-2017 CMP biennial report. Forest Practices rule compliance is calculated using a jackknifed form of the ratio estimator, and an expanded methodology appendix was developed and incorporated into the report. Jackknife analysis requires recalculation of ratio estimates leaving out one sample each time. For example, if there were 13 samples being used to estimate Desired Future Condition 1 compliance, 13 ratio estimates would be calculated from the data, using 12 samples per estimate. The 13 estimates are then averaged to come up with a less biased estimate of DFC1 compliance. Jackknife ratio estimates can be compared to original ratio estimates to determine the sample size at which the difference between the two estimates becomes negligible. By using a jackknifed form of the ratio estimator, bias may be reduced yielding a more accurate variance estimate.

Statewide Water Typing Findings

In the initial years of compliance monitoring, compliance monitoring field team observations indicated that at times water types observed on the ground did not match water type classifications provided on submitted and approved forest practices applications. This led to concern regarding consistency and accuracy of water type information on forest practices applications because the width and length of riparian buffers required under forest practices rules are directly linked to water type. Stream and wetland type classification is a fundamental aspect of determining which forest practices rules apply to forest management activities taking place adjacent to typed water.

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Training/Information/Education

Training is a key element to successful implementation of, and compliance with, the forest practices rules—some of the most comprehensive and function-based rules in the nation. Forest practices rules require DNR to “conduct a continuing program of orientation and training,

relating to forest practices and rules thereof, pursuant to RCW 76.09.250” (WAC 222-08-140). DNR conducts ongoing training to educate internal agency staff, forest landowners, and staff from cooperating agencies and organizations on implementation of forest practices rules.

Periodic/Annual On-Going Training

Compliance Monitoring

The Compliance Monitoring Program provides annual training for staff from DNR, Department of Ecology, WDFW and tribal field staff who participate in onsite review of completed forest practices applications. Additional field coaching and on-the-job training is done using experienced staff to promote consistency in observations by new program participants.

Unstable Slopes

The unstable slopes course objectives are to improve the ability to recognize unstable slopes and landforms, improve consistency in recognition of these features, and identify when a specialist is needed for further consultation.

Washington Contract Logger Association

DNR forest practices staff teach select classes to the Washington Contract Logger Association (WCLA). WCLA annually conducts a four-day training course, which includes one day of forest practices rules training and one day of forest silviculture and ecology for operators seeking WCLA Master Logger certification. DNR Forest Practices program and other agency (WDFW and Ecology) staff teach subjects including water typing, riparian and wetland management zones, cultural resources, road maintenance, hydraulic projects, and general information regarding the forest practices application/notification process.

Training provided to Forest Practices Staff

Short, focused training sessions are provided to forest practices staff during regularly scheduled program meetings. The meetings are held three times a year with the purpose of division and region staff sharing information and addressing program topics.

Training Conducted by Region Staff

DNR forest practices region staff deliver both statewide and region-specific training. One of the forums used for region training are the regularly held region TFW “cooperator” meetings. During these meetings, the forest practices staff train on such topics as changes in forest practices rules, rule implementation, and application processing. Region staff also organize informal meetings where technical or scientific information is presented to keep field practitioners informed about recent research findings.

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RMAP for Large Landowners

Historically, studies have identified forest roads as sources of sediment delivery to streams and hydrology related impacts in Washington's forests. Research has demonstrated that well designed and properly maintained roads minimize impacts to public resources. Forest practices rules include a Road Maintenance and Abandonment Plan (RMAP) program found in chapter 222-24 WAC, to help prevent sediment and hydrology-related impacts to public resources, such as fish and water quality, and to fix fish passage barriers. Forest landowners are responsible for maintaining all of their forest roads to the extent necessary to prevent potential or actual damage to public resources.

