

Response to Comments on the Draft Environmental Impact Statement (DEIS)

Introduction

After the Alternatives for Establishment of a Sustainable Harvest Level for Forested State Trust Lands in Western Washington DEIS was published in December 2016, DNR held an extended 90-day State Environmental Policy Act (SEPA) public comment period. DNR's SEPA center received comments by mail, e-mail, and comment cards submitted during four public meetings held by DNR throughout western Washington in January 2017. The comment period closed on March 9, 2017.

DNR received 1,370 written comments on the DEIS. All comments received were reviewed and are referenced in the comment response sections below. Table L.1 provides the commenter ID assigned to each commenter and referenced in the comment response section.

Table of Contents

- Topic: Alternatives 7
 - Subtopic: Preference for particular alternatives 7
 - Subtopic: Differences between the alternatives 8
 - Subtopic: Harvest of arrearage volume 9
 - Subtopic: Alternative 2 is the only alternative that meets the project objectives and the trust mandate 9
 - Subtopic: Range of alternatives 10
 - Subtopic: Combinations of alternatives..... 10
 - Subtopic: Number of combinations of alternatives..... 11
 - Subtopic: Management of habitat areas 11
 - Subtopic: Set an interim harvest level 12
- Topic: Arrearage..... 12
 - Subtopic: Preference for particular arrearage harvest options..... 12
 - Subtopic: Causes of arrearage 15
 - Subtopic: Impacts due to the harvest of arrearage 15
 - Subtopic: Calculation of arrearage 16
 - Subtopic: State Forest Transfer Trust lands in Clallam County arrearage volume 17
 - Subtopic: Effect of arrearage on the harvest level 17
 - Subtopic: Arrearage harvest levels 18
 - Subtopic: Use of models to select arrearage harvest levels..... 18
 - Subtopic: Tracking of harvest volume to avoid arrearage 19
 - Subtopic: Transparent process for addressing arrearage..... 19
 - Subtopic: Explanation of arrearage 20
 - Subtopic: Volume in transacted lands 20
- Topic: Adequacy of Analysis..... 21
 - Subtopic: Ensure DEIS meets legal requirements..... 21
 - Subtopic: Timespan of analysis..... 21
 - Subtopic: Inadequate information to assess impact to environment or the economy 22
 - Subtopic: Analysis of impacts to all elements of the environment 22
- Topic: Analysis of Impacts to Climate 23

Subtopic: Carbon sequestration 23

Subtopic: Climate change concerns and economic gains 23

Subtopic: Climate change is a threat to species 24

Subtopic: Climate as part of the affected environment 25

Subtopic: Analysis of climate impacts..... 25

■ Topic: Analysis of Impacts to Marbled Murrelet 26

 Subtopic: Use of best available science 26

■ Topic: Analysis of Impacts to Aquatic Resources 27

 Subtopic: Enjoyment of fishing 27

 Subtopic: Measurements of impacts on salmon 27

■ Topic: Analysis of Impacts to Vegetation 29

 Subtopic: Spread of noxious weeds 29

 Subtopic: Effects on fire threat index 29

 Subtopic: Acres in each stand development stage 30

 Subtopic Forest growth on DNR-managed lands..... 30

■ Topic: Economic Impacts 31

 Subtopic: Impacts on employment..... 31

 Subtopic: Impacts on junior taxing districts..... 31

 Subtopic: Economic impacts 32

 Subtopic: Economic impacts of arrearage 33

■ Topic: SEPA Process 34

 Subtopic: Sequence of completion of the marbled murrelet long-term conservation strategy and setting the sustainable harvest level 34

 Subtopic: Issue a revised or supplemental DEIS 34

 Subtopic: Inclusion of an unstated preferred alternative..... 35

 Subtopic: SEPA review of individual timber sales..... 36

 Subtopic: SEPA review of adjustments to the sustainable harvest level..... 36

 Subtopic: Range of decision making based on the DEIS 36

■ Topic: Project Need, Purpose, and Objectives..... 37

■ Topic: Revenue Generation..... 37

 Subtopic: Maximization of revenue 37

 Subtopic: Diversification of revenue sources 38

- Topic: Definition of Sustainability 39
 - Subtopic: Harvest practices 39
 - Subtopic: Harvest levels on State Forest Transfer trust lands in the OESF 40
- Topic: Trust Mandate 41
 - Subtopic: Undivided loyalty to trust beneficiaries..... 41
 - Subtopic: Intergenerational equity 41
 - Subtopic: Inadequate information about fulfillment of trust obligations 42
 - Subtopic: Restrictions on lands 43
 - Subtopic: Lack of riparian harvest in the last decade 44
 - Subtopic: Breakout of harvest by trust and county 44
 - Subtopic: Explanation of DNR’s trust obligations 45
 - Subtopic: Sustainable harvest units 46
- Topic: Commercial and Riparian Thinning 47
 - Subtopic: Amount of commercial and riparian thinning 47
- Topic: Riparian Thinning..... 49
 - Subtopic: Preference for particular riparian thinning options 49
 - Subtopic: Clarity of riparian thinning options 49
 - Subtopic: Riparian forest restoration strategy 49
 - Subtopic: No management in riparian areas 50
- Topic: Rotation Length 50
 - Subtopic: Rotation length on state trust lands 50
- Topic: Inventory 51
 - Subtopic: Inventory accuracy and changes over time 51
 - Subtopic: Stream buffering in DNR’s spatial data..... 55
- Topic: Forest Estate Model 56
 - Subtopic: Hardwood harvest levels 56
 - Subtopic: Forest estate model used as part of the planning process for the OESF Forest Land Plan.... 56
 - Subtopic: Discount rate..... 57
 - Subtopic: Management costs 57
 - Subtopic: Timber volume yield curves 59
 - Subtopic: Use of a stratified forest estate model 59
 - Subtopic: Analysis period 60

Subtopic: Modeling arrearage harvest 60

■ Topic: Other Comments 61

 Subtopic: Use of contract labor 61

 Subtopic: Reductions from the 636 MMBF per year sustainable harvest level calculated in 2004 61

 Subtopic: Requirements of the 1997 HCP 62

 Subtopic: OESF riparian status and trend monitoring 62

 Subtopic: Harvest level uncertainty 63

 Subtopic: Update of the Policy for Sustainable Forests 63

 Subtopic: Timber exports 64

 Subtopic: Mt. Blanchard 64

 Subtopic: Management on private lands 65

 Subtopic: Protection of old growth forests 65

 Subtopic: Value of State Forest Lands as parks 65

Acronyms

DEIS	Draft environmental impact statement
DNR	Washington State Department of Natural Resources
EIS	Environmental impact statement
FEIS	Final environmental impact statement
1997 HCP	State Trust Lands Habitat Conservation Plan
NMFS	National Marine Fisheries Services
OESF	Olympic Experimental State Forest HCP Planning Unit
RDEIS	Revised draft environmental impact statement
SEPA	State environmental policy act
USFWS	U.S. Fish and Wildlife Service

DEIS Comment Responses

■ Topic: Alternatives

Subtopic: Preference for particular alternatives

► SUMMARY OF COMMENT

Support for Alternative 1.

Commenters

20, 28, 32, G-6, G-9, G-15

Response

Thank you for your comment.

► SUMMARY OF COMMENT

Support for Alternative 2.

Commenters

11, 14, 16, 24, 34, 36, 38, 42-51, G-2, G-7, G-8, G-14

Response

Thank you for your comment.

► SUMMARY OF COMMENT

Support for Alternative 4.

Commenter

8

Response

Thank you for your comment.

► SUMMARY OF COMMENT

Due to unexplained, inconsistent, and unsubstantiated data, it is not possible to determine what is in Lewis County's best interest.

Commenter

G-17

Response

Appendix F of the FEIS provides information on sources of data used by the forest estate model in the calculation of a sustainable harvest level. Appendix F also details data changes since the DEIS.

Subtopic: Differences between the alternatives**► SUMMARY OF COMMENT**

The DEIS needs to explain differences in harvest levels. The DEIS provides little information on what causes the changes in harvest levels between the alternatives.

Commenters

33, G-3, G-4, G-7, G-10, G-17, G-28

Response

The action alternatives differ from each other and the no action alternative in three ways: marbled murrelet long-term conservation strategy alternative, arrearage harvest level, and riparian thinning level. In addition, the no action alternative differs from the action alternatives in two other ways. First, in the no action alternative, the harvest volume for the fiscal year 2015-2024 planning decade is set to the sustainable harvest level previously set by the Board of Natural Resources (5.5 billion board feet per decade). Second, the no action alternative includes the Settlement Agreement (Washington Environmental Council et al. v. Sutherland et al. Settlement Agreement (King County Superior Court No. 04-2-26461-8SEA, dismissed April 7, 2006)), which expires when a new sustainable harvest level is approved by the Board of Natural Resources, hereinafter referred to as “Board.”

Subtopic: Harvest of arrearage volume

► SUMMARY OF COMMENT

Uncertain if harvest of arrearage volume is included in the alternatives.

Commenter

G-12

Response

Alternative 2 incorporates an arrearage volume of 702 MMBF to be harvested over 5 years. Alternative 3 incorporates 462 MMBF of arrearage volume over a 10-year period. Alternative 4 includes an arrearage harvest of 462 MMBF volume over 1 year. Alternative 6 includes an arrearage harvest of 382 MMBF over a 10-year period. In alternatives 1 and 5, the harvest level is calculated without specifying an arrearage volume. However, for the FEIS, the modeling of arrearage volume was changed based on a review by Dr. Sándor Tóth, a University of Washington professor contracted by DNR to perform a third-party review of the model. This revision will make arrearage volume more apparent in the results. Appendix F of the FEIS describes changes to the model based on this review.

Subtopic: Alternative 2 is the only alternative that meets the project objectives and the trust mandate

► SUMMARY OF COMMENT

Only Alternative 2 meets project objectives and the trust mandate. All the marbled murrelet long-term conservation strategy alternatives meet need, purpose, and objective for the project and comply with the Endangered Species Act. Therefore consistent with undivided loyalty, the Board can only adopt Alternative 2 since it yields the highest annual volume.

Commenter

G-7

Response

Section 2.4, Comparing the Alternatives, includes a discussion on how the alternatives address DNR's project objectives, including the trust mandate. Alternative 2 remains an option for the Board to consider.

Subtopic: Range of alternatives

► SUMMARY OF COMMENT

An alternative should be added that is consistent with biological capacity of the land base and the 1997 HCP in its original form. The added alternative should both meet the project need, purpose, and objective, and increases returns compared to the existing alternatives.

Commenters

41, G-16, G-20, G-21, G-23, G-28

Response

The model takes into account the legal and policy requirements for timber harvest on state trust lands. The harvest levels presented in the FEIS are based on current inventory data, current yields, and current economic assumptions. The harvest levels come from a forest estate model designed to optimize 10-decade net present value. Harvest levels in the planning decade that are higher than those shown in the model would likely result in lower 10-decade net present value given existing law and policy, and the murrelet conservation, arrearage, and riparian options under consideration.

Subtopic: Combinations of alternatives

► SUMMARY OF COMMENT

DNR does not show that the alternatives selected represent the broadest range of potential outcomes.

