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NATURAL RESOURCES

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December 5, 2019

Jennifer Quan, Assistant Regional Administrator
NOAA Fisheries Service
c/o Scott Anderson
510 Desmond Drive SE, Suite 103
Lacey, WA 98503

Brad Thompson, Acting State Supervisor
Washington Fish and Wildlife Office
U.S. Fish & Wildlife Service
510 Desmond Drive SE, Suite 102
Lacey, WA 98503

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 2019 Annual Report for the *Forest Practices Habitat Conservation Plan* (Forest Practices HCP). The annual report covers the period from July 2018 through June 2019. 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 consideration of a permanent water typing system rule and accompanying technical guidance. To assist with efficiently moving forward, the Board formed a committee of board members to address specific outstanding questions related to the water typing system rulemaking. The report's Section 2 and Appendix 4 provides further information and discussion on the work accomplished toward completion of the permanent water typing system rule.

Other noteworthy Board work during this period included:

- Approval of a charter forming a Timber, Fish and Wildlife (TFW) Policy Committee Type Np (non-fish perennial water) Workgroup to review findings of Adaptive Management Program (AMP) Type N studies and make recommendations to TFW Policy Committee for potential Type Np riparian management zones; and
- Initiation of facilitator-lead discussions with the TFW caucus principals to reinvigorate commitments to collaboration and to improve efficiency in the AMP processes.

Adaptive Management Program

- The AMP completed two project phases during the period: review of the Small Forest Landowner Alternate Plan Template and the Buffer Integrity-Shade Effectiveness Project.

Compliance Monitoring Program

- All riparian rule prescription compliance percentages were above 90 percent and roads compliance percentages were above 95 percent.

Road Maintenance and Abandonment Plans

- In calendar year 2018, 573 miles of forest road were improved. Since 2001, a total of 28,651 miles of forest road have been improved and 7,424 fish passage barriers—approximately 86 percent of those identified—eliminated, opening up 5,024 miles of fish habitat.

There are many other accomplishments described in the 2019 Forest Practices HCP Annual Report. The report can be accessed through 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 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,

Hilary S. Franz
Commissioner of Public Lands

cc: 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
Stephen Bernath, Deputy Supervisor of Forest Practices
Joseph Shramek, Forest Practices Division Manager

Forest Practices Habitat Conservation Plan

July 1, 2018- June 30, 2019

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.
2019

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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
Washington State Recreation and Conservation Office
Washington Forest Protection Association
Washington Farm Forestry Association
Conservation Caucus
Tribal Governments
Northwest Indian Fisheries Commission
Upper Columbia United Tribes
U.S. Fish and Wildlife Service
National Marine Fisheries Service
U.S. Environmental Protection Agency
Washington State Association of Counties

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Section **Title**

1. Introduction to Forest Practices HCP 2019 Annual Report

Appendix: Background on FP Habitat Conservation Plan

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, issued Incidental Take Permits to Washington State. The implementation of the Forest Practices HCP is a partnership between the Services and Washington State that 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 non-federal 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.

2019 Report Highlights

Highlights of the Forest Practices HCP implementation from July 1, 2018 through June 30, 2019, include:

Forest Practices Board

During this reporting period, the focus of the Forest Practices Board (Board) remained on consideration of a permanent water typing system rule and accompanying technical guidance. The primary focus of the Board was gaining clarity and a complete understanding of the details of proposed potential habitat breaks (PHB) and anadromous floors (AFF) that were included in the three analysis options approved by the Board in February 2018. The PHBs are the primary geomorphic features to be used with the fish habitat assessment methodology (FHAM) that was accepted by the Board in May 2017 as a central component of a permanent water typing system.

To assist with efficiently moving forward, the Board formed a committee of board members to address specific difficult questions related to the water typing system rulemaking. Additional work and clarity for the draft rule included work to gain full understanding of the PHB and AFF options, the associated analysis of the outcomes using each PHB option, and the complexity of the elements evaluated in the cost-benefit analysis. See Appendix 4 for background information and discussion on the work accomplished toward completion of the permanent water typing system rule.

Other Board work included:

- Approval of a charter forming a Timber, Fish and Wildlife (TFW) Policy Committee Type Np (non-fish perennial water) Workgroup to review findings of Adaptive Management Program (AMP) Type N studies and bring forward recommendations for potential Type Np buffers to Policy; and
- Initiation of facilitator-lead discussions with the Timber, Fish and Wildlife (TFW) caucus principals to reinvigorate commitments to collaboration and to improve efficiency in the AMP processes.

Adaptive Management Program

- The AMP completed two projects (phases) during the period: the Small Forest Landowner Alternate Plan Template Review and the Buffer Integrity-Shade Effectiveness Project.
- At the end of the period, there were two study plans and six final reports going through Independent Scientific Peer Review (ISPR).
- There were 51 completed projects and 24 on-going projects at the end of the reporting period.
- AMP was using electrofishing in the conduct of one ongoing research project: *Identifying distribution boundaries at the upper extent of fish in streams using environmental deoxyribonucleic acid (DNA)*.

Forest Practices Operations

- Forest Practices Operations staff processed 4,228 Forest Practices Applications/Notifications (FPA/Ns) and 932 water type modification forms (WTMFs).
- Five program guidance documents were issued for forest practices staff:
    - *2019 Fish Survey Season – Water Level and Streamflow Forecast;*
    - *Areas of Program Focus Related to Water Typing "Protocol Fish Surveys";*
    - *Process for Evaluating and Classifying Forest Practices Applications including Potential High Avalanche Hazard Areas;*
    - *Expectations Related to Screening Forest Practices Applications for Potentially Unstable Features;* and
    - *Process for Voluntary Pre-Application Reviews of Forest Practices Proposals with Potentially Unstable Slopes and Landforms.*
- One advisory letter was issued to Forest Practices staff: *Use of Field Surveys for Protocol Surveys during Drought Conditions.*
- Region and Division Operations staff were involved in planning and conducting statewide training on: Channel Migration Zones, Wetlands, Unstable Slopes, and Forest Practices Hydraulic Projects. Additional training to implement snow avalanche hazard guidance and Forest Practices enforcement and compliance were prepared and are intended to be delivered before the end of calendar year 2019. Please see Section 10 for details and description of additional training conducted by Region staff.

Small Forest Landowner Office

- There were 34 easements purchased and 13 new eligible applications added under the Forest Riparian Easement Program (FREP). Since the conservation easement program started in 2001, the State has purchased 401 conservation easements. As of June 30, 2019, there were 136 easement applications on the FREP waiting list.
- Under the Family Forest Fish Passage Program (FFFPP), 12 fish passage barriers were corrected this year, making 24 miles of upstream habitat accessible to fish. Since the program's inception in 2003, 397 barriers to fish passage have been eliminated, making approximately 934 miles of fish habitat accessible. As of June 30, 2019, there were 1,194 eligible projects on the waiting list for FFFPP.

20-acre Exempt Riparian Forestland

- There were 123 FPAs that used the small forest landowner 20-acre exempt rule (non-conversion FPAs) along fish-bearing waters, approximately 3.3 percent (123 out of 3,741 FPAs) of all approved non-conversion applications during the 2019 reporting period.
- Of the 846 watershed administrative units (WAUs) in the state, 238 have a possible reduction in potential recruitment of large woody debris (LWD) resulting from non-conversion FPAs with fish bearing waters using the 20-acre exempt rule. Of these, 231 currently have the potential of less than 1 percent cumulative reduction in function. All seven WAUs with more than 1 percent potential reduction in function show less than 3 percent cumulative potential reduction of riparian function in the WAU and are, therefore, not yet near or past the permit threshold of 10 percent.
- No FPAs associated with 20-acre exempt parcels were located within the bull trout areas of concern.

Alternate Plans

- There were 154 (89 large forest landowner and 65 small forest landowner) alternate plan proposals processed as part of an FPA during the reporting period. Three were small forest landowner long-term forest practices applications.

Rivers and Habitat Open Space Program (R&HOSP)

- Two easements were purchased during the 2017-2019 biennium: 23.5 acres in a channel migration zone (CMZ) and 50 acres of Northern Spotted Owl Critical Habitat State.
- Since the 2001 R&HOSP easement program inception, 21 easement areas have been purchased, encompassing approximately 1,106 acres of conservation easements in channel migration zones and 114 acres of conservation easements on critical habitats of state-listed threatened and endangered species.

Enforcement

- There were 13,527 active (non-expired) FPAs at the end of the reporting period. During this reporting period, DNR issued 78 Notices to Comply and 28 Stop Work Orders. Of these enforcement actions, 97 were for violations of the Forest Practices Rules.

- One civil penalty and no Notices of Intent to Disapprove (NOID) were issued during this reporting period.

Compliance Monitoring Program (CMP)

- The Compliance Monitoring Program collected data for the first year (2018) of a two-year (2018-2019) biennial data collection process. Riparian data were collected for the standard sample.
- All riparian prescription compliance percentages were above 90 percent.
- The roads compliance rate was 99 percent and the haul route compliance rate was 96 percent.
- Observed water typing accuracy increased from 91 percent accuracy in the 2014-2015 CMP biennial report to 96 percent accuracy in the 2018 sample.

Training, Information, Education.

- The multi-year effort to reestablish core classes and routinely provide them on a regular and predictable schedule has been completed.
- Training sessions provided and number of students in each included: Compliance Monitoring – 22 students; Unstable Slopes – 58 students; Channel Migration Zone – 54 students; Wetlands Training – 55 students; Forest Practices Hydraulic Projects – 70 students; and Washington Contract Logger Association – 130 students.
- The program began recording class training sessions for future use in several new presentation styles (for example, audio and visual).

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

- Eight RMAPs were completed during the reporting period.
- Forty-seven RMAPs have approved extensions to complete remaining RMAP work by October 31, 2021.
- In calendar year 2018, 573 miles of forest road were improved.
- During the reporting period, Washington Department of Fish and Wildlife (WDFW) biologists reviewed 1,461 Forest Practices Hydraulic Projects (FPHPs), which included 119 concurrence-required project reviews and 1,028 standard FPHPs. WDFW also participated with DNR in 314 pre-application reviews.
- Since 2001, 28,651 miles of forest roads were improved to meet forest practices standards, and 7,424 fish passage barriers have been eliminated, opening up 5,024 miles of fish habitat.

Cultural Resources

- Throughout the reporting period, high-level, facilitated discussions relative to the protection of tribal cultural resources continued among the state, tribes, and forest landowners. The discussions resulted in identification of potential changes to FPA/N questions, the screening and review processes, and training for landowners.
- During this reporting period, 23 FPAs required a landowner/tribal meeting. All required meetings occurred. An additional six voluntary meetings were held as well.

Information Technology

- In this reporting period, 4,228 FPA/Ns were received or renewed and entered into the Forest Practices Application Review System (FPARS). As of June 30, 2019, 1,159 reviewers had subscribed to receive email notification of FPA/Ns.
- During this reporting period, 649 Informal Conference Notes (ICN), 19 Notices of Conversion to Non-forestry Use, 78 Notices to Comply (NTC), one civil penalty and 28 Stop Work Orders (SWO) were entered into the Forest Practices Enforcement Tracking System.
- Staff processed 932 WTMFs, resulting in updates to approximately 1,242 stream miles. These updates included stream type upgrades to approximately 42 miles of stream and stream type downgrades to approximately 61 miles of stream, including identification and mapping of new tributary streams. As of June 2019, the WTMFs backlog was 12.
- FPARS technical difficulties occurred on several occasions during the reporting period, affecting availability to users. This is a symptom of trying to enhance and maintain complicated and aging technology. DNR unsuccessfully sought additional operating funding from the Legislature to develop a modern replacement information system.

Budget

- 2017-2019 Biennium Operation Allocation (with Personal Consumption Expenditure Conversion to 2005 dollars) was $31,158,011, which exceeds the $22.7 million minimum required funding level under the 2012 Settlement Agreement for the Forest Practices HCP.

2. Forest Practices Board

Appendix: Background on Forest Practices Board

2.1 Forest Practices Board Rule Making Activity (July 1, 2018 – June 30, 2019)

Water Typing System

During the reporting period, the primary focus of the Forest Practices Board (Board) was the development of a permanent water typing system rule.

In August 2018, the Board requested:

- DNR staff to verify with the caucus proponents that their Potential Habitat Break (PHB) options as presented to the Board in February 2018 were correct; and the
- Expert panel to provide the majority and minority recommendations and supporting science on how tributary streams should be addressed when determining the extent of fish habitat.

In November 2018, the Board received the staff report verifying the PHB options, as approved by the Board, were correct. The Board also received the amended expert panel report and a minority report with the tributary stream information and supporting science. The Board accepted this information and requested the Department of Natural Resources (DNR) staff to present, through an open public meeting, the results of the DNR spatial analysis for the PHB options. At a meeting in December, DNR shared the program's approach for generating outcomes from the spatial analysis and provided stakeholders with the data for running additional analyses.

In May 2019, the Board requested that DNR proceed with the rule-making process, and continue the work on the guidance to accompany the draft rule and the discussions related to the preliminary economic analysis. The Board also recognized the need to have the three caucuses who proposed rule options share their data/methods for arriving at their PHBs and anadromous floor proposals.

The Board, at a June 4, 2019 special meeting, established a Board Committee to address the outstanding concerns and gaps with some of the technical elements needed to implement the rule and the proposed draft rule language. The Committee was tasked with the following:

- Understanding the spatial analysis and work to resolve whether stream width can be estimated for the purposes of the economic and environmental analyses;
- Determining how to proceed in eastern Washington;
- Determining the timing and applicability of the PHB validation study and if it should be combined with the physical stream criteria study;
- Determining options for moving forward with a Lidar-based water-typing map; and,
- Working with stakeholders to resolve any outstanding issues regarding the anadromous floor.

The Board has requested the Committee to bring recommendations to the Board at their November 2019 meeting with needed steps and a timeline to complete the preparation of the draft water typing system rule. See Appendix 4 for historical information.

2.2 Forest Practices Board Manual Activity (July 1, 2018 – June 30, 2019)

The Board did not take formal action to amend the Board Manual 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 has postponed adoption of a permanent rule to provide the time needed to identify the next steps and a timeline to address outstanding concerns and gaps within the proposed water typing system rule. The work needed to complete this rulemaking will continue through the next reporting period.

Western Washington Type Np riparian management zones

The Board, after receiving the findings of the Cooperative Monitoring and Research (CMER) committee Type N Experimental Buffer Treatment Project on Hard Rock Lithologies, accepted the TFW Policy Committee recommendation to form a Policy Type Np Workgroup. This workgroup will review the findings of the AMP Type N studies to assist TFW Policy Committee in developing recommendations to bring to the Board for potential changes to rules for existing Type Np riparian management zones (RMZs). Specifically, the workgroup will develop one or more prescriptions for application in western Washington and estimate the level of effectiveness of each prescription at meeting resource objectives identified in the Board-approved Schedule L1 of the Forest and Fish Report. Work is dependent on the completion of the ongoing additional Type N CMER studies.

Anticipated Board Manual Revisions

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

Removal of this section of the manual will occur when the Board adopts a permanent water typing system rule and approval of associated guidance. The Board has conceptually approved a new field protocol to locate the end of fish habitat for inclusion in a new water typing system rule. This protocol, to be located in Section 23 of the manual (see below), is a fish habitat assessment methodology to be used to delineate fish habitat using specific stream characteristics instead of solely relying on the detection of fish presence through electrofishing surveys. With adoption of a new rule, Section 13 will be removed.

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

When approved by the Board, this will be a two-part section of the manual providing guidance for the field protocol to identify the stream break between Type F and N waters (Part 1) and, guidance on how to identify the break between Type N perennial and seasonal waters (Part 2). Development of Section 23 Part 1 is occurring concurrently with the development of the permanent water typing system rule. Part 1 will feature guidance to determine the extent of fish

habitat through the application of the fish habitat assessment methodology (FHAM), including guidance for measuring potential habitat breaks (PHBs); guidance for the conducting of protocol electrofishing surveys; and, guidance for how to delineate the boundary of off-channel habitat.