RMAPs rules state that large forest landowners were required to have all forest roads within their ownership covered under a DNR approved RMAP (WAC 222-24-051) by July 1, 2006, and to bring all roads into compliance with forest practices rules standards by October 31, 2016. This includes all roads that were constructed or used for forest practices after 1974. An inventory and assessment of orphaned roads (i.e., forest roads and railroad grades not used for forest practices since 1974) must also be included in the plan. In areas where watershed analysis has been conducted and approved, large forest landowners may elect to follow the watershed administrative unit-road maintenance plan rather than developing an RMAP under WAC 222-24-051.

Forest practices rules required large forest landowners to prioritize road maintenance and abandonment work based on a “worst first” principle —starting with road systems where improvements would produce the greatest benefit for public resources—and schedule their RMAP work to be metered throughout the time period prior to the deadline, on an “even-flow” basis so as not to wait until the last few years to complete all the work. Within each plan, maintenance and abandonment work is prioritized as follows:

- Remove blockages to fish passage;
- Prevent or limit sediment delivery;
- Correct drainage or unstable side-cast in areas with evidence of instability that could adversely affect public resources or threaten public safety;
- Disconnect the road drainage from entering typed waters;
- Repair or maintain roads that run adjacent to streams; and
- Minimize road interception of surface and ground water.

Each year on the anniversary date of the plan's submittal, landowners report work accomplishments for the previous year, work proposed for the upcoming year, and any modifications to the plan. In an effort to minimize the economic hardship on small forest landowners, the 2003 Washington Legislature passed an RMAP bill (HB1095) that modified the definition of “small forest landowner” and clarified how the RMAP requirements applied to

small forest landowners. Small forest landowners have the option to submit a “checklist” RMAP with each forest practices application or notification, rather than to provide a plan for their entire ownership. DNR, in consultation with WDFW and Ecology submitted a report to the legislature and the Forest Practices Board in December 2008 on the effectiveness of the checklist RMAP.

The report can be found electronically at:

www.dnr.wa.gov/Publications/fp_sflo_rmap_legreport_2008.pdf.

Board Manual Section 3 *Guidelines for Forest Roads* explains requirements and processes in the RMAP program.

Extension of RMAP Deadline

On August 9, 2011, the Board amended WACs 222-24-050 and 222-24-051 to allow forest landowners to extend the deadline for completing the roadwork scheduled in their RMAPs beyond October 31, 2016. The rule change allowed for an extension of the deadline for up to five years, or until October 31, 2021. The Board adopted this rule amendment because of the impact of the 2008 economic downturn on forest landowners. The cutoff for extension requests was September 3, 2014, (with requests approved by October 31, 2014).

Reporting Elements – Tables 14, 15, and 16 in the RMAP Section above.

Number of Approved RMAPs

The number of approved RMAPs represents those plans submitted predominantly by large forest landowners. Many large landowners have more than one plan. There are 12 small forest landowners that could have opted to submit a “checklist” RMAP, but have chosen (in writing) to continue to follow their pre-2003 submitted RMAP, or have decided to submit a plan as described in WAC222-24-0511(2). This does not include land previously owned by a large landowner covered under an approved RMAP, which has been sold to a small forest landowner that chooses not to continue or implement an RMAP.

The number of approved RMAPs is dynamic in nature. Large landowners may have one RMAP for large land holdings or multiple RMAPs covering several road management blocks within the large land holding. Landowners may choose to change their strategy on the number of RMAPs they manage. Property transactions can lead to an increase or decrease in the number of approved RMAPs. Decisions by small landowners to discontinue their RMAP plans and obtain checklists instead would result in a decrease of RMAPs reported. Another reduction in the number may be due to a large forest landowner’s decision to discontinue or reduce the amount of harvest, and submit a request to be released from the program due to qualifying as a small forest landowner (WAC 222-16-010).

Additionally, some landowners that received extensions on specific land holdings requested a new RMAP number for accurate tracking purposes.

Miles of Forest Roads Assessed

Landowners arrived at this number by conducting an inventory and assessment of all forest roads contained within a specific RMAP. This number includes roads that meet forest practices rule standards as well as those that need to be improved.