Commenter

G-28

Response

The alternatives analyzed in the FEIS span the range of harvest and thinning areas, and associated volumes, possible under the combinations of marbled murrelet long-term conservation strategies,

arrearage harvest options, and riparian thinning options. The action alternatives considered include the marbled murrelet long-term conservation alternatives that conserve the fewest as well as the most acres. The murrelet long-term conservation alternative with the most acres of conservation is combined with arrearage and riparian options that most greatly restrict harvest. The marbled murrelet long-term conservation alternative with the fewest acres of conservation is combined with arrearage and riparian options that least restrict harvest. These combinations result in the widest range of harvest levels, within the legal and policy objectives under which DNR manages state trust lands. The no action alternative results in a higher first decade harvest level than the action alternatives. These options further expand the range of harvest levels. Given the marbled murrelet long-term conservation alternatives, the arrearage harvest options, the riparian thinning options, the land base data, and the economic assumptions, an alternative with a higher volume than the alternatives already analyzed in the FEIS would not be consistent with DNR's legal and policy requirements. Including alternatives that do not follow state and federal law, the 1997 HCP, and the *Policy for Sustainable Forests* is outside the need, purpose, and objectives of the proposed action.

Subtopic: Number of combinations of alternatives

► SUMMARY OF COMMENT

DNR states that there are 48 combinations of alternatives when there are actually 56.

Commenter

G-28

Response

DNR found 48 combinations by multiplying all six marbled murrelet long-term conservation strategy alternatives presented in the *Long-Term Conservation Strategy for the Marbled Murrelet DEIS* (6, identified as alternatives A-F) by the arrearage (4) and riparian (2) options presented in the DEIS.

Subtopic: Management of habitat areas

► SUMMARY OF COMMENT

The DEIS must consider alternatives that manage habitat areas.

Commenter

19

Response

All alternatives consider management of habitat for various species under state and federal law, the 1997 HCP, and the *Policy for Sustainable Forests*. Including alternatives that do not follow these laws and policies is outside the need, purpose, and objectives of the proposed action.

Subtopic: Set an interim harvest level**► SUMMARY OF COMMENT**

Set harvest level considering the interim protection of all known MM habitat.

Commenter

G-27

Response

The current interim marbled murrelet strategy is included in the no action alternative (Alternative 1). Other interim protections are temporary and could change when the Board adopts a long-term conservation strategy for the marbled murrelet.

■ Topic: Arrearage***Subtopic: Preference for particular arrearage harvest options*****► SUMMARY OF COMMENT**

Do not support the harvest of 462 MMBF of arrearage volume in one year included in Alternative 4 because it results in no timber revenue in one year to beneficiaries in counties without arrearage volume.

Commenters

G-2, G-15

Response

Thank you for your comment.

► SUMMARY OF COMMENT

Support the harvest of 702 MMBF of arrearage volume.

Commenters

G-8, G-24, G-26

Response

Thank you for your comment.

► SUMMARY OF COMMENT

Support the harvest of 702 MMBF of arrearage volume in three years.

Commenters

32, G-9

Response

Thank you for your comment. It is important to note that harvesting arrearage volume on an accelerated time scale could result in additional administrative costs.

► SUMMARY OF COMMENT

Support the harvest of 702 MMBF of arrearage volume in five years.

Commenters

G-1, G-6

Response

Thank you for your comment.

► SUMMARY OF COMMENT

Support the harvest of 702 MMBF of arrearage volume in 10 years. This preference is based on analysis by Olympus Consulting. Their analysis found that this option would result in the greatest economic benefit to Clallam County.

Commenters

G-6, G-7, G-12, G-13

Response

The report by Olympus Consulting considers total economic value to Clallam County while DNR trust obligations are more narrowly focused on the trusts.

► **SUMMARY OF COMMENT**

Incorporate arrearage harvest over 5 years.

Commenter

16, 42-51

Response

Thank you for your comment.

► **SUMMARY OF COMMENT**

Support the arrearage option with no specific arrearage harvest volume.

Commenters

25, 26, 29, 52-1,338, G-5

Response

Thank you for your comment.

► **SUMMARY OF COMMENT**

Exclude arrearage from inventory and do not harvest.

Commenter

G-27

Response

Thank you for your comment.

Subtopic: Causes of arrearage**► SUMMARY OF COMMENT**

Commenters state that the reasons given in Appendix C for the cause of arrearage in the last planning decade are inadequately explained. They also state that the explanations are inconsistent with the economic reality.

Commenters

G-7, G-18, G-28

Response

Appendix C is the final report from the subcommittee on arrearage to the Board. This document reports the findings of the subcommittee. Additional review of the causes of arrearage is outside the scope of this project.

Subtopic: Impacts due to the harvest of arrearage**► SUMMARY OF COMMENT**

Include an analysis of the impact of arrearage harvest.

Commenter

G-30

Response

Each of the alternatives includes an option for arrearage harvest. The impacts due to arrearage harvest are included in the analyses of each of the alternatives.

Subtopic: Calculation of arrearage

► SUMMARY OF COMMENT

The comment stated that there is no explanation as to the formula to “proportionally distribute” the 462 MMBF arrearage.

Commenter

7

Response

The 462 MMBF of arrearage is proportionally distributed by sustainable harvest unit using the formula:

$$\text{arrearage harvest} = (\text{sustainable harvest unit deficit} \div \text{sum of the deficits in all sustainable harvest units}) \times 462 \text{ MMBF}$$

Harvest of arrearage volume is planned only in sustainable harvest units where the actual harvest level was less than the planned harvest level.

► SUMMARY OF COMMENT

Arrearage should be calculated as the difference between the volume prepared for sale and the volume actually sold.

Commenter

G-31

Response

The Board directed staff to develop a policy to clarify the calculation of arrearage for the sustainable harvest level. The proposed “End of Decade Analysis: Arrearage” policy is included in Appendix M and its impacts are analyzed in the FEIS. The Board will decide whether to adopt this proposed amendment to the *Policy for Sustainable Forests*. For this project, the Board directed that arrearage analysis consider harvest volume in three ways: 1) the difference between the planned level and actual harvest level at the scale of western Washington; 2) the sum of the deficits in sustainable harvest units where the planned level was greater than the actual harvest level; and, 3) the sum of the deficits in sustainable harvest units where the actual harvest level plus volume transacted through the Trust Land Transfer Program or through state forest lands reconveyance was less than the planned level.

Subtopic: State Forest Transfer Trust lands in Clallam County arrearage volume

► SUMMARY OF COMMENT

The 92 MMBF deficit from the last decade on the State Forest Transfer land in Clallam County should be harvested.

Commenters

5, 32, G-1, G-24

Response

The calculation of arrearage is based on RCW 79.10.300. This RCW does not define arrearage at the level of State Forest Transfer trust lands within a given county. However, the Board may consider the harvest of arrearage volume at the trust and/or county level as part of the analysis required under RCW 79.10.330. The Board directed that arrearage be considered based on the difference between the planned and actual harvest volumes for state trust lands in western Washington and as the sum of the deficits from sustainable harvest units where deficits occurred, as described in Section 2.1. For the FEIS, the Board added an arrearage harvest option for the preferred alternative. Under this option, volume transacted through the Trust Land Transfer Program or through state forest lands reconveyance was counted as harvest volume for the sustainable harvest units where these transactions occurred.

Subtopic: Effect of arrearage on the harvest level

► SUMMARY OF COMMENT

The DEIS provides no basis for the decision-maker to understand what choices will have effects on harvest levels or why the choices appear to have so little impact once the arrearage harvest is subtracted.

Commenter

G-20

Response

The DEIS and FEIS provide an analysis of the impacts to elements of the environment due to different harvest and thinning areas and associated harvest volumes. The Board can review other information in

deciding on the sustainable harvest level including the financial analysis, other materials presented at Board meetings by DNR, and comments and materials provided by stakeholders.

Based on input from University of Washington Professor Sándor Tóth, who was contracted by DNR to review the model, DNR has revised the way the forest estate model was used to calculate the sustainable harvest level under each alternative and consider arrearage volume. The result is arrearage volume is more easily identifiable in the model results. The harvest area and volume information presented in the FEIS reflect this change.

Subtopic: Arrearage harvest levels

► SUMMARY OF COMMENT

Commenters proposed variously that arrearage harvest volume cannot be 462 MMBF (Commenters 32, G-1, G-24) and can be 462 MMBF (Commenter G-31).

Commenters

32, G-1, G-24, G-31

Response

The 462 MMBF arrearage volume is based on the difference between the Board approved sustainable harvest level of 5.5 billion board feet for the FY 2005-2014 planning decade (Resolution 1239 available in Appendix E) and the volume sold in that period. Resolution 1239 does not specify the sustainable harvest level for each sustainable harvest unit; however, the level was calculated for each sustainable harvest unit separately. Statute directs the Board to “conduct an analysis of alternatives to determine the course of action regarding the arrearage which provides the greatest return to the trusts based upon economic conditions then existing and forecast, as well as impacts on the environment of harvesting the additional timber” (RCW 79.10.330). RCW 79.10.330 continues, “The department shall offer for sale the arrearage in addition to the sustainable harvest level adopted by the board of natural resources for the next planning decade if the analysis determined doing so will provide the greatest return to the trusts.”

Subtopic: Use of models to select arrearage harvest levels

► SUMMARY OF COMMENT

It is unlawful to base arrearage on past model results.

Commenter

G-31

Response

While a model is used to inform the Board about the harvest volume that is possible given state and federal law, DNR policy, and economic considerations, ultimately it is the Board that sets the sustainable harvest level. The arrearage volume of 462 MMBF is the difference between the planned harvest level set in Board Resolution 1239 (refer to Appendix E) and the actual harvest level. The Board did not set the level for individual sustainable harvest units; these values were calculated by a forest estate model. The arrearage volume of 702 MMBF is based on the difference between these modeled values for each sustainable harvest unit and actual harvest levels within the same sustainable harvest unit, excluding those sustainable harvest units that exceeded their level. It is within the Board's discretion under RCW 79.10.330 to analyze the impact of this volume and offer it for sale.

Subtopic: Tracking of harvest volume to avoid arrearage**► SUMMARY OF COMMENT**

The Board should establish a mechanism for tracking sales volumes. This tracking mechanism should be used to track harvest of arrearage volume or to avoid the development of arrearage in the future. With a tracking mechanism in place, the Board should be able to track the development of arrearage as it occurs.

Commenters

33, G-1, G-3, G-4, G-5, G-10, G-15

Response

Department staff do track sold timber sale volume from state trust lands.

Subtopic: Transparent process for addressing arrearage**► SUMMARY OF COMMENT**

Appreciate the open, thorough, and public process to address arrearage.

Commenters

G-1, G-8

Response

Thank you for your comment.

Subtopic: Explanation of arrearage**► SUMMARY OF COMMENT**

Arrearage is both positive and negative. “In a weak timber market, or with few bidders, DNR should not be forced to ‘give away’ timber. ‘Arrearage’ can be considered as part of a management process, and alleged shortfalls can be adjusted.”

Commenters

4, 19

Response

Thank you for your comment. Appendix C contains the arrearage sub-committee report. All DNR timber sales require payment equaling or exceeding an appraised minimum value.

Subtopic: Volume in transacted lands**► SUMMARY OF COMMENT**

Volume in lands transferred through the Trust Land Transfer Program and reconveyance should be removed from sustainable harvest level upon transfer.

Commenter

G-27

Response

In the FEIS, the arrearage harvest level in Alternative 6, the preferred alternative, subtracts volume in lands transferred through the Trust Land Transfer Program and reconveyances from the arrearage level in applicable sustainable harvest units.