Once the Part 1 guidance is complete, DNR will turn to development of Part 2, which is the guidance for locating the division between Type Np (non-fish perennial) and Ns (non-fish seasonal) waters. The work to develop draft guidance for identifying the division between Type Np and Ns waters, otherwise known as the upper most point of perennial flow, will occur once the TFW Policy Committee has negotiated a revised method for determining the uppermost point of perennial flow.

3. Adaptive Management Program

Appendix: Background on Adaptive Management Program

AMP Efficiency and Effectiveness Improvement
Improvement in AMP efficiency and effectiveness remains an ongoing priority for the Board. During the reporting period, the Board approved the Board's Adaptive Management Committee recommendation (provided to the Board on November 14, 2018) to engage with the Timber, Fish, and Wildlife (TFW) Principals to improve the Adaptive Management Program (AMP). The Board subsequently disbanded the Committee in support of a more deliberate facilitated process of engaging the TFW principals that consists of a series of small capacity and conflict resolution workshops to support engagement from all Principals over the next year to make AMP successful.

3.1 CMER Work Plan and Projects

The 2019-2021 Biennium Cooperative Monitoring Evaluation and Research (CMER) Work Plan, found at: https://www.dnr.wa.gov/publications/fp_cmer_2019_2021_workplan_20190119.pdf?bt8y4g7, describes 104 Adaptive Management Program (AMP) projects, however the AMP has 112 total projects. This discrepancy is due to new projects that were proposed after the Work Plan was approved or phases of projects that are lumped as one project in the Work Plan but are more accurately described as separate projects for the purposes of this report. Approximately 51 projects have been completed, 24 projects are ongoing, and 37 projects have yet to be initiated (i.e., will be developed in the future). To more accurately reflect work completed by fiscal year, significant phases of projects were counted in this report as separate projects. This is a change from previous years' reports where phases were lumped into one project and not reported separately. The AMP is reviewing the methods of calculating AMP project numbers to determine the best method to use for future reporting purposes. Due to this year's counting method change, it appears that the total number of completed projects increased from FY 18 to FY 19 more than the two projects described in the completed projects below. The most recent updated CMER Work Plan was presented to the TFW Policy Committee in April 2019 (and to the Board in August 2019). In May 2019, The Board adopted a master project schedule that describes the CMER research projects selected for funding. For the ongoing projects in FY 2019, there are four in the Stream Typing Rule Group, seven in the Type N Riparian Prescriptions Rule Group, seven in the Type F Prescriptions Rule Group, two in the Unstable Slopes Rule Group, one in the Roads Rule Group, and three in the Wetlands Protection Rule Group. Ongoing projects include projects that are in the initial stages of scoping or study design development with no official funding approved at this time. They also include active projects with no allocated funding beyond CMER staff time.

Two project (phases) were completed during the reporting period. One was a special TFW Policy Committee-directed science review and the other was a planned study approved by

CMER and presented to the TFW Policy Committee in the Type N Riparian Prescriptions Rule Group. These two accomplishments are described below:

1. *Small Forest Landowner (SFL) Alternate Plan Template Review*: This activity originated from the TFW Policy Committee as part of a strategy to evaluate the science supporting a small forest landowner alternate plan template presented to the Board in February 2015.

   Washington Farm Forestry Association (WFFA) developed an alternate plan template and contended it would provide protection of RMZ functions similar in effectiveness as that provided by the forest practices act and rules, and support economic viability of small forest landowners. The purpose of the TFW Policy-directed outside review was to examine the supporting science submitted with the SFL alternate plan template to determine if the template: is supported by best available science, follows credible scientific/statistical protocols, and to describe the scientific strength of the findings based on supporting literature. A contractor was hired to review the background information, proposed template, and pertinent literature and develop a report that provides an evaluation of the relative effectiveness of the proposed prescriptions in the WFFA Template proposal. Independent Scientific Peer Review approved this report in May 2019. Neither TFW Policy Committee nor the Board has acted upon it yet.

2. *Buffer Integrity-Shade Effectiveness Project*: The objective of this project was to evaluate the effectiveness of different shade levels in maintaining key aquatic conditions and processes in Type N (non-fish-bearing) waters. The response of stream-associated-amphibians (SAA) was evaluated in 50-meter-long stream reaches where the overhead canopy was opened to different shade levels.

   Three experimental treatments representing levels of increasingly reduced shade were evaluated: 1) Intermediate (removal of 30 percent overhead stream cover), 2) Low (removal of 70 percent overhead stream cover), and 3) No shade (removal of all overhead stream cover). Two years of pre-treatment data and two years of post-treatment data were collected. Each of the 25 treatment reaches was paired with a reference reach located 50 to 90 meters upstream. Vegetation cover, light, water temperature, biofilm/periphyton, stream drift, and amphibians (abundance, body condition, and growth) were measured.

   Overall, the intermediate shade treatment was the most effective in maintaining conditions closest to that of reference reaches and provided some benefits of increased irradiance to stream productivity. Both low and no shade treatments were less effective in maintaining those same conditions. Differences between low and no shade treatments were complex and the response difference could not be confidently identified between the low and no shade treatments for some tested variables. Site-specific conditions were considered to be contributing to variability.

For the sites located in the Olympic Range of Washington, shade reduction gradient across the treatments translated to increases in water temperature. However, the increases in temperature were only statistically significant in the low and no shade treatments as compared with unharvested upstream reference sites. Some SAA responses included increase in giant salamanders exclusively in the no shade treatment; the positive responses for two of three torrent salamanders in the intermediate shade treatment, and the negative responses in the low shade treatment; and the positive response of coastal tailed frog in the low shade treatment. For more information go to: https://www.dnr.wa.gov/publications/bc_tfw_shadefind_20190801.pdf?05pcxkc

Stream-Associated Amphibian Response to Manipulation of Forest Canopy Shading – Report to Policy. The final report was approved by CMER in November 2018. At the August 2019 Policy meeting, it was recommended that the findings from this study do not warrant Board action at this time; however, the technical implications and recommendations portion of the report warrant action by the AMP. Additionally, it was recommended that the study and findings be provided to the Technical Type Np Prescriptions Workgroup as a source of information.

Independent Scientific Peer Review

As described below, two study plans and six final reports were going through Independent Scientific Peer Review (ISPR) as the reporting period concluded.

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. At the end of the reporting period, the Uplands Scientific Advisory Group (UPSAG) was revising the study plan to address the ISPR comments.
- *Forested Wetland Effectiveness*: This project includes two stages: 1) A chronosequence study designed to evaluate how forested wetland hydrology and ecology change over half a timber rotation cycle, using a space-for-time approach; 2) A before-after-control-impact (BACI) study that will prescribe manipulative forest harvest treatments and measure how forested wetlands' ecological and hydrologic functions change in real time following harvest. At the end of the reporting period, the chronosequence study design was in ISPR.

Final reports in ISPR

- *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 10 years post-harvest. At the end of the reporting period, the final report was 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, as compared to that of an unharvested reference basin. This report compares changes in genetic diversity across one generation (seven to eight years post-harvest) to results from the analysis of demographic data collected at the same study sites in the two years post-harvest. ISPR approved this final report in June 2019 and the findings report was being developed when the reporting period ended.
- *Riparian 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 10 years post-harvest. ISPR approved this final report in June 2019 and a findings report was being developed at the time the reporting period ended.
- *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. ISPR began in FY 18 and carried over into FY 19.
- *Extensive Riparian Status and Trends Monitoring – Temperature, Type F/S Westside*: This project will 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. ISPR approved this final report in April 2019 and a findings report was being developed at the time the reporting period ended.
- *Eastside Modeling Evaluation Project* (EMEP): 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 Forests and Fish Report eastside riparian objectives. This final report was in ISPR in FY 18 and carried over into FY 19.

Ongoing projects

In addition to the completed projects and those currently in ISPR listed above, progress is being made on an additional 16 projects. Of these projects, three are extensive, seven are effectiveness, and six are rule tool type projects. Two are in the Wetland Protection Rule Group, five are in the Type N Riparian Prescriptions Rule Group, three are in the Type F Riparian Prescriptions Rule Group, four are in the Stream Typing Rule Group, one is in the Unstable Slopes Rule Group, and one is in the Roads Rule Group. No projects were specifically going through an official Lean process during this reporting period.

- *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 (110 total) for the exploratory phase of the project have been selected and validated and data were being collected as the reporting period ended.
- *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 achieve performance targets and water quality standards, particularly as they apply to sediment and stream temperature in eastern Washington. Six sites in the Northern Rockies Ecoregion were secured and pre-harvest data collection began summer of 2018. As the reporting period ended, six potential sites in the Eastslope Cascade Ecoregion were being validated to see if they are suitable.
- *Eastside Timber Habitat Evaluation Project* (ETHEP): The objective of this project is to determine if the eastside Timber Habitat Types that were developed during the negotiations of the Forest and Fish Report rule package accurately represent the actual habitat types on the ground. The Scientific Advisory Group, Eastside (SAGE) was scoping this project at the time the reporting period ended.
- *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 lithologies (largely marine sedimentary). Two years of pre-harvest data and two years of post-harvest data has been collected. The Riparian Scientific Advisory Group (RSAG) and CMER were reviewing the draft final report at the time the reporting period ended.
- *Extended Type N Experimental Buffer Treatment Project on Hard Rock Lithologies*: The first phase of the Hard Rock study is complete, and included two to three years of pre-harvest and two years of post-harvest data monitoring. Phase 2 of the study extended the period of post-harvest sampling. This extended monitoring 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. CMER approved the first phase final report in June 2018. The extended resample was initiated in 2012 and is now concluded. CMER was reviewing the draft final report at the end of the reporting period.
- *Extensive Riparian Status and Trends Monitoring – Vegetation, Type F/N Westside and Eastside Projects* (**two** projects, one in the Type F rule group and one in the Type N rule group): A literature synthesis was completed in June 2015 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 could be used in place of traditional fieldwork. The pilot project was started in November 2015 on Westside sites and the final report was approved by CMER in September 2018. The forest inventory models that were developed in the Mashel watershed for this study were next tested using forest inventory plots established in the Olympic Experimental State

Forest. Fieldwork, data processing, and modeling by University of Washington is complete. The draft final report was undergoing review by RSAG (a scientific advisory group under CMER) at the time the reporting period ended.

- *Wetland Intrinsic Potential Tool*: This project consists of two phases. Phase 1 developed a beta wetland intrinsic potential identification model that interfaces as an ArcMap tool and was completed in FY 18. The University of Washington was hired to implement Phase II, which will calibrate the wetland identification model (deliverable of Phase 1) to predict the probability of wetlands by type on forestlands of western Washington. Updates to the GIS tool were being completed at the end of the reporting period.
- *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 (under CMER) developed a project charter and was scoping the project at the time the reporting period ended.
- *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. Eighty sites were selected and through a Request for Quote and Qualifications (RFQQ) process, a contractor was hired to install the sediment monitoring equipment that was designed through DNR's public works process. Equipment was installed at 78 sites during the reporting period. Two sites were dropped because equipment installation was not feasible.
- *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 has an approved scoping document. AMP hired a contractor through an RFQQ process to develop a study plan. A draft study plan was being reviewed simultaneously by RSAG and CMER at the end of the reporting period.
- *Evaluation of physical features that define fish habitat in forested landscapes across Washington State (PHB)*: Also known as, "the validation study," the purpose of this Board-initiated study is to determine which combinations of gradient, channel width, barriers to migration, and other physical habitat and geomorphic conditions would provide the most accurate definitions for potential habitat breaks. The results of this study will be used to evaluate the effectiveness of PHB criteria in determining the regulatory break between fish (Type F) and non-fish bearing (Type N) waters. A field manual was developed for site selection and study implementation of the pilot study. The Instream Scientific Advisory Group (ISAG) submitted review comments for the contracted study design. At the end of the evaluation period, this project was on hold, awaiting further direction from the Board.
- *Light Detection and Ranging (LiDAR)-Based Water Typing Model*: This Board-directed project will compare a LiDAR-based implementation of the existing west side model and the improved Fransen et. al. model in the Mashel watershed. The existing 2005 Eastside

model in the Darland Mountain watershed will also be compared against the original 10-meter United States Geological Survey (USGS) Digital Elevation Model (DEM) and potential opportunities to improve the model with high-resolution topographic information will be identified. A draft LiDAR Model study design was developed and provided to the ISAG for review. At the end of the reporting period, this project was on hold, awaiting further direction from the Board.

- *Default Physical Criteria Assessment Project*: This Board-initiated study seeks to assess the accuracy of the current default physical criteria defined in rule for presumption of fish use, and to improve upon the limited research describing the physical characteristics at the upstream extent of fish distribution. The ISAG was provided with the draft contracted study design for review. This project is currently on hold and waiting further direction from the Board.
- Identifying distribution boundaries at the upper extent of fish in streams using environmental DNA (eDNA): This project investigated the upper end of fish distributions in streams by comparing traditional electrofishing techniques to eDNA detection. The project assessed how accurately eDNA identified the upper boundary of end of fish distributions as compared with the use of electrofishing. A draft of the study report is in ISAG for review.
- Deep-Seated Landslide Research Strategy Project: This project is intended to use the results of the literature reviews of forest harvest effects on glacial and non-glacial deep-seated landslides to form a research strategy to address key knowledge gaps identified during the literature reviews and to address questions from the Forest Practices Board and Policy regarding the potential effects of forest practices on deep-seated landslides. The strategy is complete and UPSAG is scoping the first of the projects laid out in the strategy document.

3.2 TFW Policy Committee Activity

General Policy Activity

The TFW Policy Committee has worked on several priorities this fiscal year. The major topics are summarized below.

Small Forest Landowner Alternate Plan Template Workgroup

This TFW Policy Committee work group continued work on the draft conifer restoration template and conifer-thinning template for riparian zones. The consultant hired to review the small forest landowner alternate plan template completed its final report, and the report was approved by ISPR in May 2019. There were 279 references identified and considered for inclusion in the report. The references examined the effects of forest practices in the western Pacific Northwest, on the five riparian functions of concern to the TFW Policy Committee (large woody debris recruitment, stream shade, leaf and litterfall, sediment filtration, and streambank stability). Development of the conifer restoration, conifer-thinning and small forest landowner templates was incomplete by the end of the reporting period. The TFW Policy Committee work

group will continue to work on developing recommendations for TFW Policy regarding next steps.

Budget Workgroup
A standing budget workgroup was created to discuss criteria necessary to prioritize the TFW Policy Committee's future work as it related to recommendations to the Board about the Master Project Schedule (MPS). These priorities will also help the TFW Policy Committee develop future AMP budget recommendations. The TFW Policy Committee, with input from CMER, used these criteria when reviewing the FY 2020/21 Budget and MPS during their March and April meetings to prepare the budget recommendations. The recommendations were presented and approved at the TFW Policy Committee and Board meetings in May 2019, establishing a research budget for the 2019-21 biennium.

Extended Monitoring Workgroup
A workgroup was formed to develop a systematic approach to extended monitoring based on a request from the Board. This workgroup is developing recommendations for determining when a project nearing completion should be extended beyond the scope of the initial study design. Considerations may include criteria for when extended monitoring is necessary, what triggers it, where should the request come from, and what the resulting process is.

Type Np Workgroup
A Charter was developed to form a Technical Type Np Workgroup to develop proposed Riparian Management Zone (RMZ) buffer prescriptions for Type Np streams in western Washington for TFW Policy Committee to consider and present in the form of draft rule to the Board. The work group, when formed, will consider all of the findings from the Type N AMP studies as the results from the final reports become available. The suite of studies will include the *Buffer Integrity Shade Effectiveness* project, *Buffer Characteristics, Integrity and Function* project, *Type N Experimental Buffer Treatment in Hard Rock* project and the *Type N Experimental Buffer Treatment in Soft Rock* project. The Workgroup will develop a set of proposed Type Np RMZ buffer prescriptions to meet a suite of resource protection, feasibility, and economic objectives utilizing relevant information.