Miles of Forest Road Identified Needing Improvement

Implementing the definition as described below, *Miles of Road Improvement*, the data was partially completed (dependent upon each landowners RMAP accomplishment reporting date) and first reported in the 2012 Forest Practices HCP Annual Report.

Miles of Road Improvement

For RMAP purposes, an improved road or road segment is defined as locations where actions have been taken to address issues associated with:

- Fish passage;
- Delivery of sediment to typed waters;
- Existing or potential slope instability that could adversely affect public resources;
- Roads or ditch lines that intercept ground water; and
- Roads or ditches that deliver surface water to any typed waters.

The improvements are to meet the current forest practices rule requirements and are identified in the landowner plan, or problematic road conditions are subsequently discovered and actions are identified for inclusion within the period associated with an approved RMAP.

Once a landowner confirms that a road or road segment is brought up to current forest practices rule standards, it is captured in that year's accomplishment report. Accomplishment reports are provided per the landowner's annual RMAP date. This date ranges from November to May of the following year after the operational roadwork season is complete and is dependent upon their plan's anniversary date. The DNR RMAP specialist may concur with the reports, meaning the road no longer will be identified as an RMAP obligation; therefore, the road or road segment would not be included in subsequent reporting years for miles of road needing improvement. Over time, the "miles of forest road identified needing improvement" will decrease as the "miles of road improved" increases. All roads not under an RMAP obligation are subject to standard forest practices rules found in Chapter 222-24 WAC.

Miles of Road Abandonment

The number of road abandonment miles includes those that have been reported under an approved RMAP as abandoned per WAC 222-24-052(3). Roads are not considered ‘officially abandoned’ until the DNR RMAP specialist or forest practices forester reviews the on-the-ground abandonment to ensure it meets the requirements. Reported road abandonment miles reflect some road miles that may not have been officially abandoned at the time this report was distributed.

Miles of Orphaned Roads

The number of miles of orphaned roads includes those that have been reported under an approved RMAP as orphaned. Inventory and assessment of orphaned roads will be used to help in the evaluation of the hazard-reduction statute and to determine the need for cost-share funding (RCW 76-09-300).

This information is challenging to track precisely due to the difficulty in locating orphaned roads on the landscape; they often are obscured by brush and forest cover and do not appear on any map. Some orphaned roads have been converted to active forest roads, some abandoned, and some may be scattered throughout the landscape with present status unknown.

Number of Fish Passage Barriers Identified

The total number of fish passage barriers includes those identified as part of an approved RMAP inventory.

The total number of fish passage barriers will fluctuate over time, depending on when landowners verify on-the-ground physical characteristics and/or perform a protocol survey or other approved methodology for verifying fish presence or absence. In cases in which a stream type has been changed from ‘Type F’ to ‘Type N’—therefore negating the landowners’ obligation to remove fish passage barriers—sizing of the culvert will be assessed to ensure that it is able to pass a 100-year flood level event plus debris. Due to limited habitat gained, barriers also may be removed from the total number, if the structure was determined in consultation with Washington State Department of Fish and Wildlife to be partially fish passable and sufficient to remain until the end of its functional life. In addition, a barrier may be removed from the list if the structure was determined to play an important role in maintaining pond or wetland habitats; these decisions are made with stakeholder consultation.

Number of Fish Passage Barriers Corrected

The corrected number of fish passage barriers includes the total number that have been permanently removed or fixed with a fish-passable structure.

Miles of Fish Habitat Opened

The ‘miles of fish habitat opened’ refers to stream habitat opened for fish use after the fish passage barrier has been removed or replaced. This number is an estimate because it is not always possible to measure stream length on the ground. The measurement often is based upon aerial photos or maps.

This number of miles of fish habitat opened may fluctuate depending on when, or whether or not, a stream type verification survey occurs. This number is reflected by large forest landowner data or topographical information when there are no protocol surveys to pinpoint exact breakpoints. It also is difficult for landowners to determine this number if the stream enters another ownership.