■ Topic: Adequacy of Analysis

Subtopic: Ensure DEIS meets legal requirements

► SUMMARY OF COMMENT

Ensure DEIS meets minimum threshold to survive legal challenges.

Commenter

G-17

Response

The FEIS was developed to comply with the State Environmental Policy Act.

Subtopic: Timespan of analysis

► SUMMARY OF COMMENT

Explain the 10-year harvest planning period, the 50-year analysis period, and the 100-year model period.

Commenter

G-28

Response

The proposal is for a sustainable harvest level for a decade running from fiscal year 2015 to 2024. The FEIS analyzed impacts for a 50-year period. This period represents the remaining period of the 1997 HCP, assuming it is not extended. To ensure intergenerational equity when calculating the sustainable harvest level, the model is run for a 100-year period. DNR is unable to predict future changes to the current management objectives. Because of this, the same management objectives, including the 1997 HCP and *Policy for Sustainable Forests* are retained through the entire 100-year modeling period. The sustainable harvest level can be adjusted in response to future law and policy changes, as necessary.

Subtopic: Inadequate information to assess impact to environment or the economy

► SUMMARY OF COMMENT

Inadequate information to assess impacts to environment or the economy.

Commenters

G-7, G-16

Response

Criteria and measures used to analyze impacts to elements of the environment are included in Chapter 4. A separate financial analysis has been prepared (refer to the October 14, 2019 Revised Financial Analysis, Addendum to the *Long-term Conservation Strategy for the Marbled Murrelet FEIS*¹) for the Board to consider in their decision making process.

Subtopic: Analysis of impacts to all elements of the environment

► SUMMARY OF COMMENT

The role our forests serve in reducing catastrophic global climate change, soil stabilization, and oxygen production cannot be overstated. When forests are harvested without sufficient regard for the environment and wildlife, it is a great disservice to school children, the public, and the land.

Commenter

17

Response

The purpose of environmental impact statements is to analyze alternative actions for their effects on the environment. For the sustainable harvest level alternatives, the effects on climate were analyzed in Section 4.2., the effects on soil were analyzed in Section 4.1., and the effects on wildlife were analyzed in Sections 4.5 and 4.6. Impacts to vegetation (Section 4.3) and aquatic resources (Section 4.4) were also

¹ <https://www.dnr.wa.gov/mmltcs>

analyzed. Impacts to other elements of the environmental are not expected and were not included in this EIS.

■ Topic: Analysis of Impacts to Climate

Subtopic: Carbon sequestration

► SUMMARY OF COMMENT

Young stands, stumps, and roots sequester carbon.

Commenter

5

Response

Carbon sequestered in young stands, stumps, and roots is incorporated into the climate analysis presented in Section 4.2.

► SUMMARY OF COMMENT

Implementation of a one-year moratorium on all timber harvest would greatly increase carbon sequestration.

Commenter

10

Response

A one-year harvest moratorium is not compatible with the trust mandate. All alternatives increase the amount of carbon sequestered compared to current conditions.

Subtopic: Climate change concerns and economic gains

► SUMMARY OF COMMENT

Factor in climate change concerns and economic gains from carbon sequestration.

Commenter

10

Response

The effect of the sustainable harvest level on climate change and forest resources in western Washington were analyzed in Section 4.2. A financial analysis of carbon sequestration on forested state trust lands is beyond the scope of this EIS.

Subtopic: Climate change is a threat to species**► SUMMARY OF COMMENT**

Climate science forecasts significant species stress and likely extinction. Forest removal is a further threat to species. This is not adequately addressed.

Commenters

12, 13

Response

As presented in Sections 3.2 and 4.2, the best available science suggests the conditions suitable for disturbances such as wildfire will increase, as may the intensity, frequency and duration of drought (see Sections 3.2 and 4.2 for a more in-depth summary across a broader suite of disturbance expectations under a changing climate). Please also refer to Section 3.2 for a discussion on possible changes in forest productivity in western Washington under a changing climate and why overall increases or decreases in productivity with climate change will depend on site specific factors that are only currently partially understood. The FEIS also acknowledges that changes in disturbance regimes are likely to affect the development of stands and the distribution of different stand development stages. However, as stated in Section 4.2, for the fiscal year 2015–2024 planning period, climate-related impacts are predicted to be low and similar across all alternatives.

Potential impacts to wildlife from the harvest levels under the alternatives were analyzed in Section 4.5 of the FEIS.

Subtopic: Climate as part of the affected environment

► SUMMARY OF COMMENT

Consider climate as part of the affected environment.

Commenter

G-22

Response

Climate was considered as part of the affected environment in Sections 3.2 and 4.2.

Subtopic: Analysis of climate impacts

► SUMMARY OF COMMENT

The impacts of climate change needs to be thoroughly analyzed using regional climate impact information. The forest estate model does not take into account increased disturbance events, decreasing forest productivity, and increasing environmental impacts. The model projections must take into account the value of forest stands for carbon sequestration. The comments submitted on the *Long-Term Conservation Strategy for the Marbled Murrelet DEIS* were incorporated by reference.

Commenter

G-31

Response

Please refer to Section 3.2 for a discussion on regional and global climate models, and why the analysis relied on global climate models.

As presented in the Sections 3.2 and 4.2, the best available science suggests the conditions suitable for disturbances such as wildfire will increase, as may the intensity, frequency and duration of drought (see Sections 3.2 and 4.2 for a more in-depth summary across a broader suite of disturbance expectations under a changing climate). Please also refer to Section 3.2 for a discussion on possible changes in forest productivity in western Washington under a changing climate and why overall increases or decreases in productivity with climate change will depend on site specific factors that that are only currently partially understood.

The FEIS also acknowledges that changes in disturbance regimes are likely to affect the development of stands and the distribution of different stand development stages. However, as stated in the Section 4.2,

for the fiscal year 2015–2024 planning period, climate-related impacts are predicted to be low and similar across all alternatives. Past disturbance events were incorporated into inventory and yield data that the forest estate model uses to project harvest levels. As required by the *Policy for Sustainable Forests* (DNR 2006a), DNR must recalculate the sustainable harvest level on a decadal basis and more frequently if changing circumstances, such as large scale disturbance events, require. Department policy also requires incorporation of the best available science into the recalculation of the sustainable harvest level. While Section 4.2 includes an analysis on carbon emissions and carbon sequestration under the alternatives, a financial analysis of carbon on forested state trust lands is beyond the scope of this project.

Response to comments on the *Long-Term Conservation Strategy for the Marbled Murrelet DEIS*: Refer to the responses to comments under the subtopic “climate change analysis” in Part 1 of Appendix S of the *Long-Term Conservation Strategy for the Marbled Murrelet FEIS* (DNR 2019).

■ Topic: Analysis of Impacts to Marbled Murrelet

Subtopic: Use of best available science

► SUMMARY OF COMMENT

The marbled murrelet needs old growth and undisturbed forest. Timber cutting proposals that ignore this are not founded on the best available science. This is not adequately addressed. The scientific basis of the forest estate model used in the DEIS is not valid since the marbled murrelet long-term conservation strategy does not rely on the latest science.

Commenters

12, 13, 17, G-27

Response

The Policy for Sustainable Forests defers the harvest of all old growth stands in western Washington. The best available science was used throughout the development and analysis of the marbled murrelet long-term conservation alternatives, which were incorporated into the sustainable harvest calculation alternatives. In the *Long-Term Conservation Strategy for the Marbled Murrelet DEIS, RDEIS, and FEIS* the 2008 Science Team Report was referenced repeatedly and is the basis for several components of the long-term conservation strategy, including the P-stage habitat classification model, the addition of occupied sites to all action alternatives, and the location of conservation areas under Alternative F. However, the 2008 Science Team report was not the only source of best available science used to develop the alternatives and analyze their impacts. Many sources of current science also were used throughout the *Long-Term Conservation Strategy for the Marbled Murrelet DEIS, RDEIS, and FEIS* (refer to Chapter 6; also refer to literature cited in the appendices). The *Alternatives for Establishment of a Sustainable*

Harvest Level for Forested State Trust Lands in Western Washington DEIS and FEIS incorporate the analysis of the effects to marbled murrelet from the *Long-Term Conservation Strategy for the Marbled Murrelet DEIS and FEIS* by reference, respectively.

■ Topic: Analysis of Impacts to Aquatic Resources

Subtopic: Enjoyment of fishing

► SUMMARY OF COMMENT

Nothing better than fishing.

Commenter

1

Response

Thank you for your comment.

Subtopic: Measurements of impacts on salmon

► SUMMARY OF COMMENT

How are impacts on salmon being measured?

Commenter

6

Response

Impacts on salmon were considered in Section 4.4. The analysis found that impacts to salmon are mitigated by existing laws and policies. Further analyses of mitigation provided by existing laws and policies are presented in the following EISs, incorporated by reference:

- Final (Merged) Environmental Impact Statement for the Habitat Conservation Plan (DNR 1998),
- Final Environmental Impact Statement on the Policy for Sustainable Forests (DNR 2006b),

- Final Environmental Impact Statement for the Proposed Issuance of Multiple Species Incidental Take Permits or 4(d) Rules for the Washington State Forest Practices Habitat Conservation Plan (NMFS and USFWS 2006),
- South Puget HCP Planning Unit Forest Land Plan Final Environmental Impact Statement (DNR 2010),
- Olympic Experimental State Forest HCP Planning Unit Forest Land Plan Final Environmental Impact Statement (DNR 2016a), and
- Final Environmental Impact Statement on a Long-Term Conservation Strategy for the Marbled Murrelet DNR (2019).

► SUMMARY OF COMMENT

Reliance on existing regulatory framework does not get at the question of how riparian function would be affected.

Commenter

G-25

Response

The regulations on riparian management will not change under any alternative. Timber harvests will have the same impacts as they do currently under existing regulations, therefore the alternatives will not have a significant adverse impact on riparian function. The existing regulatory framework under which DNR operates with respect to riparian areas has been reviewed under SEPA and NEPA and is compliant with the Endangered Species Act. Management of riparian area is subject to both the 1997 HCP and the Forest Practices HCP (DNR 2005). The riparian forest restoration strategy (DNR 2006c), which provides direction for operations in riparian areas, was added to the 1997 HCP in 2006. Management under these HCPs is expected to gradually improve riparian conditions. As described in Section 4.4, the complexity of forest stands in riparian areas is expected to increase due to both growth over time and active management under the riparian forest restoration strategy.

■ Topic: Analysis of Impacts to Vegetation

Subtopic: Spread of noxious weeds

► SUMMARY OF COMMENT

Prevent the spread of noxious weeds

Commenter

10

Response

DNR participates in control efforts of invasive plants and noxious weed in concert with or in support of counties or other governmental authorities. As budgets allow, DNR may participate in other cooperative partnerships that address invasive plants or noxious weeds.

Subtopic: Effects on fire threat index

► SUMMARY OF COMMENT

As forest cover becomes more dense, does the threat index change for the worse?

Commenter

G-13

Response

The fire threat index is based on the probability of a given acre burning considering human and climatic factors. As described in the Section 4.2, fires in western Washington forests are rarely limited by fuels. The analysis in the FEIS does not anticipate increasing forest cover; all forested lands are expected to remain in a forested condition. An increase in area of more complex forest structure is expected. This increase in structurally complex forest is not expected to increase the fire threat index. However, as described in Section 4.2, stand replacing wildfire frequency is expected to increase due to climate change.

Subtopic: Acres in each stand development stage

► SUMMARY OF COMMENT

Reported acres in each stand development stage are incorrect.