3.3 Clean Water Act (CWA) Assurances
Please see Appendix 4 for CWA assurances history and Appendix 1 for the latest information on CWA Milestone status.

3.4 Electrofishing Associated with AMP Research
Both the National Marine Fisheries Service's and U.S. Fish and Wildlife Service's Incidental Take Permits cover electrofishing conducted for research and monitoring by the Adaptive Management Program. One CMER research project that was active during the reporting period included use of this technique. Electrofishing was conducted for the "*Identifying distribution boundaries at the upper extent of fish in Streams using environmental DNA*" project. Electrofishing for coastal cutthroat trout occurred at 15 streams in western Washington. Each

stream contained eight sample sites with a total of 5,250 meters electro-fished. Additional details can be found in Appendix 3.

4. Forest Practices Operations

Appendix: Background on Forest Practices Operations

Forest Practices Operations has three overarching functions: Forest Practices Application/Notification (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 equivalent (FTE) positions statewide in Forest Practices Operations. Of the 94 positions, 64 were field positions. FTE staffing numbers did not change from the FY 2018 reporting period.

4.1 Forest Practices Application/Notification Workload

Forest Practices Operations staff processed 4,228 FPA/Ns during this reporting period. Table 1 describes the nature of the FPA/Ns by decision type and DNR upland region.

Table 1: Fiscal Year FPA/N Totals by Decision Type (FY 2019)

Region	Approved	Closed/Withdrawn	Disapproved	Renewed	Total by Region
Northeast	702	27	27	23	779
Northwest	471	39	11	22	543
Olympic	486	21	3	48	558
Pacific Cascade	1,265	40	11	91	1,407
South Puget Sound	643	51	18	43	755
Southeast	174	10	2	0	186
Total by Decision	3,741	188	72	227	**4,228**

Closed means the applicant withdrew the FPA/N.

Including FPA/Ns approved during the reporting period, there were 13,527 active (not yet expired) approved and renewed FPA/Ns statewide at the end of the reporting period. This figure was 10 (0.07 percent) fewer active FPA/Ns than during the prior reporting period.

4.2 Priority Project Work

Alternate Plan FPA Reviews

Beginning in the winter of 2018, Forest Practices Operations staff began a review of approved FPA/Ns that contained alternate plans. The purpose is to determine how well practice aligned with program guidance, and whether additional training for staff and stakeholders or clarification

in FPA/N instructions and/or guidance is needed. This review encompasses a random selection of at least 10 percent of the inactive FPA/Ns with alternate plans in each region that took place between 2000 and 2016. Selected FPA/Ns will be evaluated against program guidance conveyed in a December 2014 memo, *Alternate Plan Process; Expectations for Review*. The review is scheduled to be completed in the fall of 2019, and will be discussed in the 2020 annual report.

Forest Practices Engineering Reviews

Forest Practices engineers assisted DNR Region regulatory foresters with review of 108-harvest and/or road construction FPAs involving hydraulic projects. This involved pre-approval reviews, review of the hydraulic project design paperwork, participation on interdisciplinary teams and post-installation field compliance review.

4.3 Forest Practices Program Guidance

DNR Forest Practices created five guidance documents and one advisory letter during this reporting period. Table 2 provides a summary.

Table 2: Summary of Written Guidance Issued to DNR Forest Practices Staff July 1, 2018 – June 30, 2019

Date	Reason for guidance	Accomplishment
02/26/2019	Information	Guidance Memoranda: *2019 Fish Survey Season – Water Level and Streamflow Forecast* Provides the statewide forecast regarding water abundance for the 2019 fish survey season to focus appropriate attention on potential drought conditions when scheduling and conducting fish surveys.
03/12/2019	Implement current rule	Guidance Memoranda: *Areas of Program Focus Related to Water Typing "Protocol Fish Survey"* Directs staff to implement the recommendations per "protocol fish surveys" that may be used under the current rule to determine fish use and define the break between fish and non-fish water.
06/06/2019	Improve allocation of Forest Practices geologist staffing resources	Guidance Memoranda: *Process for Evaluating and Classifying Forest Practices Applications including Potential High Avalanche Hazard Areas* Replaces direction in a March 2016 guidance memorandum by removing the requirement that Forest Practices staff review forest practices that fall within a "high" or "very high" landslide hazard zonation polygon, as better data exists for review (Lidar, and WGS data).

06/06/2019	Information and recommendations	Advisory Letter: *Use of Field Surveys for Protocol Surveys during Drought Conditions* Informs recipients of the Governor's expanded drought declaration and provides background information and recommendations from three state agencies to assist practitioners planning to conduct Forest Practices water type protocol surveys for the remainder of the 2019 survey season.
06/21/2019	Provide a procedure for evaluating high avalanche hazard potential	Guidance Memoranda: *Expectations Related to Screening Forest Practices Applications for Potentially Unstable Features* Provides a procedure for determining whether one or more areas within a Forest Practices Application should be designated by DNR as having high avalanche hazard, including the potential to deliver sediment or debris to a public resource or the potential to threaten public safety.
06/21/2019	Provide consistent process for pre-application reviews of forest practices associated with potentially unstable landforms	Guidance Memoranda: *Process for Voluntary Pre-Application Reviews of Forest Practices Proposals with Potentially Unstable Slopes and Landforms* Provides landowners with a voluntary process to request review of concerns with potentially unstable landforms and slopes associated with proposed forest practices prior to submission of a Forest Practices Application.

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 to help ensure accurate implementation of fish protection standards and that 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. From July 1, 2018, through June 30, 2019, WDFW biologists reviewed 1,461 FPHPs, including 119 concurrence-required project reviews and 1,028 standard FPHPs. WDFW encourages landowners to engage in pre-application consultation and on-site technical assistance to identify the optimal project-operating season. During this period, WDFW consulted on 314 pre-application site visits. This accounted for roughly 4,680 hours of staff time spent on FPHPs.

Water Typing/Resource Identification and Wildlife Reviews

WDFW biologists reviewed and participated in more than 2,760 water-typing-related opportunities. Those activities included review of water type modification forms or participation in field reviews as appropriate to validate the water types, participation on ID teams for various

forest practices water typing related issues, reviewing FPAs for correct water typing, road maintenance and abandonment plan reviews, and providing technical assistance on alternate plans. This accounted for approximately 2,480 work hours. Biologists also reviewed and commented to the DNR regional offices and conducted field reviews on FPAs that had potential wildlife conflicts. Wildlife-related work accounted for approximately 1,453 work hours.

5. Small Forest Landowner Office

Appendix: Background on Small Forest Landowner Office

5.1 Forestry Riparian Easement Program

The demand for forestry riparian easements (FRE) remains high as DNR receives new applications in excess of its ability to acquire them and the accumulated waiting list. Legislative state capital funding for the Forestry Riparian Easement Program (FREP) has not kept up with demand, and there remains a list of eligible FRE applications waiting for funding. In FY 2019, there were 34 easements purchased, 28 new applications received, and 15 applications determined to be ineligible for the program. As a result, 136 easement applications were on the FREP waiting list as of July 1, 2019. Table 3 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	FY 2019	Totals
Queue Balance at Start of Fiscal Year	-	95	85	102	113	134	127	136	124	157	-
Applications Received	406	13	20	26	34	24	21	29	36	28	637
Easements Purchased	278	12	0	13	6	19	9	30	0	34	401
Applications Ineligible / Rejected	33	11	3	2	7	12	3	11	3	15	100
Queue Balance at End of Fiscal Year	95	85	102	113	134	127	136	124	157	136	-
Conservation Acres Purchased	4,793	148	0	110	122	166	133	396	0	231	6,099

5.2 Family Forest Fish Passage Program

In the 2018 legislative session, DNR requested $10 million and received $5 million to eliminate approximately 5 percent of the fish passage barriers on the Family Forest Fish Passage Program (FFFPP) waiting list. In the 2018 field season, FFFPP completed 12 fish passage barrier removal projects that opened approximately 24 miles of upstream fish habitat. Table 4 shows the FFFPP accomplishments since its inception in 2003.

Starting in FY 2019, the numbers reported in Table 4 below have been slightly changed to align them with the data collected and reported. The annual FPHCP report will, from 2019 forward, report number of eligible barrier projects and will no longer report number of landowners associated with projects because data is focused on number of projects, not landowners. The 2018 annual FPHCP report, reported 1,086 landowners on the waiting list for FFFPP, which was approximately equivalent to 1,118 eligible barrier projects at that time.[1]

Table 4: Family Forest Fish Passage Program Accomplishments since 2003

Numbers and Costs	FY 2019	Cumulative Since 2003
Eligible Barrier Projects	80	1,591
Eligible Barrier Projects on Waiting List	80	1,194
Barriers Corrected	12	397
Stream Miles Made Accessible	24	934
Cost of Completed Projects	$1.7 million	$38.7 million

5.3 Long-Term Forest Practices Applications

As of June 30, 2019, DNR's Forest Practices Application Review System database reported 272 approved Long-Term Forest Practices Applications (LTAs) for small forest landowners. This was an increase of nine during this reporting period (3.4 percent).

5.4 Stewardship and Technical Assistance for Small Forest Landowners

During the majority of this reporting period, DNR staffed three Stewardship and Technical Assistance Foresters (two in western Washington and one in eastern Washington) in the Small Forest Landowner Office (SFLO). On May 1, 2019, one western Washington Forester retired. Through June 30, 2019, there was one western Washington Stewardship and Technical Assistance Forester and one eastern Washington Stewardship and Technical Assistance Forester. These foresters provided consultative support and technical assistance to almost 1,000 small forest landowners across the state.

On average, each forester conducts approximately 100 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 more than 1,000-

[1] Additionally, the "cumulative since 2003" value has been corrected so that the figure reported in Table 4 accurately reflects the true number. (Annual reports created prior to this year have not been corrected.)

landowner assistance requests each year. These requests are via email, phone call, or office visits.

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. SFLO staff participated in 13 Coached Planning Courses, taught at three Family Forest Owner Field Days, and provided educational expertise and promoted the SFLO programs at more than 40 venues across Washington State.

The SFLO now has a growing list of more than 6,000 subscribers to the Small Forest Landowner Newsletter. 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 previous Small Forest Landowner News editions at sflonews.wordpress.com.

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 4,228 FPAs processed throughout the reporting period, 3,741 were approved, and of those, 123 were new, approved non-conversion 20-Acre Exempt applications adjacent to fish-bearing streams.

Appendix 3b and 3c: Maps of 20-acre exempt FPAs

Table 5: 20-Acre Exempt Forest Practices Applications (July 2018 – June 2019)

20-Acre Exempt Forest Practices Applications with Specific Characteristics	Number
Number of 20-Acre Exempt applications with fish-bearing water	127
Number of 20-acre Exempt applications that were conversions with fish-bearing water	4
Number of 20-Acre Exempt applications with fish-bearing water that were not conversions	123
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 3.3 percent of all approved applications submitted during Fiscal Year 2019. 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 21 Forest Practices Applications associated with 20-acre exempt parcels that had Type Np waters. Seventeen applications were conditioned according to the Np guidance memo (see Appendix 4 for explanation) or they did not propose harvest within 29 feet of the Np water. Four applications had language that provided partial information or descriptions for the leave trees but did not have the full leave tree requirements language provided in WAC 222-30-023(3). Forest Practices Division staff will provide review for region staff to help improve FPA conditioning language.

6.3 Potential Large Woody Debris (LWD) Reduction in Function

Appendix 3a: Potential Reduction in Function by WAU

Estimated percent of loss of potential large woody debris recruitment in each watershed administrative unit (WAU) containing one or more 20-acre exempt FPA/s over the elapsed 13-year period of the Incidental Take Permits can be found in Appendix 3a. There are 846 WAUs in Washington State, of which 238 have had 20-acre exempt FPAs approved.

Table 6: Potential Large Woody Debris Reduction in Function Data (July 2018 – June 2019)

WAU Reduction in Function Information	Number
Percent of WAUs with potential large woody debris recruitment reduction	28%
Number of WAUs with less than 1% potential reduction in function	231
Number of WAUs with 1% or greater reduction in function	7
Maximum percent potential loss of function in any individual WAU	2.2%

Currently, in-office calculations indicate that each WAU affected by 20-Acre Exempt applications, except for seven, have less than 1 percent potential cumulative reduction in function relative to standard forest practices prescriptions. The seven WAUs: Copper Creek (1.197%), Diobsud Creek (2.097%), Muck Creek (2.187%), Smith Point (2.099%), Upper Little Pend Oreille River (1.192%), Wanacut (2.049%), and Friday Creek (1.075%) all have less than 3 percent potential cumulative reduction in function. None of the seven WAUs with potential reduction in function more than 1 percent are near the 10 percent threshold (explained in Appendix 4) established in the Incidental Take Permits. There are 109 WAUs with a potential of reduction in function between 0.1 and 0.9 percent, and the remaining 122 WAUs show a 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

No WAUs approached the 10 percent threshold for reduction in function. Therefore, no areas were at risk for reaching the 15 percent stream threshold.

6.5 Bull Trout Areas of Concern

No FPAs were associated with 20-Acre Exempt parcels located in the Bull Trout Areas of Concern.

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

Table 7 shows the number and status of forest practices applications submitted from July 1, 2018, to June 30, 2019, that included an Alternate Plan:

Table 7: FY19 Forest Practices Applications with Alternate Plans

Landowner Type	Status of Forest Practices Applications with Alternate Plans				Total
	Approved	Disapproved	In Review	Closed Out*	
Small	56**	3	4***	2	**65**
Large	63	5	12	9	**89**
Total	**119**	**8**	**16**	**11**	**154**

***Closed Out** means that the applicant asked that the FPA be withdrawn and closed.
**This includes 2 long-term applications (LTAs).
***This includes 1 long-term application.

One-hundred and nineteen FPAs included an alternate plan approved during the reporting period. This represents 3.2 percent of all FPA/Ns approved during this timeframe. The approved alternate plan FPAs were nearly evenly split between small and large landowner classes.

7.2 Rivers and Habitat Open Space Program

There was $1 million allocated for the Rivers and Habitat Open Space Program (R&HOSP) for the FY 2017-2019 funding period.

In the FY 17-19 biennium, R&HOSP funding purchased two easements from among 11 qualifying R&HOSP applications. By statute, R&HOSP purchases channel migration zones (CMZ) and critical habitats for state threatened and endangered species. Of the two easements purchased, one was 23.5 acres within a CMZ and the other was 50 acres of Northern Spotted Owl Critical Habitat State.

Table 8 shows the budget allocated by the Washington State Legislature for the R&HOSP, and the acres purchased since the program's inception.

Table 8: Rivers and Habitat Open Space Program Budget and Acres Purchased by Biennium and Type of Easement (Reported in nominal dollars)

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	$1,000,000	2	23.5	50
Total	**$9,200,000**	**$6,500,000**	**21**	**1,105.5**	**114**

*13-15 was the first biennium in which funding was allocated for Critical Habitat-State

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.

