



March 9, 2017

Via electronic mail

The Honorable Hilary Franz
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**Re: SEPA File No. 15-012901
The Marbled Murrelet Coalition's Comments on the Sustainable Harvest
Calculation and Draft Environmental Impact Statement**

Dear Commissioner Franz, Ms. Smith and the Staff of the Department of Natural Resources:

Thank you for considering the following comments on the Sustainable Harvest Calculation ("SHC") and the associated draft environmental impact statement ("DEIS"). We are non-profit conservation organizations seeking to protect and restore Washington's native ecosystems and biodiversity.

I. Introduction

While we appreciate the hard work that staff have put into the DEIS, substantial additional analysis is required, as well as further consideration of how to effectively integrate Washington Department of Natural Resources (DNR)'s multiple planning processes.

We encourage DNR to use the new SHC as an opportunity to modernize its management of State forest lands and to creatively reconcile the agency's often dueling mandates to protect biodiversity and clean water while providing value for trust beneficiaries. As identified in this comment letter, there are many mechanisms available to DNR to better integrate forestry and environmental protection. SEPA provides a valuable tool to assess the viability and impacts of a variety of mechanisms.

We believe that DNR should focus on returning value, as opposed to volume, for trust beneficiaries. Value may take a variety of forms. As one example that captures many of the concerns below, DNR should consider not including riparian volume as necessary for attaining the sustainable harvest target, but instead use contract logging and sort sales to carry out ecological thinning in riparian buffers in Wahkiakum, Pacific, and Clallam Counties. This could deliver value to trust beneficiaries through some timber volume, local logging jobs, and associated taxes. Focusing on the listed counties would help to mitigate for the economic impacts of marbled murrelet conservation. At the same time, it would attain compliance with requirements in the Trust Lands Habitat Conservation Plan, by designing harvest for restoration rather than to meet the needs of commercial timber sales. This sort of solution is not captured by the DEIS but should be.

As stakeholders in DNR's management, we are ready to help however possible. We recognize that tension between fiduciary obligations and legal requirements to protect environmental resources has long been building, but believe that the mechanisms are available to find solutions. The change in administration and culmination of the marbled murrelet and sustainable harvest calculation planning processes provides a window of opportunity to modernize management. This will require political leadership and creativity. We encourage Commissioner Franz to convene a high-level task force to address the short-term and long-term need to deliver steady and sufficient revenue to Washington schools and counties, while making good on the legal and moral responsibility to protect biodiversity, salmon, and clean water.

II. Planning Policies and Sequencing

The SHC is only as accurate and useful as the policies it is based upon. To the extent it relies upon inadequate or obsolete policies it is itself inadequate and obsolete. The SHC process faces a significant challenge, in that it relies on two policy documents that are out of date: the Policy for Sustainable Forests, which was supposed to be updated in approximately 2011, and the State Trust Lands HCP, which was supposed to include a marbled murrelet long-term strategy in approximately 2002.

We recognize the need to work through the backlog of planning processes, but urge DNR to adopt a stepwise approach which first tackles the policies that shape the SHC, and then calculates the SHC based on those revised policies. RCW 43.30.215 authorizes the Board of Natural Resources to establish policies concerning the management of forest lands within the Department's jurisdiction. The policies themselves also direct revision and completion prior to calculation of this SHC. In order to comply with the directives in those policies in accordance with "Objective 4" it would be necessary to complete revisions to the policies as soon as possible, prior to completion of the SHC.

Absent pausing the SHC process, the only other viable approach is to hold current marbled murrelet and Policy for Sustainable Forests protections and restrictions in place for all SHC alternatives, and to commit to revising the SHC when the needed policy revisions are complete. We address those two policies below.

A. The Policy for Sustainable Forests

The 2006 Policy for Sustainable Forests (PSF) requires that the department utilize a monitoring program and report to the Board of Natural Resources annually on implementation. The PSF states in part on page 50:

As needed, the department will recommend changes in policy to the Board of Natural Resources due to changes in law, scientific knowledge, new information or other circumstances. At five-year intervals, the department will perform a substantive review of the Policy for Sustainable Forests. In reporting to the Board of Natural Resources and the public, the department will present clear and succinct information on the Policy for Sustainable Forests.

The precedent for the Board of Natural Resources (BNR) has been to carefully consider sustainable forestry policies every 10 years or so, to coincide with the need to recalculate the SHC. The Policy for Sustainable Forests on State Trust Lands (2006a) was written to replace the Forest Resource Plan (1992). The update was necessary to reflect among other reasons the multi-species Habitat Conservation Plan (1997).

It is clearly time for BNR to update the Policy for Sustainable Forests in the near term, as it does not address climate change in any way or the potential for revenue from sources other than logging of State trust lands.

The Policy also precedes the litigation and settlement of the Oso/Hazel landslide case. The Oso/Hazel landslide brought into focus the public safety risk of certain logging practices, as well as the financial risk to the State. The approximately \$50 million settlement raises previously unanswered questions regarding trust responsibility, particularly the allocation of risk. If certain timber practices raise money for trust beneficiaries, but endanger State residents and risk State resources, must DNR still carry those sales out? Beyond compliance with Forest Practices Rules, when may DNR use its discretion to take a precautionary approach in areas close to human populations or fragile ecological resources (such as Steelhead Lane and the several runs of threatened salmon in the Stillaguamish River)?

Carbon markets, climate resilience, and public safety are all issues that implicate SHC volume and raise previously unexplored questions regarding DNR's fiduciary obligations. These decisions require clear policy consideration and guidance from DNR, potentially including legal guidance from the State Attorney General's Office. We urge DNR to revise the expired PSF as soon as possible.

B. The Marbled Murrelet Long-Term Conservation Strategy

The State Trust Lands HCP put into place an “interim strategy” for marbled murrelets to commence in 1997, with a clear expectation that a marbled murrelet long-term conservation strategy (LTCS) would be completed by approximately 2002. The 2004 SHC projected that the LTCS would be completed by 2007, and planned harvests accordingly. That inaccurate projection has resulted in significant arrearage. *See* DEIS at C-9 (“For the FY 2005 – 2015 sustainable harvest calculation, the department assumed that the long-term conservation strategy would be completed during the decade. 148,000 acres were held in long- and short-term deferrals. The lack of a long-term conservation strategy impacted deliverables.”) DNR has now released a DEIS for the LTCS, but that is only the beginning of a long process. *See* DEIS at 1-13. Given the considerable time required to review comments (it appears there are at least 4,000 comments already on the LTCS DEIS), prepare a final environmental impact statement (FEIS), and go through the approval process with the U.S. Fish and Wildlife Service (USFWS), it appears unlikely that the BNR will approve a final LTCS before 2019 at the earliest.

Throughout consideration of the LTCS, DNR must protect all of the areas proposed for restrictions under each of the LTCS alternatives. SEPA regulation WAC 197-11-070 states in part that:

- (1) Until the responsible official issues a final determination of nonsignificance or final environmental impact statement, no action concerning the proposal shall be taken by a governmental agency that would:
 - (a) Have an adverse environmental impact; or
 - (b) Limit the choice of reasonable alternatives.

The murrelet LTCS SEPA process is ongoing, which means that DNR may not conduct forestry in any of the areas restricted from harvest in any of the proposed LTCS alternatives (Alternatives A-F) until the completion of an FEIS. *See* WAC 197-11-070(1)(a). DNR may also not take actions in the SHC planning process that would unduly influence or limit the choice of alternatives in the LTCS process. WAC 197-11-070(1)(b).

If DNR selects a marbled murrelet alternative in the SHC process, a violation of SEPA will likely ensue. The selection of an alternative in the SHC process will create pressure on the BNR to later select the same alternative in the marbled murrelet process, both to avoid the public appearance of having guessed wrong, and to avoid the political and administrative challenge of revising the SHC. These substantial pressures strongly suggest that in completing the SHC analysis and decision before completing the murrelet strategy, the former decision will pre-determine the result in the latter process, a clear violation of SEPA.

If DNR selects a murrelet alternative in the SHC process, it will also potentially create arrearage. On the ground, the current areas restricted from harvest as a result of application of WAC 197-11-070 include all of the areas restricted under all of the alternatives set forth in the LTCS DEIS. However, the SHC DEIS would require BNR to pre-select one murrelet alternative, and project harvest volumes accordingly. It is therefore nearly certain that the murrelet alternative selected in the SHC will assume greater logging can occur than is actually possible until completion of the LTCS. This would create years of significant arrearage and unmet expectations.

For example, if BNR pre-selects Alternative D in the SHC planning process, it will be assuming that all areas not restricted by Alternative D are available for logging. However, in reality, the areas restricted by alternatives by A, B, C, D, E, and F will all be unavailable until the LTCS process is complete, which may take several years. During that period, significant arrearage would likely result. This is exactly what happened in the 2005-2015 planning period. DNR guessed that the LTCS would be completed in 2007 and would only cover occupied sites. That guess turned out to be wrong. When the LTCS was not completed, and the interim strategy remained in place, millions of board feet of volume in arrears resulted.

We note that the current approach also conflicts with the stated objectives. On page 2-22, the DEIS states that “[a]ll the action alternatives comply with existing DNR policies and state and federal law.” That statement is not true and cannot possibly be known. USFWS has not determined which of the LTCS alternatives comply with the Endangered Species Act (ESA) and other applicable law. Potentially, most of the alternatives presented in the SHC include a marbled murrelet LTCS alternative that does not meet legal standards.

DNR could avoid these sequencing and legal problems by assuming that each of the SHC alternatives (Alternatives 1-5) will restrict harvest under current conditions, i.e., restrictions on all areas protected under Alternatives A-F of the murrelet LTCS. Harvest would be modeled accordingly. DNR could then also build into each SHC alternative a requirement that the BNR revisit the SHC upon completion of the LTCS.

The identified process would dramatically simplify the SHC process by eliminating a variable. It would also eliminate potential SEPA violations by removing the opportunity to pre-determine the parallel murrelet LTCS SEPA process. When the LTCS is chosen, the BNR would have to revise the SHC to reflect the final adopted strategy. Removing the pre-selection of a marbled murrelet alternative would also be good planning and help to avoid future arrearage.

We encourage a similar approach to the Policy for Sustainable Forests. In order to bring its policies up to date, DNR should commit to revisiting the expired document over the next few years, and require that completion of a revised Policy will automatically trigger revision of the SHC. Instituting these required check-ins would help to eliminate the current administrative bottleneck of multiple policies, and help to ensure that planning and harvest strategies adjust as policies are brought up to date. Conceivably, by 2020 DNR could, for the first time in decades, be in compliance with its HCP, have updated policies, and have an SHC that accurately reflects updated policies. That outcome would benefit all stakeholders.

III. Arrearage

As noted by DNR in the DEIS and Appendix C, the statutory authority governing arrearage is poorly-drafted and inconsistent. The ambiguity created, along with direction in the statute to consider both economic and environmental impacts, gives DNR and BNR substantial discretion in how to manage arrearage.

We encourage DNR to determine arrearage volume as the difference between planned sales—laid-out, field verified timber sales that are prepared for sale—and actually logged sales. Once

the arrearage is calculated, DNR should follow past practice and incorporate the areas in arrears into the pending SHC analysis. That is the only method that bases harvest modeling and projections on actual conditions.

The arrearage as presently calculated targets a sustainable harvest calculation modeled over a decade ago, based on assumptions that have long proven false. That means that the arrearage as calculated is based on modeling and planning error rather than actual, available timber. The arrearage of 462 mmbf or 702 mmbf is a theoretical construct based on wildly optimistic projections of riparian harvest and marbled murrelet strategies made during an election year (2004). Forcing the harvest of arrearage as calculated, in addition to the maximum sustained yield only serves to front-load more logging with necessary later reductions.

A. The Arrearage Should Consist Only of Actual Planned Timber Sales in Western Washington That Were Not Logged

The arrearage volume is the “summation of the annual sustainable harvest timber volume since July 1, 1979, less the sum of state timber sales contract default volume and the state timber sales volume deficit since July 1, 1979.” RCW 79.10.300.

The Legislature mandated the calculation of arrearage in 1987 to resolve one specific issue—the substantial deficit in timber volume resulting from the collapse in the housing market in the late 1970s and early 80s. In 1980, purchasers of DNR timber sales found themselves holding contracts that were worth far less than the present market would support. Purchasers defaulted on those timbers sales. There were contracts affecting over one billion one hundred million board feet of timber. The state legislature found that:

...between 1981 and 1983, the department sold six hundred million board feet of timber less than the sustainable harvest level. As a consequence of the two actions, the department entered their 1984-1993 planning decade with a timber sale arrearage which could be sold without adversely affecting the continued productivity of the state-owned forests.

Legislative findings, RCW 79.10.300. The statutory calculation of arrearage is tailored to that specific context. *See* DEIS C-7. Read carefully, the statute applies to a situation like the one that existed in the 1980s—where there are actual planned timber sales that have not been logged, due to either contract default or failure to bring the sales to auction.

The DEIS should clearly state that the arrearage results both from modeling error and past failure to update the SHC, rather than the existence of surplus timber. There appears to be a widespread misperception that DNR simply elected not to log available areas. In truth, projecting ten years of economic and environmental conditions is a monumentally difficult task, and expecting perfect attainment of a projected number is unreasonable.

The SHC represents a calculation based on the best set of assumptions available to DNR at the time the calculation was made. It does not represent the actual harvest that was planned and advertised for sale. The Sustained Yield Management Program has three planning components,

strategic, tactical, and operational (SHC DEIS figure 1.4.2). The SHC is part of the strategic component, and it is up to DNR's regional offices to make those strategic predictions operational. Sometimes constraints become evident in the field that require reductions in modeled operations. Funding and legal challenges can significantly delay regulatory procedures, further restricting harvest areas. As well, unforeseen land exchanges can change the timber volume inventory age class. Given the inherent uncertainty in SHC projections, it is not sound management to treat the SHC as a fixed number that must be attained no matter what events transpire over the next ten to fifteen years.

As a result of the statutory direction and likely policy outcomes, we encourage DNR to adopt an arrearage calculation based only on the volume of actual planned timber sales across Western Washington that were never logged. That calculation is best captured by Alternative 5, which incorporates the arrearage volume into the inventory.

1. Arrearage volume should be a net calculation based on DNR trust lands in Western Washington.

We support the decision reflected in Alternatives 2-5 to calculate arrearage based on all of the trusts combined, rather than cherry-picking the specific trusts in arrears. RCW 79.10.200 mandates calculation of arrearage based on state timber sales as a whole, and makes no mention of specific trusts. The legislative findings, which refer to statewide harvest volumes, support the conclusion that there must be a statewide calculation. Furthermore, RCW 79.10.330, which governs the disposition of arrearage, refers to "trusts" as a collective.