Commenter

G-28

Response

The commenter included incorrect calculations in their comment as they take values rounded to the nearest percent and multiply them with acres values presented, which generates a different result than multiplying unrounded values then rounding the result. The stand development stage data presented in Sections 3.3 and 4.3 is correct.

Subtopic Forest growth on DNR-managed lands

► SUMMARY OF COMMENT

DEIS does not display the actual growth on DNR-managed lands.

Commenter

G-20

Response

Forest growth is represented by stand development stages. Refer to Section 4.3. This section describes how the amount of forest in the Competitive Exclusion stand development stage decreases over time and the amount of forest in the Structurally Complex stand development stage increases. This means that forests are growing and developing larger, more structurally diverse trees. Other metrics of forest growth, including volume, were not included as these metrics were not used in the environmental analysis.

■ Topic: Economic Impacts

Subtopic: Impacts on employment

► SUMMARY OF COMMENT

Need analysis of the impact of the harvest levels on employment.

Commenters

G-11, G-17

Response

Employment is not an element of the environment in SEPA rules and is not within the scope of this EIS.

Subtopic: Impacts on junior taxing districts

► SUMMARY OF COMMENT

Need to understand economic effect on the junior taxing districts.

Commenters

G-11, G-17

Response

An analysis of the economic impacts of the sustainable harvest level to taxing districts is not required under SEPA. DNR prepared a separate analysis of the financial impact to the trusts of each of the alternatives in the DEIS plus all other combinations of the *Long-Term Conservation Strategy for the Marbled Murrelet DEIS* alternatives A through F, the arrearage harvest options, and the riparian thinning options. Analysis of the financial impacts to the trusts was presented to the BNR in July 2017. This analysis was updated in October 2018 after the release of the *Long-Term Conservation Strategy for the Marbled Murrelet RDEIS* and included analyses of two additional scenarios and updated analyses of the 36 original scenarios. A revised financial analysis was also included in the October 14, 2019 Addendum to the *Long-Term Conservation Strategy for the Marbled Murrelet FEIS* and includes updated analyses of 37 of the 38 scenarios, but includes DNR's preferred alternative analyzed in the *Alternatives for Establishment of a Sustainable Harvest Level FEIS* Alternative 6 instead of Alternative H analyzed in the previous financial analysis.

Subtopic: Economic impacts

► SUMMARY OF COMMENT

DNR must undertake an economic analysis and include this in the FEIS.

Commenters

G-24, G-31

Response

An analysis of economic impacts of the sustainable harvest level is not required under SEPA. DNR prepared a separate analysis of the financial impact to the trusts of each of the alternatives in the DEIS plus all other combinations of the marbled murrelet long-term conservation strategy alternatives A through F, the arrearage options, and the riparian thinning options. Analysis of the financial impacts to the trusts were presented to the BNR on July 2017. This analysis was updated in October 2018 after the release of the *Long-Term Conservation Strategy for the Marbled Murrelet RDEIS* and included analyses of two additional scenarios and updated analyses of the original 36 scenarios. A revised financial analysis was also included in the October 14, 2019 Addendum to the *Long-Term Conservation Strategy for the Marbled Murrelet FEIS* and includes updated analyses of 37 of the 38 scenarios, but includes DNR's preferred alternative analyzed in the *Alternatives for Establishment of a Sustainable Harvest Level FEIS* Alternative 6 instead of Alternative H analyzed in the previous financial analysis.

► SUMMARY OF COMMENT

The DEIS has an overly narrow economic objective.

Commenter

G-31

Response

The need, purpose and objectives stated in Section 1.1 address the scope of the proposal assessed in the EIS. The FEIS presents an analysis of impacts to the elements of the environment. Analysis of the financial impacts to the trusts was presented to the BNR on July 2017. This analysis was updated in October 2018 after the release of the *Long-Term Conservation Strategy for the Marbled Murrelet RDEIS* and included analyses of two additional scenarios and updated analyses of the 36 original scenarios. A revised financial analysis was also included in the October 14, 2019 Addendum to the *Long-Term Conservation Strategy for the Marbled Murrelet FEIS* and includes updated analyses of 37 of the 38 scenarios, but includes DNR's preferred alternative analyzed in the *Alternatives for Establishment of a*

Sustainable Harvest Level FEIS Alternative 6 instead of Alternative H analyzed in the previous financial analysis.

Subtopic: Economic impacts of arrearage

► SUMMARY OF COMMENT

The DEIS lacks an economic analysis of arrearage and the specific impacts of arrearage to the sustainable harvest level.

Commenter

G-28

Response

An analysis of economic impacts of the sustainable harvest level is not required under SEPA. DNR prepared a separate analysis of the financial impact to the trusts of each of the alternatives in the DEIS plus all other combinations of the marbled murrelet long-term conservation strategy Alternatives A through F, the arrearage options, and the riparian thinning options. Analysis of the financial impacts to the trusts were presented to the BNR on July 2017. This analysis was updated in October 2018 after the release of the marbled *Long-Term Conservation Strategy for the Marbled Murrelet RDEIS*, and included analyses of two additional scenarios and updated analyses of the 36 original scenarios. A revised financial analysis was also included in the October 14, 2019 Addendum to the *Long-Term Conservation Strategy for the Marbled Murrelet FEIS* and includes updated analyses of 37 of the 38 scenarios, but includes DNR's preferred alternative analyzed in the *Alternatives for Establishment of a Sustainable Harvest Level FEIS* Alternative 6 instead of Alternative H analyzed in the previous financial analysis.

■ Topic: SEPA Process

Subtopic: Sequence of completion of the marbled murrelet long-term conservation strategy and setting the sustainable harvest level

▶ SUMMARY OF COMMENT

Complete the marbled murrelet long-term conservation strategy before setting the sustainable harvest level.

Commenters

3, 18, 19, 21, 23, 25, 26, 30, 31, 37, 40, 52-1,338, G-15, G-22, G-27, G-30, G-31

Response

The *Alternatives for Establishment of a Sustainable Harvest Level FEIS* incorporated the range of marbled murrelet alternatives since marbled murrelet conservation will affect the sustainable harvest level. If a sustainable harvest level is set prior to the adoption of a marbled murrelet long-term conservation strategy, the sustainable harvest level can be adjusted.

Subtopic: Issue a revised or supplemental DEIS

▶ SUMMARY OF COMMENT

Issue a revised or supplemental DEIS that includes the marbled murrelet long-term conservation strategy proposed by the marbled murrelet coalition.

Commenters

15, 18, 19, 22, 25, 26, 27, 37, 39, 54, G-22

Response

Refer to Section 2.4, “Commenter Alternatives Not Analyzed in Detail,” of the *Long-Term Conservation Strategy for the Marbled Murrelet FEIS* for an explanation of why the conservation strategy proposed by the marbled murrelet coalition was not analyzed and subsequently not included in the *Alternatives for Establishment of a Sustainable Harvest Level FEIS* alternatives.

► SUMMARY OF COMMENT

Issue a revised or supplemental DEIS that includes additional information about the inventory and expand the range of alternatives to include alternatives with higher harvest volumes.

Commenters

G-18, G-20, G-23, G-28

Response

Refer to Appendix F of the FEIS regarding the inventory and modeling assumptions. The harvest levels presented in the FEIS are based on current inventory data, current yields, and current economic assumptions. The model takes into account not only the 1997 HCP but also the *Policy for Sustainable Forests*. The model is designed to optimize 10-decade net present value. Harvest levels in the planning decade that are higher than those shown result in lower 10-decade net present values. Aside from changes in economic assumptions, higher volumes can only be attained through changes to the 1997 HCP or department policies, both of which are outside the scope of this project.

Subtopic: Inclusion of an unstated preferred alternative

► SUMMARY OF COMMENT

DEIS puts forward an unstated preferred alternative.

Commenter

G-24

Response

The Board did not select a preferred alternative in the DEIS. In the DEIS, all alternatives were analyzed to the same level of detail. In November 2017, following the review of comments on the DEIS, the Board selected a preferred alternative. The preferred alternative differed from all alternatives analyzed in the DEIS in its marbled murrelet long-term conservation alternative, arrearage harvest level, and riparian thinning level. The impacts of the preferred alternative are within the range analyzed in the FEIS.

Subtopic: SEPA review of individual timber sales

► SUMMARY OF COMMENT

Modify WAC 332-41-833 so that only Class IV Forest Practices Applications on DNR-managed lands require SEPA review.

Commenter

G-26

Response

Modification of the Washington Administrative Code is outside the scope of this project.

Subtopic: SEPA review of adjustments to the sustainable harvest level

► SUMMARY OF COMMENT

Mid-decade changes in sustainable harvest level following policy changes would require a new EIS or a supplemental EIS.

Commenter

G-27

Response

A change in the sustainable harvest level by the Board would be a SEPA action (WAC 197-11-704) subject to environmental review. The level of review required would be determined by the SEPA responsible official at the time the change is considered.

Subtopic: Range of decision making based on the DEIS

► SUMMARY OF COMMENT

The statement on page 1-13 that the sustainable harvest level set by the Board “must be within the range of alternatives discussed” is incorrect.

Commenter

G-27

Response

The commenter is correct. The Board is not bound to select a harvest level within the range of alternatives in the EIS. However, the alternatives analyzed in the EIS were designed to provide a range for Board consideration. If the Board decides to select an alternative outside of the range of alternatives in the EIS, the selected alternative would have to be evaluated to determine whether further environmental analysis is warranted. The discussion related to the Board’s decision in Section 1.4 of the FEIS has been revised to clarify this.

■ Topic: Project Need, Purpose, and Objectives

► SUMMARY OF COMMENT

The proposed marbled murrelet long-term conservation strategies fail to meet DNR’s first sustainable harvest objective “to maintain and protect marbled murrelet populations.”

Commenter

G-22

Response

The selection of a marbled murrelet long-term conservation strategy is subject to a separate but concurrent planning process. Section 1.1 identifies the purpose, need, and objectives for the sustainable harvest calculation. The objective “to maintain and protect marbled murrelet populations” is not one of the objectives of this project. The purpose, need, and objectives of the marbled murrelet long-term conservation strategy planning process are available as a separate FEIS (DNR 2019).

■ Topic: Revenue Generation

Subtopic: Maximization of revenue

► SUMMARY OF COMMENT

Adopt the alternative that provides the maximum financial benefit to beneficiaries.

Commenters

2, G-26

Response

Thank for your comment.

► SUMMARY OF COMMENT

Alternatives do not clearly assure the beneficiaries maximum sustainable harvest revenue over time.

Commenters

G-3, G-4, G-7, G-10, G-12, G-15

Response

The sustainable harvest level is calculated using a model programed to maximize the 10-decade net present value while complying with state and federal laws and DNR policy. The model included detailed forest inventory information, forest growth rates, and economic assumptions regarding revenue and costs from timber production. These assumptions are described in Appendix F of the FEIS.

Subtopic: Diversification of revenue sources**► SUMMARY OF COMMENT**

Diversify revenue to be less reliant on timber.

Commenters

3, 12, 13, 15, 17, 29

Response

Revenue diversification is outside the scope of this project. However, according to DNR Annual Report data for fiscal years 2011-2017, nearly one third of the revenue distributed to beneficiaries from state trust lands came from sources other than timber. Other sources included leases for agriculture, communication sites, and special forest products, among others, and revenue from the Trust Land Transfer program, which shifts lands out of the Common School, Indemnity, and Escheat Trust for conservation objectives.