Number of RMAP Checklists Submitted by Small Landowners

The ‘number of RMAP checklists’ is the total submitted to the DNR regions by small forest landowners since the 2003 rule change. Small forest landowners may submit more than one RMAP Checklist.

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Cultural Resources

As Sovereign nations, federally recognized Indian Tribes in Washington State are key cooperators in the Forest Practices Program. The Services have a particular interest in tribal connections with forest practices applications/notifications due to the Federal Government’s fiduciary relationship with federally recognized Indian tribes. As a result, the Services requested reporting of updates on tribal/landowner meetings and process improvements. The HCP reporting obligations include information concerning “*landowner/tribal meetings and process improvements pursuant to WAC 222-20-120*” in both the annual and five-year Forest Practices HCP reports. See [Table 1.1 FPHCP Reporting Elements](#), “Administrative and Regulatory Program Updates” (open the link, scroll to page 9).

The Board, under the authority of Forest Practices Act chapter 76.09 RCW, adopts forest practices rules that foster cooperative relationships and agreements with affected tribes. These rules direct DNR forest practices staff to notify and consult with affected Indian tribes when developing and implementing many parts of the Forest Practices Program. ([RCW 76.09.010 and WAC 222-12-010](#)). In the forest practices rules, “*affected Indian tribe means any federally recognized Indian tribe that requests in writing information from the department on forest practices applications and notification filed on specified areas*” ([WAC 222-16-010](#)).

Tribes in Washington—as well as some tribes in Oregon and Idaho—currently participate as forest practices cooperators to varying degrees. Tribes are members of the Forest Practices Adaptive Management Program’s TFW Policy Committee and Cooperative Monitoring,

Evaluation, and Research Committee. Tribal representatives are also members of DNR's Small Forest Landowner Advisory Committee.

Additionally, tribal members and their representatives work with staff from DNR's Forest Practices Program in the areas of: forest practices applications/ notifications review, technical expertise during DNR's interdisciplinary team reviews, water typing; and wetland typing. Tribal members also participate with other agencies and organizations that work with DNR to draft Forest Practices Rules and Board Manuals. Tribes also work with those landowners who are interested in pre-application planning of their forest practices activities.

Section 12 above provides information on two areas of forest practices work specific to tribal governments.

- Section 12.2 provides an annual summary specific to landowner-tribe meetings and process improvements regarding implementing and tracking of the forest practices rule in WAC 222-20-120.
- Section 12.3 provides an annual update on the work being conducted by the Board's Timber/Fish/Wildlife Cultural Resources Roundtable (Roundtable).

Landowner/Tribe Meetings and WAC 222-20-120 Updates

Background

This Forest Practices HCP reporting element reads "*landowner/tribal meetings and process improvements pursuant to WAC 222-20-120*". See [Table 1.1 FPHCP Reporting Elements](#), "Administrative and Regulatory Program Updates" (open the link, scroll to page 9).

Forest Practices rule [WAC 222-20-120](#) titled "*Notice of forest practices that may contain cultural resources to affected Indian tribes*" requires:

- DNR to notify tribes of all proposed applications within the tribe's designated geographic area of interest and;
- When an FPA/N may contain cultural resources, DNR notifies the landowner of the requirement for them to contact affected tribes who will determine if a meeting is required. When a meeting is required, landowners meet with the affected tribe(s) to determine if the proposed activities within the forest practices activity area requires a plan to protect cultural resources. In the rule's definitions, "*cultural resources means archaeological and historic sites and artifacts, and traditional religious, ceremonial and social uses and activities of affected Indian tribes.*" ([WAC 222-16-010](#)).

Currently, all but one of the federally recognized tribes in Washington has chosen and is signed-up to review Forest Practices Applications and Notifications, Multi-Year Permits, and Small Forest Landowner Long Term Applications. Several Washington state tribal organizations, the Northwest Indian Fisheries Commission, Skagit River Cooperative, and Upper Columbia United

Tribes are signed up to review Forest Practices Applications and Notifications on behalf of member tribes.