The "gross" arrearage of 702 MMBF provided in Alternative 2 is both unlawful and bad policy. DNR manages State trust lands as a whole across Western Washington. It is well-established that DNR has the legal authority to manage the various trusts as a whole, as a means to advancing the long-term best interests of the trust beneficiaries. 1996 AGO 11. The policies that dictate the SHC apply across State trust lands in Western Washington, rather than on a trust-by-trust basis. For example, both the DNR Trust Lands HCP and the Policy for Sustainable Forests apply to trust lands as a whole, and do not distinguish management by a specific trust. It does not make sense to manage land on a statewide basis and then calculate arrearage by cherry-picking only the trusts that are in arrears.

2. Arrearage volume should be calculated based on actual planned timber sales that were not logged, not calculated based on flawed models and projections as occurred in last decade's SHC.

RCW 79.10.300 supports a calculation based on actual planned sales rather than projected volume. The most logical reading of the statute based on those terms is that the arrearage is calculated by determining the volume of timber actual logged ("sustainable harvest timber volume"), minus the sum of the purchased sales not logged ("timber sale contract default volume") and planned sales not actually sold ("timber sales volume deficit"). That calculation derives a volume far smaller than the 702 mmbf or 462 mmbf described in Alternatives 1-4.

The approach of calculating the arrearage based on the target of the 2004 sustainable harvest calculation projection is not supported by RCW 79.10.300. The statute notably does not use the term “sustained yield plan,” even though that term was previously defined in statute. *See* RCW 79.68.030. RCW 79.10.300 also does not refer to the “sustainable harvest level,” even though that term was separately defined by the same Act in 1987. Rather, RCW 79.10.300 specifically refers to “sustainable harvest timber volume,” “state timber sale contract default volume,” and “state timber sales volume deficit.”

Reading RCW 79.10.300 as including only volume that was offered for sale but not logged best harmonizes the statute with RCW 79.10.330, which mandates the inclusion of arrearage in addition to the next decade’s SHC. Adding planned sales to the next SHC makes sense, because those sales might otherwise be excluded. Adding areas to the SHC that turned out to be inaccessible, transferred via purchase, or restricted by other legal processes, does not make sense because those areas are not actually available for harvest. Forcing the addition of unavailable areas will necessarily exceed the maximum sustainable yield. Exceeding maximum sustained yield creates unnecessary environmental and economic damage and violates DNR’s fiduciary obligations.

Finally, calculating arrearage based on planned sales rather than a modeled volume best reflects conditions on the ground. Prudent and reasonable planning must be tethered to real-world facts. Appendix C contains an explanation of “causes for arrearage.” *See* DEIS at C-8 to C-9. A review of the table provided reveals that nearly all of the supposed arrearage derives from modeling and projection errors in the previous sustainable harvest calculation. For instance, the last SHC underestimated land transfers by 302 million board feet and overestimated harvest from riparian zones by 355 million board feet. Those areas are not in arrears, rather, DNR just mis-projected how much volume would be available for timber sales. In contrast, in 1987, there were planned and auctioned timber sales that were not logged yet due to economic conditions. While it was logical to seek completion of lingering timber sales in the late 1980s, it makes no sense to include over 650 million board feet in the arrearage when there are not actually 650 million extra board feet available on the landscape to log.

The DNR has recognized this issue in the past and allowed for the SHC to be updated within the decade in order to reconcile modeling and planning errors.

The department will adjust the calculation and recommend adoption by the Board of Natural Resources when the department determines changing circumstances within the planning decade suggest that an adjusted harvest level would be prudent. Such circumstances may include major changes in legal requirements, significant new policy direction from the Board of Natural Resources, new information about the resource base available for harvest, or changes in technology. (PSF p. 30)

Once the DNR recognized that changes had occurred during the last decades, either through land exchanges, failure to plan timber sales as part of predicted riparian restoration management, the decadal harvest should have been updated. Once the model has been determined to no longer reflect the best assumptions, the predicted volume is no longer valid. Those necessary updates did not occur for a variety of reasons, including unforeseen budget cuts and staffing shortages. However, DNR and the public have long known the SHC to be

inaccurate and often wildly optimistic. It is unlawful and illogical to calculate and allocate arrearage based on a clearly flawed, 13-year old projection of harvest level and the subsequent failure to adjust that harvest level.

B. DNR Has Substantial Discretion in Determining How to Allocate Arrearage

The SHC Alternatives differ in how the arrearage is apportioned across the next planning decade. We encourage DNR to follow past practices and incorporate the arrearage into the next SHC rather than preemptively dictating the timing of harvest.

Under RCW 79.10.330, DNR must undertake a prescribed analytical process considering how to manage arrearage, but has substantial discretion as to whether to offer it for sale at all. If an arrearage exists:

the department shall 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. 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. We have attached an informal opinion from the Attorney General's Office, dated March 6, 2000, which provides thorough analysis on the question of what duties are imposed on the DNR relating to arrearage. The opinion concludes that the arrearage statute:

...does not in any sense mandate the department to sell the arrearage; it directs sale only if the analysis indicates that sale is in the best interests of the trusts. However, this section does not require the department to sell the arrearage if the department's analysis determines that some other course of action would be best for the trust.

3/6/2000 Informal AGO Letter at 13. In other words, prior to offering the arrearage for sale, DNR must undertake the statutorily required analysis, which may result in withholding the arrearage from sale altogether or for a later date. In referencing both economic and environmental impacts, RCW 79.10.330 makes clear that the "greatest return to the trusts" is not exclusively a financial calculation. DNR has discretion to make a holistic determination of which alternative will provide the greatest return. The informal opinion contains examples of when not selling the arrearage might be the most prudent course of action, such as:

[t]he price of timber may be too low; prices may be projected to rise in later years; sale of the arrearage might "glut" the timber market a drive prices down; the trusts may be calculated to need long-term rather than short-term income; the department might determine that the environmental effects of harvesting the arrearage would be too adverse; or some combination of these factors might be present.

3/6/2000 Informal AGO Letter at 13. Accordingly, we request that the FEIS provide a more robust analysis of the economic and environmental impacts of selling the arrearage, with discussion of whether the arrearage should be offered for sale at all.

In regards to the timing of the sale of arrearage, we note that the statute dictates that arrearage must be added to the sustainable harvest calculation for the next planning decade. In referencing the next planning decade, the text strongly suggests that DNR must add the arrearage to the SHC without dictating a particular sales window.

We are concerned that preemptively mandating a specific time for sale risks unnecessary environmental harm and violation of fiduciary responsibilities. As the trust manager, DNR must have flexibility to take advantage of strong markets and unanticipated opportunities to access volume. For example, in the past severe windstorms have generated large volumes of salvage timber in Southwest Washington. Such an event may provide a good opportunity for accessing arrearage in a short period of time with reduced environmental impacts. Similarly, DNR may determine that timber prices project to be much stronger in five years. Mandating harvest now would be unreasonable and imprudent.

The best course of action, in order to both reduce environmental impacts and allow maximum management flexibility, is simply to incorporate the arrearage into the SHC. That way, DNR can plan based on the timber that is actually available over the next decade and appropriately distribute sales in order to minimize impacts and maximize returns.

IV. Riparian Volume

The last SHC overestimated riparian thinning volume by 355 million board feet—an error rate of approximately 900 percent. We urge DNR to take a more conservative approach in this SHC. The best course, consistent with the State’s 1997 HCP, would be to fund and carry out riparian thinning for ecological restoration objectives rather than commercial objectives and to not rely upon riparian thinning as part of the SHC. Including riparian thinning in the SHC will likely incentivize overly aggressive, commercially valuable operations in riparian zones. If such thinning remains commercially unviable, including riparian thinning in the SHC will result in future arrearage.

DNR states that it considered and eliminated consideration of zero riparian volume because it was not consistent with the policy objective to “promote active, innovative, and sustainable stewardship on as much of the forested land base as possible.” DEIS at 2-5. That conclusion is unsupported and makes the faulty assumption that the only means to “promote” stewardship is commercial timber harvest that is included in SHC projections. DNR could continue to promote such activities without relying upon those areas to meet the SHC. In fact, all available evidence from the past planning decade suggests that including riparian thinning in the SHC serves to suppress those activities due to economic and commercial limitations.

Pursuing riparian volume as part of the SHC risks violation of the Trust Lands HCP. We note that the HCP relies upon riparian thinning as mitigation for past and continuing harm to salmon habitat and water quality, and limits most harvest to “ecosystem restoration and selective removal of single trees.” *See* Trust Lands HCP at IV 60. The HCP also requires that all riparian

management is “site-specific; *ie* tailored to the physical and biological conditions at a specific site,” and mandates a continuous adaptive management strategy that incorporates the best available science. *Id.*

Mandating a set amount of commercial riparian volume over the next ten years conflicts with the HCP requirements of a site-specific, minimally intrusive approach. The HCP explicitly envisions fluctuation and uncertainty: “[t]o accommodate the greater flexibility afforded by managing riparian areas on a site-specific basis and the uncertainties surrounding the results of these activities conducted over time, an adaptive-management process will be used to specify management activities within riparian-management areas. Mechanisms used to achieve conservation objectives will vary as new information becomes available.” *See* Trust Lands HCP at IV 60. Mandating significant volume fails to recognize the “uncertainties surrounding the results of these activities conducted over time,” and necessarily decreases the required flexibility. We strongly encourage DNR to incorporate the lessons of the past decade and not rely on riparian thinning to generate commercial volume included in the SHC. Rather, DNR should comply with the Trust Lands HCP requirements by proactively funding and carrying out adaptive management and genuine restoration projects.

V. Climate Change

We thank DNR for adding climate change analysis to the purpose and need statement and DEIS. The DEIS appropriately recognizes that forests are rapidly changing in Western Washington. We agree that fire disturbance is likely to increase, flooding and peak flows will likely increase, water temperature will rise, and forest productivity in the low-elevation areas that make up much of trust lands is likely to decrease. These impacts are discussed in helpful and applied detail in Section 7 of the report from the University of Washington Climate Impacts Group, titled “Climate Change Impacts and Adaptation in Washington State: Technical Summaries for Decision Makers.”¹

Now that detailed, regional climate impact information is available, DNR may not simply rely upon past analyses that do not take into account climate change, such as the FEIS for the DNR Trust Lands HCP and Forest Practices HCP. DNR must thoroughly analyze the impacts of forestry over time in light on the information available today. We have provided extensive discussion and materials regarding impacts of climate change in comments on the parallel LTCS DEIS, SEPA File No. 12-042001, and incorporate those comments and materials here by reference.²

Our greatest concern is that, while DNR makes strides in analyzing the impacts of forestry in a changing climate, the DEIS fails to take that information into account in any way in its sustainable harvest calculation. It appears that the modeling and planning assumes steady

¹ This comment letter refers to and relies on documents that are too large to be included with this letter. These documents will be submitted to the SEPA Center on a compact disc on March 9, 2017. This comment letter incorporates these documents by reference, and we request DNR to consider them as part of our comments. The University of Washington report is also available online here: <http://cses.washington.edu/db/pdf/snoveretalsok816lowres.pdf> (last visited March 8, 2017).

² Because we are submitting both sets of comments (the LTCS and SHC comments) to DNR, we seek to avoid redundancy and did not cross-submit the marbled murrelet comments and materials into the SHC SEPA File. Comments and materials are available upon request.

growth over time and does not account for increased disturbance events. It is not sufficient for DNR to simply recognize that climate change exists, the agency must plan for it.

For example, in the recent case *Wild Fish Conservancy v. Irving* (order on summary judgment, attached) the defendant agency had generally discussed climate change and climate change impacts in its biological opinion. The agency, however, relied on historical stream flow data and modeling to assess impacts to the species. The court overturned this analysis, ruling that it was not sufficient to merely note that climate change exists, but rather that the agency must integrate anticipated impacts into its modeling and analysis.

DNR bases the SHC on a forest estate model that projects 100 years into the future, a time period in which climate change will almost certainly dramatically change forest conditions. Proper planning must analyze greater disturbance (and resulting loss of volume), acknowledge the importance of climate resilience generated by contiguous forested areas, and take into account decreasing productivity and increasing environmental impacts. Moreover, projections must also take into account the value of forest stands for carbon sequestration. Incorporating carbon pricing values into DNR's forest estate model would likely result in greater thinning and uneven-aged forestry over time.

VI. Economic Analysis

The SHC DEIS has an overly narrow economic objective. As stated in the DEIS, “[t]he sustainable harvest calculation only recognizes revenue from timber sales. Although DNR generates revenue from a variety of sources, those sources are not included because they have no impact on the harvest level.” DEIS at F-13. The current limited objective conflicts with DNR policy, fails to maximize trust returns, does not minimize environmental impacts, violates SEPA, and violates State greenhouse gas laws. We encourage DNR to take a broader view that focuses on overall value to the trust beneficiaries and not assume that harvest level is the only means of deriving value from trust lands.³ DNR Community Forests and land trust managed forests, such as Chimacum Ridge, demonstrate that an approach that features uneven-aged logging in combination with other revenue streams can produce reliable revenue and jobs over time.⁴

As written, the economic objective forecloses reasonable options and is so narrow as to pre-determine the outcome and obstruct planning. SEPA requires more. An EIS must “inform decision makers and the public of reasonable alternatives, including mitigation measures, that would avoid or minimize adverse impacts or enhance environmental quality.” WAC 197-11-400(2). Employing means other than timber harvest, and integrating less intensive timber harvest, are viable alternatives and mitigation measures that would protect environmental quality. There are reasonable and effective means of delivering value to trust beneficiaries with reduced environmental impacts, and the BNR must be aware of those mechanisms in order to make an informed and impartial decision. “An environmental impact statement is more than a disclosure document. It shall be used by agency officials in conjunction with other relevant

³ As an example of the broad value provided by State trust lands, please see the attached report, prepared for the last SHC calculation, titled “Full Cost Accounting for Washington’s State-Owned Forests: An Overview.”

⁴ Please see attached materials titled “Projected Job Creation at Chimacum Ridge,” and “Role of Working Forest Conservation Easements and Community Forests in Supporting Local Rural Economies in Washington State.”

materials and considerations to plan actions and make decisions.” WAC 197-11-400. An EIS must “include actions that could feasibly attain or approximate a proposal’s objectives, but at a lower environmental cost or decreased level of environmental degradation.” WAC 197-11-440(5)(b); WAC 197-11-786.

Moreover, DNR’s fiduciary obligations and own policies advocate for a diversified and forward-looking approach. The PSF rightly recognizes that economic performance includes a consideration of financial diversification and creative strategy:

Diversification is an important fiduciary consideration for meeting DNR’s trust obligations. Diversification allows DNR to take advantage of a variety of opportunities to produce revenue for the trusts, and it protects the trusts from catastrophic losses, should markets or physical conditions significantly constrain a revenue source...

By anticipating future demand for ecological and social benefits, DNR can be in a better position to take advantage of that demand on behalf of the trusts. Examples of such benefits include recreation, tourism, water quantity and quality, and carbon sequestration. There are opportunities for DNR to expand its national and international marketing efforts.