► SUMMARY OF COMMENT

Governor Jay Inslee and Commissioner of Public Lands Hilary Franz should be encouraged to initiate a task force to evaluate simultaneous revenue and habitat restoration. Focus should be on revenue generation alternatives to timber extraction and fully credit the value of a healthy forest environment to tourism associated with economically viable rural communities.

Commenters

12, 15, 19, 21, 22, 25, 26, 27, 39, 40, G-22, G-30, G-31

Response

Thank you for your comment. Revenue diversification is outside the scope of this project.

► SUMMARY OF COMMENT

The department should be analyzing new market opportunities including carbon sequestration and other ecosystem services payments.

Commenters

23, 29, 31, 52-1,338, G-27

Response

Revenue diversification is outside the scope of this project. However, DNR recognizes that there are valuable benefits from ecosystem services. The *Policy for Sustainable Forests* contains policies to support healthy forest ecosystems that provide a sustainable, perpetual flow of economic, ecological, and social benefits from state trust lands. DNR is able to access markets for carbon sequestration and other ecosystem services payments, where they exist, if entering these markets is compatible with DNR's management objectives.

■ Topic: Definition of Sustainability

Subtopic: Harvest practices

► SUMMARY OF COMMENT

It makes no sense to talk about forest ecology when dominant policy on the majority of timberland is clearcut every thirty years and to spray a variety of herbicides that are known to be groundwater

contaminants and harmful to fish. The loss of biodiversity and habitat has steadily worsened in forestland while home owners urban and rural have been held to strict conformity.

Commenter

9

Response

The sustainable harvest level is set consistent with state and federal law and DNR policy. Management consistent with these laws and policies (including management guided by the 1997 HCP and the *Policy for Sustainable Forests*) is designed to protect threatened and endangered species as well as un-listed species. The resulting average harvest age range across the alternatives on lands proposed for harvest is between 60-69 years, depending on location and stand composition. Herbicide may be used on state trust lands for vegetation management purposes, including planting site preparation and noxious weed control, consistent with federal and state law and DNR policy. Potential impacts to vegetation as well as wildlife and biodiversity were analyzed in Sections 4.3 and 4.5, respectively.

Subtopic: Harvest levels on State Forest Transfer trust lands in the OESF

► SUMMARY OF COMMENT

The harvest levels on State Forest Transfer trust lands in the OESF vary widely from decade to decade.

Commenter

G-24

Response

The sustainable harvest level is calculated for sustainable harvest units described in the *Policy for Sustainable Forests*. The policy provides direction on the amount that the sustainable harvest level can change from one decade to the next. The policy allows the sustainable harvest level to change up or down by 25 percent for each sustainable harvest unit; in the model this policy is called the flow control. In all alternatives analyzed in the DEIS, the flow control was set so that harvest levels do not vary by more than 15 percent from one decade to the next, except for the OESF which had a 5 percent constraint (revised to 15 percent for the FEIS). The OESF is a single sustainable harvest unit that includes lands in several different trusts. Since the flow control applies to the sustainable harvest unit as a whole and not individual trusts within the unit it is possible for harvest levels for specific trusts to fluctuate by any amount between decades.

■ Topic: Trust Mandate

Subtopic: Undivided loyalty to trust beneficiaries

► SUMMARY OF COMMENT

The DEIS ignores DNR's paramount duty to the trusts. The DEIS says that each of the four action alternatives meets the purpose, need, and objectives as stated in the document. If this were a sufficient range of alternatives, the Board could adopt only one of the four action alternatives described-the one that yields the highest annual volume of sales for the trusts.

Commenter

G-28

Response

The alternatives analyzed in the FEIS span the range of harvest and thinning areas, and associated volumes, possible under the combinations of marbled murrelet long-term conservation strategy, arrearage harvest options, and riparian thinning options. The Board must consider all aspects of the trusts mandate including undivided loyalty, intergenerational equity, prudent management, impartiality, and reducing the risk of the loss to the trusts, when setting a sustainable harvest level.

Subtopic: Intergenerational equity

► SUMMARY OF COMMENT

Need to show how the arrearage options in the alternatives fulfill the duty of intergenerational equity.

Commenters

G-3, G-4, G-10, G-17

Response

The *Policy of Sustainable Forests* contains a policy on the definition of sustainability for the sustainable harvest calculation. The policy states, "in order to ensure intergenerational equity among beneficiaries, within each sustainable harvest unit, the department shall calculate an estimated multi-decade harvest level such that the mean annual timber volume for any decade should not vary up or down more than 25 percent from the level of the preceding decade" As described in Appendix F of the FEIS, the decadal timber volume was constrained to not vary up or down more than 15 percent for all sustainable harvest

units. For the OESF, in the DEIS, the timber volume was limited to not vary up or down by 5 percent; this was revised to 15 percent for the FEIS.

The arrearage calculation statute states, “The department shall offer for sale the arrearage in addition to the sustainable harvest level adopted by the board of natural resources for the next planning decade if the analysis determined doing so will provide the greatest return to the trusts” (RCW 79.10.330). Based on this statute, for any alternatives that include a specific arrearage harvest volume, arrearage is not considered when calculating the variation of harvest volume between decades in the model (refer to Appendix F of the FEIS for more information). In all alternatives, the sustainable harvest level is calculated such that a 10-decade net present value is maximized.

Additional information about the financial impacts of the alternatives to the trusts was presented to the BNR on July 2017. This analysis was updated in October 2018 after the release of the *Long-Term Conservation Strategy for the Marbled Murrelet RDEIS* and included analyses of two additional scenarios and updated analyses of the 36 original scenarios. A revised financial analysis was also included in the October 14, 2019 Addendum to the *Long-Term Conservation Strategy for the Marbled Murrelet FEIS* and includes updated analyses of 37 of the 38 scenarios, but includes DNR’s preferred alternative analyzed in the *Alternatives for Establishment of a Sustainable Harvest Level FEIS* Alternative 6 instead of Alternative H analyzed in the previous financial analysis.

► SUMMARY OF COMMENT

Alternatives do not show how current and future generations are affected by different rates of harvest.

Commenters

G-5, G-7

Response

Thank you for your comment. DNR has added data to Appendix G, Sustainable Harvest Levels, of the FEIS showing the harvest levels over multiple decades.

Subtopic: Inadequate information about fulfillment of trust obligations

► SUMMARY OF COMMENT

The DEIS does not contain adequate information to determine if any of the alternatives presented will fulfill DNR’s trust obligations to beneficiaries.

Commenters

G-3, G-4, G-5, G-10, G-17

Response

The sustainable harvest level alternatives were developed around DNR’s trust obligations. Each alternative maximizes 10-decade net present value for the trusts given different options for marbled murrelet long-term conservation strategy alternatives, arrearage harvest options, and riparian thinning options. This combined with the flow control serves to maintain intergenerational equity. Setting the sustainable harvest level does not preclude other management options that are in the benefit of the trusts. As stated in the *Policy for Sustainable Forests*, a new sustainable harvest level can be adopted by the Board, “when the department determines changing circumstances within the planning decade suggest that an adjusted harvest level would be prudent.” All trusts are treated impartially when calculating the sustainable harvest level; all are subject to the laws and policies that apply to management in their particular location. Finally, by incorporating state and federal law and DNR policy, as well as economic considerations, calculating a sustainable harvest level is itself an aspect of prudent management.

Analysis of the financial impacts to the trusts was presented to the BNR in July 2017. This analysis was updated in October 2018 after the release of the *Long-Term Conservation Strategy for the Marbled Murrelet RDEIS* and included analyses of two additional scenarios and updated analyses of the 36 original scenarios. A revised financial analysis was also included in the October 14, 2019 Addendum to the *Long-Term Conservation Strategy for the Marbled Murrelet FEIS* and includes updated analyses of 37 of the 38 scenarios, but includes DNR’s preferred alternative analyzed in the *Alternatives for Establishment of a Sustainable Harvest Level FEIS* Alternative 6 instead of Alternative H analyzed in the previous financial analysis.

Subtopic: Restrictions on lands

► SUMMARY OF COMMENT

Restricting more land goes against DNR’s directive of managing state’s resources. The impact of alternatives 2–5 are excessive and contrary to meeting DNR’s fiduciary responsibilities to the trusts.

Commenters

35, G-12

Response

DNR’s fiduciary responsibility includes generating revenue and other benefits in perpetuity, preserving the corpus of the trust, exercising reasonable care and skill in management, acting prudently to reduce risk of loss for the trusts, maintaining undivided loyalty to beneficiaries, and acting impartially with respect to

current and future beneficiaries. The Board has the discretion to weigh the alternatives against these responsibilities and select the alternative that best meets these responsibilities. Land base changes due to the marbled murrelet long-term conservation strategy alternatives are assessed in a separate planning process aimed at meeting DNR's obligations under the 1997 HCP and the Endangered Species Act.

Subtopic: Lack of riparian harvest in the last decade

► SUMMARY OF COMMENT

The lack of riparian harvest in last decade is at odds with DNR's fiduciary responsibility to the trusts. An explanation of financial constraints, operational difficulties, and why modeling assumptions were never validated is requested. Also, explain how the current proposal for riparian management will be validated.

Commenter

G-18

Response

DNR must comply with the riparian forest restoration strategy and the OESF riparian strategy, both components of the 1997 HCP, when operating in riparian areas. DNR's trust obligations must also be taken to account. Last decade sustainable harvest calculation assumptions regarding riparian harvest underestimated operational difficulties in riparian areas. Operational difficulties stem from the need to protect public resources. The economic recession in the last planning decade also reduced the demand for DNR timber sales, as seen by a significant drop in prices. In this period, prices did not support the riparian operations that had been expected in last decade's planning process.

Validation of the model is only possible in review after harvests have occurred. The lower level of riparian thinning included in alternatives 3, 4, and 5, reflect the actual harvest levels seen in the last decade. At the end of the planning decade, if the Board selects an alternative that includes riparian thinning volume in the harvest level (such as alternatives 1 through 5), the actual volume harvested from riparian areas would be available for comparison with the projected riparian harvest level. Under Alternative 6 of the FEIS, projected riparian volume is not counted toward the sustainable harvest level.

Subtopic: Breakout of harvest by trust and county

► SUMMARY OF COMMENT

DNR has a duty to the beneficiaries to provide harvest levels by trust and county. DNR also needs to provide a breakout of harvest volume by trust for the OESF.

Commenters

G-24, G-26

Response

The purpose of environmental impact statements is to analyze alternative actions for their effects on the environment. Analysis of the financial impacts to the trusts was presented to the BNR in July 2017. This analysis was updated in October 2018 and again in 2019.

Subtopic: Explanation of DNR's trust obligations

► SUMMARY OF COMMENT

DNR's trust obligations apply to the citizens of Washington not the trust beneficiaries.

Commenters

58, G-29

Response

See discussion on state trust lands in Section 1.2 on the Regulatory and Policy Framework. While DNR-managed lands are public lands, the use of these lands is restricted. State trust lands must be managed consistent with DNR's fiduciary responsibility as defined by law. State trust lands are lands held in trust for specific beneficiaries such as counties and universities. As a trust lands manager, DNR must manage these lands to produce perpetual income for the trust beneficiaries and follow the common law duties of a trustee. Two of these duties were defined in the 1984 landmark decision *County of Skamania v. State of Washington*, 102 Wn.2d 127, 685 P.2d 576 (1984): 1) a trustee must act with undivided loyalty to the trust beneficiaries to the exclusion of all other interests, and 2) a state's duty as trustee is to manage trust assets prudently. Trust responsibilities also include making state trust lands productive, preserving the corpus of the trust, exercising reasonable care and skill in managing the trust, and acting impartially with respect to current and future trust beneficiaries. Refer to the *Policy for Sustainable Forests* for a more detailed discussion (DNR 2006a, p. 9 through 16). Refer also to AGO 1996, No. 11 (formal Attorney General of Washington's opinion that provides more explanation about DNR's authority to enter into a long-term plan to satisfy the requirements of the Endangered Species Act and its common law or statutory duties regarding state trust lands).