Process

The Forest Practices Program continued to utilize its Forest Practices Risk Assessment Mapping tool (FPRAM) to review and appropriately classify proposed forest practices and implement WAC 222-20-120. FPRAM is the GIS-based interactive mapping and reporting tool, which allows forest practices staff to see the geographic relationships between known environmental features and the location of proposed forest practices. FPRAM includes:

- Data from the Washington State Department of Archaeology and Historic Preservation;
- The 1893-1950 US Geological Service and Army Mapping Service maps for Washington State;
- Bureau of Land Management Government Land Office historical maps; and
- Tribal Cultural Resources Contacts (each tribe's/tribal organization has designated geographic area of interest for cultural resources and the name and contact information of their designated cultural resources contact).

Update on Timber/Fish/Wildlife Cultural Resources Roundtable

Background – Origin, Charter, and Participants

The Roundtable originated as the TFW Cultural Committee of the 1987 TFW collaboration. The TFW Cultural Committee continued to be active in various cultural resources endeavors. In 2001, the Board reconvened the Committee to work on the cultural resources commitments in the Forests and Fish Report (see below). Then in 2011, the Forest Practices Board formally accepted the [Roundtable's charter](#), which formally changed the TFW Cultural Committee's name to TFW Cultural Resources Roundtable (Roundtable).

The Roundtable's purpose, as stated in its charter, is to:

- “foster cooperative protection and management of cultural resources as envisioned in the *Cultural Resources Protection and Management Plan*, and
- “facilitate the identification, protection, and management of cultural resources that are significant to the history and cultures of the people of Washington State, and which are located on the state's non-federal forest lands.”

It is anticipated that the Roundtable will continue to serve the Board's needs by providing insight on cultural resources issues affecting forest practices, providing consensus rule making recommendations for the Board's consideration and, as required by [WAC 222-08-160](#), annually reporting on behalf of the department on how implementation of the *Cultural Resources Protection and Management Plan* is working. This plan is described below. Accordingly, the Board's website includes a [TFW Cultural Resources Roundtable web page](#). Web page materials

include meeting agendas and meeting notes, the *Cultural Resources Protection and Management Plan*, the Roundtable's charter, and cultural resources educational information.

Roundtable active participants have varied depending on the topics being addressed. The most recent Roundtable participants included the following tribes, landowners, and state natural resource agencies:

- Puyallup Tribe of Indians
- Confederated Tribes and Bands of the Yakama Nation
- Quinault Indian Nation
- Cowlitz Indian Tribe
- Jamestown S'Klallam Tribe
- Spokane Tribe of Indians
- Squaxin Island Tribe
- Upper Columbia United Tribes
- Washington Forest Protection Association
- Hancock Resource Management
- Green Diamond Resource Company
- Washington Farm Forestry Association
- Department of Archaeology and Historic Preservation
- DNR Forest Practices Division
- DNR Forest Resources Division

Other interested tribes, organizations, and persons are kept informed of the Roundtable's work through meeting agendas and meeting notes sent by the Roundtable via email. About 60 Tribal, landowner, and state agency representatives participate in the Roundtable or receive ongoing mailings from the Roundtable.

Background – Cultural Resources Protection and Management Plan

The [*Cultural Resources Protection and Management Plan*](#) is a voluntary cooperative approach towards the protection of cultural resources on non-federal forestland in Washington. This approach is based on mutual respect and an appreciation of tribal and non-tribal culture and history.

The *Cultural Resources Protection and Management Plan* was born of the two commitments in the [*Forests and Fish Report*](#) specific to cultural resources. Appendix G of the report specifically commits to cooperatively developing a watershed analysis cultural resources module. Appendix O of the report commits to completing a cultural resources plan to enhance cooperative relationships between landowners and tribes. In 2001, the Forest Practices Board asked the Roundtable (then Committee) to collaboratively develop a multi-caucus proposal to address these Forests and Fish commitments.