PSF at 26. The PSF was correct in 2001 and is even truer today, as managing for carbon sequestration has become an increasingly profitable and flexible means of attaining revenue from forests, recent studies demonstrate the financial benefits of longer-rotation forestry involving thinning (Lippke and Mason 2007), and rapidly increasing populations in western Washington have heightened the need and value for recreation and ecosystem services.

We request that DNR adopt a broader analysis that focuses on overall value to trust beneficiaries and takes seriously the prospect that there may be more creative and modern means of managing State lands while remaining faithful to its fiduciary obligation. A more diversified approach would help avoid the “boom/bust” cycle of timber harvest revenue that has damaged smaller counties. While some approaches may not be viable, DNR must at least evaluate a more diverse approach. We further request that DNR explain how it is fulfilling the promise in the PSF that “[a]nticipating future demand, the department will prudently pursue economic opportunities related to ecological and social benefits that flow from forested state trust lands, to improve the net revenue from forestlands.” PSF at 27.

As part of DNR’s analysis, and in order to achieve the stated objective of complying with all state, federal, and local law, we request that DNR consider the substantive obligations of the State Environmental Policy Act, RCW 43.21C, which mandates that each agency “[f]ulfill the responsibilities of each generation as trustee of the environment for succeeding generations,” and “to use all practicable means and measures, including financial and technical assistance, in a manner calculated to: (a) Foster and promote the general welfare; (b) create and maintain conditions under which human beings and nature can exist in productive harmony; and (c) fulfill the social, economic, and other requirements of present and future generations of Washington citizens.” RCW 43.21c.020. DNR must also demonstrate compliance with RCW 70.235.005 et

seq. by explaining how the agency will contribute to reducing State carbon emissions by 2020 and future milestones.

There is valid debate about the breadth of DNR's trust responsibilities, and whether or not they extend solely to designated trust beneficiaries or all of the State's citizens. Under either view, however, DNR has a legal and moral responsibility to be forward-thinking and strive to derive revenue through the least impactful and most sustainable means possible. We encourage DNR to use the SHC as an opportunity to modernize its approach and develop a 21st century approach to forestry that achieves maximum value for trust beneficiaries, not just a given number of board feet.

There has long been an understanding that change is needed, but efforts have consistently met political roadblocks. Now is the time to finally meet the challenging task of rethinking forestry on State trust lands to meet all legal requirements, meet the obligations the State has to its citizens, and return value to trust beneficiaries. These are challenges with big implications that require high-level thinking and commitment.

We request that the Commissioner of Public Lands, in conjunction with the Governor's Office and relevant executive agencies of Washington State, convene a working task force to identify potential sustainable, predictable, alternative, direct financial support for timber counties, local communities and junior taxing districts that provide essential services to low income populations (e.g., fire, health care, education, housing, utilities, infrastructure), who may be potentially economically impacted by actions to protect endangered species on Washington's forest lands.

The task force may undertake to:

- Compile and analyze existing data on current sources of revenue and expenditures for affected timber counties and communities, including junior taxing districts providing essential public services such as fire, hospitals, and schools.
- Working with affected counties, communities, and junior taxing districts to research, compile and analyze other potential sustainable sources of revenue and identify priority expenditures, such as essential public services.

The task force should have set deadlines and requirements, report policy options, and make recommendations to the Commissioner of Public Lands for inclusion in the FEIS.

To help guide DNR's consideration, we offer several viable options below. These are some of multiple methods by which DNR could adjust its management of State trust lands to increase value to the trust beneficiaries with reduced volume. Too often the discussion around timber financial performance on the behalf of the trusts has relied on timber sale volume sold as the metric of success. While volume is one of the factors to be considered, it is not the only one.

1. Carbon markets.

At the time of the last SHC, carbon markets were still largely theoretical. Now, there is a strong and growing market for carbon sequestration in forests. There are both state-run programs, such

as the California Air Resources Board and the Regional Greenhouse Gas Initiative, and voluntary markets where corporations purchase offsets for social or business benefits.

It is important to note that carbon sequestration does not mean no logging. Many programs recognize that uneven-aged forestry can be compatible with and even enhance carbon sequestration. DNR has the opportunity to pursue uneven-aged forestry, maintaining and promoting local timber economies, while generating revenue from carbon markets and helping to reduce the State's carbon emissions. Start-up and transaction costs are rapidly decreasing with the advent of widely-available smartphone and other technology.⁵

Other governments, particularly sovereign Indian tribes, have successfully taken advantage of carbon markets while still pursuing commercial logging. For example, the White Mountain Apache Tribe of Arizona recently adopted uneven-aged forestry across approximately 90,000 acres of pine forest, and in exchange received the most verified carbon credits for the California market of any project.⁶ The Tribe received initial payments of millions of dollars, with continued logging revenue and more carbon payments over time.⁷ Given other examples of success, DNR has an obligation to thoroughly explore a broader analysis than continuation of the status quo.

2. Contract harvesting.

The legislature has authorized DNR to utilize contract harvesting as a marketing tool, which in some cases improves economic performance as well as conservation. RCW 79.15.510. The legislature recognized that it was in the best interest of the trust beneficiaries to capture additional revenues through contract harvesting, which can also enhance environmental protection and forest health. In some planning units, where major increases in conservation for marbled murrelet has occurred or ecological thinning in riparian buffers is desired, the DNR should prioritize, establish and implement contract harvesting. Contract harvesting typically involves more local jobs, because it employs smaller companies on smaller sales, with more labor-intensive and less mechanized harvest. While there may be reduced volume, there may also be increased value to trust beneficiaries based on improved forest conditions, local employment, and local taxes. An additional benefit of contract harvesting is that it gives DNR greater control over the timing of sale and harvest, which can be crucial for maximizing value from volume.

While the statute has limited contract harvesting to less than 20 percent of the annual volume of timber offered for sale (unless utilized for forest health purposes), such limitations are not in the best interest of the trusts. Legislation should be pursued to greatly increase and therefore enhance revenue to the beneficiaries. It is important to note that RCW 79.15.510 sunsets in January of 2019. The law should be extended and expanded to reflect the best interest of the beneficiaries.

⁵ See "How Small Forests Can Save the Planet," The New York Times, Sept. 26, 2016, available here: <https://www.nytimes.com/2016/09/27/science/private-forests-global-warming.html>.

⁶ See carbon credit record here: <https://acr2.apx.com/mymodule/reg/prjView.asp?id1=211>; see also <http://www.latimes.com/science/la-me-carbon-forest-20141216-story.html> (an additional example).

⁷ http://www.wmicentral.com/news/latest_news/carbon-credits-create-new-tribal-income/article_7b930658-da93-11e1-ad14-0019bb2963f4.html

3. Unitary trust on State forest board transfer lands.

Forest board transfer lands are held and managed by DNR. The lands were originally called “Forest Board Lands” because they were held and managed by the state forest board. The state forest board no longer exists--it was replaced in 1957 by the Department of Natural Resources.

The AGO 1996 No. 11 found “that the forest board transfer lands constitute a single trust, and the Department of Natural Resources is authorized to manage them as an undifferentiated whole; the Department need not separately account for management of lands located in each county.”

DNR manages trust lands across landscapes that can include different trusts, including a mix of state trust and forest board lands. The policies for sustainable management apply to all state trust and state forest board lands. They collectively are managed from an ecologically based forest management approach through the Policy for Sustainable Forests on State Trust Lands. Unstable slopes, rights of way access, age distribution of forests, riparian areas, and ESA-listed species all constitute management issues that run with the land, ownership blind. Landscapes are dynamic and ecological processes are not defined by trust designations. As a result, encumbrances and varying harvest schedules may cause an unsteady flow of income to individual counties.

An obvious inequity results. One county, such as Pacific or Wahkiakum County, essentially provides the protections from which other counties benefit. This is a particularly unfair outcome where, as is often the case, habitat restrictions happen to occur predominantly in lower income, more timber-reliant areas.

One possible solution for this inequity could be pooling all forest board transfer lands into one collective, unitary trust. Distribution of revenue would then be based on a proportional percentage, rather than the chance of whether a given trust’s forests happen to contain marbled murrelets, steep slopes, or other conditions limiting timber harvest. Creating a larger pool would distribute risk and would provide more steady revenue.

The Attorney General’s Office has established that these statutory trusts could be managed more holistically:

The federal grant land trusts may be administered collectively where such administration furthers the interests of each federal grant land trust. However, income and expenses of each federal grant land trust must be the subject of a separate accounting. The forest board transfer lands may be administered and accounted for as the Legislature properly provides by statute. Under present statutes, the forest board transfer lands need not be managed on the basis of the economic interests of each county individually.

The legislature has already begun the process of providing that flexibility to the DNR by authorizing the creation of a “State forestland pool.” *See* RCW 79.22.140. That allows counties that fit certain specifications to place up to 10,000 acres of forest land in a shared pool. The pool helps to spread risk and increase certainty over time. The participating counties devise a mechanism to distribute revenues. RCW 79.22.150.

We encourage DNR to consider how to provide additional flexibility in managing all forest board lands as a unitary trust. Creating a unitary trust would reduce the impact on any one beneficiary, while other beneficiaries are benefitted.

4. Trust land transfer of forest board lands

The Trust Land Transfer (TLT) Program has been helpful in keeping the federal trusts lands whole while conserving important ecological landscapes. The program retains these special landscapes in public ownership while maintaining and improving economic returns to trust beneficiaries.

It is possible for this program to benefit the management of forest board lands as well, by exchanging federal trust lands for forest board lands. *See* RCW 79.22.150. First, non-harvestable forest board lands must be exchanged for harvestable school trust lands. Second, the newly designated school trust lands, which are non-harvestable, go into the TLT program, where they are put into formal non-harvest status, and the school trust fund is reimbursed for the value of those lands. Through this mechanism, the school trust receives both immediate funding for construction and revenue for replacement lands.

In sum, there are multiple mechanisms by which the DNR can provide value to trust beneficiaries under various scenarios that require reduced volume, such as increased conservation protections. Seeking forward-looking and creative solutions is the best mechanism to ensure that our State can provide biodiversity and clean water while simultaneously bolstering local economies and services. The SHC DEIS simply assumes that increasing volume is the only means of providing value. The FEIS should take a much more thorough and holistic view in analyzing the many methods by which DNR can benefit the State and provide value to trust beneficiaries.

VII. Conclusion

Thank you for considering our comments on the SHC DEIS. We look forward to working with DNR to learn from the challenges of the last planning decade and to help create a modern and forward-looking plan for the next decade. In this comment letter, we respectfully request that DNR do the following:

- Either delay the SHC until after the completion of the MMLTCS, or remove the MMLTCS as a variable in the alternatives and commit to revising the SHC when the MMLTCS is selected.
- Calculate the arrearage as the total volume of planned and laid-out sales that were not logged, and incorporate that arrearage volume into the next SHC.
- Shift reliance from riparian volume in the SHC to a focus on ecological thinning.
- Incorporate climate analysis into the SHC and FEM model, rather than merely noting the existence and generalized impacts of climate change.
- Take a more holistic approach to satisfying DNR's fiduciary obligations that focuses on delivering value, rather than volume, to trust beneficiaries.
- Convene a high-level task force to work on a long-term reliable revenue stream for Washington schools and trust beneficiaries while protecting our State's environment.

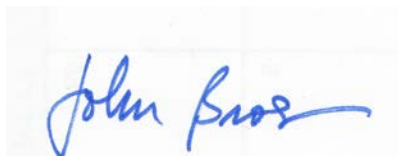
If you have any questions, comments, or requests for materials please contact Tina Kaps at tkaps@wflc.org or 206-223-4088 ext. 2.

Sincerely,

Marbled Murrelet Coalition



Lisa Remlinger
Evergreen Forests Program Director
Washington Environmental Council



John Brosnan
Executive Director
Seattle Audubon



Shawn Cantrell
Northwest Program Director
Defenders of Wildlife



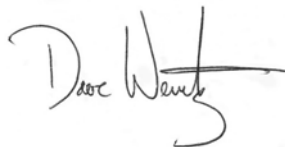
Peter Goldman
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Connie Gallant
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ATTACHMENT 1

March 6, 2000

The Honorable Lynn Kessler
House Democratic Leader
P. O. Box 40600
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The Honorable Barbara Lisk
House Republican Leader
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The Honorable Jim Buck
State Representative, 24th District
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The Honorable Bob Sump
State Representative, 7th District
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The Honorable Mark Doumit
State Representative, 19th District
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The Honorable Brian Hatfield
State Representative, 19th District
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Dear Representatives Kessler, Lisk, Buck, Sump, Doumit, and Hatfield:

By letter previously acknowledged, the six of you have jointly requested our opinion on several questions relating to the obligations and the authority of the Legislature, the Commissioner of Public Lands, and the Board of Natural Resources. Your specific questions, paraphrased slightly for clarity, are:

1. Do the Washington State Constitution and the Enabling Act, as amended, permit the state to sell, exchange, or transfer federally-granted public lands in amounts of more than 160 acres per parcel?
2. Does RCW 79.68.045 impose any obligations on the Department of Natural Resources or the Board of Natural Resources if there is an "arrearage" as defined in this statute?
3. What are the Legislature's duties as the trustee of state trust lands? What actions are the Legislature, as trustee, obliged to take if it believes that the Board of Natural Resources has abused the discretion delegated to the board? Under what circumstances is the Legislature authorized or required to review or intervene in the acts of the board?

Because of your request for an expedited response, this is an informal opinion which represents the considered view of the undersigned attorney and will not be published as an official opinion of the Attorney General's Office.

BRIEF ANSWERS

1. The state constitution does not permit the sale of federally-granted public lands in amounts of more than 160 acres per sale. However, neither the constitution nor the Enabling Act limits the amount of land which may be exchanged for other land or transferred to other public uses so long as full value is received for the lands transferred out of trust.

2. If there is an "arrearage" as defined in RCW 79.68.045, the Department of Natural Resources is required to perform an analysis to determine whether it would be in the best interests of the land trusts to sell all or part of the arrearage.

3. The state is the trustee of the state trust lands, and the Legislature makes the state's basic policy decisions. The Legislature's "trustee" role is an extension of its legislative role and does not confer any powers or responsibilities on the Legislature beyond the power and responsibility to enact suitable legislation. If the Legislature has a question about an agency's performance of its duties with respect to a trust, the Legislature has the same options it would have in analogous situations where no specific trust is involved.

The answers are explained in more detail in the analysis below.

ANALYSIS

Your questions concern the duties and responsibilities of various agencies for the management of certain lands granted to the state by the United States and held in trust for various purposes.¹ You have asked certain questions concerning the sale, exchange, and transfer of these lands. These three terms are not specifically defined either in the Enabling Act or in the constitution. I begin with a description of the way the terms have generally been used by the Legislature and by the courts. When land passes out of trust ownership, it may pass into either (1) private ownership or (2) the management and control of a public agency. In either case, the trust may be compensated with (1) money, or (2) land which replaces the land which has passed out.² As discussed more fully below, an "exchange" generally describes any transaction in which trust land passes out of trust status and equivalent non-trust land comes into the trust as compensation.³ A "transfer" will include any transaction in which trust land passes out of trust status but remains in public ownership and management either free of "trust" status or as part of

¹ The trust lands and the state's trust duties are extensively discussed in AGO 1996 No. 11. Although the questions discussed in the 1996 opinion are different from those addressed here, the 1996 opinion provides valuable background discussion on the history and nature of the trust lands.