► SUMMARY OF COMMENT

I understand DNR has a legal obligation set forth in the state constitution to provide revenue to the trust beneficiaries but also believe these lands need to be managed responsibly for wildlife and other environmental benefits such as clear water and air.

Commenters

52-1,338

Response

DNR manages land in compliance with state and federal laws concerning wildlife, clean air, and clean water. See response to previous comment explaining DNR's trust obligation.

Subtopic: Sustainable harvest units**► SUMMARY OF COMMENT**

The DEIS errs by considering all 19 counties together instead of Clallam alone, resulting in Alternative 1 having a detrimental effect on Clallam County.

Commenter

38

Response

The sustainable harvest level is calculated for 20 sustainable harvest units consistent with DNR policy (described in Section 1.3 and in the *Policy for Sustainable Forests* p. 29). Consistent with this policy, state trust lands in Clallam County are included in three sustainable harvest units, Federal granted trusts and State Forest Purchase Lands, OESF, and Clallam. State Forest Transfer lands of which Clallam County is the beneficiary, are in two sustainable harvest units, OESF and Clallam.

■ Topic: Commercial and Riparian Thinning

Subtopic: Amount of commercial and riparian thinning

► SUMMARY OF COMMENT

It appears that the level of commercial thinning and riparian thinning is not consistent with maximum sustainable revenue.

Commenters

41, G-3, G-4, G-7, G-15, G-16, G-28

Response

Under alternatives 1 and 2, riparian thinning is constrained to 10 percent of the riparian area per decade in western Washington outside of the OESF. OESF riparian thinning is unconstrained in all alternatives. The model, which optimizes 10-decade net present value of timber harvested, showed that riparian thinning levels below this threshold were financially optimal based on scenarios presented to the Board on October 17, 2016 that showed that requiring riparian thinning on 10 percent of the total riparian area results in lower 10-decade net present values. Likewise, the level of commercial thinning was based on what was financially optimal given legal and policy objectives. Under alternatives 3, 4 and 5, riparian thinning is constrained in western Washington outside the OESF to an area equal to one percent of the upland harvest and thinning area. This constraint is based on the actual amount of riparian thinning that occurred in the last planning decade, though less than was found to be financially optimal given the modeling constraints. Under Alternative 6 of the FEIS, projected riparian volume is not counted toward the sustainable harvest level.

► SUMMARY OF COMMENT

Insufficient discussion of opportunities to implement the riparian forest restoration strategy. Riparian restrictions exceed both forest practices rules and the riparian forest restoration strategy.

Commenters

33, G-7, G-26

Response

Riparian thinning is included in all the sustainable harvest level alternatives of the DEIS. In all alternatives, riparian thinning in the OESF is consistent with the *OESF HCP Planning Unit Forest Land Plan* (DNR 2016b). In other areas, two different riparian options are analyzed. The higher riparian

thinning option allows for up to 10 percent of the total riparian area to be thinned in a decade. This option is included in alternatives 1 and 2. The riparian thinning levels modeled under this option resulted in thinning on less than 10 percent of the total riparian area. As modeled, this level of thinning is consistent with maximizing 10-decade net present value. Scenarios presented to the Board on October 17, 2016, showed that requiring riparian thinning on 10 percent of the total riparian area results in lower 10-decade net present values. The lower riparian thinning option, incorporated into alternatives 3, 4, and 5, allows for riparian thinning on an area equal to 1 percent of the upland harvest and thinning area. This level is based on the actual amount of riparian thinning performed since the introduction of the riparian forest restoration strategy. Under Alternative 6 of the FEIS, projected riparian volume is not counted toward the sustainable harvest level. Section 4.4 includes the area of riparian thinning under each alternative.

The modeled activities that can occur in riparian areas are light thinning and, only in the OESF, moderate thinning (refer to Appendix F of the FEIS). These thinning levels are consistent with the management objectives of the *OESF HCP Planning Unit Forest Land Plan* and riparian forest restoration strategy. At implementation, site-specific prescriptions will be developed for stands consistent with this guidance. At the stand level, the resulting thinning level may differ from the level modeled.

Both the *OESF HCP Planning Unit Forest Land Plan* and riparian forest restoration strategy provide implementation procedures for the 1997 HCP. DNR uses the 1997 HCP to comply with the Endangered Species Act and to meet portions of the Forest Practices Rules. While stream buffers are larger than FP buffers in many cases, they are part of the 1997 HCP, which affords compliance with the Endangered Species Act for multiple species, including species not covered by the Forest Practices HCP.

► SUMMARY OF COMMENT

Consider more thinning and other ecological forestry techniques, even if a lower volume is produced because the counties benefit from more jobs produced.

Commenter

31

Response

DNR manages land consistent with state and federal law, the 1997 HCP, and *Policy for Sustainable Forests*. DNR uses thinning treatments to achieve both ecological and silvicultural goals. The assumption that increased thinning and reduced harvest would result in more jobs may not be accurate. While more logging jobs are created per volume harvested from thinning during harvest at the site (Mason and Lippke 2007), due to the lower total volume harvested, fewer jobs are created in the trucking and manufacture of wood products. Additionally, few, if any, silviculture jobs are created following thinning operations.

■ Topic: Riparian Thinning

Subtopic: Preference for particular riparian thinning options

► SUMMARY OF COMMENT

Support the 10 percent thinning option.

Commenters

G-13, G-19

Response

Thank you for your comment.

Subtopic: Clarity of riparian thinning options

► SUMMARY OF COMMENT

Figures are inconsistent so the public and decision makers cannot determine the impact of the riparian thinning level decision.

Commenter

G-7

Response

Section 4.4 includes the area of riparian thinning of each alternative and describes the environmental effects of these thinning levels.

Subtopic: Riparian forest restoration strategy

► SUMMARY OF COMMENT

The riparian forest restoration strategy is outdated and flawed. It is not supported by best available science.

Commenter

G-25

Response

The *Riparian Forest Restoration Strategy* (DNR 2006c) was approved by the USFWS and adopted by the Board as part of the 1997 HCP in 2006. Only treatments that accelerate the development of the future desired condition are permitted. The future desired condition is described in the strategy and replicates older forest conditions.

Subtopic: No management in riparian areas**► SUMMARY OF COMMENT**

Commenters suggested that riparian thinning be removed from the sustainable harvest calculation since, “pursuing riparian volume as part of the [sustainable harvest calculation] risks violation of the Trust Lands HCP.” In addition, commenter G-27 added that no management should occur in riparian areas.

Commenters

G-25, G-27, G-31

Response

Alternative 6, the preferred alternative in the FEIS, does not count volume from riparian thinning in the calculation of the sustainable harvest level. Under Alternative 6, volume from riparian thinning that did occur would count toward the sustainable harvest level.

Any thinning that does occur in riparian areas under any of the alternatives analyzed will be consistent with the 1997 HCP, *Policy for Sustainable Forests*, the riparian forest restoration strategy, and state law, as well as DNR’s trust obligations.

■ Topic: Rotation Length***Subtopic: Rotation length on state trust lands*****► SUMMARY OF COMMENT**

Explain the 60-year rotation on state trust lands compared to the 35-40 year rotation on industry land.

Commenter

4

Response

The sustainable harvest level is calculated to maximize net present value while meeting legal and policy objectives, given economic assumptions that represent the cost and revenue of management (described in Appendix F of the FEIS). When calculating the sustainable harvest level, a detailed forest inventory is used, as are yield curves, which track the growth of forest stands. The result is rotation length may differ from other landowners with different management objectives, different current forest inventories, and different growing conditions. In addition, different management objectives on different areas of state trust lands result in different rotation lengths within the state trust land base.

■ Topic: Inventory***Subtopic: Inventory accuracy and changes over time*****► SUMMARY OF COMMENT**

The change from land-based inventory to remote imagery based inventory leaves the door open for challenges if not supported by thorough and repeatable ground proofing. It appears DNR needs to increase ground proofing of inventory.

Commenters

28, 31, 32, 33, 38, G-9, G-12, G-15, G-16, G-17, G-18, G-19, G-20, G-23, G-24, G-25, G-28

Response

DNR's remote sensing inventory system, RS-FRIS, is built using both remote-sensing data and a system of ground plots. The ground plots ensure that the remote-sensing models are accurate for DNR managed lands. DNR also measures small stands to validate RS-FRIS. Measurements from these validation stands show that RS-FRIS has a high level of accuracy in predicting timber volume (r-squared values >0.9; refer to the Board presentation from April 4, 2017 for more information; DNR 2017). Field data collection of ground plots is an ongoing component of the forest inventory program. For the FEIS, DNR updated the inventory data used in the forest estate model. These updates reflect field data collection, as well as other improvements.

► SUMMARY OF COMMENT

DNR's inventory does not accurately reflect where harvest has occurred.

Commenter

G-28

Response

DNR has updated the forest inventory for the FEIS. The updated inventory better reflects current conditions. In particular, this update fixes the issue identified by the commenter of discrepancies between the mapped location of harvest units and the location of harvest based on aerial photographs.

► SUMMARY OF COMMENT

Table 2.3.1 (DEIS, p 1-7) identifies 1,567,020 acres of DNR managed lands. Yet Table 1.3.4 lists 1,465,000 acres of DNR managed forested land in the analysis area. This is a variance of 102,020 acres, or nearly twice the land area of the City of Seattle, implied to be in a non-forested state.

Commenter

G-28

Response

Non-forested lands include water bodies, rock outcrop, areas with less than 10 percent forest cover, and areas within road right-of-ways. DEIS Table 1.3.4, showing the area of forested DNR managed lands and Table 2.3.1 showing the total area of DNR managed lands, both forested and non-forested, are correct based on DNR's best available data. Data in both tables was revised in the FEIS to reflect data updates.

► SUMMARY OF COMMENT

Table 1.3.2 (DEIS, p. 1-8) lists the acres managed for Forest Cover by Alternative; however, Table 4.2.5 (DEIS, p. 413) lists a different number of acres managed for Forest Cover by Alternative.

Commenter

G-28

Response

Data in DEIS Table 1.3.2 is correct. DEIS in Table 4.2.5 is incorrect. In the FEIS, both tables have been updated to reflect current acreage values.

► SUMMARY OF COMMENT

The location of deferred lands is inaccurate.

Commenter

G-28

Response

The geographic data used in calculating the sustainable harvest level includes the best available data as to the location of areas deferred from harvest. The actual location of deferred areas is determined at the operational level by foresters and technical specialists. The actual location of deferred areas may differ from the location shown in the data. DNR assumes that at a landscape scale, the area deferred is representative of actual conditions based on the best available data considered.