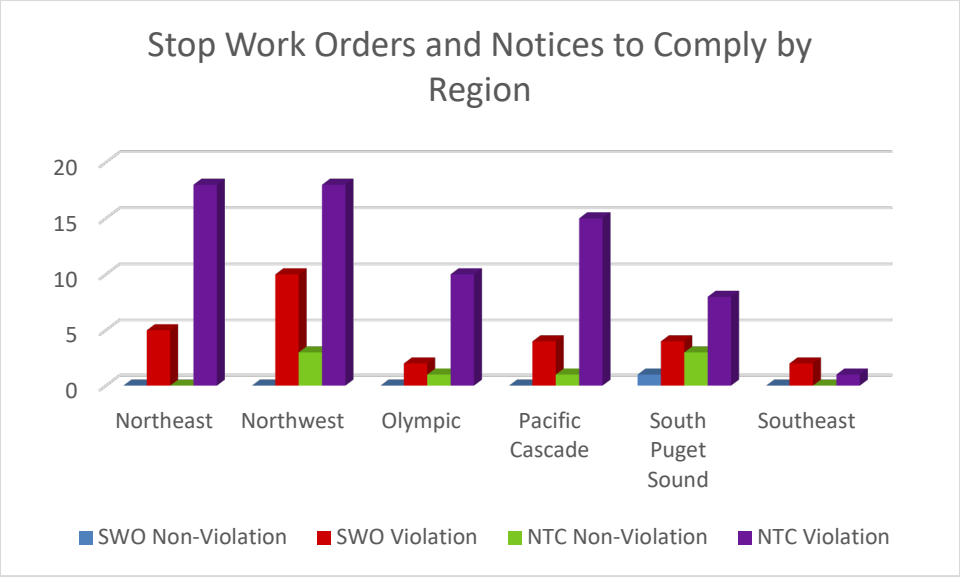
8.1 Stop Work Orders and Notices to Comply

Table 9 shows stop work orders and notices to comply enforcement activity during the reporting period. There were a combined 97 violation stop work orders and notices to comply during this period, compared to an average of 103 over the past three years.

Table 9: Fiscal Year Stop Work Orders and Notices to Comply by Region (FY2019)

	Stop Work Orders		Notices to Comply		
DNR Region	Non-Violation	Violation	Non-Violation	Violation	Total
Northeast	0	5	0	18	23
Northwest	0	10	3	18	31
Olympic	0	2	1	10	13
Pacific Cascade	0	4	1	15	20
South Puget Sound	1	4	3	8	16
Southeast	0	2	0	1	3
Total	**1**	**27**	**8**	**70**	**106**

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) during the reporting period. One civil penalty and no NOIDs were issued during the reporting period (compared to an average of three civil penalties and two NOIDs over the past three years).

Table 10: Fiscal Year Civil Penalties and Notices of Intent to Disapprove (FY2019)

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

8.3 Stop Work Order and Notice to Comply Ratios

There were 106 stop work orders and notices to comply issued this period, versus an average of 119 over the past three years. We speculate that a combination of pre-application reviews, focused compliance efforts, and training aided in the reduction of formal enforcement actions.

Table 11: Enforcement Data Summary (FY2019)

Number of active Forest Practices Application/Notifications (FPA/Ns) through June 30, 2019 (See chapter 4 for information about FPAs received or renewed during Fiscal Year 2019.)	13,527 *
Number of Notice To Comply / Stop Work Orders issued for violations	97
Ratio of Notice To Comply / Stop Work Orders **violations** to total number of active FPA/Ns (97/13,527) × 100	0.72 %
Number of Notice To Comply / Stop Work Orders issued for non-violations	9
Ratio of Notice To Comply / Stop Work Orders **non-violations** to total number of active FPA/Ns (9 / 13,527) × 100	0.07 %
Total number of documents issued (violation & non-violation)	106
Ratio of all documents issued to total active FPA/Ns (106/13,527) × 100	0.78 %

*Approved and/or Renewed FPA/Ns

9. Compliance Monitoring Program

Appendix: Background on Compliance Monitoring Program

9.1 Compliance Monitoring Program Reports and Findings

The Compliance Monitoring Program (CMP) operates on a two-year sampling window. The 2016-2017 Biennial Forest Practices Compliance Monitoring Report is the most recent published report by the Compliance Monitoring Program.

The *2016-2017 Biennial Forest Practices Compliance Monitoring Report* (dnr.wa.gov/programs-and-services/forest-practices/rule-implementation) summarizes results for the two-year (2016 and 2017) sampling period in which randomly selected and approved FPAs were assessed for compliance with the Forest Practices Rules.

2018 Compliance Monitoring Results

During the 2018 field season, data were collected for all the standard sample prescriptions. No emphasis samples were conducted. Trend analysis will be updated with the 2019 analyzed data and reported in the 2018-2019 biennial Compliance Monitoring Report.

Riparian Prescription Compliance Monitoring Standard Sample Findings

The 2018 rule prescription compliance rates range from 93 to 100 percent, indicating relatively high compliance with Forest Practices Rules. The No Inner Zone Harvest (NIZH), Desired Future Condition (DFC) 1, DFC2, Np, Ns, Type A&B wetlands, Forested Wetlands, and Roads prescriptions maintain the half-width 95 percent confidence interval target of +/-6 percent. Only the Forested Wetlands prescription (+/-12 percent), which had a lower compliance rate and higher variance than expected based on historic estimates, missed the desired confidence interval target. The Forested Wetlands sample size, relative to the expected population size, was adjusted from eight to 11 for the 2019 sample to reflect these differences.

Table 12: 2018 Riparian Prescription Compliance Monitoring Standard Sample Findings

Riparian Prescription type	Percent (%) Compliance	Number Observed
Statewide Type F or S No Outer Zone Harvest	95%	12
Statewide Type Np Activities	95%	20
Statewide Type Ns Activities	100%	16
Statewide Type A&B Wetlands	96%	21
Statewide Forested Wetlands	93%	8
Western WA Desired Future Condition 1	95%	8
Western WA Desired Future Condition 2	96%	7

Statewide Water Typing Findings
Observed water 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 water typing accuracy remained constant at 91 percent. The 2018 field season found water typing accuracy rising again to 96 percent.

During the 2018 field season, the Compliance Monitoring Program evaluated 92 riparian-related prescriptions involving typed water or wetlands. The number of typed water and wetlands that were either accurately typed (85) or overtyped (protected) (3) totaled 88 compliant water types for a 96 percent compliance rating.

The compliance monitoring field team found discrepancies in seven (equivalent to 8 percent) typed waters or wetlands that were observed in 2018. The number of waters under-classified was 4, or 4.3 percent of the 92 observed waters or wetlands. This means that 4.3 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 3, or 3.2 percent of the 92 observations. This means that 3.2 percent of the observed waters or wetlands may have received more protection than required by the Forest Practices Rules. There were no indeterminate water typing observations of waters or wetlands. Please see Appendix 4 for additional information.

Roads and Haul Routes Findings
During the 2018 field season, 61.7 of the sampled 62 rules were compliant for the Roads prescription sample, resulting in a 99 percent compliance rate. For roads prescriptions, compliance with a single rule on a single FPA is the percentage of applications of that road rule that were compliant. Thus, for road rules only, compliance with a single rule can be a number between zero and one.

CMP assessed 38.1 miles of haul routes during the 2018 field season. For 36.1 miles of the 38.1 miles of haul routes evaluated, no delivery or *de minimus* sediment delivery were observed, resulting in a compliance rate of 96 percent.

Trend Analysis Findings
Trend analysis will be updated with the 2018-2019 biennium results.

9.2 Future Plans for the Compliance Monitoring Program
Unstable slopes will be sampled during the 2019 fall field season. Findings from the 2017 Unstable Slopes pilot study have been incorporated into the Unstable Slopes sample. CMP updated compliance questions and their corresponding data collection protocols to reduce confusion and improve data accuracy. Unstable slopes will be sampled every other year, so the

next sample will be collected in 2021. This will allow the program to incorporate these data into the trend analysis over time.

The Compliance Monitoring Program has been working on developing and incorporating methodology for an ongoing study to help determine the Forest Practices Hydraulic Projects compliance rate. We will conduct the field sample in 2020.

9.3 Compliance Monitoring Funding

DNR's Forest Practices Program actively seeks 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 FY2017, WDFW ended its participation in compliance monitoring field participation due to a decision by DNR and WDFW managers to shift available funding to work in other Forest Practices-related areas such as FPA (e.g., hydraulic project review) and water type modification form reviews.

10. Training/Information/Education

Appendix: Background on Training

The Forest Practices Training Program continued to expand upon the subject and number of courses offered. Forest Practices completed the multi-year effort to reestablish core classes and routinely provide them on a regular and predictable schedule. Forest Practices core classes include, Unstable Slopes, Channel Migration Zones, Wetlands, Forest Practices Enforcement and Brief Adjudicative Proceedings. Multiple-day workshop classes now take place in both the spring and the fall.

Forest Practices Hydraulic Projects training was added to the catalog during this reporting period. The Program implemented an initial run of the class internally to establish statewide consistency within Forest Practices staff before offering the class outside of the program.

Scheduled training sessions are now being recorded to create webcasts, video lecture, and fully interactive online courses for future use. Media presentation (versus live instructor presentation) courses currently in production include Unstable Slopes Training and High Avalanche Hazard Awareness.

10.1 Single/Multiple Day Forest Practices Program Trainings

The program provides single-day and multiple-day training for complex subjects, which require larger blocks of time. Region staff trained during these longer Forest Practices training sessions share the information they learn in the class with landowners where appropriate and other stakeholders at region or special TFW meetings to ensure quick implementation.

Information about the number of people who attended specific training during the reporting period is as follows:

Unstable Slopes
Total: 58
38 people attended the training for the spring session and 20 people for the fall session.

Channel Migration Zone Training
Total: 54
34 people attended training for the spring session and 20 people attended the fall session.

Wetlands Training
Total: 55
39 people attended training in the spring session and 16 people attended the fall session.

Forest Practices Hydraulic Project Training
Total: 70
Class 1: 23 attended; Class 2: 27 attended; Class 3: 20 attended.

10.2 Single/Multiple Day Workshop Classes

Workshop classes generally fall into the category of public outreach. These are partnership opportunities to educate the public about forest practices. Sometimes these workshops are internal to DNR Forest Practices Staff, but usually are directed toward public education.

Compliance Monitoring
22 people attended the training.

Washington Contract Logger Association (WCLA) Training
130 WCLA members attended across three training sessions. Two were located in Chehalis and one was held in Colville.

10.3 DNR Region Focused Training

Region focused training constitutes short duration training specifically for DNR Region forest practices staff and training provided by region forest practices staff across the state. These are interactions at a local level via district meetings, stakeholders at TFW meetings, and other various interactions with forest industry professionals as well as small forestland owners across the state.

Training provided to Forest Practices staff
The training topic focus for this reporting period was the State Environmental Policy Act. Region staff trained during these forest practices training sessions share the information they learn in the class with landowners where appropriate and other stakeholders at region or special TFW meetings to ensure quick implementation.

Training Conducted by Region Staff
Regions completed or sponsored 42 training presentations and meetings during the reporting period. The topics varied widely and included, but were not limited to water type modification form, cultural resource management, culvert removals, road maintenance plans, alternate plans, and other general Forest Practices Rules topics.

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 continued working with the remaining 47 RMAPs that have approved extensions up to October 2021. During the reporting period, eight RMAPs were completed. This report summarizes the second full year of RMAP implementation after the original extension of 58 RMAPs in 2016.

Information is organized in the following four tables (Tables 13-16):

- *2018 Statewide Road Maintenance and Abandonment Plan Accomplishment Report for Landowners With Extensions by Region;*
- *Cumulative Statewide Road Maintenance and Abandonment Plan Accomplishment Report (2001-2018) by Region*;
- *Statewide Cumulative Road Maintenance and Abandonment Plan Accomplishment Report by Year*; and
- *Fish Passage Barrier Information for Large Forest Landowners*

These tables detail the progress made by forest landowners from July 2001 through December 2018. The information provided is derived from data supplied by landowners as part of their annual accomplishment report review. There are no numerical changes in some categories due to the completion of work in some regions. Some tables reflect numerical decreases because all remaining work in a previously active RMAP process was completed during the reporting period or land ownership changes occurred during this reporting period. Appendix 4 provides a description of each reporting element in the tables. In addition, several descriptions include reasons why some reporting element numbers change over the years, and provide additional in-depth information about why earlier accomplishment reports included data that differ from this report.

Based on a thorough review of records, certain RMAP data errors reported in the 2018 Forest Practices HCP Annual Report have been corrected in this report.

Table 13: 2018 Statewide Road Maintenance and Abandonment Plan Accomplishment Report 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	0	7,625	0	0	0	0
Northwest	4	1,905	181	107	19	198
Olympic	3	5,823	642	70	0	161
Pacific Cascade	22	12,336	1,568	344	11	128
South Puget Sound	3	2,425	129	23	0	0
Southeast	15	0	0	29	0	1
Statewide Totals	**47**	**30,114**	**2,520**	**573**	**30**	**488**

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.

Note 1: The values reported in the "Number of approved RMAPs" and "Miles of forest road assessed" columns may vary from previous reports due to land ownership transfers and changes that occurred since the prior reporting period.

Note 2: *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 4 for explanation. The data were first incorporated in the 2012 *Forest Practices HCP Annual Report.*

Table 14: Cumulative Statewide Road Maintenance and Abandonment Plan Accomplishment Report (2001-2018) 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	835	835	453	4,807
Northwest	31	3,714	1369	889	515	477	147	1,912
Olympic	38	2,045	147	406	1,928	1,488	575	61
Pacific Cascade	22	12,748	939	374	3,433	3,034	2,030	3,998
South Puget Sound	29	1,505	554	787	936	649	297	1,191
Southeast	15	2,492	610	863	989	941	1,522	4,002
Statewide Totals	**224**	**28,651**	**3,931**	**3,415**	**8,636**	**7,424**	**5,024**	**15,971**

Table 15: 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 / *862
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 / *569
2001-2009	126	8,804 / *176	---	16,195/ *1,176	2,621/ *190	2,305	1,569/ *121	3,141/ *324
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 (new element)	18,711/ *236	3,090/*175	2,393	2,189/ *417	4,258/*489
2001-2012	254	10,268/*572	7,568	20,026/ *1,315	3,275/*185	2,162	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/ *289	5,730/*432
2001-2015	260	12,632/*778	7,202	25,589/ *1,307	3,833/*283	2,231	3,507/ *88	6,086/*356
2001-2016	253	12,813/*181	6,421	27,694/ *2,105	3,895/*62	2,926	4,180/ *673	6,956/*870
2001-2017	256	13,742/ *929	3,781***	28,078/ *384	3,901/*6	2,927***	4,180/*0	7,230/*274
2001-2018	224	15,971/ *2,229	6,301***	28,651/ *573	3931/*30	3415***	5,024/ *844	7,424/194***

* 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.

*** Starting in 2018, only 47 RMAPs were active and submitting annual reports.

Fish Passage Barriers

In addition to the fish barrier information reported in Tables 14 and 15, Table 16 displays by DNR Region the cumulative number of fish passage barriers corrected since 2001; the total corrected in calendar year 2018, and the percent of total corrected as of December 31, 2018.

Table 16: Fish Passage Barrier Information for Large Forest Landowners

DNR Region	Number of Fish Passage Barriers Identified*	Number of Fish Passage Barriers Corrected From 2001-2018	Number of Fish Passage Barriers Corrected in 2018	Percent of total fish passage barriers corrected as of 12/31/2018
Northeast	835	835	1	100%
Northwest	515	477	0	93%
Olympic	1,928	1,488	86	77%
Pacific Cascade	3,433	3,034	101	88%
South Puget Sound	936	649	4	69%
Southeast	989	941	2	95%
Totals	**8,636**	**7,424**	**194**	**86%**

*This number may fluctuate annually as water types are confirmed and/or modified (e.g., change to or from fish-bearing).

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-eight RMAPs were initially granted extensions, and 47 RMAPs currently remain uncompleted. Eight RMAPs were completed during this reporting period.

11.3 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 reported in Section 4 as having been reviewed by WDFW is thought to be a close estimate. During this reporting period, WDFW biologists reviewed 1,461 individual FPHPs, including 119 concurrence-required project reviews (including the identification of the optimal project-

operating season) and 1,028 individual standard FPHPs (those not requiring concurrence, but pertaining to Type F and S streams), and participated in 314 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 period, 23 Forest Practices Applications required a landowner-tribe meeting. All had the required meeting. In addition, there were six voluntary meetings regarding Forest Practices Applications.

Washington Department of Archaeology and Historic Preservation

The Forest Practices Program funded one FTE in the Washington Department of Archaeology and Historic Preservation (DAHP) for database administration and Forest Practices Application and Notification review. DNR provided $187,722 for this purpose in the 17-19 biennium.