² Public lands may also be leased, or the timber, gravel, stone, or minerals on or within public land may be sold, or easements and other lesser interests in public land may be conveyed in various circumstances. These are all beyond the scope of the present discussion.

³ In some cases, where the land exchanged is not of equivalent value, some cash is paid also by the party gaining the more valuable land in an exchange transaction. In *Klassen v. Skamania County*, 66 Wn. App 127, 831 P.2d 763 (1992), the Court held that the inclusion of cash in an exchange of forest lands did not convert an exchange into a sale for certain tax purposes. In a different context, the Court of Appeals had earlier held that an agreement by the Department of Transportation to exchange fill material with a private party was not converted to a "sale" by virtue of an agreement to pay a sum of money to cover any difference between the quantities obtained by the parties. *Fiorito v. M. A. Segale, Inc.*, 18 Wn. App. 158, 677 P.2d 1268 (1977). So long as the value of the land received is approximately equal to that conveyed, I will assume that the payment of cash to "balance out" the differing values would not convert an "exchange" into a "sale".

the corpus of a different public trust.⁴ The term "sale", then, refers to a transaction in which fee title to public trust land passes out of public ownership with compensation in the form of cash rather than land.

These terms appear in the Enabling Act, the Washington State Constitution, and in various statutes. Sales of public land are extensively discussed in the Enabling Act, in article XVI of the state constitution, and in a number of statutes, particularly in RCW 79.01. Exchanges of trust land are authorized in a number of statutes, particularly in RCW 79.08. Transfers are authorized in several statutes, such as RCW 79.01.009 (general authorization to transfer real property to public agencies), RCW 79.66.090 (authorizing public agencies to purchase public land without auction at market value), and RCW 79.71.050 (transfer of trust land for natural resources conservation areas). With this background in mind, I turn to your questions.

1. Do the Washington State Constitution and the Enabling Act, as amended, permit the state to sell, exchange, or transfer federally-granted public lands in amounts of more than 160 acres per parcel?

As discussed below, I conclude that the Enabling Act and the constitution both require that a trust receives full value in compensation if any trust land is disposed of, whether by sale, exchange, transfer, or otherwise. Additional limitations are placed on "sales" of trust land. I conclude that these additional limitations do not apply to exchanges of trust land for other land of equivalent value or to transfers of trust land to public agencies with full compensation.

A. The Enabling Act.

As noted above, Washington's Enabling Act contains extensive language concerning the management of granted lands.⁵ Section 10 of the Enabling Act granted certain lands to the state upon its admission for the support of the common schools. Section 12 authorized the state to select fifty sections of federal land for the purpose of erecting public buildings at the state capital. Section 14 granted additional land for public schools, colleges, and universities. Section 15 granted lands for the erection of a state penitentiary. Section 16 granted 90,000 acres for an agricultural college, and section 17 granted additional lands for a scientific school, for normal schools, for public buildings, and for state charitable, educational, penal, and reformatory institutions.

The key provisions for this discussion are found in section 11 which, in its original form, provided as follows:

That all lands herein granted for educational purposes shall be disposed of only at public sale, and at a price not less than ten dollars per acre, the proceeds to constitute a permanent school fund, the interest of which only shall be expended in the support of said schools. But said lands may, under such regulations as the legislatures⁶ shall prescribe, be

⁴ If public trust land is exchanged "land for land" with other public land, the transaction may be both an "exchange" and a "transfer". The two terms are not exclusive. The nature of the specific transaction would determine which legal standards and procedural safeguards are applicable.

⁵ Washington shares an Enabling Act with the states of North Dakota, South Dakota, and Montana. The original Act is found at 25 U. S. Statutes at Large, chapter 180 p. 676. Several amendments are discussed and cited elsewhere.

⁶ The federal act uses "Legislatures" in the plural because the Enabling Act relates to four states.

leased for periods of not more than five years, in quantities not exceeding one section to any one person or company; and such land shall not be subject to pre-emption, homestead entry, or any other entry under the land laws of the United States, whether surveyed or unsurveyed, but shall be reserved for school purposes only.

Enabling Act, 25 Stat. ch. 180, § 11. This section has been amended by Congress several times. In 1921, the state was authorized to grant certain easements and rights in public lands. Act of August 11, 1921, ch. 61, 42 Stat. 158. In 1932, Congress amended the "sale" language to read "all lands . . . shall be disposed of only at public sale after advertising". The same act, however, authorized the state to exchange "any of the said lands" for "other lands, public or private, of equal value and as near as may be of equal area". Act of May 7, 1932, ch.172, 47 Stat. 150. Certain restrictions on exchanges of federal land were removed by the Act of October 16, 1970, Pub. L. No. 91-463, 84 Stat. 987, which also ratified certain prior transactions. The same act removed certain restrictions on leasing.

As it currently stands, then, the Enabling Act permits (and has permitted since its original enactment) the sale of trust land, although disposal in this manner must be "at public sale after advertising". Since 1921, the Enabling Act has also permitted the exchange of trust land for other land, public or private, if it is "of equal value and as near as may be of equal area". The Enabling Act does not limit the size of any parcel of trust land sold or exchanged.⁷

The United States Supreme Court has held that the transfer of federally-granted lands from trust to another state purpose is not a violation of Enabling Act restrictions so long as the trust receives full value for the land transferred. *Lassen v. Arizona*, 385 U.S. 458, 87 S. Ct. 584, 17 L. Ed. 2d 515 (1966).⁸ In effect, the Court held that such a transfer is not a disposal by "sale" requiring public auction. Since Washington's Enabling Act is broader in its language than the Arizona Act construed in *Lassen*, I conclude that, under *Lassen's* reasoning, the Enabling Act would permit transfers of public trust land to public agencies so long as the trust in question receives full compensation in return.

To sum up, the Enabling Act requires sale by public sale if trust land is to pass into private ownership, but the act permits exchanges of trust land for other land and transfers of trust land to other public uses without public advertising and sale so long as full compensation is received. Furthermore, the Enabling Act has never contained any provision restricting the parcel size of land offered for public sale, exchanged, or transferred.

B. State Constitution.

The Washington State Constitution contains several sections dealing with management and disposal of public lands. Article XVI, section 1 declares that "[a]ll the public lands granted to the state are held in trust for all the people and none of such lands . . . shall ever be disposed of

⁷ The "exchange" language of the Enabling Acts would cover any transfer of trust land to another public purpose where equivalent land is placed in trust as compensation. As noted earlier, such a transaction would be an "exchange" under the federal act but might be termed a "transfer" for state law purposes.

⁸ *Lassen* involved the Enabling Act for New Mexico and Arizona rather than the act which covers the state of Washington. The Arizona-New Mexico Act, like our own, requires that sales be at public auction, and for not less than appraised value. Indeed, the Arizona-New Mexico Act provided that any disposition contrary to the provisions of the act would be deemed a "breach of trust". *Lassen*, discussion at 385 U. S. 461. There is no reason to think the federal courts would interpret Washington's Enabling Act any more strictly.

unless the full market value of the estate or interest disposed of, to be ascertained in such manner as may be provided by law, be paid or safely secured to the state".⁹

Article XVI, section 2 is quoted here in full:

None of the lands granted to the state for educational purposes shall be sold otherwise than at public auction to the highest bidder, the value thereof, less the improvements shall, before any sale, be appraised by a board of appraisers to be provided by law, the terms of payment also to be prescribed by law, and no sale shall be valid unless the sum bid be equal to the appraised value of said land. In estimating the value of such lands for disposal, the value of the improvements thereon shall be excluded: *Provided*, That the sale of all school and university land heretofore made by the commissioners of any county or the university commissioners when the purchase price has been paid in good faith, may be confirmed by the legislature.

Id.¹⁰ Finally, Article XVI, section 4 contains the language which is the apparent basis for your first question:

No more than one hundred and sixty (160) acres of any granted lands of the state shall be offered for sale in one parcel, and all lands within the limits of any incorporated city or within two miles of the boundary of any incorporated city where the valuation of such land shall be found by appraisement to exceed one hundred dollars (\$100) per acre shall, before the same be sold, be platted into lots and blocks of not more than five acres in a block, and not more than one block shall be offered for sale in one parcel.

This language prohibits the state from offering for sale more than 160 acres of federally-granted land at a time in any one parcel. The question then is whether exchanges or transfers, as discussed above, are "sales" subject to the 160-acre limitation contained in article XVI, section 4, and (by the same reasoning) the public auction requirement contained in article XVI, section 2, of the constitution. In my opinion, the language of the constitution, its history, and the history of the Legislature's enactments concerning disposition of public trust lands, all indicate that the term "sale" was not intended to cover those transactions we now describe as "exchanges" or "transfers".

1. Lassen and Other Case Law.

First, in light of the close "fit" between the sections of the Enabling Act discussed above and article XVI of the state constitution, it is important that the United States Supreme Court found in *Lassen* that transfers of trust land to other public use are not subject to restrictions on

⁹ Article XVI, section 1, also states that "nor shall any lands which the state holds by grant from the United States (in any case in which the manner of disposal and minimum price are so prescribed) be disposed of except in the manner and for at least the price prescribed in the grant thereof, without the consent of the United States". In other words, this language incorporates any federal restrictions and limitations on disposal into the state constitution.

¹⁰ Article XVI, section 3, not the subject of your question, is also of some relevance, because it imposed limits on the amount of trust land which could be sold during the first years of statehood. Although this section is no longer of "operational" significance, it helps in understanding the context of the other sections in article XVI.

“sales” of public trust lands. Although these points have never been considered by the appellate courts in this state, our own courts would likely look first to the guidance of *Lassen v. Arizona*. In discussing the New Mexico-Arizona Enabling Act, the U.S. Supreme Court noted the act:

[D]oes not directly refer to the conditions or consequences of the use by the State itself of the trust lands for purposes not designated in the grant. Of the issues which may arise from the Act's silence, we need now reach only two: first, whether Arizona is permitted to obtain trust lands for such uses without first satisfying the Act's restrictions on disposition of the land; and second, what standard of compensation Arizona must employ to recompense the trust for the land it uses.

Lassen, 385 U.S. at 461. The Supreme Court looked to the terms, purposes, and legislative history of the Enabling Act to determine whether the provisions that applied to sales of trust lands to private parties should also apply to acquisitions by the state for non-trust purposes. The Supreme Court concluded that the purpose of these provisions was to assure that the trust received appropriate compensation; that the legislative history demonstrated that these restrictions on the methods of sales “sprang from [the Senate's] fear that the trust would be exploited for private advantage”. *Id.* at 464. Considering all of these factors, the Supreme Court held:

We conclude that it is consonant with the Act's essential purposes to exclude from the restrictions in question the transactions at issue here. The trust will be protected, and its purposes entirely satisfied, if the State is required to provide full compensation for the land it uses. We hold, therefore, that Arizona need not offer public notice or conduct a public sale when it seeks trust lands for its highway program. The State may instead employ the procedures established by the Commissioner's rules, or any other procedures reasonably calculated to assure the integrity of the trust and to prevent misapplication of its lands and funds.

Id. at 465.

The Arizona Supreme Court reached a different interpretation and has acknowledged its views are divergent from that of the United States Supreme Court. In *Gladden Farms, Inc. v. State*, 129 Ariz. 516, 633 P.2d 325 (1981), the Arizona department of emergency services sought to purchase about 105 acres of school trust land, to be used to relocate a small community destroyed by a flood. The land was under lease at the time, and the lessees demanded that the state conduct a public sale, indicating their willingness to bid more than the appraised value of the property. *Id.* at 517. Litigation ensued. The Arizona supreme court ruled that “sale” of school trust property, even to a state agency, was subject to a public auction requirement in the Arizona-New Mexico Enabling Act. *Id.* at 520-21. Even though the U. S. Supreme Court had specifically found an exception in *Lassen v. Arizona* for conveyances to public agencies, the Arizona court limited the federal holding to easements, rights of way, and other conveyances of less than a full fee simple interest. In a later case involving state condemnation of public trust lands, *Deer Valley Unified School District v. Superior Court*, 157 Ariz. 537, 760 P.2d 537 (1988), the Arizona Supreme Court explained:

With all due respect for the views the United States Supreme Court expressed in *Lassen*, we decline to follow that case in interpreting the identical language in the Arizona Constitution.

Id. at 541.¹¹

I do not believe Washington's courts would apply the reasoning of *Gladden Farms* in Washington.¹² Aside from its differences from the reasoning of the United State Supreme Court's *Lassen* holding, the terms of the Arizona Enabling Act and constitution are strikingly different from Washington's. The Arizona Enabling Act and the Arizona Constitution are more restrictive, both as to the scope of activities allowed, and as to the manner of carrying out the authorized transactions. Arizona-New Mexico Enabling Act, Act of June 20, 1910, 36 Stat. 557, Sections 19-35. Ariz. Const. art. X, § 1.¹³ The Arizona constitution provides that its federally-granted lands shall be "disposed of in whole or in part, only in manner as in the said Enabling Act and in this Constitution", and further provides "[s]aid lands shall not be sold or leased, in whole or in part, except to the highest and best bidder at a public auction" (Ariz. Const. art X, §§ 1, 9), while the Enabling Act provides "none of such lands . . . shall ever be disposed of unless the full market value of the estate or interest disposed of, to be ascertained in such manner as pay be provided by law, be paid or safely secured to the state." Arizona-New Mexico Enabling Act, *supra*.

Neither the Washington Enabling Act (in its present version) nor the Washington State Constitution contains this sweeping language requiring disposal only by sale after public auction, unlike the Arizona-New Mexico Act. Washington's Enabling Act explicitly permits exchanges. Washington's Constitution implicitly permits exchanges and transfers also, so long as the trust receives full compensation. *Lassen* itself took a much more practical view of transfers. The Court found that the purpose of the Arizona-New Mexico Enabling Act was to "assure that the trust received in full fair compensation for trust lands". *Lassen*, 385 U.S. at 463. Congress placed restrictions on disposal of trust lands "from its fear that the trust would be exploited for private advantage". Id. at 464. The Court (Justice Harlan writing) found, however, that "[w]e see no need to read the Act to impose these restrictions on transfers in which the abuses they were intended to prevent are not likely to occur, and in which the trust may in another and more effective fashion be assured full compensation". Id.¹⁴

¹¹ Others, in turn, have declined to follow the reasoning of the *Gladden* court. In 1982 Idaho Op. Atty Gen. No. 82-10, the question presented was "May the Land Board make a direct sale of trust lands to a state agency without public notice and public auction?" The Idaho Admissions Bill provided that "all lands herein granted for educational purposes shall be disposed of only at public sale" and the Idaho Constitution stated that the granted lands were "subject to disposal at public auction". The opinion looked to the United State Supreme Court decision in *Lassen v. Arizona* for guidance rather than the *Gladden Farms* opinion: "With all due respect to the Arizona court, however, we must respectfully conclude that another court could disagree with its decision. Virtually all of the reasons that the United States Supreme Court gave for interpreting the federal statute involved to allow direct sales of easements arguably apply to allowing direct sales of fee simple title. The transfer is still to another state agency so that the trust will not be exploited for private advantage. The trust will receive the appraised value of the land and thus 'full fair compensation'."