► SUMMARY OF COMMENT

Table 1.3.2 DEIS (p. 1-8), identifies the acres managed for forest cover and the acres “where harvest may occur.” This table would imply the “Lands managed for forest cover” column identifies the number of acres deferred from management for what the commenter “assumes” is the 10-decade planning period of the DEIS. It is unclear to the reader, and ultimately the decision maker, what the total number of acres deferred from management for the long-term are and what portion of the forest cover acres are managed. The commenter was unable to locate more detailed explanations and identification of the acres available for management in the forest cover category and the acres deferred from management. The difficulty in identifying long-term deferrals is further complicated by the figures presented in the Fiscal Year 2008 and Fiscal Year 2015 Annual Reports.

Commenter

G-28

Response

"Lands managed for forest cover" include both areas where harvest or thinning cannot occur and areas where only thinning can occur due to legal, policy, or economic considerations. These areas include marbled murrelet long-term forest cover as well as lands outside the marbled murrelet analysis area. The acres values reported come from DNR's geographic data. Field review of these areas is required to

determine actual operability. Some areas identified as managed for forest cover may ultimately be harvested, while others that are shown as available for harvest may ultimately be unavailable.

Areas included in the deferrals category in the annual reports are not the same as lands managed for forest cover. Deferrals do not include areas where thinning can occur. Reported area deferrals change over time as information about DNR-managed lands is updated. The underlying decisions that determine if harvest or thinning can occur have been consistent under the 1997 HCP and *Policy for Sustainable Forests*.

► SUMMARY OF COMMENT

Acres and volume data has changed over time in an inconsistent manner.

Commenter

G-28

Response

The data presented in the DEIS are accurate as of September 28, 2015 and based on DNR's understanding of the land base at that time. This FEIS uses data from January 12, 2018. Substantial changes to DNR's inventory have occurred since setting the sustainable harvest level in 2004. For example, inventory volumes associated with the alternatives in the DEIS and FEIS are a forest inventory covering all of DNR-managed lands in western Washington. For the 2004 calculation of the sustainable harvest level, inventory had only been completed on 60 percent of the land base. Volumes were estimated for the other 40 percent of the area. The land base has also changed due to numerous land transactions. These changes make detailed comparisons to the *FEIS on Alternatives for Sustainable Forest Management of State Trust Lands in western Washington and for Determining the Sustainable Harvest Level* (DNR 2004) invalid.

► SUMMARY OF COMMENT

Request for an accurate and detailed forest inventory updated annually.

Commenter

G-9

Response

DNR's forest inventory is updated periodically, as new data become available.

► SUMMARY OF COMMENT

How does new inventory compare to old inventory?

Commenter

G-20

Response

DNR's old forest inventory system was called the Forest Resources Inventory System (FRIS). The new system is Remote Sensing-FRIS (RS-FRIS). The system differs in two important ways, area of coverage and inventory methods. The old inventory covered only about 60 percent of DNR-managed lands in western Washington. The new inventory covers nearly 100 percent of these lands. The old inventory used a field plot based protocol with one plot every 5 acres across DNR-managed lands. The new inventory uses remote sensing data, a lower density of field plots, and a system of validation plots (refer to the Board presentation from April 4, 2017 for more information).

Subtopic: Stream buffering in DNR's spatial data

► SUMMARY OF COMMENT

Buffering has been applied to some stream categories when it is not appropriate.

Commenters

G-12, G-16, G-28

Response

In the geographic data used by the forest estate model, DNR identifies riparian buffers. The stream data used to make the buffers comes from two sources, a stream layer maintained by Forest Practices called 'DNR Hydro,' and a modeled stream layer developed specifically for Capitol State Forest. DNR Hydro was originally developed from visual analysis of aerial images with subsequent updates. The mapping detail in DNR Hydro varies across western Washington. DNR foresters have found that, in many cases, DNR Hydro underrepresents the length, number, or type of stream present.

For calculating the sustainable harvest level, DNR 'upgrades' the streams such that Type 4 streams are buffered as though they are Type 3 streams. The smallest streams, Type 5, and unknown streams are buffered as though they are Type 4 streams. For Capitol State Forest, the modeled stream layer is used without upgrading streams, as the model better represents, length, number and type of streams present. DNR found that, for Capitol State Forest, the difference in total riparian area between the upgraded streams in DNR Hydro and the model stream layer was about 1 percent. Based on this result, and

experience from DNR field foresters, the riparian area represented in the geographic data used in the forest estate model is accurate at a landscape level in terms of total acres of riparian areas. The actual buffer configuration in a timber sale is determined by operational staff prior to sale and may differ from that showed in this data.

■ Topic: Forest Estate Model

Subtopic: Hardwood harvest levels

► SUMMARY OF COMMENT

The forest estate model lacks hardwood information

Commenter

G-18

Response

The sustainable harvest model does include hardwood species. The forest estate model includes hardwood species in two ways: cover type definitions and timber price assumptions. The model includes two coniferous cover types and one hardwood cover type, red alder. The timber price assumptions were developed by region and cover type based on DNR timber sale prices from recent timber sales (refer to Appendix F of the FEIS). Timber sales contain a mix of species, including hardwoods. Therefore, the prices for these sales reflect bid prices for sales with different mixes of species by cover type and by region. By using these prices, DNR assumes that future timber sales will have species mixes similar to current sales. DNR does not produce a sustainable harvest level by species or product type.

Subtopic: Forest estate model used as part of the planning process for the OESF Forest Land Plan

► SUMMARY OF COMMENT

Recommendations for improving the forest estate model used in the planning process for the OESF Forest Land Plan.

Commenter

G-25

Response

OESF forest estate model was used in the development of the *OESF HCP Planning Unit Forest Land Plan* (DNR 2016b), and provided constraints in the sustainable harvest forest estate model regarding harvests in riparian areas consistent with the land plan. The comments in the letter submitted by G-25 were originally submitted during the OESF Forest Land Plan SEPA review process. DNR responded to these comments in Appendix L of the *OESF HCP Planning Unit Forest Land Plan FEIS*.

Subtopic: Discount rate**► SUMMARY OF COMMENT**

The 2 percent discount rate is too low.

Commenter

G-26

Response

In the forest estate model used in the FEIS, the discount rate was set at 3 percent. The change from 2 percent was based on an analysis of the rate of return from the Common School permanent fund, which is funded by Common School Trust lands. DNR also considered intergenerational equity, and the effect of different interest rates on the values they place on future beneficiaries.

Subtopic: Management costs**► SUMMARY OF COMMENT**

DNR's management costs are simplistic and do not reflect the different areas and harvest methods in a given time period. Management costs for a given stand depend on many site-specific considerations. Thinning treatments are more costly because they require more acres to produce the same volume. DNR's assertion that the budget constraint is non-binding to harvest levels cannot be known without producing associated opportunity costs (shadow prices).

Commenter

G-28

Response

DNR acknowledges that management costs for a given stand depend on many site-specific considerations. At the landscape scale, however, management costs can be summarized as the average cost per acre of activity. DNR used this average cost in calculating the sustainable harvest level for each alternative. DNR considers thinning costs on a per acre basis, not a per volume basis because thinning treatments require more acres to produce the same volume. For example, consider two harvest units with exactly the same site-specific conditions except volume. For DNR the cost associated with land management do not differ between these stands. The average cost per acre of activity is based on actual expenditures on timber sales areas over a four-year period in the DEIS, updated to a six-year period in the FEIS (refer to Appendix F of the FEIS).

In the DEIS alternatives 1, 3, 4, and 5, DNR applied a maximum budget constraint in the model. This constraint of \$450 million in the first decade was based on DNR's actual budget for the period from 2011-2015. DNR was able to determine that this constraint was non-binding because the budget used by the model to produce the harvest levels in each decade require less funding than the budget limit. Since this constraint was non-binding, DNR removed this constraint for the FEIS for all alternatives.

► SUMMARY OF COMMENT

DNR should be benchmarking private industry to make sure money is spent efficiently when it comes to logging costs.

Commenter

33

Response

The model includes DNR's management expenditures, in other words, the costs that DNR incurs as a land manager. Costs include the direct costs of setting up timber sales, silviculture costs, and indirect costs such as road management and information technology. The model does not directly include logging costs. The price DNR receives from timber sales is called stumpage. Stumpage is the value of the standing trees along with the right to harvest. DNR does not directly pay the cost of logging operations. However, these costs affect the stumpage received by DNR. Timber that is difficult to harvest has a lower stumpage value than timber that is easier to harvest, all else being equal. The prices in the model are different for each region, reflecting the different operating conditions in each region.

Subtopic: Timber volume yield curves

► SUMMARY OF COMMENT

The method used by DNR to model timber volume yields is flawed. DNR did not use data from actual stands in the Forest Vegetation Simulator, the model that produces the yield curves. Instead, DNR used generic tree data. DNR then adjusted the curve to match inventory data. The resulting curves underestimate volume produced beyond age 70.

Commenter

G-28

Response

DNR has revised the yield curves for the FEIS. The revised yield curves aggregate yields from forest inventory plots collected from 2014 through 2017. These curves match the distribution of the inventory data so no additional adjustment was needed.

Subtopic: Use of a stratified forest estate model

► SUMMARY OF COMMENT

DNR states that, “the model is built with information on current conditions, management objectives, and management activities and on an understanding of natural growth processes and how forests responds to management activities. By simultaneously considering all of this information, the model develops an optimal solution of which forest stands to harvest (when, where, and by what harvest method) and which stands not to harvest across state trust lands over time to meet both revenue production and ecological values objectives as effectively and efficiently as possible.” This statement is false because the model uses generic tree lists (see previous comment), and the model does not track individual stands.

Commenter

G-28

Response

DNR uses a stratified model instead of a stand-based model. The stratification is based on themes which are attributes that simplify and classify DNR-managed forest lands (refer to Table F.1 of Appendix F of the FEIS). There are 13 themes which include such attributes as forest cover type, county, watershed, and trust. The model aggregates areas that have the same themes into development types (refer to Appendix F of the FEIS). The result of the aggregation is tens of thousands of unique development types which are

roughly 20 acres in size. The model optimizes harvest volume within a set of constraints reflecting economic and legal objectives by applying harvest activities to these development types.

In the FEIS the language was revised from the DEIS to reflect the use of a stratified model and not imply the use of a stand-based model.

Subtopic: Analysis period

► SUMMARY OF COMMENT

Explain why harvest data was calculated for a 10-decade period but impacts analyzed for a five-decade period.

Commenter

G-28

Response

The proposal is for a sustainable harvest level for a decade running from fiscal year 2015 to 2024. The DEIS analyses impacts for a 50 year period. This period represents the remaining period of the 1997 HCP, assuming it is not extended. To ensure intergenerational equity when calculating the sustainable harvest level, the model is run for a 100-year period. DNR is unable to predict future changes to the current management objectives. Because of this, the same management objectives, including the 1997 HCP and *Policy for Sustainable Forests* is retained through the entire 100-year modeling period. The sustainable harvest level can be adjusted in response to future law and policy changes, as necessary.

Subtopic: Modeling arrearage harvest

► SUMMARY OF COMMENT

The confused method of dealing with arrearage harvest volume confounds uninformed decision-making.

Commenter

G-28

Response

The harvest levels in the DEIS did not show a clear difference due to arrearage harvest. An improved method for calculating arrearage harvest volume was identified by University of Washington professor

Sándor Tóth. DNR contracted Dr. Tóth to perform a third-party review of the model. The revised formulation of arrearage harvest was used in the financial analysis and in the volume calculations used in the FEIS. This revision will make arrearage volume more apparent in the results. Appendix F of the FEIS describes changes to the model based on these comments.