The Roundtable presented its consensus *Cultural Resources Protection and Management Plan* to the Board in 2003. The Board accepted the plan as fulfillment of both *Forests and Fish Report* commitments, as the plan's appendices included the proposed watershed analysis cultural resources module. The appendices also included proposed rules to implement the module, a proposed cultural resources question and instructions for Forest Practices Applications and Notifications, and a suggested process for implementing WAC 222-20-120. In May 2005, after completing the rule making process, the Board formally approved the watershed analysis cultural resources module for inclusion in Board Manual Section 11, *Standard Methodology for Conducting Watershed Analysis* as [Appendix J](#), and adopted the rules in [chapter 222-22 WAC](#) implementing the module. The Forest Practices HCP (Washington DNR, 2005) incorporates the *Cultural Resources Protection and Management Plan* as [Appendix I](#).

The *Cultural Resources Protection and Management Plan* is a “living” document. This means the plan is open to updates and changes to reflect progress and completion of tasks, as well as changes in priorities and direction of the plan. Therefore, updates are added occasionally by the Roundtable.

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Information Technology-Based Tools

Information technology-based tools provide significant support for the administration of the Forest Practices Program and therefore support the implementation of the Forest Practices HCP. These tools include information systems, such as the Forest Practices Application Review System (FPARS), Forest Practices Enforcement Tracking System (FPETS), Forest Practices Application and Mapping Tool (FPAMT) and the Forest Practices Risk Assessment Mapping (FPRAM) application, as well as discrete data sets, such as the DNR Hydrography Geographic Information System (GIS) data layer that forms the basis of the water typing system. Within DNR, the Forest Practices Division works closely with DNR Information Technology Division to develop and maintain these information technology tools.

Forest Practices Application Review System

The Forest Practices Application Review System streamlines the processing of forest practice applications/notifications and provides the public with the ability to review proposed forest practices activities. It makes use of the internet, document imaging and management technology, interactive GIS technology, and the Oracle database system to collect FPA/Ns information, and distribute it for regulatory and public review. FPARS also supports risk assessments of proposed forest practices activities, and archiving forest practices applications/notifications.

Forest Practices Enforcement Tracking System

The Forest Practices Enforcement Tracking System provides the ability for region-based forest practices staff and Forest Practices Division staff to enter and report on data related to

enforcement actions, civil penalties and appeals. It makes use of the internet, document imaging and management technology, and the Oracle database system to collect forest practices enforcement information.

By capturing enforcement data in a common database, FPETS streamlines and improves accuracy of data input by removing redundancies and enables production of automated reports that are used in the enforcement tracking process. FPETS also includes a robust search tool that allows users to query on and search the FPETS database for information related to informal conference notes, enforcement orders, civil penalties and appeals.

Forest Practices Risk Assessment Mapping

The Forest Practices Risk Assessment Mapping application is a web-based interactive mapping and reporting tool. It gives DNR Forest Practices Program staff, in both the division and the region offices, access to GIS data related to the implementation of the forest practices rules. It allows staff to see and review the geographic relationships between environmental features, including streams, potential landslide areas, archaeological sites, northern spotted owl habitat, and the locations of proposed forest practices activities.

The DNR Hydrography Data Layer and Water Type Updates

The Forest Practices GIS section updates DNR's hydrography data layer with water typing information received on Water Type Modification Forms (WTMFs). DNR personnel, forest landowners, fish survey contractors, and others base these updates on direct observations in the field.

The Water Type Modification Form Tracking Application (WTA) is an Oracle-based system initiated in April 2016 that facilitates the review and processing of WTMFs. WTA stores key data about each WTMF, automatically sends email notifications to all stakeholders, and captures reviewer comments and feedback.

Road Maintenance and Abandonment Plan Point Data Set

The Road Maintenance and Abandonment Plan (RMAP) points' dataset is compiled from individual RMAP annual accomplishment and planning reports and other sources into a statewide data system. DNR continues to work to make the dataset as complete as possible. However, it is a work in progress. Not all points have been entered or updated. They represent the information that has been compiled to date from landowner annual reports.