¹² The Washington supreme court cited *Gladden* in a general discussion of state trust responsibilities. *County of Skamania v. State*, 102 Wn.2d 127, 137, 685 P.2d 576 (1984). Our court had no occasion, however, to decide whether *Gladden's* interpretation of the Arizona Enabling Act should be adopted by Washington.

¹³ See also Souder and Fairfax, *State Trust Lands: History & Management & Sustainable Use* (1996), at 26. The Arizona court, since *Gladden*, has found that the Arizona constitution bars exchanges of trust land for private land, because the state constitution has not been amended to permit such transactions, even though the Enabling Act has been so amended. *Fain Land & Cattle Company v. Hassell*, 163 Ariz. 587, 790 P.2d 242 (1990).

¹⁴ There would be no purpose served, in any case, in limiting exchanges or transfers of public land to 160 acres per parcel. While public sales in smaller parcels might bring a higher price for the land than the sale of a large

2. Language of State Constitution.

Second, the language of the Washington State Constitution indicates that some restrictions relate to all “disposal” of public trust lands, while other restrictions relate to the narrower category of “sales”. Article XVI, section 1 is phrased in terms of disposal of public lands: “none of such lands, nor any estate or interest therein, shall ever be disposed of unless the full market value of the estate or interest disposed of . . . be paid or safely secured to the state”. Id. This language explicitly covers the disposal of estates and interest in land, as well as full fee title. In using the word “disposal”, a broader term than “sale”, the constitution establishes a requirement of full value compensation in any transaction resulting in the conveyance of public trust land. This language requires that a trust be fully compensated for any land taken out of trust status.

By contrast, article XVI, section 2 provides that “[n]one of the lands granted to the state for educational purposes shall be sold otherwise than at public auction”. (Emphasis added). This section imposes restrictions on the “sale” of public lands, and not all “disposal” of public trust land. Similarly, article XVI, section 4 provides that “[n]o more than one hundred and sixty (160) acres of any granted lands of the state shall be offered for sale in one parcel”. (Emphasis added). A clear pattern emerges from a reading of article XVI: section 1 broadly governs all disposal of trust lands, while sections 2, 3, and 4 impose additional limitations on sales.¹⁵ Although the constitution contains no explicit mention of exchanges or transfers, it implicitly recognizes that there might be forms of disposal other than “sale”.

3. History of the State Constitution.

Third, the history of article XVI of the constitution supports the reading that its provisions were intended to restrict the Legislature in authorizing sales of trust land to private parties but not other forms of disposal, such as exchange or transfer to other state uses. The Journal of the Constitutional Convention shows that the public land sections of the constitution were objects of prolonged debate. The concerns the delegates to the Washington constitutional convention expressed were similar to those of the United States Senate discussed in *Lassen, i.e.,* misappropriation of the lands for private gain. Some delegates opposed allowing the sale of state granted lands at all, but they were unsuccessful in their attempts to amend article XVI in accordance with their views. For the discussion concerning what became article XVI, section 2, see *Journal of the Washington State Constitutional Convention (1889)*, at 796-98. Delegate Prosser was the leader of the “no sale” faction. In support of a substitute (eventually voted down) which would have made the school lands state property “forever”, permitting only leases and sales of timber, stone, and perishable property, Prosser argued, reviewing the history of

parcel, the exchange or transfer of a large parcel, properly appraised as the law requires, should bring no more or less to the trust than the same transaction broken into smaller parcels.

¹⁵ This analysis is consistent with the legislative history of the Enabling Act. The original form of the Enabling Act, section 11, was a limitation on the disposal of granted lands: “[t]hat all lands herein granted for educational purposes shall be disposed of only at public sale”. Given the strictness of this language, it was necessary for Congress to amend it in 1932 by adding a sentence to the effect that “[a]ny of the said lands may be exchanged for other lands”. No corresponding amendment was required for the state constitution, because only the “full value” provisions in article XVI, section 1 applied broadly to “disposals” rather than to the narrower class of “sales”. Furthermore, article XVI, section 1, in conforming state practice to federal law requirements, automatically incorporated future changes in the federal requirements, making further amendment of the state constitution unnecessary.

school lands from 1785 to the present, that “wherever lands had been sold the income had been diverted or misappropriated”. *Id.* at 800. As recorded in the *Tacoma Morning Globe*, August 17, 1889, Prosser’s focus was on sales to private individuals: “In every instance legislation had been in favor of private individuals for speculation instead of for the benefit of public schools.” In support of what is now article XVI, section 3 (requiring that school lands be sold gradually, not more than half before 1905), delegate Browne said “he believed in the gradual sale of the lands so that the state could realize the full benefit as the lands increased in value”. *Id.* at 802. As to article XVI, section 4, the one containing the 160-acre parcel limitation, the Journal records a proposition submitted to the Convention by delegate Hicks that “the lands be subdivided to get the highest price”. *Id.* at 804. From these comments, it is apparent that the purpose of requiring public sale, with limitations on the amount of land sold in any one parcel or within a period of time, was to assure that the new state of Washington would not sell off its public lands too quickly, for too low a price, but would hold on to them long enough to realize their growing value.

This point is confirmed in an article written 24 years after statehood. In *The Origin of the Constitution of the State of Washington*, Mr. Knapp offered the following observations about the “public lands” portions of the constitution:

The subject of public lands . . . presented many difficult problems to the convention for solution. . . . Some of the members were in favor of leaving the whole question to legislative enactment; others thought the land should never be sold, but that it should be retained by the state, and an income derived from it perpetually. . . . By the Enabling Act of Congress, on the entry of the state into the Union, it became possessed by federal grant of a large amount of valuable land, granted for school and other purposes. This land was recognized to be of great value for its timber as well as agricultural possibilities, and the members of the convention were alive to the fact that they should not be disposed of, or relinquished for a nominal consideration, as had been done with the lands of states that had previously come into the Union.

Lebbeus J. Knapp, *Origin of the Constitution of the State of Washington*, 4 Wash. Hist. Q. 227, 242-43 (1913).¹⁶ In *A History of the Constitution and Government of Washington Territory*, written as a Ph.D. thesis by Wilfred J. Airey (University of Washington, 1945), Mr. Airey also describes the debate and the concerns by many convention delegates about selling state land to land speculators. Airey quotes delegate Prosser as bringing the Convention’s attention to Illinois, Wisconsin, and Michigan, each of which had sold school lands “to benefit the purchasers rather than the State”. Wilfred J. Airey, *A History of the Constitution and Government of Washington Territory* at 495 (1945).

These items of constitutional history indicate that the purpose behind article XVI, sections 1 through 4 was to restrain the Legislature from disposing of public lands by selling them to land speculators for less than their market value, or at any rate to prevent the loss of the advantage of the expected rise of land values by transferring them out of public ownership prematurely so that private speculators would gain the benefit of future appreciation in value

¹⁶ Mr. Knapp indicates that the sources for his observations are interviews with survivors of the convention and discussions in newspapers of the period. Knapp, 4 Wash. Hist. Q. at 227 (footnote). The courts have held that such material may be considered in determining the meaning of a constitutional provision. *See, e.g., Yelle v. Bishop*, 55 Wn.2d 286, 347 P.2d 1081 (1959).

rather than the public trust. This is precisely the reasoning of *Lassen*. Exchanges and transfers of land do not present the hazard of mismanagement that sales out of the public trust present. If public trust land is exchanged for other land, rather than sold, the trust retains a land corpus for future income.¹⁷ In the case of transfers, there is no conveyance out of public ownership at all and therefore no danger of benefiting unscrupulous private parties at the expense of the trust. Thus, the Convention (through article XVI, section 1) required that full value be received for any "disposal" out of trust status, but added time and acreage restrictions only as to "sales" of trust land.

4. State Statutes.

Finally, the distinction between "disposal" and "sale" is consistent with the history of state statutory enactments in the field of public land management. As to sales of trust land, the constitutional limits are echoed in statute. RCW 79.01.096 prohibits the offer for sale of more than 160 acres of granted land. RCW 79.01.092 requires that public lands be inspected and appraised before sale. The sale procedure is set forth in RCW 79.01.184 through .228. No land may be sold for less than appraised value. RCW 79.01.200.

However, the Legislature has, on numerous occasions, permitted exchanges and transfers of trust land in acts that either expressly or by implication contain no restrictions requiring public auction or limitation on parcel size. For instance, in RCW 79.01.009, the Legislature explicitly authorized the transfer of real property "without public auction" under certain described circumstances, including "transfers to public agencies".¹⁸ RCW 79.01.096 authorizes the department to offer granted land for sale or lease to school districts or institutions of higher education "in such acreage as it may determine." *Id.* Transfer of fee simple interest or other interests in trust land for the creation of natural resources conservation areas are authorized, provided the trust receives full fair market value compensation. RCW 79.71.050. No mention is made of public auction or limitation in parcel size. The Legislature has also authorized exchanges of public land in several statutes. *See, e.g.*, RCW 79.08.109 (exchange to secure privately-owned land for parks and recreation) and RCW 79.08.180 (exchange of state land for any of several specified purposes).¹⁹

The Legislature has also passed laws authorizing or directing that specific parcels (often exceeding 160 acres in size) be sold or exchanged. As early as Laws of 1923, ch. 61, the Legislature "authorized and directed" the commissioner of public lands to exchange certain described school land (described in quarters of quarter-sections and amounting to roughly 3/8 of a section, or as much as 240 acres) for another described tract amounting to roughly the same acreage. In Laws of 1955, ch. 231, the Legislature authorized the state land board and the commissioner to exchange a half-section (320 acres) for over a thousand acres of federal land

¹⁷ Of course, there is the possibility that the land received will not be of equal value to that conveyed. For that reason, both the constitution and statute require that full value be received. Speculators were not likely to be able to take the same advantage of the state through exchanges as through sales, though, as relatively little land was in private ownership (and therefore usable for exchanges) at statehood.

¹⁸ By requiring appraisal and a finding that the transaction is "in the best interest of the state or affected trust", the Legislature made clear that trust lands were covered in this section.

¹⁹ The timing of many of the state statutes suggests that they were responding to the *Lassen* opinion by authorizing transfers of trust land to public agencies without public auction and without any limitation on acreage so long as the trust was compensated for the market value of the transferred property. RCW 43.51.270 (1971), RCW 79.01.770 (1971), RCW 79.70.040 (1972), RCW 79.66.090 (1984), RCW 79.71.050 (1987), RCW 79.01.009 (1992).

within Olympic National Park.²⁰ From this history, it appears that the Legislature has not regarded article XVI, sections 2 and 4 of the constitution as a bar or limitation to exchanges and transfers of state trust lands.

CONCLUSION

For the foregoing reasons, I conclude that neither the Enabling Act nor the Washington State Constitution restricts the state from conveying trust lands in parcels of more than 160 acres out of trust status, where the conveyance is part of a land exchange as authorized in statute or is a transfer to a public agency, and always subject to the requirement that the trust be fully compensated for the value of lands transferred out of trust status.

2. Does RCW 79.68.045 impose any obligations on the Department of Natural Resources or the Board of Natural Resources if there is an "arrearage" as defined in this statute?

The statute which is the subject of your second question can best be understood in context with the rest of the enactment of which it is a part. Laws of 1987, ch. 159 was enacted by the Legislature for reasons which are set forth in section 1 of that chapter (uncodified but included as a note after RCW 79.68.035 in the Revised Code of Washington):

Adequately funding construction of the state's educational facilities represents one of the highest priority uses of state-owned lands. Many existing facilities need replacement and many additional facilities will be needed by the year 2000 to house students entering the educational system. The sale of timber from state-owned lands plays a key role in supporting the construction of school facilities. Currently and in the future, demands for school construction funds are expected to exceed available revenues.

The department of natural resources sells timber on a sustained yield basis. Since 1980, purchasers defaulted on sales contracts affecting over one billion one hundred million board feet of timber. Between 1981 and 1983, the department sold six hundred million board feet of timber less than the sustainable harvest level. As a consequence of the two actions, the department entered their 1984-1993 planning decade with a timber sale arrearage which could be sold without adversely affecting the continued productivity of the state-owned forests.

²⁰ More recently, the Legislature has commonly authorized exchanges and transfers within the biennial budgets acts. For instance, in Laws of 1989, 1st Ex. Sess., ch. 19, § 316, the Legislature appropriated 71.5 million dollars to the department "for the acquisition in fee of common school trust lands and timber throughout the state". In Laws of 1991, 1st Sp. Sess., ch. 14, § 26, the Legislature appropriated money to the parks and recreation commission "solely to acquire trust lands that have been identified by the department of natural resources for state park use and development". The same section authorized exchanges of school trust lands with parcels of noncommon school trust lands of equal value. In Laws of 1997, ch. 235, § 392, the Legislature appropriated 34.5 million dollars from the building construction account to the Department of Natural Resources "solely for the purposes of transferring from trust status certain trust lands". A similar appropriation was made by the 1999 session of the Legislature. Laws of 1999, ch. 379, § 384.

Id. The term “sustained yield plans” is defined in RCW 79.68.030 (a statute pre-dating the 1987 law) to mean “management of the forest to provide harvesting on a continuing basis without major prolonged curtailment or cessation of harvest”. The 1987 law further defined the related term “sustainable harvest level” to mean “the volume of timber scheduled for sale from state-owned lands during a planning decade as calculated by the department of natural resources and approved by the board of natural resources”. RCW 79.68.035(5) (Laws of 1987, ch. 159, § 2(5)). In other words, these laws direct the department to determine a level of timber harvest that can be “sustained” indefinitely in that the timber harvested will be replaced by equivalent new growth. The implication of the 1987 law is that the department should plan to sell timber at this “sustainable harvest level”. Section 4 of the act directs the department to periodically adjust the acreages designated for inclusion in the sustained yield management program and to calculate a sustainable harvest level. RCW 79.68.040.