12.2 WAC 222-20-120 Updates/Process Improvements

The TFW Cultural Resources Roundtable did not meet during FY 2019. DNR, DAHP, tribes, and landowners continued to meet at a high level under the guidance of a professional facilitator to discuss and review protection of tribal cultural resources under the authority of WAC 222-20-120. The facilitation services allowed 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.

12.3 Timber/Fish/Wildlife Cultural Resources Roundtable

The Cultural Resources Roundtable remains in hiatus.

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 by the Legislature for those that could affect the Forest Practices Program. No new laws were enacted during the reporting period that would result in a change in protection of habitat for the species covered in the Forest Practices HCP. There were three bills passed into law that had an effect on the Forest Practices Program. Those were:

1. E3SHB 1324 – *Creating the Washington rural development and opportunity zone act*
This law extends the Business and Occupation tax surcharge that funds the Forest and Fish Support Account (FFSA) from certain timber related products until 2045, specifically for tribal participation grants and for funding the Forest Practices Adaptive Management Program. The tax is also necessary to implement the Forest Practices Habitat Conservation Program. Additionally, the law removes language limiting the tribes' ability to seek federal funding without affecting participation grants for federally recognized tribes.

2. ESSB 5330 – *Analyzing state regulatory impact on small forest landowners*
This law directs the school of Environmental and Forest Sciences at the University of Washington to complete trends and policy analyses on the effectiveness of the DNR Small Forest Landowner Office and legislative programs designed to offset the economic impacts of the forests and fish rules on small forest landowners, and make recommendations for improvements to the legislature. The university is directed to:
   - Analyze the regulatory impacts of the Forest and Fish Report forest practices rules adopted in 2001 on small forest landowners by:
     - Performing analysis on the economic impacts to small forest landowners (SFL);
     - Reviewing and analyzing the funding and implementation of the forestry riparian easement program; and

    - Reviewing the degree to which alternate plan templates or alternate harvest restrictions have been developed and approved for use by Small Forest Landowners;
- Develop potential legislative incentives for SFLs to maintain their forestlands; and
- Prepare a final report to the legislature and the Forest Practices Board by November 1, 2020.

3. SSB 5597 – C*reating a work group on aerial pesticide applications in forestlands*

This law establishes a legislative workgroup to evaluate best management practices for the application of aerial herbicides on state and private forestlands. This bill has the potential to provide agencies and forest managers with the tools to maximize returns from working forests while protecting the environment and public health using up-to-date best management practices. Members of the workgroup represent a variety of government agencies, tribes, stakeholders, interest groups, and the Legislature. The tasks of the legislative workgroup are to:

- Review the roles of herbicide management and regulatory agencies,
- Review current application technology in regards to limiting exposure,
- Review current research and reports on herbicide application; and,
- If necessary, develop recommendations for best management practices involving an integrated pest management solution that minimizes exposure to non-target species.
- Provide a report including findings, recommendations, and draft legislation to the governor and legislature by December 31, 2019.

14. Information Technology Tools

Appendix: Background on Information Technology Tools

14.1 Forest Practices Information Technology Team (FP IT Team)

The Forest Practices Information Technology Team underwent two significant changes during this reporting period. First, the supervisory responsibility of the division's six information technology positions was moved to the lead Information Technology Specialist position. The lead Information Technology Specialist position also included leading and directing the team, while working closely with Forest Practices staff in the six regions on Forest Practices information-technology-related matters.

Second, the Forest Practices Information Technology Team reporting structure shifted to the Assistant Division Manager for Business Administration. This realignment allows for a better fit between DNR's fiscal information systems and the Forest Practices business information system, while organizationally supporting the statewide Forest Practices Program. This organizational change resulted in strengthening the Forest Practices Information Technology Team to maintain, implement, monitor, and evaluate a complex program-wide information system and provide statewide customer support.

14.2 Forest Practices IT Projects

Forest Practices Online Pilot (fpOnline)

Forest Practices submitted a legislative funding proposal to fund and maintain a Forest Practices e-business application that features a web portal and a user-friendly system for electronically filing and reviewing FPAs, including electronic signature and payment of fees. The legislative request built upon an extensive discovery effort conducted in cooperation with the DNR Information Technology Division that examined existing and desired program business needs, current systems, and capabilities. The budget request of $2.1 million was part of the solution identified through the discovery process. Forest Practices developed a phased approach for a pilot and a logical sequence of three successive phases when the legislative request was unsuccessful.

The fpOnline pilot was funded from a statewide positive balance as reached by statewide program consensus. A competitive solicitation was posted through the Washington's Electronic Business Solution (WEBS) in February 2019. By spring of 2019, the FP IT team was working with a vendor. This vendor tested the feasibility of using the Salesforce platform. The pilot resulted in building the foundation of the Water Type Application (WTA) system and the self-subscription Reviewer Profile system. Division and region staff tested the prototype and the

vendor made adjustments based on the outcomes from this test. Forest Practices has committed to using Salesforce's Enterprise platform to develop the solution due to the pilot's success.

Intersection of National Hydrology Database (NHD) and Forest Practices Program Hydrography Database

The DNR FP HYDRO layer is housed in the Forest Practices Division. Currently, the DNR FP HYDRO layer is not in alignment with the state standard or the national framework. The Washington State Office of the Chief Information Officer has granted the Forest Practices Program a waiver with an expectation that the program will work toward state compliance. Over the past several years, Forest Practices IT staff have worked closely with Washington departments of Ecology, Fish and Wildlife, and the Office of the Chief Information Officer (OCIO). This collaboration resulted in the Forest Practices Program submitting a National Environmental Exchange Network Grant to the U.S. Environmental Protection Agency (EPA).

The EPA funded the grant, which will go toward a pilot approach for three years to define a detailed process and describe the effort needed to convert DNR Hydrography to the NHD framework. This will enable Washington State local governments, state agencies, forestland owners, and Tribes to have both Clean Water Act and fisheries information (including end of fish habitat) tied to NHD and Water Type information that meets DNR Hydrology regulatory responsibilities. The pilot will focus on transitioning water type features such as the upper extent of Type F points on DNR hydrology to NHD hydrology. This will create a system to update NHD with DNR's Water Type, reduce the need to maintain multiple hydrography layers, and streamline data collection and exchanges to improve timeliness for decision-making.

14.3 Forest Practices Information Technology Tools

Forest Practices Application Review System (FPARS)

There were 4,228 FPAs processed in FPARS and 1,159 reviewers receiving email notification.

Technology has made tremendous advancements, yet DNR still relies on an FPA management tool that is 20 years old. The system is inefficient for DNR staff to use, cumbersome for forestland owners submitting FPAs and unwieldly for concerned residents and stakeholders seeking information about the applications.

This was never more apparent when in January 2019 an error in the reviewer profile notification portion of the FPARS caused notifications to fail for approximately a week. There was also a one-day failure of the notification system in May. In both cases, manual means had to be used to make those notifications. The error was a result of trying to enhance already-complicated and aging technology. Transitioning to a web-based interactive system would result in a more reliable and extendable information system while meeting the program's regulatory responsibility.

Forest Practices Application and Mapping Tool (FPAMT)
Forest Practices Information Technology staff added new functionality to the mapping component that allowed proponents to print maps of various sizes and scales. This allows applicants to print fewer maps. Previously, each map was centered on a particular section of land and when the activity crossed over into another section, the proponent would have to print another map. One of the changes allows the proponent to move the center of the map in order to place the activity on one map. Additionally, multiple maps were previously necessary for large activities such as aerial spraying or roadwork. Changes include allowance for different scales and page sizes so that proponents can place the entire activity area on only one or two maps instead of many. The changes also decrease the map processing workload for Forest Practices staff.

Forest Practices Enforcement Tracking (FPETS) System
The Forest Practices Program entered 649 Informal Conference Notes, 19 Notices of Conversion to Non-forestry Use, and 78 Notices to Comply, one Civil Penalty, and 28 Stop Work Orders into FPETS.

Forest Practices Risk Assessment Mapping (FPRAM)
This year, Forest Practices IT staff added geographic information systems (GIS) layers that help program staff screen for areas with potential for snow avalanches. In addition, a stream temperature layer and high-quality aerial photos near urban areas were added. Forest Practices IT staff added a new map theme that aids region staff in reviewing aerial spray applications.

DNR Hydrography Data Layer and Water Type Modification Form Tracking Application (WTA)
DNR GIS staff entered approximately 8,711 GIS stream segment (number of segments depend on how the stream was input into GIS) updates representing approximately 1,242 miles into the hydrography data set based on 932 WTMFs.

These updates included stream type upgrades to approximately 42 miles of stream and stream downgrades to approximately 61 miles of stream. As of June 2019, the Water Type Modification Forms backlog was 12.

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 2018 and March 2019. The Forest Practices RMAP specialists in DNR regional offices continued to update this information, providing barrier replacement dates and other data that were previously missing. Updates related to fish passage barriers automatically transfer to the WDFW fish passage barrier GIS layer each time the database is updated.

Forest Practices Mobile Technology
Forest practices IT staff developed mobile data collection forms for compliance monitoring and road assessments with the Department of Ecology.

IT staff added a new field-mapping tool for field staff. The GIS software vendor ESRI made available the Explorer app for Android and Apple operating systems. Program IT staff and field staff created map packages (the data format for that app) and created scripting that updates that data on a regular basis. These steps forward represent greater efficiencies for Forest Practices field staff and practical use of current technologies.

Other Work

IT staff completed a complex statewide analysis of the impacts of the proposed permanent water typing system rule change. This spatial analysis involved calculating the change in fish habitat compared to the current interim water-typing rule. Forest type, timber volume, and land ownership were then applied to the loss or gain habitat areas and then summed.

15. Forest Practices Program Budget

15.1 Introduction

The Forest Practices Program continued to provide core programs utilizing General Fund-State (GF-S), the appropriated General Fund-State (GF-S) funding for the Adaptive Management Program (AMP), the State Toxics Control Account (Toxics), the Forests and Fish Support Account (FFSA), and the Forest Practices Application Account (FPAA). These funding sources sustain the state's *Forest Practices Habitat Conservation Plan* (FP HCP) and federal Clean Water Act (CWA) 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 program's adjusted biennial allocation totaled $31.2 million, and is shown by activity and funding source in Table 17.

Table 17: 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	13,309,400		188,000	1,516,500	6,673,200	21,687,100
Adaptive Management Program	521,400	3,280,000	12,009,800			15,811,200
Small Forest Landowner	300,000				121,000	421,000
Program Development					950,600	950,600
TOTALS	**14,130,800**	**3,280,000**	**12,197,800**	**1,516,800**	**7,744,800**	**38,869,900**
PCE Conversion (2005 dollars)	**11,327,213**	**2,629,240**	**9,777,725**	**1,215,622**	**6,208,212**	**31,158,011**

15.2 2017-2019 Biennial Allocation by Activity

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

Table 18:2017-2019 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 Archaeology & 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 and 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 $19.3 million in fiscal year 2019. A total of $5.6 million was expended from the Toxics account. Approximately $550,000 of the FPAA was spent continuing to finance an interagency agreement with Washington Department of Fish and Wildlife (WDFW) for consultation on forest practices hydraulic projects, statewide engineering assistance, and office and field staff in six regions.

Approximately $5.7 million of the FFSA was spent in the AMP to support project support, participation grants to tribal, non-profit public interest organizations and state agencies. The AMP expended the entire $1.6 million GF-State proviso that was allocated for research/monitoring projects. The expenditures for FY2019 are summarized in Table 19. These expenditures do not include the full-time equivalent (FTEs) and budget for the federally funded portion of the Forest Stewardship Program, nor state capital funding for landowner assistance programs administered by the Small Forest Landowner Office.

Table 19: Forest Practices Program FY 2019 Expenditures (July 1, 2018 – June 30, 2019)

FY 2019 Expenditures by Activity	GF-State	GF-State Proviso	FFSA	FPAA	TOXICS	TOTAL FUNDS
Forest Practices Act & Rules	5,413,320		4,543	554,202	5,042,020	11,014,085
Adaptive Management Program	239,368	1,640,000	5,717,623			7,596,991
Small Forest Landowner	169,795				59,194	228,989
Program Development					500,936	500,936
TOTALS	**5,822,483**	**1,640,000**	**5,722,166**	**554,202**	**5,602,150**	**19,341,001**

15.4 Forest Practices Program Full-Time Employees

The Forest Practices Program used 95 percent of the statewide-allotted FTEs in fiscal year 2019. The statewide program experienced a position vacancy rate of 3 percent during FY2019, 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 program). This staffing difference accounted for approximately 2% of the FTE under-utilization during fiscal year 2019.

The staffing overage in the Adaptive Management Program is a reflection of increased project management coverage in the latter part of FY2019. This added coverage provided vital oversight for the research projects and supervision of other project staff during the recruitment period for the administrator position.

Overall, the *biennial* FTE utilization was 94%. Approximately 4 percent of the variance was due to vacancies and 2 percent of the variance was due to participation in the wildfire response program. Table 4 reflects the actual FTEs utilized during this fiscal year and the biennial actual and variance.

Table 20: Forest Practices Program Full-Time Equivalents

2017-2019 Allocation by Activity	FY19 FTEs	Actual FY19 FTEs	FY19 Difference		17-19 BN* FTEs	BN Actual	BN Difference
Forest Practices Act & Rules	97.97	91.30	6.67		106.12	98.90	7.22
Forest Practices Manage Adaptively	4.85	5.03	(0.18)		5.25	5.45	(0.20)
Small Forest Landowner	2.00	2.00	0		2.00	2.00	0
Program Development	4.17	4.02	0.15		4.52	4.36	0.16
TOTALS	**108.99**	**102.35**	**6.64**		**117.89**	**110.71**	**7.18**

*BN = biennium

16. Washington Timber Harvest Report

16.1 Introduction

The Washington State Timber Harvest Report is not available this year because the data was unavailable from the Washington State Department of Revenue (DOR). As of 2018 DOR changed the way it stores the harvest data, meaning that the previous queries used to extract the data from their databases no longer work and they can no longer give us the data in a usable form. It may be possible for DOR to create new queries to provide DNR with the data in the future, but that potential is still being explored and would not happen before mid-2020.

Appendices

Appendix 1: Clean Water Act Assurances

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
PO Box 47600 • Olympia, WA 98504-7600 • 360-407-6000
711 for Washington Relay Service • Persons with a speech disability can call 877-833-6341

Memorandum

April 22, 2019

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 progress being made to meet milestones established for retaining the Clean Water Act 303(d) Assurances (Assurances) for the Forest Practices Rules (Title 222 WAC) and associated programs. The last update to the Board was in August 2018.

Under state law (RCW 90.48.420(1)) the adoption of "forest practices rules pertaining to water quality by the forest practices board shall be accomplished after reaching agreement with the director of the department *(Ecology)* or the director's designee on the board… so that compliance with such forest practice[s] rules will achieve compliance with water pollution control laws". This directive is integral to meeting legislative intent to use the Forest Practices Rules affecting water quality protection to satisfy requirements of section 208, 209, and 305 of the federal Clean Water Act, as regards silvicultural activities (RCW 90.48.425) and to achieve compliance with all applicable requirements of federal and state law with respect to nonpoint sources of water pollution from forest practices" (RCW 76.09.010(2)). The Forest and Fish Report (FFR), adopted by the Board under direction of RCW 77.85, includes the goal to meet the requirements of the Clean Water Act for water quality on non-federal forestlands and using the adaptive management program to revise the rules as needed. The FFR, with this goal and the performance target of meeting the state standards, was subsequently incorporated into the state Forest Practices Habitat Conservation Plan (FPHCP Introduction and Implementation Agreement clause 10.1).

The Assurances were originally granted in 1999 as part of the FFR and spell out the terms and conditions of how Section 303(d) of the federal Clean Water Act will be applied to lands subject to the FFR. 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. 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 its' success, Ecology conditionally extended the assurances for another ten years. This extension was given in good faith but was conditioned on the program meeting a list of milestones that included process improvements and performance objectives.