Forest Practices Online Project

fpOnline will be an integrated business information system that will enable conducting forest practices business almost entirely online. Unlike the current system (Forest Practices Application Review System) designed 18 years ago as a reviewer notification system, fpOnline

will integrate the forest practices business systems and databases allowing forest practices staff, proponents and forest practices application/notification reviewers to more efficiently conduct business with the Forest Practices Program.

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List of Acronyms

Agencies and Organizations

Board	Washington Forest Practices Board
DAHP	Department of Archaeology and Historic Preservation
DNR	Washington State Department of Natural Resources
NMFS	National Marine Fisheries Service
RCO	Recreation and Conservation Office
Round Table	TFW Cultural Resources Round Table
SFLO	Small Forest Landowner Office
TFW	Timber/Fish /Wildlife
USFWS	United States Fish and Wildlife Service
WCLA	Washington Contract Loggers Association
WDFW	Washington Department of Fish and Wildlife
WFFA	Washington Farm Forestry Association
WFPA	Washington Forest Protection Association
Ecology	Washington State Department of Ecology

Technical Terms

PHB	Potential Habitat Break
CI	Confidence Interval
CMZ	Channel Migration Zone
DFC	Desired Future Condition
EBAI	Equivalent Area Buffer Index
eDNA	Environmental deoxyribonucleic acid
FFSA	Forests and Fish Support Account
FHAM	Fish Habitat Assessment Methodology
F/N	Break between fish bearing water and non-fish bearing water
FTE	Full Time Equivalent
FY	Fiscal Year
GF-State	General Fund - State
GIS	Geographic Information System
ISAG	Instream Scientific Advisory Group
LiDAR	Light Detection and Ranging
LTA	Long Term Application
LWD	Large Woody Debris
MPS	Master Project Schedule
PCE	Personal Consumption Expenditure
PI	Proposal Initiation
RMZ	Riparian Management Zone
SAG	Scientific Advisory Group

Toxics	State Toxics Control Account
Type F	Fish-bearing stream
Type Np	Non fish-bearing, perennial stream
Type Ns	Non fish-bearing, seasonal stream
Type S	Shorelines of the State
TWIG	Technical Writing and Initiation Group
UPSAG	Upslope Processes Scientific Advisory Group
WAU	Watershed Administrative Unit
WETSAG	Wetland Scientific Advisory Group
WRIA	Water Resource Inventory Area

Staff, Programs, Official Documents

AMP	Adaptive Management Program
AMPA	Adaptive Management Program Administrator
CMER	Cooperative Monitoring, Evaluation, and Research Committee
CMP	Compliance Monitoring Program
FFFPP	Family Forest Fish Passage Program
FPAMT	Forest Practices Application and Mapping Tool
FPAN	Forest Practices Application/Notification
fpOnline	Forest Practices Online Project
FPARS	Forest Practices Application Review System
FPETS	Forest Practices Enforcement Tracking System
FPRAM	Forest Practices Risk Assessment Mapping
Forest Practices HCP	Forest Practices Habitat Conservation Plan
FREP	Forestry Riparian Easement Program
FFR	Forests and Fish Report
HCP	Habitat Conservation Plan
ICN	Informal Conference Note
IDT	Interdisciplinary Team
ISPR	Independent Scientific Peer Review
NTC	Notice to Comply
NOID	Notice of Intent to Disapprove
RMAP	Road Maintenance and Abandonment Plan
RHOSP	River and Habitat Open Space Program
SWO	Stop Work Order
WTA	Water Type Modification Form Tracking Application
WTMF	Water Type Modification Form

Regulations, Acts, Official Guidance, and Permits

Board Manual	Forest Practices Board Manual
CWA	Clean Water Act
EIS	Environmental Impact Statement
ESA	Endangered Species Act
FPHP	Forest Practices Hydraulic Permit
IA	Implementing Agreement
ITP	Incidental Take Permit
RCW	Revised Code of Washington
SEPA	State Environmental Policy Act
WAC	Washington Administrative Code