The concept of “arrearage”, central to your second question, arises if the department fails to sell timber during a “planning decade”²¹ at the “sustainable harvest level”. The term “arrearage” is defined as “the summation of the annual sustainable harvest timber volume since July 1, 1979, less the sum of state timber sales contract default volume and the state timber sales volume deficit since July 1, 1979.”²² RCW 79.68.035(1).²³ In other words, the statute directs the department to establish a sort of “target” timber harvest level based on a “sustained yield” analysis. If less timber is sold than the “target” amount, the department is directed to account for the difference as an “arrearage”. This is based upon the underlying assumption that, since this timber could have been sold on a “sustained yield” basis, it may still subsequently be sold (in addition to the “sustained yield” calculation for subsequent years) without disturbing the “sustained yield” calculus.

This leads to RCW 79.68.045, the subject of your question:

If an arrearage exists at the end of any planning decade, the department shall 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. 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.

Id. (Laws of 1987, ch. 159, § 4). This statute requires a sort of accounting for the “arrearage” every ten years, at the end of each “planning decade”. Id. (emphasis added). At such a time, the department is directed to conduct an “analysis of alternatives”, designed to determine what should be done with the arrearage. In effect, the department is directed to analyze whether it

²¹ “Planning decade” is defined as “the ten-year period covered in the forest land management plan adopted by the board of natural resources.” RCW 76.68.035(4).

²² “‘Default’ means the volume of timber remaining when a contractor fails to meet the terms of the sales contract on the completion date of the contract or any extension thereof and timber returned to the state under *RCW 79.01.1335.” RCW 79.68.035(2). “‘Deficit’ means the summation of the difference between the department’s annual planned sales program volume and the actual timber volume sold.” RCW 79.68.035(3).

²³ The arrearage definition, at least by one interpretation, produces very anomalous results, by virtue of the fact that RCW 79.68.035(2) appears to instruct that the “summation of the annual sustainable harvest timber volume since July 1, 1979” be reduced by “the sum of the contract default volume and the timber sales volume deficit” since the same date.

would most benefit the trust to sell the "arrearage" or to defer such sales, or portions of them, to later times. In the analysis, the department is directed to consider both existing and forecast economic conditions, as well as the environmental impacts of harvesting the arrearage. This language leaves open a number of possibilities which would make it unadvisable to sell the arrearage: The price of timber may be too low; prices may be projected to rise in later years; sale of the arrearage might "glut" the market and drive prices down; the trusts may be calculated to need long-term rather than short-term income; the department might determine that the environmental effects of harvesting the arrearage would be too adverse; or some combination of these factors might be present.²⁴ As we discussed in AGO 1996 No. 11, managing the trust requires a perpetual re-balancing of the short and long-term best interests of the trust.

Once this analysis is completed, RCW 79.68.045 provides that 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". This language does not in any sense mandate the department to sell the arrearage; it directs sale only if the analysis indicates that sale is in the best interests of the trusts.²⁵ However, this section does not require the department to sell the arrearage if the department's analysis determines that some other course of action would be best for the trust. In other words, this statute directs the department to take that course of action which would most benefit the trust; precisely the standard which the department would be constitutionally required to follow in any case with respect to the management of trust lands.²⁶

The legislative history of RCW 79.68.045 ^(79.10.330) is consistent with this reading. This section originated as a part of House Bill 55, in the 1987 session of the Legislature. In its original form, section 4 of House Bill 55 provided that "[i]f an arrearage exists at the end of any planning decade, 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". HB 55, § 4, 50th Leg. (1987) (emphasis added). The House Natural Resources Committee substituted for this language the language that appears in RCW 79.68.045, directing the Department of Natural Resources to analyze the extent to which the arrearage should be sold, rather than mandating the sale. The House Bill Report, comparing the substitute to the original, indicates that "the Department has the flexibility to evaluate whether or not to sell any arrearage that develops rather than being required to sell any arrearage". House Bill Report on House Bill 55, 50th Leg. (1987), at 2. The Senate Bill Report on the substitute bill clearly indicates that "the Department will evaluate whether or not it is in the best interest of the trusts to sell the arrearage". Senate Bill Report on Substitute House Bill 55, 50th Leg. (1987) at 1-2. The identical language appears in the Final Bill Report on Substitute House Bill 55, 50th Leg. (1987) at 1-2.

To summarize, RCW 79.68.045 relates to a program of "sustainable yield management" which was contemplated by legislation in the 1980's. The statute in question directs the department to calculate an "arrearage" of timber if less is sold than called for in decennial planning documents. At the end of each decennial period, the department is to analyze whether this "arrearage" should be sold based on the best interests of the trusts. RCW 79.68.045 makes it

²⁴ The statute should also be read in light of RCW 79.68.040, directing the department to periodically adjust acreages under the sustained yield management program.

²⁵ Were it not for this section, it would not be clear that the department is authorized to sell the "arrearage". With the cited language, the department is not only authorized but directed to do so if the analysis indicates that sale would be in the best interests of the trust.

²⁶ The trust responsibilities of the department are discussed at some length in AGO 1996 No. 11, especially at pp. 38-49.

clear that the department is directed to sell "arrearage" even if that means harvesting, during a particular ten-year planning period, at levels greater than the "sustainable harvest level" for the subsequent period if doing so is in the best interests of the trusts involved.

3. What are the Legislature's duties as the trustee of state trust lands? What actions are the Legislature, as trustee, obliged to take if it believes that the Board of Natural Resources has abused the discretion delegated to the board? Under what circumstances is the Legislature authorized or required to review or intervene in the acts of the board?

Article XVI, section 1 of the state constitution provides that "[a]ll of the public lands granted to the state are held in trust for all the people". *Id.* (emphasis added.) The leading Washington case applying trust principles to the state granted lands is *County of Skamania v. State*, 102 Wn.2d 127, 685 P.2d 576 (1984). The opinion concludes that the state holds the granted lands in trust and that principles from the law of trust are relevant in reviewing the management of the trust, but I could discover no reference in the case specifically describing the Legislature as the trustee. Thus, while the Legislature at times acts as a trustee, it would be misleading to suggest that the existence of a trust alters the constitutional relationship between the Legislature and other state officers and agencies. Both with respect to trust management and to state affairs in general, the Legislature has its regular constitutional role: the role of legislating.²⁷

Although the word "trust" appears in the constitution concerning the granted lands, the idea of applying the principles of trust law to states in the management of their lands is relatively new. It appears to have gained modern impetus from Justice Harlan's discussion in *Lassen*. Although *Lassen* held that the state of Arizona was not obligated to conduct a public auction when granting a highway right of way across granted lands, the case also held that, based on trust principles, the state was obligated to compensate its trust beneficiaries (schools) for the value of the right of way granted. *Lassen*, 385 U.S. at 466-70. Before *Lassen*, most of the states had engaged extensively in the practice of granting themselves easements and rights of way across trust land without compensating the trusts. See Jon A. Souder & Fairfax, *State Trust Lands: History & Management & Sustainable Use* 33-36 (1996).

Even since *Lassen*, the cases are relatively small in number. Though they consistently hold that there is a trust relationship between the state and the beneficiaries of the land trusts, they concern the actions and activities of all three branches of state government. Thus, *Skamania* itself was a review of an act of the Washington State Legislature, an act excusing a number of timber companies from performance on certain state contracts. The court found that this enactment was a violation of trust principles and thus unconstitutional. *Skamania*, 102 Wn.2d at 138-39. Thirty years earlier, the Nebraska Supreme Court had made a similar ruling invalidating a legislative act fixing the value of public school lands without regard to their true market value. *State ex rel. Ebke v. Board of Educational Lands and Funds*, 154 Neb. 596, 47 N.W.2d 520 (1951). See also, *Oklahoma Education Association v. Nigh*, 642 P.2d 230 (Okla.

²⁷ In an informal opinion on a related issue, one of my colleagues concluded that the Legislature's constitutional role with respect to the commissioner of public lands is the same as its role with respect to other statewide officers, notwithstanding minor differences in the constitutional language defining the powers and duties of various officers. Letter dated August 29, 1997, from Maureen A. Hart, Sr. Assistant Attorney General, to the Honorable Jim Buck, State Representative.

1982) (excusing state agency from following a state statute requiring that state trust lands be leased to farmers and ranchers at less than full value).²⁸

As these cases suggest, the trust principles as to granted lands apply to all agencies of state government and do not alter the constitutional separation of powers among the branches. The Legislature itself, then, has a duty to act consistently with the trust relationship as it legislates concerning public lands. This issue is laid out in detail in AGO 1996 No. 11, at 12-29. I will summarize briefly the major points of that discussion. First, as our 1996 opinion emphasizes, the Legislature retains plenary authority to legislate concerning trusts, except as restrained by the constitution or by supervening federal law. Second, common law trust principles have been found (*Skamania*) to apply to the Legislature's exercise of its legislative role as to trust lands. These principles include the duty of undivided loyalty to the beneficiaries, the duty to manage trust assets prudently, and the duty to make the trust lands productive for the beneficiaries, balancing the trust's short-term interests with the long-term protection of trust productivity. Third, the 1996 opinion found that federal and state laws of general application apply to the grant lands. Fourth, the opinion found that the state's trustee duties run to each trust individually and must be separately accounted for. Fifth, the opinion found that the Legislature may create state offices and agencies and assign to them the responsibility to manage the grant lands.

To sum up the answer to the first part of this question, the Legislature's responsibilities as to the trusts are legislative in nature. These responsibilities are carried out by passing legislation.²⁹ Through these laws, the Legislature may assign powers and duties to the officers and agencies who manage state lands, prescribe procedural steps which must or may be taken, and set forth the substantive standards the executive branch is required to meet as well as the degree of flexibility the agencies will have in meeting the standards.

The second part of your question is what action the Legislature is obliged as a trustee to take if the Legislature believes the Board of Natural Resources has abused the discretion delegated to it by the Legislature. This question is difficult to address in the abstract and would largely depend on the facts of a particular situation. As a general matter, though, the Legislature's options would be the same as they would in any case where the Legislature was dissatisfied with the acts of a state agency or believed these acts might pose harm to the interests of the state. The Legislature's primary tool would be, of course, further legislation. The Legislature could alter the powers and duties of agencies and officers, change the processes by which executive agencies administer the law, or set new substantive standards for state agencies to meet.

Finally, you have asked if there are circumstances in which the Legislature is authorized or required to review or intervene in the acts of the board. Again, the "open" nature of the question dictates a very general response. As noted earlier, the Legislature's role with respect to

²⁸ By contrast, however, the *Gladden Farms* decision, discussed earlier, involved no legislative act but was a finding that an administrative action by an Arizona state agency was contrary to trust principles. In *Department of State Lands v. Pettibone*, 216 Mont. 361, 702 P.2d 948 (1985), the Montana supreme court reversed a ruling of the state's water court concerning the ownership of water rights appurtenant to school trust land. The water court had ruled that these water rights belonged to the lessees of the land. The state supreme court reversed, finding that water rights are valuable property rights, and they belonged to the state trust unless the trust had been fully compensated for them. Thus, trust principles may come into play no matter which agency is involved with the administration of the trust.

²⁹ See article II, section 1, of the state constitution.

Honorable Lynn Kessler, et al.
March 6, 2000
Page 16

trust lands is primarily that of legislating. Neither the constitution nor general trust principles assign "day to day" management responsibility over trusts to the Legislature. Exercising such a responsibility would not only be highly cumbersome but might even be beyond the Legislature's constitutional role, as an exercise of executive rather than legislative authority. The Legislature's lawmaking role is critical to ensuring that the state's trust responsibilities are met, as recognized in *Skamania* and in AGO 1996 No. 11. Through this lawmaking power, policies are established and the duties of the executive officers are delineated. If the Legislature determines that existing laws, or their manner of execution, do not protect the best interests of the trust, it is incumbent on the legislature to examine those laws and make any adjustments necessary to ensure consistency with the State's trust responsibilities. If the Legislature believes there is noncompliance with existing law, it could bring the matter to the attention of appropriate state officials. Depending on the nature of the concerns, these might include the Attorney General or the State Auditor.

We trust the foregoing will be of use to you. If you have any questions or concerns, please do not hesitate to contact me at the below number

Very Truly Yours,

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:pmd

ATTACHMENT 2

FILED IN THE
U.S. DISTRICT COURT
EASTERN DISTRICT OF WASHINGTON

Nov 22, 2016

SEAN F. MCAVOY, CLERK

UNITED STATES DISTRICT COURT
EASTERN DISTRICT OF WASHINGTON

WILD FISH CONSERVANCY,

No. 2:14-CV-0306-SMJ

Plaintiff,

**ORDER GRANTING IN PART
AND DENYING IN PART
PLAINTIFF’S AND
DEFENDANTS’ MOTIONS FOR
SUMMARY JUDGMENT**

v.

DAVE IRVING, in his official capacity
as the Manager of the Leavenworth
Fisheries Complex; UNITED STATES
FISH AND WILDLIFE SERVICE;
DANIEL M. ASHE, in his official
capacity as the Director of the United
States Fish and Wildlife Service;
UNITED STATES BUREAU OF
RECLAMATION; LOWELL PIMLEY,
in his official capacity as the Acting
Commissioner of the United States
Bureau of Reclamation,

Defendants.

I. INTRODUCTION

This case concerns the U.S. Fish and Wildlife Services’ (FWS) and Bureau
of Reclamation’s (BOR) operation and management of the Leavenworth National
Fish Hatchery (the Hatchery). As required by the Endangered Species Act (ESA),
FWS and BOR engaged in consultation with the National Marine Fisheries
Service (NMFS) concerning the effects of the Hatchery’s operation on endangered

1 Chinook salmon and steelhead in Icicle Creek, and NMFS issued a Biological
2 Opinion (BiOp) and Incidental Take Statement (ITS). Wild Fish Conservancy (the
3 Conservancy) alleges NMFS's BiOp and ITS are arbitrary, capricious, an abuse of
4 discretion, and not in accordance with the law; that NMFS violated the National
5 Environmental Policy Act (NEPA) by failing to prepare an Environmental Impact
6 Statement (EIS); and that, in relying on the BiOp, BOR and FWS violated the
7 ESA by failing to insure that Hatchery operations will not jeopardize listed
8 species.

9 As will be discussed below, the BiOp is arbitrary and capricious on one
10 narrow basis—NMFS failed to adequately consider the effects of climate change
11 in its analysis of the Hatchery's operations and water use. The remainder of the
12 Conservancy's arguments fail: the BiOp and ITS are not arbitrary and capricious
13 on any other alleged basis, NMFS had no obligation to conduct an EIS in
14 connection with its preparation of the ITS, and the BOR and FWS satisfied their
15 obligations under Section 7 of the ESA by relying on the BiOp and ITS.
16 Accordingly, Plaintiff's motion for summary judgment is granted with respect
17 only to whether the BiOp was arbitrary and capricious and denied with respect to
18 all other claims. Defendant's motions for summary judgment are denied in part
19 and granted in part on the same basis.