The 2009 milestones were established to create a framework for making steady progress in gathering information critical for assessing the effectiveness of the rules in protecting water quality as mandated by state law. Equally important was the intention to stimulate changes that would result in a more effective research program to test and adjust the rules consistent with adaptive management.

Ecology's regular updates to the Board have served as a way to report progress and to identify challenges. The updates have also provided the Board with an opportunity to make necessary changes or course corrections to keep the milestones on schedule and to protect the integrity of the program. Ecology appreciates that the Board has continually been receptive to the concerns we have expressed. Unfortunately, key milestones have languished because of limited cooperator resources and project funding, disagreement amongst stakeholders who need to be in consensus in order for projects to move forward, and the addition of new and competing priorities and assignments from the Board.

The Assurances are based on the premise that given the mandates in state law (RCW 76.09.370(7)) Ecology and the EPA can rely on the AMP to use sound scientific principles to test the effectiveness of the FFR-based rules in meeting water quality standards, and "to make adjustments as quickly as possible to forest practices" if they are ineffective. It has been almost 20 years since the Assurances were first granted, but the effectiveness of the rules remains largely untested. When the ten year conditional extension was granted, Ecology understood meeting the corrective milestones would be a challenge. But delays in completing many of these milestone projects now precludes them from being completed before the 2024 sunset date for Forest and Fish Support Account (FFSA) funding. This further puts at risk completion of the milestones.

Ecology acknowledges our attempt to use the corrective milestones to stimulate program improvements has been ineffective. The science-based Adaptive Management Program struggles with inefficiency and stakeholder conflict. Even with hiring more contractors and outside experts, it has been a struggle to move projects forward at pace.

Ecology appreciates the Board's desire to reinvigorate the program through a meeting of the principals, and to use fiscal and performance audits of the program to look for improvement. With less than a year remaining of the ten year extended Assurances, Ecology looks to the Board and cooperators to make process improvements to the Adaptive Management Program and ensure the successful use of the Type N studies. Ecology will need certainty the AMP can be relied on to meet the expectations originally set by the legislature.

Enclosed are two tables showing the milestones and their status. Points of note are highlighted in red and reflect changes since our last briefing:

- Table 1 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).
- Table 2 shows the CMER Research Milestones.

Ecology is pleased to report that several overdue milestones were completed or begun during this reporting period. These include:

- Completing a study plan for conducting a small forest landowner road survey
- Approving a final report for the Buffer Integrity-Shade Effectiveness study
- Implementation the Eastside Type N Effectiveness Monitoring study at half the study sites

Also of note, Ecology has eliminate the milestones for conducting the planned Mass Wasting Landscape-Scale Effectiveness in recognition of unreasonable technical challenges.

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

Enclosure

Table 1. Summary Non-CMER Project Milestones and their status.

Non-CMER Project Milestones		
	Summarized Description of Milestone	**Status as of April 2019[2]**
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 AMP funding to be substantially reduced in 2024 without legislative action.
	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 Process not being used in Policy or CMER.
	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 performance or clarity at the soonest practical time.	**Completed** May 2016
2010	January 2010: Ensure opportunities during regional RMAP annual reviews to obtain input from Ecology, WDFW, and tribes on roadwork priorities.	**Completed** September 2011

Non-CMER Project Milestones		
	Summarized Description of Milestone	**Status as of April 2019[2]**
	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.	**Completed** December 2018
	July 2010: Develop a strategy to examine the effectiveness of the Type N rules in protecting water quality at the soonest possible time that includes: a) Rank and fund Type N studies as highest priorities for research, b) Resolve issue with identifying the uppermost point of perennial flow by July 2012, and c) Complete a comprehensive literature review examining effect of buffering headwater streams by September 2012.	**Not Progressing** Board directed a technical workgroup to develop Board Manual revisions. Policy agreed to use the dry-season survey method year-round rather than having wet season default distances. No further action has occurred and a map-based method is still needed. To be addressed after water typing Board Manual work is completed in 2019. This could be completed in 2021.

Non-CMER Project Milestones		
	Summarized Description of Milestone	**Status as of April 2019[2]**
	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
	December 2010: Initiate process of obtaining an independent review of the Adaptive Management Program.	**Off Track** Policy has periodically noted the need for this review and failed attempts have been made by DNR to get State Auditor to do the work. A new attempt is underway with hope to get an audit before 2022.
2011	December 2011: Complete an evaluation of the relative success of the water type change review strategy.	**Completed** March 2013
	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

Non-CMER Project Milestones		
	Summarized Description of Milestone	**Status as of April 2019[2]**
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** State, Tribal, and Small Landowner caucus staff cooperatively developed a plan to conduct online and field surveys to inform the condition of SFL roads. Implementation is intended to begin in 2019. Completion expected in 2020.

Table 2. Summary CMER Research Milestones and their status.

CMER Research Milestones		
Description of Milestone		**Status as of April 2019[1]**
2009	Complete: Hardwood Conversion – Temperature Case Study (Completed as data report)	**Completed** June 2010
	Study Design: Wetland Mitigation Effectiveness	**Completed** October 2010
2010	Study Design: Type N Experimental in Incompetent Lithology	**Completed** August 2011
	Complete: Mass Wasting Prescription-Scale Monitoring	**Completed** June 2012
	Scope: Mass Wasting Landscape-Scale Effectiveness	**Milestone Eliminated** UPSAG by consensus opposes doing this study due to concerns over the technical and logistical complexity of developing comparative mass wasting rates. They also question the value in deriving these estimates. Given their well stated concerns, and that other CMER studies will have more direct value to water quality protection, Ecology is removing this milestone.
	Scope: Eastside Type N Effectiveness	**Completed** November 2013
2011	Complete: Solar Radiation/Effective Shade	**Completed** June 2012
	Complete: Bull Trout Overlay Temperature	**Completed**

CMER Research Milestones		
Description of Milestone		**Status as of April 2019[1]**
		May 2014
	Implement: Type N Experimental in Incompetent Lithology	**Completed** October 2017
	Study Design: Mass Wasting Landscape-Scale Effectiveness	**Milestone Eliminated** Discussed above for 2010 Scoping.
2012	Complete: Buffer Integrity-Shade Effectiveness	**Completed** November 2018
	Literature Synthesis: Forested Wetlands Literature Synthesis	**Completed** January 2015
	Scoping: Examine the effectiveness of the RILs in representing slopes at risk of mass wasting.	**Completed** April 2017
	Study Design: Eastside Type N Effectiveness	**Completed** March 2018
2013	Scoping: Forested Wetlands Effectiveness Study	**Completed** December 2016
	Wetlands Program Research Strategy	**Completed** January 2015
	Scope: Road Prescription-Scale Effectiveness Monitoring	**Completed** March 2016
	Study Design: Examine the effectiveness of the RILs in representing slopes at risk of mass wasting.	**Underway** Study is being designed and implemented in five phases with the first phase sent to ISPR January 2018 and is now in SAG response review and likely to be

CMER Research Milestones		
Description of Milestone		**Status as of April 2019[1]**
		completed in 2019. Study design for final phase estimated for 2023.
	Implement: Eastside Type N Effectiveness	**Underway** Began implementing study on half of the planned number of sites in October 2018 while still trying to secure sites in the east Cascades. Full study should be in implementation by late 2019.
2014	Complete: Type N Experimental in Basalt Lithology	**Completed** August 2017
	Study Design: Road Prescription-Scale Effectiveness Monitoring	**Completed** **February 2017** Unexpected permit delayed the start of study to Spring 2019. Projected completion estimated for 2026.
	Scope: Type F Experimental Buffer Treatment	**Complete** December 2015 Completion of study scheduled for 2028.
	Implementation: Examine the effectiveness of the RILs in representing slopes at risk of mass wasting	**Earlier Stage Underway** See discussion above for 2013 Study Design. Phase 1 implementation to likely to being in 2020. Projected completion of study in 2025.
	Study Design: Forested Wetlands Effectiveness Study	**Underway**

CMER Research Milestones		
Description of Milestone		**Status as of April 2019[1]**
		Draft for first phase of implementation in ISPR review. Second phase study design likely to be completed in 2021. Projected completion of study in 2028.
2015	Complete: First Cycle of Extensive Temperature Monitoring	**Underway** In post-ISPR review at CMER with project completion expected in 2019.
	Scope: Watershed Scale Assess. of Cumulative Effects	**Off Track** Project intended to follow other effectiveness monitoring studies which are behind schedule. Policy scheduled study to begin in 2026.
	Scope: Amphibians in Intermittent Streams (Phase III)	**Not Progressing** Ecology asked that the Type N Basalt study, once completed, be examined to inform the need for this study. Ecology intends this study address the question of whether harvesting, particularly clear-cutting, along portions of streams that go seasonally dry has a greater detrimental effect on stream associated amphibians. Policy scheduled start of study for 2020.
2017	Study design: Watershed Scale Assess. of Cumulative Effects	**Off Track** Discussed above for 2015 scoping. Study design scheduled for 2027.
	Study Design: Amphibians in Intermittent Streams (Phase III)	**Off Track**

CMER Research Milestones		
Description of Milestone		**Status as of April 2019[1]**
		Discussed above for 2015 scoping. Study design scheduled for 2021.
2018	Complete: Roads Sub-basin Effectiveness	**Not Progressing** Project to be re-scoped in 2027 with completion in 2031.
	Implement: Watershed Scale Assess. of Cumulative Effects	**Off Track** Discussed above for 2015 scoping. Implementation scheduled to start 2028.
	Complete: Type N Experimental in Incompetent Lithology	**On Track** Projected completion in 2019.
2019	Complete: Eastside Type N Effectiveness	**Earlier Stage Underway** Discussed for 2013 implementation. Projected completion in 2026.

Status terminology:

"Completed" - milestone has been satisfied (includes those both on schedule and late).

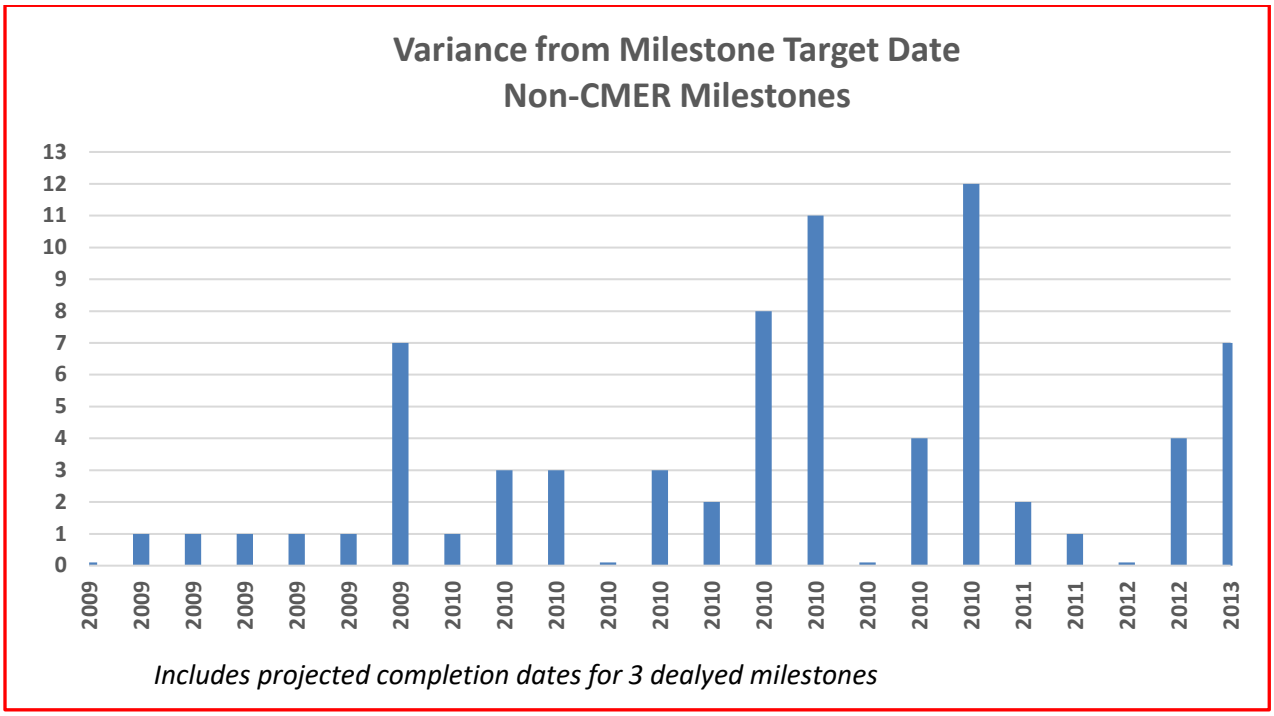
"On Track" - work is occurring that appears likely to satisfy milestone on schedule.

"Underway" - work towards milestone is actively proceeding, but likely off schedule.

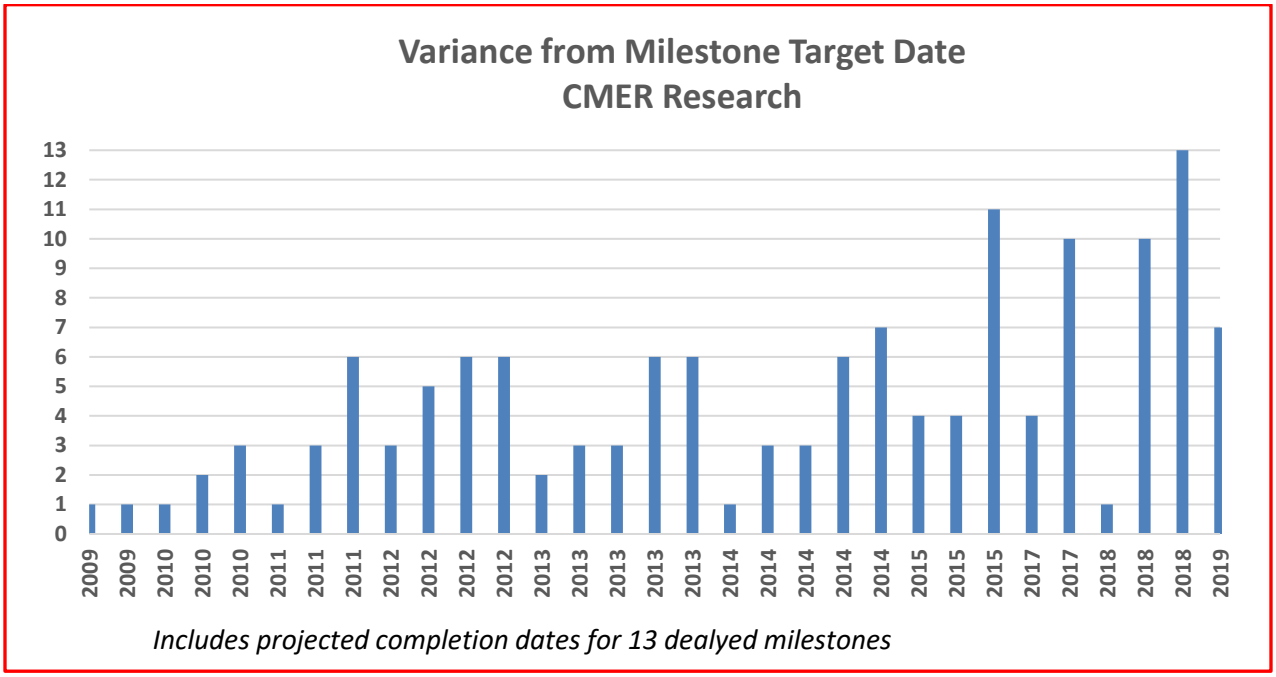
"Earlier Stage Underway" – project initiated, but is at an earlier stage (off schedule) then the listed milestone.

"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.