■ Topic: Other Comments

Subtopic: Use of contract labor

► SUMMARY OF COMMENT

Could a different volume be harvested if DNR contracted certain work out?

Commenter

G-15

Response

DNR has a finite budget that is derived from a portion of the revenue from land management. This budget varies from year to year as revenue fluctuates over time, which results in different staffing levels from year to year. DNR already contracts certain activities such as contract harvesting and silviculture treatments and these costs are incorporated with those used by the model. Use of contracted resources must be in line with all applicable state and federal rules as well as negotiated final union agreements.

Subtopic: Reductions from the 636 MMBF per year sustainable harvest level calculated in 2004

► SUMMARY OF COMMENT

Explain the reductions from the 636 MMBF per year sustainable harvest level calculated in 2004.

Commenters

32, G-9, G-20

Response

The harvest levels presented in the DEIS are based on current inventory data, current yields, current DNR policy, and current economic assumptions. Differences from the harvest level calculated in 2004 are due to these updates.

Subtopic: Requirements of the 1997 HCP**► SUMMARY OF COMMENT**

No additional conservation lands above the amount in the 1997 HCP are needed to comply with federal laws.

Commenter

G-16

Response

DNR is developing a marbled murrelet long-term conservation strategy consistent with the 1997 HCP. The marbled murrelet interim conservation strategy was developed when the scientific understanding of the marbled murrelet was limited. The 1997 HCP states, “DNR’s objective is to develop a long-term conservation strategy for the habitat of marbled murrelet.” The planning process developing the long-term conservation strategy is intended to meet this objective. The sustainable harvest level alternatives do not propose any additional conservation lands beyond those proposed for the marbled murrelet long-term conservation strategy.

Subtopic: OESF riparian status and trend monitoring**► SUMMARY OF COMMENT**

Status and trends monitoring taking place in watersheds in the OESF do not constitute cumulative effects monitoring.

Commenter

G-25

Response

Research projects conducted by DNR are outside the scope of this project.

Subtopic: Harvest level uncertainty

► SUMMARY OF COMMENT

Instead of a negative 10 percent uncertainty factor, use a positive 10 percent factor. This will allow DNR to plan for more harvest to offset the actual shortfalls that will occur.

Commenter

G-26

Response

The purpose of the uncertainty factor was to account for areas that cannot be harvested as expected, given site-specific conditions. Using a positive uncertainty factor would imply that additional areas are available for harvest. The comment suggests that by using a positive uncertainty factor DNR could plan for shortfalls from the sustainable harvest level. However, as the difference between the sustainable harvest level set by the Board and the actual volume sold is considered arrearage volume, if DNR were to use a positive uncertainty factor as suggested by the comment, and increase the sustainable harvest level above the calculated level, it could result in significant arrearage volume if additional volume is not available.

The 10 percent uncertainty factor has been removed from the sustainable harvest model for the results shown in the FEIS. The uncertainty factor had been applied in such a way that it did not affect the calculated sustainable harvest level.

Subtopic: Update of the Policy for Sustainable Forests

► SUMMARY OF COMMENT

The Policy for Sustainable Forests needs to be updated.

Commenter

G-31

Response

The FEIS includes two updates to the Policy for Sustainable Forests (refer to Chapters 1 and 2 as well as Appendices M and N of the FEIS). These proposed policy clarifications are designed to ensure the current and future sustainable harvest calculations result in a harvest level that is in the best interest of the trusts, ensures intergenerational equity among beneficiaries, and is consistently calculated. The effects of these

proposed policy changes, both environmental and economic, are integral to and disclosed within the analysis of the range of alternatives discussed in the DEIS and FEIS.

Subtopic: Timber exports

► SUMMARY OF COMMENT

The DEIS should expand the discussion of log exports. Export of private timber contributes to lack of wood available for local mills.

Commenter

19

Response

Washington Administrative Code chapter 240-15 restricts the export of logs harvested from DNR-managed lands. This rule was developed from an order issued by the Secretary of Commerce of the United States under Section 491(a) of the Forest Resources Conservation and Shortage Relief Act of 1990 (Public Law 101-382). Export of logs harvested from private lands are not subject to this rule. Restrictions on the export of logs from private lands is outside the scope of this project.

Subtopic: Mt. Blanchard

► SUMMARY OF COMMENT

Concern about harvesting on Mt. Blanchard.

Commenters

52, 53

Response

Management activities in the Blanchard Forest are subject to the Blanchard Forest Strategy. While the level of harvest differs between alternatives in the Skagit sustainable harvest unit, of which the Blanchard Forest is a part, management activities implemented in the Blanchard Forest will be consistent with the Blanchard Forest Strategy.

Subtopic: Management on private lands

► SUMMARY OF COMMENT

Private lands should assist in endangered species protection. For decades, public lands have been set aside. Timber dependent communities need both private and public timber.

Commenter

19

Response

Compliance with the Endangered Species Act by private landowners is outside the scope of this project.

Subtopic: Protection of old growth forests

► SUMMARY OF COMMENT

Set aside more old growth.

Commenters

55, 56, 57

Response

The *Policy for Sustainable Forests* defers the harvest of all old growth stands in western Washington. These stands are defined in the policy as being larger than five acres and originating naturally before the year 1850.

Subtopic: Value of State Forest Lands as parks

► SUMMARY OF COMMENT

State Forest Lands should be considered separately from the other trust lands. The value of State Forest Lands as parks should be assessed.

Commenter

G-27

Response

All trust lands are subject to state law requiring the sustainable harvest level (RCW 79.10.320). State law requires that DNR manage State Forest Trust lands, including both the State Forest Transfer Trust and State Forest Purchase Trust, in the same manner as the federally granted trusts (RCW 79.22.040 and 79.22.050). Assessing these lands for parks is outside the scope of this project. However, counties interested in State Forest Transfer Trust lands for park purposes may request a reconveyance of those lands.

Table L.1 List of Commenters With ID Reference Numbers. Groups in Part A, Individuals in Part B.

Part A

ID	COMMENTS (GROUPS)
G-1	Quillayute Valley School District
G-2	Timberland Regional Library
G-3	Mount Baker School District
G-4	Sedro-Woolley School District
G-5	Burlington-Edison Public Schools
G-6	Stevens County
G-7	Washington State Association of Counties
G-8	Clallam County Fire Protection District No. 4
G-9	Port Angeles Regional Chamber of Commerce
G-10	Washington State School Directors' Association
G-11	Board of Clallam County Commissioners
G-12	Skamania County Board of Commissioners
G-13	North Olympic Timber Action Committee
G-14	Sno-Isle Libraries
G-15	Skagit County Board of Commissioners
G-16	Murphy Company
G-17	Lewis County Commissioners
G-18	Washington Hardwoods Commission
G-19	Interfor
G-20	Sierra Pacific Industries
G-21	Washington Contract Loggers Association, Inc.
G-22	Olympic Peninsula Audubon Society
G-23	Hampton Tree Farms, LLC
G-24	City of Forks
G-25	Mendoza Environmental, LLC
G-26	Port of Port Angeles
G-27	Sierra Club
G-28	AFRC
G-29	Washington Forest Law Center
G-30	Seattle Audubon
G-31	Marbled murrelet coalition (including Sierra Club, WEC, Seattle Audubon, Defenders of Wildlife, OFCO, Conservation Northwest, WFLC)
G-32	Forks Chamber of Commerce

Part B

ID	COMMENTER (INDIVIDUALS)
1	Nancy George
2	Anonymous
3	Phyllis Dolph
4	unknown
5	Cam Field
6	John Comstoch
7	Rod Fleck
8	Carol Volk
9	John Scharback
10	Peter Vanderhoof
11	Jerry Sinn
12	Kevin Jones
13	Susan Jones
14	Martha McKeeth Ireland
15	Pat Pearson
16	Will Miller
17	Cathy Brandt
18	Amy Mower
19	Mike Doherty
20	Aubrey Stargell
21	Enid Phreaner
22	Jo Yount
23	Robert Phreaner
24	Hans Weiss II
25	Thomas Crubaugh
26	Christine Crubaugh
27	Celeste Bennett
28	Paul Kriegel
29	Deborah Harrison
30	Deborah Harrison (2)
31	Janet Marx
32	Kaj Ahlburg
33	Michael Johnson
34	Bruce Paul
35	Charles L Isaacson
36	Ronald Baker
37	Marc Sullivan
38	Ed Bowen
39	Rae Deane Leatham
40	Toby Thaler

41	Joe Monks
42-51	Form letter supporting Alternative 2 or similar (names on file)
52	Thomas Winn
53	William Young
54	Lisa Dekker
55	Diana Sarto
56	Karlen Gunderson
57	Phyllis Dolph (2)
58	Erin Moore
59	Regina Wandler
60-1,338	Conservation group form letter or similar (names on file)

Literature Cited

Mason, C.L., and B.R. Lippke. 2007. Working Paper 9: Jobs, revenues, and taxes from timber harvest; an examination of the forest industry contribution to the Washington State economy. Rural Technology Initiative, College of Forest Resources, University of Washington. Seattle, WA. 38 p.

National Marine Fisheries Service and United States Fish and Wildlife Service. 2006. Final Environmental Impact Statement for the Proposed Issuance of Multiple Species Incidental Take Permits or 4(d) Rules for the Washington State Forest Practices Habitat Conservation Plan. U.S. Department of Commerce and U.S Department of the Interior, Washington D.C.

Washington Department of Natural Resources. 1998. Final (Merged) Environmental Impact Statement: Habitat Conservation Plan. Washington Department of Natural Resources, Olympia, Washington.

Washington Department of Natural Resources. 2004. Final Environmental Impact Statement on Alternatives for Sustainable Forest Management of State Lands in Western Washington and for Determining the Sustainable Harvest Level. Washington Department of Natural Resources, Olympia, Washington.

Washington Department of Natural Resources. 2005. Forest Practices Habitat Conservation Plan. Washington Department of Natural Resources, Olympia, WA.

Washington Department of Natural Resources. 2006a. Policy for Sustainable Forests. Washington State Department of Natural Resources, Olympia, Washington.

Washington Department of Natural Resources. 2006b. Final Environmental Impact Statement on the Policy for Sustainable Forests. Washington Department of Natural Resources, Olympia, Washington.

Washington Department of Natural Resources. 2006c Implementation Procedures for the Habitat Conservation Plan Riparian Forest Restoration Strategy for Westside Planning Units Excluding the Olympic Experimental State Forest. Washington Department of Natural Resources, Olympia, Washington.

Washington Department of Natural Resources. 2010. South Puget HCP Planning Unit Forest Land Plan Final Environmental Impact Statement. Washington Department of Natural Resources, Olympia, Washington.

Washington Department of Natural Resources. 2016a. Olympic Experimental State Forest HCP Planning Unit Forest Land Plan Final Environmental Impact Statement. Washington Department of Natural Resources, Olympia, Washington.

Washington Department of Natural Resources. 2016b. Olympic Experimental State Forest HCP Planning Unit Forest Land Plan. Washington Department of Natural Resources, Olympia, Washington.

Washington Department of Natural Resources. 2017. April 4, 2017 Board of Natural Resources Meeting. Meeting Materials: Forest Inventory.

https://www.dnr.wa.gov/publications/em_bc_bnr_forestinventory_presentation.pdf?zps8uf

Washington State Department of Natural Resources. 2019. Long-term Conservation Strategy for the Marbled Murrelet Final Environmental Impact Statement. Washington Department of Natural Resources, Olympia, Washington.