20

II. BACKGROUND

A. The Endangered Species Act

Congress passed the ESA in 1973. Its stated purposes were “to provide a means whereby the ecosystems upon which endangered species and threatened species depend may be conserved,’ and ‘to provide a program for the conservation of such . . . species” *Tenn. Valley Auth. v. Hill*, 437 U.S. 153, 180 (1978) (quoting 16 U.S.C. § 1531(b)). The Secretaries of the Department of the Interior and Department of Commerce are charged with implementing the ESA and have delegated those responsibilities to FWS and NMFS, respectively. Generally, FWS has ESA authority for terrestrial and freshwater species and NMFS has authority for marine and anadromous species. *See* 50 C.F.R. §§ 17.2, 17.11, 223.102, 224.101.

Section 4 of the ESA establishes the mechanisms for listing threatened and endangered species and for designating “critical habitat.” 16 U.S.C. §§ 1532(16), 1533(a). Section 9 makes it unlawful to “take” ESA listed species. 16 U.S.C. § 1538(a)(1)(B). “Take” is defined to mean “harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct.” 16 U.S.C. § 1532. The term harm includes any act “which actually kills or injures fish or wildlife,” including, as relevant here, “significant habitat modification or degradation which actually kills or injures fish . . . by significantly impairing

1 essential behavioral patterns, including breeding, spawning, rearing, migration,
2 feeding or sheltering.” 50 C.F.R. § 222.102.

3 Section 7 of the ESA imposes a substantive obligation on federal agencies
4 to “insure that any action authorized, funded, or carried out by such agency . . . is
5 not likely to jeopardize the continued existence of any endangered species or
6 threatened species or result in the destruction or adverse modification of [the
7 critical] habitat of such species.” 16 U.S.C. § 1536(a)(2). Section 7 requires that
8 any federal agency planning any action (the action agency) that may affect ESA-
9 listed species must consult with NMFS or FWS (the consulting agency). 16 U.S.C.
10 § 1536(a)(2); 50 C.F.R. § 402.14(a). At the conclusion of consultation, the
11 consulting agency must issue a Biological Opinion (BiOp). *Thomas v. Peterson*,
12 753 F.2d 754, 763 (9th Cir. 1985), *overruled on other grounds by Cottonwood*
13 *Envtl. Law Ctr. v. United States Forest Serv.*, 789 F.3d 1075, 1091 (9th Cir.
14 2015).

15 The BiOp provides the consulting agency’s opinion concerning whether the
16 proposed action is likely to jeopardize the ESA-listed species or adversely modify
17 critical habitat, and it must be based on “the best scientific and commercial data
18 available.” 50 C.F.R. § 402.14(g)(8), (h)(2)–(3). If the BiOp concludes that
19 jeopardy or adverse modification is likely, the BiOp must describe reasonable and
20 prudent alternatives, if available, that would avoid such an outcome. 16 U.S.C. §

1 1536(b)(3)(A); 50 C.F.R. § 402.14(h)(3). If the BiOp concludes that jeopardy or
2 adverse modification are not likely, or that reasonable and prudent alternatives
3 will avoid jeopardy or adverse modification, the consulting agency must issue an
4 incidental take statement (ITS). 16 U.S.C. § 1536(b)(4); 50 C.F.R. § 402.14(i).

5 The ITS must state the anticipated level of incidental take that will result
6 from the proposed action, set terms and conditions to minimize impacts to listed
7 species, and set monitoring and reporting requirements. 16 U.S.C. §

8 1536(b)(4)(C)(i)–(ii), (iv); 50 C.F.R. §§ 402.14(i)(1)(i)–(ii), (iv), 402.14(i)(3).

9 Take in compliance with an ITS is exempt from liability under Section 9 of the
10 ESA. 16 U.S.C. § 1536(o)(2).

11 **B. Summary of Facts**

12 **1. Icicle Creek and ESA-listed Chinook and Steelhead**

13 Icicle Creek originates in the Cascade Mountains and flows into the
14 Wenatchee River at the City of Leavenworth. NMFS 11987. Its watershed covers
15 approximately 214 square miles. NMFS 45787. Icicle Creek is home to two ESA
16 listed species that are at issue in this case: the Upper Columbia River spring
17 Chinook evolutionarily significant unit, (*Oncorhynchus tshawytscha*) listed in
18 1999, 64 Fed. Reg. 14,308 (March 24, 1999), and the Upper Columbia River
19
20

1 steelhead¹ distinct population segment (*Oncorhynchus mykiss*), which was listed
2 in 1997, 62 Fed. Reg. 43,937 (Aug. 18, 1997). Upper Columbia steelhead were
3 downgraded to a threatened species in 2006. 71 Fed. Reg. 834 (Jan. 5, 2006).
4 Icicle Creek is not included in the designated critical habitat for Upper Columbia
5 River Spring Chinook. NMFS 11980. Icicle Creek is designated as critical habitat
6 for Upper Columbia River steelhead. 70 Fed. Reg. 52,630 (Sept. 2, 2005); NMFS
7 11978. A natural passage barrier prevents migration of steelhead and chinook past
8 River Mile (RM) 5.7.² NMFS 24915.

9 NMFS's recovery plan for Upper Columbia Steelhead sets a target for the
10 minimum number of naturally produced Steelhead reds in the Chiwawa River,
11 Nason Creek, Icicle Creek, Peshastin Creek, and Chumstick Creek to be either 5%
12 of the total number of reds within the Wenatchee population, or at least 20 reds,
13 whichever is greater. NMFS 5906. The Icicle Creek steelhead population has
14 exceeded these recovery criteria since 2008. NMFS 25932.

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16
17 ¹ Steelhead and rainbow trout are members of the same species. NMFS 12058.
18 The difference between the populations is that steelhead are anadromous while
19 rainbow trout are not. NMFS 12058. The fish are indistinguishable at the juvenile
20 stage.

² River Miles are measured from the terminus of the stream, in this case, the
confluence of Icicle Creek and the Wenatchee River. For example, the passage
barrier at RM 5.7 is located 5.7 miles upstream of the point where Icicle Creek
enters the Wenatchee River in Leavenworth.

2. The Leavenworth National Fish Hatchery

The Leavenworth National Fish Hatchery (the Hatchery) is located on Icicle Creek about three miles south of Leavenworth, Washington. NMFS 45941. The Leavenworth National Fish Hatchery is one of several hatcheries authorized to replace spawning grounds lost when construction of the Grand Coulee Dam made the upper Columbia River basin inaccessible to anadromous fish. *Wild Fish Conservancy v. Salazar*, 628 F.3d 513, 516–17 (9th Cir. 2010). FWS has managed and operated the Hatchery since its construction in 1939. *Id.* The Hatchery rears only spring chinook for harvest and is not intended to supplement or support native Chinook salmon populations. NMFS 11944. The Hatchery’s spring Chinook program is listed by the Yakima Nation and FWS’s anadromous fish Management Agreement as “high priority.” NMFS 47206.

The Hatchery is supported by a complex water management system that includes several existing instream structures. NMFS 17528, 45956. Structure 1, located at RM 4.5 is a water intake that diverts up to 42 cubic feet per second (cfs) from Icicle Creek to supply water to the Hatchery. NMFS 45942–44. The Hatchery controls three high elevation reservoirs, which it uses to supplement surface flows in Icicle Creek with up to 50 cfs in late summer and early fall. NMFS 45945–46. The Hatchery also uses wells to draw water from a shallow aquifer. NMFS 45945–46.

1 A head gate known as Structure 2 regulates flow between the Hatchery
2 Canal (a man-made channel constructed to facilitate hatchery operations) and the
3 historical channel of Icicle Creek at RM 3.8. NMFS 11960, 45947–48. Water
4 from the Hatchery canal returns to Icicle Creek near Structure 5, located at RM
5 2.8. NMFS 11960, 12063. Structure 5 consists of a bridge over Icicle Creek where
6 racks, flashboards, or traps can be inserted to control or prevent returning hatchery
7 fish from passing upstream. Prior to 2011, Structures 2 and 5 blocked fish passage
8 and severely constrained stream flows into Icicle Creek between the structures.
9 NMFS 45959. In 2011, FWS began modifying operations to allow more
10 consistent water flow in the historic channel and to limit in-river operations of
11 hatchery structures during steelhead migration, spawning, and rearing periods.
12 ECF No. 68-1 at 65, 134, 173–75.

13 FWS and BOR engaged in consultation with NMFS from 2009 to 2015
14 pursuant to Section 7 of the ESA to address the Hatchery’s effects on Upper
15 Columbia River steelhead, and spring Chinook salmon. NMFS issued the final
16 BiOp and accompanying ITS that are the subject of this case on May 29, 2015.
17 The BiOp concluded that operation and funding of the Hatchery is not likely to
18 jeopardize the continued existence of or result in destruction or adverse
19 modification of critical habitat for Upper Columbia River spring Chinook salmon
20 or steelhead. ECF No. 68 at 175–76. The BiOp identified a minimum instream

1 flow goal of 100 cfs in Icicle Creek and proposed eliminating operation of
2 Structure 2 in March if adult steelhead are present; eliminating operation of
3 Structure 2 for recharge in August; not reducing historic channel flow in
4 September when natural flows are less than 60 cfs; and, when the 100 cfs instream
5 goal is not met in dry years, maintaining instream flow goals of 40 cfs in October,
6 60 cfs from November to February, and 80 cfs in March in the Icicle Creek
7 historical channel. ECF No. 68-1 at 24–25.

8 **C. Procedural History**

9 Plaintiff Wildfish Conservancy (the Conservancy) filed this action on
10 September 16, 2014, alleging that the Hatchery’s operation causes take of listed
11 Upper Columbia River steelhead and spring-run Chinook salmon and threatened
12 bull trout, in violation of Section 9 of the ESA; failure to consult regarding
13 ongoing Hatchery maintenance and operations as required by Section 7 of the
14 ESA; failure to reinitiate consultation in light of new information; unlawful
15 commitment of resources prior to consultation; and failure to insure that Hatchery
16 operations are not likely to jeopardize ESA listed species. ECF No. 1. The
17 Defendants answered and moved to dismiss on November 17, 2014. ECF Nos. 8
18 & 9. The conservancy filed a First Amended Complaint on December 8, 2014,
19 clarifying and adding detail to the same substantive allegations. ECF No. 10. The
20 Court denied Defendants’ motion to dismiss as moot on January 8, 2015. ECF No.

1 23. The Court granted the Confederated Tribes of the Colville Reservation's and
2 the Confederated Tribes and Bands of the Yakama Nation's motions to intervene
3 as defendants on February 26, 2015. ECF No. 24.

4 Following NMFS's issuance of the BiOp on May 29, 2015, ECF No. 68-1,
5 the Conservancy filed a Second Amended Complaint, continuing to allege failure
6 to insure that Hatchery operations will not jeopardize listed species, and also
7 alleging that the BiOp was arbitrary, capricious, an abuse of discretion, and not in
8 accordance with the law and that NMFS violated NEPA by failing to prepare an
9 Environmental Impact Statement. ECF No. 77.

10 The Conservancy moved for Summary Judgment. ECF No. 92. Defendant
11 Confederated Tribes and Bands of the Yakama Nation (the Yakama Nation),
12 Defendant Confederated Tribes of the Colville Reservation (the Colville Tribes),
13 and the Federal Defendants each separately filed cross-motions for summary
14 judgment. ECF Nos. 97, 98, &100.

15 III. STANDARD OF REVIEW

16 The adequacy of BiOps under the ESA and an agency's compliance with
17 NEPA are reviewed under the Administrative Procedures Act (APA). *Bennett v.*
18 *Spear*, 520 U.S. 154, 174–79 (1997) (holding that ESA claims not reviewable
19 under the ESA's citizen-suit provision, including challenges to the adequacy of a
20 BiOp, may be reviewed under the APA); *W. Watersheds Project v. Kraayenbrink*,

1 632 F.3d 472, 481 (9th Cir. 2010) (“Alleged procedural violations of NEPA . . .
2 are reviewed under the [APA].”).

3 Under the APA, the court may set aside agency action that is “arbitrary,
4 capricious, an abuse of discretion or otherwise not in accordance with law.” 5
5 U.S.C. § 706(2)(A). Agency action is arbitrary and capricious if:

6 the agency has relied on factors which Congress has not intended it to
7 consider, entirely failed to consider an important aspect of the
8 problem, offered an explanation for its decision that runs counter to
the evidence before the agency, or is so implausible that it could not
be ascribed to a difference in view or the product of agency expertise.

9 *Motor Vehicle Mfrs. Ass’n of U.S. v. State Farm Mut. Auto. Ins. Co.*, 463 U.S. 29,
10 43 (1983). The court “must uphold agency decisions so long as the agencies have
11 ‘considered the relevant factors and articulated a rational connection between the
12 factors found and the choices made.” *City of Sausalito v. O’Neill*, 386 F.3d 1186,
13 1206 (9th Cir. 2004) (quoting *Selkirk Conservation All. v. Forsgren*, 336 F.3d
14 944, 953–54 (9th Cir.2003)). “A reviewing court ‘generally must be at its most
15 deferential when reviewing scientific judgments and technical analyses within the
16 agency’s expertise.” *Great Old Broads for Wilderness v. Kimbell*, 709 F.3d 836,
17 846 (9th Cir. 2013).

IV. DISCUSSION

A. The BiOp issued by NMFS on May 29, 2015 is arbitrary and capricious.

The Conservancy argues that the 2015 BiOp is arbitrary and not in accordance with the law because (1) NMFS's evaluation the Hatchery's water diversions impermissibly relies on uncertain future improvements and fails to adequately account for climate change, and (2) the ITS does not establish clear standards and procedures for monitoring and evaluating harm caused by the Hatchery's operations. ECF No. 92 at 18. The Conservancy's arguments fail except with respect to one narrow, but dispositive issue. NMFS failed to adequately consider the effects of climate change in the BiOp's analysis of the Hatchery's operations and water use. Because NMFS failed to consider this important factor, the BiOp is arbitrary and capricious.

1. NMFS did not rely on uncertain future mitigation measures.

NMFS may not rely on proposed future improvements in its analysis unless there are "solid guarantees" the improvements will actually occur. *See Nat'l Wildlife Fed'n v. Nat'l Marine Fisheries Serv.*, 524 F.3d 917, 935 (9th Cir. 2007). This must include "specific and binding plans" and "a clear, definite commitment of resources for future improvements." *Id.* at 935–36. Additionally, an "agency must consider near-term habitat loss to populations with short life cycles." *Pac. Coast Fed'n of Fishermen's Ass'n v. U.S. Bureau of Reclamation*, 426 F.3d 1082,

1 1095 (9th Cir. 2005). And the agency must therefore discount the benefit of future
2 improvements in its jeopardy analysis if multiple generational cycles may occur
3 before the improvements will be made. *See id.* (“It is not enough to provide water
4 for the [species] to survive in five years, if in the meantime, the population has
5 been weakened or destroyed by inadequate water flows.”).