Includes projected completion dates for 3 dealyed milestones



Includes projected completion dates for 13 dealyed milestones

Appendix 2

Electrofishing Conducted for Adaptive Management Research

Pre- and Post-Activities Report, FY 2019

(As required under the Incidental Take Permit for the Forest Practices HCP)

Pre Electrofishing

1. Name of project:
Fish Habitat Detection Using eDNA

Date of project implementation:
Electro fishing occurred March 7, 2018 – July 11, 2018

Primary contact for project:
Emily Hernandez, DNR Adaptive Management Project Manager, 360-902-1407, emily.hernandez@dnr.wa.gov

Names of watersheds where surveys will be conducted:

- King Creek (tributary (trib) to Olequa Creek, which is a tributary to the Cowlitz River)
- Dry Run Creek (trib to East Fork Satsop, which is a tributary to the Chehalis River)
- Winston Creek (tributary to the Cowlitz River)
- Elk Creek (tributary to the Green River, which is a tributary to the Toutle River)
- Lake Creek (tributary to the Tilton River)
- Ostrander Creek in the Lower Cowlitz Basin
- Middle Kalama and Lower Kalama Rivers in the Kalama Basin
- SF Toutle, Upper Green, Green River, Toutle River, and Upper South Fork Toutle in the Toutle Basin
- Burnham Creek (tributary to Johnson Creek, which is a tributary to the South Naselle River)
- Altoona Creek (tributary to Hitchcock Creek, which is a tributary to the Columbia River)

2. **Estimate the number of listed fish or miles of listed-species habitat affected by electrofishing activities:**

   No listed fish were affected. Electrofishing occurred for Coastal Cutthroat Trout and Rainbow/Steelhead trout.

3. **Provide names and qualifications of the staff, contractors, or cooperators who will be supervising the field work:**
   Rob Nagel and Jarrod Yates – Completed Smith-Root Electrofishing Principals and Safety Certification and have five years of electrofishing experience.
   Travis Schill – Eight years of Smith-Root electrofishing experience at Weyerhaeuser and University of Idaho.
   Renata Tarosky – Eleven years of Smith-Root electrofishing experience at Weyerhaeuser on their electrofishing team.

4. **Provide a copy of the operating protocols designed to reduce effects to listed fish while maintaining the efficiency of the surveys and monitoring (operating protocol includes guidelines by National Marine Fisheries Service (NMFS 2000) and any subsequent updates):**
   Sampling was conducted using a standard backpack electrofishing approach. We used a spatially continuous, single-pass backpack electrofishing approach described by Torgerson et al. (2004) and validated by Bateman et al. (2005). We electrofished to compare relative abundance data between both approaches. Electrofishing settings were set to the appropriate settings for each stream.

Post Electrofishing

1. **Document the length of stream-survey and electrofishing activity:**

350 meters of electrofishing occurred at 15 streams for a total of 5,250 meters electrofished.

2. **Document any listed-fish encounters:**

No listed fish were encountered.

3. **Document any effects that rose to the level of incidental take (harm to habitat or listed species) including mortality:**
No harm to habitat or listed species occurred.

4. **List the apparent condition of all listed fish specimens encountered:**

N/A

***Make sure to submit any Federal and State permits that were obtained.**

Appendix 3: FPAs Associated with 20-Acre Exempt Parcels

Appendix 3a: 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
Alder	0.049
Anderson Creek	0.098
Antonie Creek	0.022
Bangor-Port Gamble	0.538
Bear River	0.072
Beaver Creek	0.029
Bellingham Bay	0.128
Birch Bay	0.162
Black River	0.037
Bogachiel	0.053
Blanchard Creek	0.037
Bremer	0.040
Bunker Creek	0.287
Camano Island	0.327
Camas Valley	0.039
Carbon	0.121
Carpenter	0.315
Cathlapotl	0.295
Cedar Creek/Chelatchie Creek	0.776
Chehalis	0.319
Chehalis Headwaters	0.006
Chehalis Slough	0.102
Chico Creek	0.111
Chimakum	0.099
Chinook	0.027

Church Creek	0.343
Cloquallum	0.125
Coal Creek	0.443
Columbia River/Rock Creek	0.018
Colvos Passage/Carr Inlet	0.526
Conboy	0.042
Connelly	0.148
Copper Creek	1.197
Corkindale	0.115
Cottonwood Creek	0.067
Cowlitz River/Mill Creek	0.167
Damfino	0.218
Davis Creek	0.153
Day Creek	0.259
Deadman Creek/Peone Creek	0.235
Delameter	0.061
Delezene Creek	0.138
Deming	0.063
Diobsud Creek	2.097
Discovery Bay	0.053
Dragoon Creek	0.115
Drayton	0.591
Dungeness Valley	0.031
Dyes Inlet	0.273
East Creek	0.070
East Stranger Creek	0.087
East Fork Hoquiam	0.213
East Fork Humptulips	0.102
East Fork Satsop	0.006
East Stranger Creek	0.087
Electron	0.033
Elk Creek	0.017
Elk River	0.078
Everett	0.040
Ferndale	0.366
French-Boulder	0.098
Friday Creek	1.075
Garrard Ck.	0.029
Germany	0.119

Gibson Ck.	0.203
Gilligan	0.191
Grays Bay	0.045
Great Bend	0.046
Haller Creek	0.096
Hamilton Creek	0.044
Hansen Creek	0.503
Harmony	0.098
Harris Creek	0.086
Harstine Island	0.146
Hoko	0.004
Hope Creek	0.204
Horseshoe Falls	0.770
Huckleberry Creek	0.023
Hutchinson Creek	0.149
Independence Creek	0.179
Jim Creek	0.048
Johns River	0.058
Jordan	0.067
Key Peninsula	0.391
Kiona Creek	0.152
Lower Pilchuck Creek	0.288
Lower Snoqualmie River/Cherry Creek	0.113
Lacamas	0.199
Lacamas Lake	0.411
Lake Crescent	0.209
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	0.278
Little White Salmon River	0.017
Long Beach	0.135
Lost Creek	0.517
Lower Chehalis/Elizabeth Creek	0.175

Lower Coweeman	0.339
Lower Cowlitz	0.382
Lower Deschutes	0.126
Lower Dosewllips	0.185
Lower Elochoman	0.192
Lower Humptulips River	0.042
Lower Kalama	0.237
Lower Little Pend Oreille	0.074
Lower Middle Snoqualmie	0.028
Lower Naselle	0.053
Lower North Fork Skykomish	0.214
Lower North Fork Stillaquamish	0.144
Lower Newaukum	0.732
Lower Pilchuck Creek	0.288
Lower Pilchuck River	0.303
Lower Quinault River	0.173
Lower Riffe Lake	0.109
Lower Skokomish	0.162
Lower Salmon Creek	0.171
Lower Stilloquamish River	0.026
Lower Willapa	0.304
Lower Wind	0.044
Lower Wishkah	0.042
Lynch Cove	0.232
Magee Creek	0.125
Mashel	0.036
Mason	0.175
McAllister	0.484
McLane Creek	0.049
Middle Fork 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	0.159
Mt Zion	0.034
Muck Creek	2.187

Naselle Headwaters	0.035
Nemah	0.037
North Fork Granite Creek	0.034
North Fork Newaukum	0.048
Nineteen Creek	0.185
Nookachamps	0.034
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	0.396
Quillisascut Creek	0.517
Quinault Lake	0.208
Raging River	0.041
Reese Creek	0.056
Rock Creek	0.212
South Sinclair Inlet	0.099
Salmon Creek	0.079
Salt Creek	0.318
Salzer Creek	0.155
Samish Bay	0.087
Samish River	0.215
Sammamish River	0.039
San Juan	0.032
Satsop	0.165
Scatter Creek	0.076
Sekiu	0.022

Sequim Bay	0.297
Siebert McDonald	0.062
South Fork Chehalis	0.009
South Fork Skokomish	0.195
South Fork Skykomish River	0.018
South Fork Willapa	0.085
Silver Lake	0.226
Skookum	0.015
Smith Creek	0.049
Smith Point	2.099
Sol Duc Lowland	0.027
Sol Duc Valley	0.042
Squalicum Creek	0.169
St. Peter-Lambert	0.078
Stahley Mtn.	0.214
Stensgar Creek	0.037
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	0.541
Toandos Peninsula	0.076
Toutle River	0.293
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	0.647
Vashon Island	0.094
Vedder	0.733
Verlot	0.071
Vesta Little North	0.013
Wanacut	2.049
Warnick	0.084
West Branch	0.029

West Fork/Mid Fork Hoquiam	0.073
West Fork Wasougal	0.153
Whidbey Island	0.494
White Salmon/Buck Creek	0.027
Wilkeson	0.032
Willapa Headwaters	0.019
Wilson Creek	0.034
Winston Creek	0.035
West Kitsap	0.025
Wishkah Headwaters	0.076
Woodland Creek	0.619
Woods Creek	0.085
Wynochee River System	0.059
Yacolt	0.653
Yelm Creek	0.779
Young Cove	0.223

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 thirteen-year period of the Incidental Take Permits. There are 846 WAUs in the state, of which 238 have had approved 20-acre exempt FPAs since the 2006 issuance of the Forest Practices HCP ITPs. Currently, in-office calculations indicate that each WAU affected by 20-Acre Exempt applications, except for seven, have less than one percent potential cumulative reduction in function relative to standard Forest Practices prescriptions. The seven WAUs: Diobsud Creek (2.097%), Muck Creek (2.187%), Smith Point (2.099%), Upper Little Pend Oreille River (1.192%), Copper Creek (1.197%), Wanacut (2.049%) and Friday Creek (1.075) all have less than 3 percent potential cumulative reduction in function. None of the seven WAUs with potential reduction in function over 1 percent are near the 10 percent threshold (explained in Appendix 4) established in the Incidental Take Permits. There are 109 WAUs indicating a potential of reduction in function between 0.1 and 0.9 percent, and the remaining 122 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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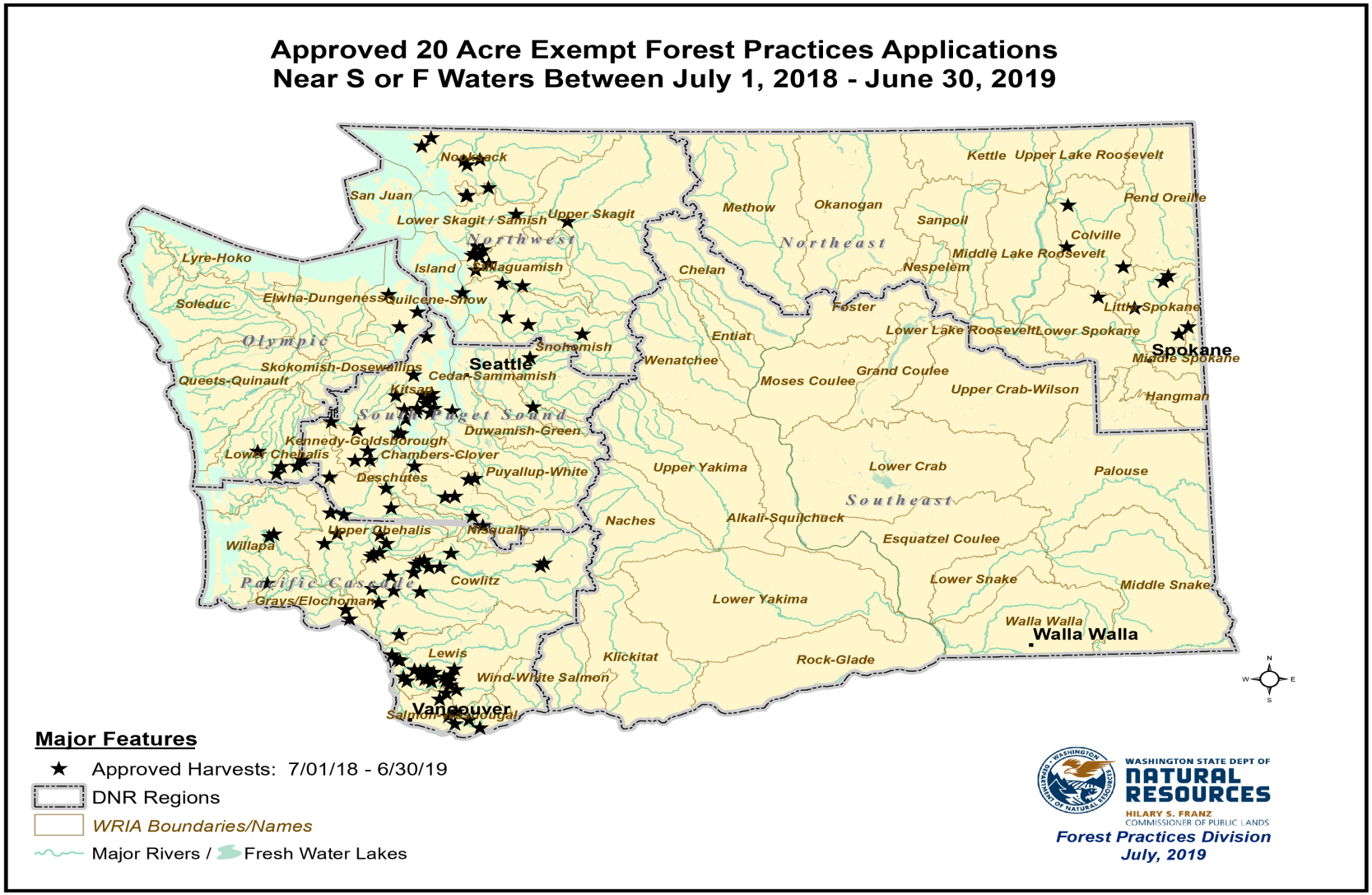
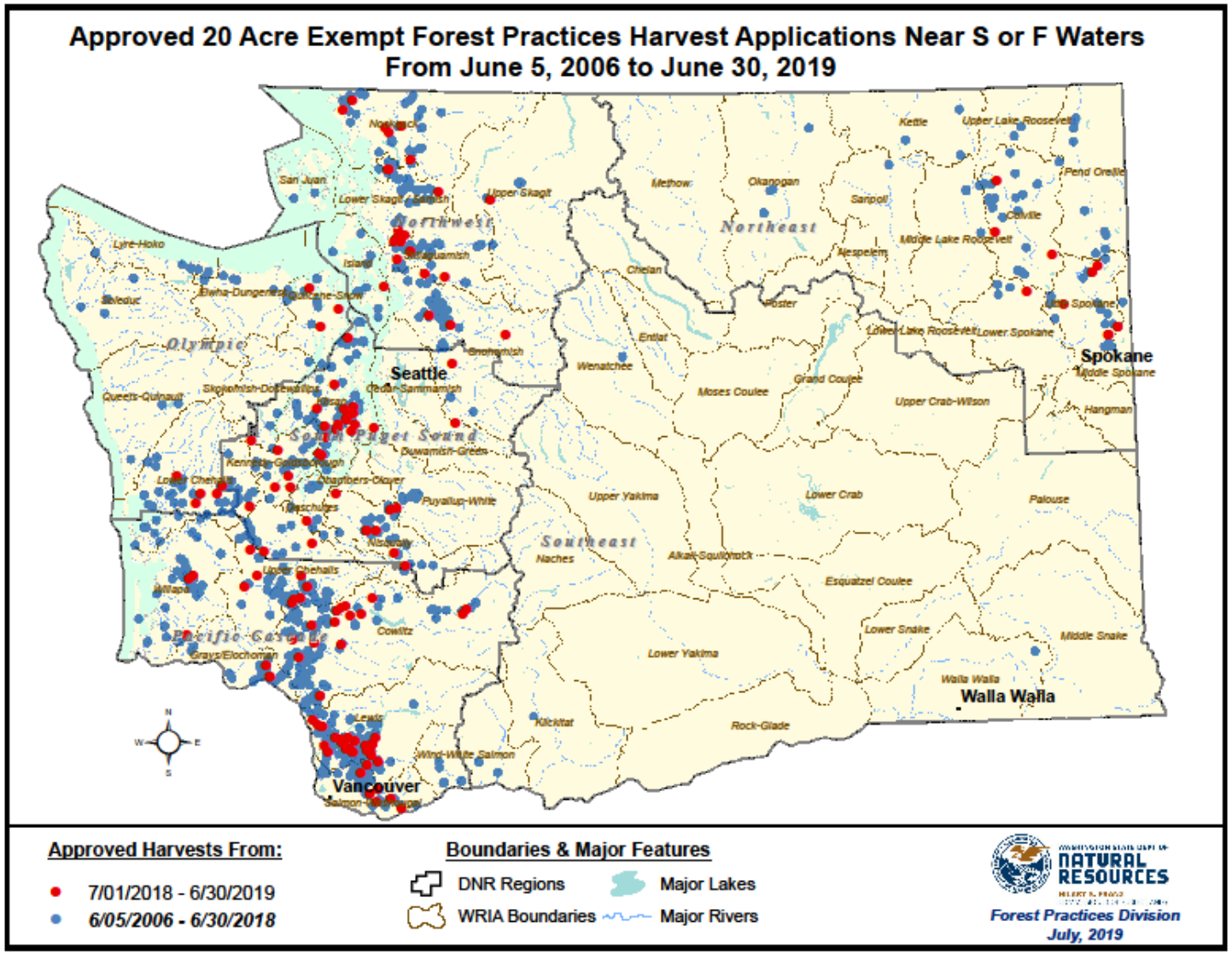
Appendix #3b: Approved 20-Acre Exempt FPAs near S or F Waters 7/1/18 – 6/30/19



Appendix #3c: Approved 20-Acre Exempt FPAs near S or F Waters 6/5/06 – 6/30/19



Appendix 4: 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-1990s to the early 2000s. 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 Rules 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 the 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 with traditional TFW caucuses; state agencies, tribes, forest landowners, and conservationists in negotiating a rule package. The federal caucus was invited to the table to ensure the final product would reflect federal 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, Gov. Gary 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, thereby christening the TFW negotiations 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 regulatory rule 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, 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 non-federal, non-tribal-owned forestland.

The Washington State Legislature incorporated the Forest and Fish Report recommendations into the 1999 Salmon Recovery Act, directing the Forest Practices 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 in May 2001, which became effective July 1, 2001.

The Forests and Fish Report and subsequent 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 strategy, the Upland Conservation Strategy, provides measures aimed at protecting aquatic resources by minimizing and mitigating upslope forest impacts, including forest road condition, stream crossings, 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 should incidental take (defined as harass, harm pursue, hunt, shoot, wound, kill, etc.) of listed threatened or endangered species occur 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)
- Authoring portions of and editing the required annual and 5-year reports to the Services

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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, 2019, was:

- Stephen Bernath, Commissioner of Public Lands Designee, Chair
- Ben Serr, 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 continual change in knowledge and understanding of natural forest systems and science that can lead to the need to change protective measures. The Board addresses this need for change by adopting or revising rules to protect public resources while maintaining a viable timber industry. When developing proposed rules for the Board to consider, the TFW Policy Committee strives to develop 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 associated with 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. A final draft for Board Manual sections providing guidance for rules protecting aquatic resources is submitted to the TFW Policy Committee. The TFW Policy Committee reviews, approves or disapproves the draft, and sends approved drafts to

the Board to consider and approve or disapprove. Board-approved final drafts are then placed in the Board Manual.

Permanent Water Typing System Rule Process

In 2013, the Board responding to concerns about the continued use of electrofishing under the interim water typing rule, directed the TFW Policy Committee to begin the development of recommendations for a permanent water typing system rule. In 2001, both the interim water typing rule language and the rule language setting the foundation for the development of permanent water typing rules were adopted by the Board and codified into rule. Required work for developing permanent water typing rules included an evaluation of all the components in the current interim rule as well as the process in Board Manual guidance for delineating the break between Type F and N waters. TFW Policy Committee reached consensus that a new fish habitat assessment methodology (FHAM) should be used to delineate fish habitat up to the water type break based on specific geomorphic features, or potential habitat breaks (PHB), to be used to delineate the end of fish habitat. A primary goal of FHAM is to reduce 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, identifying fish habitat, and evaluating new procedures in 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 TFW Policy Committee recommendations for the new water typing system in November 2016. Based on the consensus recommendations for rule language, the Board requested DNR staff to file a Proposal Statement of Inquiry (CR 101) with an understanding that formal rule making would not occur until final draft language and an economic and an environmental analysis was complete.

The TFW Policy Committee presented additional elements for the water typing system rule at the Board's May 2017 meeting including the results from dispute resolution and a new process – the fish habitat assessment methodology (FHAM) – for delineating fish habitat. FHAM is the central component for identifying the upper extent of fish habitat. The Board requested the Adaptive Management Program Administrator convene an expert scientific panel to determine the appropriate potential habitat break (PHB) metrics to be used when implementing FHAM.

The expert panel presented a report outlining their PHB metrics at the February 2018 Board 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 in addition to alternatives for arriving at an anadromous fish floor definition. The Board agreed and requested DNR to include alternatives in the development of rule language and the subsequent economic (Cost/Benefit Analysis – CBA

and Small Business Economic Analysis – SBEIS) and State Environmental Policy Act analyses.

An important step in developing a new water typing strategy is to ensure that the rule identified potential habitat breaks (PHBs) serve as an appropriate metric for the end of fish habitat. In May 2018, the Board directed the implementation of a validation study to evaluate the utility of the PHB criteria used in the FHAM. To verify that the methodology for measuring PHB criteria met the objectives in the PHB validation study, a pilot study was executed in summer 2018. The results of the pilot confirmed that the data collected could easily be analyzed to identify PHBs as wells as reaches of distinct gradient. Ultimately, the methodology tested in this study is a suitable approach for surveying headwater streams and objectively identifying potential habitat breaks to define the uppermost extent of fish habitat.

Several stakeholders voiced concerns regarding the spatial analysis conducted to inform both the economic and environmental analysis. Additionally, the TFW Policy Committee decided not to fund the PHB validation study the Board had agreed to implement. These two issues, among concerns with rule implementation, caused the Board to postpone adopting the rule package in May 2019 as intended. The Board acknowledged the need to restore a collaborative approach to arrive at a well-vetted permanent rule. As a result, the Board established a Board committee to facilitate discussions amongst DNR and stakeholders to resolve many outstanding concerns.

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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 an 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.

The Board governs the AMP, 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. Additionally, 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. CMER 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 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. The 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 state natural resource

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.

AMP contracts the Independent Scientific Peer Review Committee 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, 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 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's approval, agreed to provide Clean Water Act assurances to the State of Washington for a period of 10 years. It was assumed 10 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 deemed important for retaining the

Clean Water Act assurances. Ecology conditionally extended Clean Water Act assurances based on satisfactory accomplishment of milestones.

Ecology transmitted the 2009 report to the Board in October of that year. Ecology committed to providing the Board periodic status updates on established milestones for retaining the CWA Assurances for the Forest Practices Program. 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:
dnr.wa.gov/programs-and-services/forest-practices/adaptive-management

CMER:
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. While electrofishing associated with AMP is a covered activity as per the ITPs, 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 public forestlands. Washington's 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 Rules 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 three 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 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. Forest Practices Operations delivers the new written guidance or changes to existing guidance internally to region Forest Practices staff. Staff shares guidance affecting cooperating agencies, organizations, and landowners with those organizations.

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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 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 (FREP), 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 the 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?
- How cost-effective is 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 Rules-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." 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 1,000 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

The state uses a formula called the Equivalent Area Buffer Index (Buffer Index) to estimate the percent reduction in function, as measured by potential large woody debris that could be recruited along fish-bearing streams. A contractor developed the Buffer Index 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. The State uses these averages each year to estimate the potential cumulative reduction in large woody debris recruitment function from 20-acre exempt FPAs submitted to DNR since the 2006 issuance of the ITPs.

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 x 1.0) + (0.62 x 1.0) + (0.18 x 0 .7) + (0.03 x 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

The state calculates an estimate of potential reduction in function by watershed administrative unit annually and submits the results to the Services 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. The state uses average Buffer Index values (found in the Final EIS (Appendix B) of the Forest Practices HCP) to calculate the annual overall possible reduction in function by WAU. The contractor obtained these average Buffer Index values 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. The 15 percent was added 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 x 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 x 1.15 = 0.77
Average Reduction in function factor = 0.91– 0.77 = 0.14

The State tracts by FPA/N, the estimated number of feet of fish bearing stream potentially affected by harvests throughout the year. The total number of feet of stream length on fish bearing waters in each potentially affected watershed administrative unit 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 annual stream distance over which large woody debris recruitment functions are potentially reduced in function. The State then annually calculates cumulative affected stream lengths and divides them by analyzed geographic information system (GIS) total fish-bearing stream length on all forestlands regulated by Forest Practices in each watershed administrative unit to determine total potential percent cumulative reduction in function.

Appendix 3a contains the cumulative in-office estimates of potential reduction in function by watershed administrative unit since June 2006. Please find a visual representation of the 20-acre Exempt FPAs 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. The reader can find maps showing 20-acre exempt forest practices applications for a previous fiscal year 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 FPAs 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 determined 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. 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. Please find the process 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 Rules 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 Landowners 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 channel migration zones (CMZs) and forestland considered habitat for critical habitat for state-listed species identified as threatened or endangered. The Rivers and Habitat Open Space Program is available to all forest landowners, regardless of size. The Program promotes long-term conservation of aquatic resources and upland habitats.

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 and was focused strictly on CMZs. 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, as it was called at the time, to include all unconfined CMZs as well as forestland that contains habitat of state-recognized threatened or endangered species.

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 10 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. The program prioritizes applications for conservation easements for channel migration zones 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.

Forest practices staff classify FPA/Ns based 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 priority for compliance inspections than a proposal that has limited road construction on gentle slopes with 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 must be carried out in compliance with the Forest Practices Act and Rules. Please find additional information on Forest Practices classifications 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 aspect 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 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). Forest Practices staff use notices of Intent to Disapprove and civil penalties 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.

Staff use enforcement documents for both violations and 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.

Staff do not issue NOIDs or civil penalties often because the majority of violations do not rise to the level of repeat violation penalties. 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. Staff take a number of factors into account when determining the appropriate level of enforcement, including:

- 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 noncompliance?
- 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

The 1999 Forests and Fish Report first formally proposed CMP as an essential element for forest practices. 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."

In 2006, DNR, with input from other stakeholders developed a compliance monitoring program design and implemented a pilot sampling effort with the funding allocated by the Legislature. 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.

Please find all completed reports on the compliance monitoring program website: 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 FPA/N forms, form instructions, application review, compliance, or enforcement and where rule clarification or board manual revisions are warranted.

A compliance monitoring program manager administers the CMP. One program specialist reports to the manager to help implement the program. 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.

The Compliance Monitoring Stakeholder Committee provides input to the program. The Committee is comprised of representatives from the Washington State Departments of Natural Resources, Fish and Wildlife and Ecology, and tribes and tribal organizations, the Federal 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
- Possible Compliance Monitoring Program improvements.

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 Rules 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 FPAs 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, operations such as timber harvest and forest road construction. 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 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)

Water Typing Findings – Compliance Monitoring also observes water typing. 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. Water typing inconsistencies are categorized as either; under-classified on the FPA (for example, the FPA depicts a Type Np water that is found to actually be a Type F stream); or over-classified (for example, the FPA 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). Indeterminate observations are the result of natural physical impediments such as blowdown, steep slopes, or rocked 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 on other's land.

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 FPA 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 FPAs 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 FPAs. 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 percent confidence interval (CI) for all prescription types assessed. The $\pm$ 6 percent 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 Rules 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 13 samples were used to estimate DFC 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 FPAs. This led to concern regarding consistency and accuracy of water type information on FPAs 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 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.

Single/Multiple Day Forest Practices Program Training

The program provides single-day and multiple-day training for complex subjects, which require larger blocks of time.

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.

Channel Migration Zone
Channel Migration Zone course objectives are to define what a forest practices channel migration zone is, field delineation, and the relationship with the Forest Practices Rules.

Wetlands
Course objectives highlight the technical criteria for determining wetland hydrology, soils and plants with a focus on understanding the forest practices wetland types and the relationship with Forest Practices Rules.

Forest Practices Hydraulic Project
Course objectives are to inform forest practices staff on what to look for when accepting and approving a forest practices hydraulic permit. Additionally, the goal is to ensure that hydraulic permit implementation complies with Forest Practices Rules, regulations and guidance.

Single/multiple Day Workshop Classes

Workshop classes generally fall into the category of public outreach. These are partnership opportunities to educate the public about forest practices. Sometimes these workshops are internal to DNR Forest Practices Staff, but usually are directed toward public education.

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 FPAs. Additional field coaching and on-the-job training is provided using experienced staff to promote consistency in observations by new program participants.

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 FPA/N process.

DNR Region Focused Training

Region focused training constitutes short duration training provided specifically to region forest practices staff and training provided by region staff across the state. These are interactions at a local level via district meetings, stakeholders at TFW meetings, and other various interactions with forest industry professionals as well as small forestland owners across the state.

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 were 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. Landowners were to schedule their RMAP work to be metered throughout the time 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 FPA/N, 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. Please find the report at the following web address:
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) 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 13, 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 chose (in writing) to continue to follow their pre-2003 submitted RMAP, or 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 RMAPs 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 Rules 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 landowner's 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 the following:

- 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 Rules standards, it is captured in that year's accomplishment report. Landowners submit accomplishment reports 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/Forest Practices forester 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 is often 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 FPA/Ns 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 FPA/N 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.

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, the Skagit River Cooperative, and the Upper Columbia United Tribes are signed up to review FPA/Ns on behalf of member tribes.

Process

The Forest Practices Program uses 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 U.S. Geological Survey and Army Mapping Service maps for Washington state;
- Bureau of Land Management Government Land Office historical maps; and
- Tribal Cultural Resources Contacts (each tribe or tribal organization has a designated geographic area of interest for cultural resources and the name and contact information of their designated cultural resources contact).

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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, and the Water Type Application (WTA) Tracking system.

There are also discrete data sets, such as the DNR Hydrography Geographic Information System (GIS) data layer that forms the basis of the water typing system used to implement the Forest Practices Rules. 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 FPA/Ns 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/N information, and distribute it for regulatory and public review. FPARS also supports risk assessments of proposed forest practices activities, and archiving FPA/Ns.

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.

Capturing enforcement data in a common database facilitates data streamlining and improved data accuracy by removing redundancies and enables production of automated reports 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 Water Type Modification Form Tracking Application
Initiated in April 2016, WTA facilitates review and processing of Water Type Modification Forms (WTMFs). WTA stores key data about each WTMF, automatically sends email notifications to all stakeholders, and captures reviewer comments and feedback.

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.

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.

Explorer App and Mobile Map Packages
This is a GIS app that runs on smartphones and tablets that shows field staff where they are on the ground and shows existing forest practices application areas, water type changes, RMAP projects, parcel information and habitat and slope stability information.

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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
EPA	Environmental Protection Agency
NMFS	National Marine Fisheries Service
RCO	Recreation and Conservation Office
Round Table	TFW Cultural Resources Round Table
SFL	Small Forest Landowner
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

BACI	Before-after-control-input
CI	Confidence Interval
CMZ	Channel Migration Zone
DFC	Desired Future Condition
DNA	Deoxyribonucleic acid
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
IT	Information Technology
LiDAR	Light Detection and Ranging
LTA	Long Term Application
LWD	Large Woody Debris
MPS	Master Project Schedule

NIZH	No inner Zone Harvest
PCE	Personal Consumption Expenditure
PHB	Potential Habitat Break
PI	Proposal Initiation
RMZ	Riparian Management Zone
RSAG	Riparian Scientific Advisory Group
SAA	Stream Associated Amphibians
SAG	Scientific Advisory Group
SAGE	Scientific Advisory Group, Eastside
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
FPA/N	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 (ID Team)	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