6 NMFS expressly did not rely on FWS’s long-term commitments made as
7 part of the consultation process. Specifically, the BiOp states that NMFS did “not
8 rely on implementation of these long term actions for [its] jeopardy and critical
9 habitat analyses. . . . [C]onsidering the uncertainty of implementation of the long-
10 term actions, NMFS considered that ongoing operations would continue into the
11 future under the proposed flow regime.” ECF No. 68-1 at 143-44. The
12 Conservancy argues that, contrary to NMFS’s statement, the record demonstrates
13 that NMFS did consider the proposed long-term actions. ECF No. 92 at 24–27.

14 As the Conservancy points out, a draft BiOp issued in April 2015 found that
15 Hatchery operations adversely modified steelhead critical habitat and proposed
16 alternatives requiring the Hatchery to operate diversions at Structures 1, 2, and 5
17 to avoid causing instream flows to fall below levels identified as necessary for
18 steelhead rearing and adult passage: 150 cfs year-round at Structures 1, 2, and 5
19 for juvenile rearing, and 200 cfs between March and June for adult passage at
20 Structure 5. NMFS 9735. FWS objected to this requirement, on the basis that it

1 would not be able to meet the goals in all years given existing Hatchery facilities.
2 NMFS 9819–29. In May 2015, FWS agreed to implement water saving
3 technologies within eight years to insure a minimum in-stream flow of 100 cfs at
4 all times. ECF No. 92 at 22.

5 On May 20, 2015, NMFS issued a revised draft BiOp that concluded the
6 Hatchery operations were not likely to adversely modify critical habitat, relying in
7 part on FWS’s commitment to stop diverting water at Structure 2 within 8 years.
8 NMFS 10705–06. A week later, however, the final BiOp explained that NMFS
9 analysis did not rely on FWS’s uncertain long-term commitments. NMFS 12070–
10 71.

11 These circumstances, taken alone, could suggest that NMFS improperly
12 relied on future, uncertain changes. However, the analysis in the BiOp considers
13 only the immediate Hatchery operations. ECF No. 68-1 at 98-169. Importantly,
14 NMFS did not analyze the potential water savings from changes proposed in the
15 longer-term plan. 2015 BiOp at 143. Additionally, the BiOp recommends
16 immediate implementation of several actions necessary to avoid jeopardy,
17 including: (1) Structure 2 will not be closed in March if steelhead are present; (2)
18 if Structure 2 is closed during spring Chinook broodstock collection, traps at
19 Structure 5 will be monitored twice daily and steelhead transported and released
20 above structure 5; (3) Structure 2 operation in August, an offset from two

1 reservoirs in dry years where operation of Structure 2 is necessary for aquifer
2 recharge; and adoption of approved fish salvage methods for identifying and
3 removing fish entrained in the water intake system. ECF No. 68 at 25.

4 The analysis in the BiOp does not improperly consider uncertain, long-term
5 proposals, and there is no basis for the court to reject the BiOp on this basis.

6 **2. NMFS failed to adequately considered climate change in**
7 **analyzing the effects of the Hatchery's operations and water use.**

8 The BiOp includes a detailed discussion of the effects of climate change on
9 salmonid recovery in the Pacific Northwest, including that models predict a
10 significant reduction in total snowpack and low-elevation snowpack, affecting
11 streamflow and water temperatures. ECF No 68-1 at 38, 58–59. Despite these
12 predicted changes, NMFS used historical stream-flow data from 1994 to 2014 in
13 the analysis of the Hatchery's operations and water use. ECF No. 68-1 at 142,
14 144–58, NMFS 12069–70. The Conservancy argues that by doing so, NMFS
15 failed to consider an important factor. ECF No. 92 at 29. Defendants argue that
16 NMFS properly considered the best available science concerning the region-wide
17 effects of climate change and relied on only historical averages to conduct its
18 analysis of Icicle Creek stream flows because no finer-scale climate change
19 analysis of Icicle Creek was available for NMFS to consider. ECF No. 98 at 8–12;
20 ECF No. 100 at 27. Defendants further argue that the Court should defer to
NMFS's highly technical determination of this matter. ECF No. 97 at 22.

1 First, it is important to note that while the Court must give deference to the
2 expert agency on highly scientific or technical questions, *see Nat'l Wildlife Fed'n*
3 *v. ACOE*, 384 F.3d 1163, 1174 (9th Cir. 2004), a voluminous and technical record
4 does not insulate a decision from judicial review under that deferential standard.
5 The Court is obligated to carefully review the agency's decision even if it is
6 complex and technical.

7 Defendants are correct that the agency is not required "to conduct new tests
8 or make decisions on data that does not yet exist." *San Luis & Delta-Mendota*
9 *Water Auth. v. Locke*, 776 F.3d 971, 995 (2014). Defendants' arguments that
10 NMFS did not need to consider climate change in its analysis nevertheless miss
11 the mark here. The best available science indicates that climate change will affect
12 stream flow and water conditions throughout the Northwest. ECF No. 68-1 at 58–
13 59. The fact that there is no model or study specifically addressing the effects of
14 climate change on Icicle Creek does not permit the agency to ignore this factor.

15 The problem with NMFS's analysis is not that it used recent historical
16 streamflow data to model the effects of hatchery operations and water use at
17 different flow levels. *See* ECF No. 68-1 at 142, 144–58. The problem here is that
18 NMFS included no discussion whatsoever of the potential effects of climate
19 change in the BiOp's analysis of the Hatchery's future operations and water use.
20 NMFS discusses the effects of climate change generally and then proceeds with

1 analysis on the apparent assumption that there will be no change to the hydrology
2 of Icicle Creek. NMFS does not necessarily need to conduct a study or build a
3 model addressing the impacts of climate change on the Icicle Creek watershed.
4 But its analysis must consider that the best available science, which it discusses
5 elsewhere in the BiOp, suggests that baseline historical flow averages may not be
6 effective predictors of future flows.

7 Defendants point out that NMFS did conclude that climate change is less
8 likely to affect Icicle Creek than other parts of the Pacific Northwest. ECF Nos. 98
9 at 8, 100 at 28. In context, the BiOp states that “climate change is likely to warm
10 and change the hydrology of the entire critical habitat for [Upper Columbia
11 Steelhead],” and notes that the effects of climate change “increase[] the
12 importance of restoring habitat in Icicle Creek, an area that will be less prone to
13 climate change affects. [sic]” ECF No. 68-1 at 175. However, this statement is
14 conclusory and unconnected to the analysis of the Hatchery’s operations and
15 water use. And in any case, the fact that Icicle Creek may be less prone to the
16 effects of climate change does not mean that there will be no changes.

17 Because NMFS failed to consider the potential effects of climate change on
18 stream flows in Icicle Creek in connection with its analysis of the effects of the
19 Hatchery’s operations and water use on listed salmonids and critical habitat,
20 NMFS failed to consider an important aspect of the problem, and the BiOp is

1 arbitrary and capricious. It is, of course, not the Court's place to tell the agency
2 *how* to do consider climate change in its analysis, it simply must consider it.

3 **3. NMFS's decision to use monthly average flows was not arbitrary**
4 **and capricious.**

5 The Conservancy argues that NMFS's use of monthly flow averages
6 improperly misrepresents potential low flows. ECF No. 92 at 31. The
7 Conservancy is correct that low flow on any given day is the critical issue because
8 "fish require sufficient flows for their survival every day." ECF No. 92 at 31. But
9 the BiOp specifically addressed this concern, and took steps to account for the
10 limitations of having only monthly data by considering other data and the
11 experience with actual operations of hatchery structures. ECF No. 68-1 at 142–47.
12 This is an area where the Court must defer to the judgment of the agency scientists
13 that monthly flow averages adequately capture the variability necessary to
14 evaluate the effects of Hatchery operations. It is not apparent that FWS's decision
15 to use monthly data relies on a faulty assumption, is counter to the evidence, or is
16 implausible. *See Motor Vehicle Mfrs. Ass'n*, 463 U.S. at 43.

17 **4. The ITS includes an adequate limit on take and monitoring**
18 **standards.**

19 The Conservancy argues that the ITS does not meet ESA standards for take
20 because (1) it does not set an adequate trigger for take; (2) it lacks adequate

1 monitoring requirements for take associated with the water intake system; and (3)
2 because it includes contradictory provisions. ECF NO. 92 at 33–42.

3 The ITS “functions as a safe harbor provision immunizing persons from
4 Section 9 liability and penalties for takings committed during activities that are
5 otherwise lawful and in compliance with its terms and conditions.” *Ariz. Cattle*
6 *Growers Ass’n v. U.S. Fish & Wildlife*, 273 F.3d 1229, 1239 (9th Cir. 2001)
7 (citing 16 U.S.C. § 1536(o)). “In general, [ITS’s] set forth a ‘trigger’ that, when
8 reached, results in an unacceptable level of incidental take, invalidating the safe
9 harbor provision, and requiring the parties to re-initiate consultation.” *Id.* at 1249.
10 The “trigger” should ideally be a number, but it may be a surrogate—“for
11 example, changes in ecological conditions affecting the species”—but “[i]f a
12 surrogate is used, the agency must articulate a rational connection between the
13 surrogate and the taking of the species.” *Wild Fish Conservancy v. Salazar*, 628
14 F.3d 513, 531 (9th Cir. 2010).

15 *i. The ITS’s trigger level is adequate.*

16 The ITS does not set a specific numerical level for take of Steelhead and
17 Chinook salmon anticipated to result from the Hatchery’s water diversion. Instead,
18 the ITS uses instream flow as a surrogate as follows: (1) 100 cfs from April to
19 July; (2) natural flows minus Structure 1 and other non-federal diversions in
20 August (no Structure 2 operations); (3) no Hatchery caused reductions in stream

1 flows in September where flows are less than 60 cfs, and (4) minimum instream
2 flows of 40 cfs in October, 60 cfs from November to February, and 80 cfs in
3 March in dry years where Structure 1 and 2 operations cause historical channel
4 flows to drop below 100 cfs. ECF No. 68-1 at 178, 180. These surrogate levels are
5 based on flow recommendations for passage and rearing of salmonids during
6 different life cycles and at each relevant stream location. ECF No. 68-1 at 147–58,
7 178, 180. NMFS rationally connected these surrogate trigger levels to take of the
8 species.

9 *ii. The ITS's monitoring requirements are adequate.*

10 The Conservancy argues that the ITS lacks sufficient monitoring procedures
11 for take resulting from the Hatchery's water intake system. Specifically, the
12 Conservancy notes that the Hatchery's primary diversion structure—Structure 1—
13 does not comply with NMFS's screening criteria and entrains fish. ECF No. 92 at
14 37. Fish entrained in this diversion, travel through buried pipes and are deposited
15 in the Hatchery's sand-settling basin, where they have no way to return to the
16 creek unless manually collected and transported. ECF No. 92 at 38; NMFS
17 13725–26.

18 The BiOp acknowledges that the unscreened diversion structure kills fish,
19 and the ITS sets a take limit of 550 juvenile and 20 adult steelhead and 1,000
20 juvenile Chinook. NMFS 12104–07; ECF No. 92 at 38. The ITS sets requirements

1 for visual monitoring of the sand-settling basin for trapped fish. ECF No. 68-1 at
2 181. Additionally, FWS has specific fish salvage procedures that comply with
3 NMFS recommended procedures. ECF No. 68-1 at 177, 179–80.

4 The Conservancy argues that the monitoring requirements are inadequate
5 because it is not clear the entire sand-settling basin can be observed. ECF No. 92
6 at 39. Defendants, however, point out that visual monitoring is more intensive
7 than simply standing on the edge of the pool, and includes snorkeling in the pool,
8 which has been used effectively in the past in Icicle Creek. ECF No. 98 at 20;
9 ECF No. 100 at 43; NMFS 12049–50. Defendants also argue that the record and
10 BiOp adequately demonstrate that juvenile fish entrained in the pool are readily
11 observable. ECF No. 100 at 43; ECF No. 68-1 at 132, 183.

12 The Court finds no basis to second-guess the scientific determination of the
13 expert agency on this issue. The ITS includes specific terms and conditions for
14 monitoring and removal of entrained juvenile fish. ETS No. 68-1 at 182–93.
15 These standards were developed in consultation with FWS. NMFS 1131–32. And
16 as the Federal Defendants point out, “NMFS was entitled to rely upon the official
17 representations of [FWS] that it would be able to conduct the conservation and
18 monitoring measures proposed in the action.” *Or. Nat. Desert Ass’n v. Tidwell*,
19 716 F. Supp. 2d 982, 1003–04 (D. Or. 2010).

1 *iii. The ITS does not contain contradictory provisions.*

2 The Conservancy argues that the ITS is internally contradictory with respect
3 to the operation of Structure 2 in March. ECF No. 92 at 43. Specifically, Term 2a
4 of the ITS requires that Structure 2 remain open in March for Steelhead spawning
5 and migration, when more than 50 Hatchery fish migrate upstream of Structure 5.
6 ECF No. 68-1 at 182. The ITS also provides that the Hatchery may deviate from
7 its instream flow goal of 100 cfs for the purposes of “aquifer recharge.” ECF No.
8 68-1 at 182. The Conservancy argues that this can only be accomplished by
9 closing the gates at Structure 2. ECF No. 92 at 43. However, in addition to the
10 provision of the ITS discussed by the Conservancy (Term 2a), the ITS prohibits
11 any operation of Structure 2 in March if adult Steelhead are present in the creek
12 (Term 2e). ECF No. 68-1 at 182. Term 2e therefore resolves any conflict within
13 Term 2a: if adult steelhead are present in March, FWS may not operate Structure
14 2, even for aquifer recharge. *Id*

15 **D. NMFS was not required to conduct an EA or EIS pursuant to NEPA**
16 **when it issued the Incidental Take Statement.**

17 The Conservancy argues that NMFS violated NEPA by failing to conduct
18 an EA or EIS in conjunction with the ITS. ECF No. 92 at 44–47. NEPA requires
19 federal agencies to prepare an environmental impact statement (EIS) for all
20 “major Federal actions significantly affecting the quality of the human
environment.” 42 U.S.C. § 4332(2)(C)(i). If the action at issue is one that does not

1 categorically either require or not require an EIS, the agency must prepare an
2 environmental assessment (EA) to determine whether to prepare an EIS or a
3 finding of no significant impact (FONSI). *Anderson v. Evans*, 371 F.3d 475, 488
4 (9th Cir. 2002).

5 The Ninth Circuit squarely addressed this issue in *San Luis & Delta-*
6 *Mendota Water Authority v. Jewell*, holding that the implementation of the BiOp
7 and ITS is what triggers NEPA, and that responsibility lies with the action agency.
8 747 F.3d 581, 642 (9th Cir. 2014). In that case, the court considered whether
9 FWS's issuance of a BiOp was a "major federal action significantly affecting the
10 quality of the human environment." *Id.* (quoting 40 C.F.R. §1508.18). The court
11 distinguished the case from *Ramsey v. Kantor*, 96 F.3d 434 (9th Cir. 1996), where
12 NMFS issued an incidental take statement to the states of Oregon and Washington
13 pursuant to a federal-state-tribal compact (the Columbia River Fish Management
14 Plan). *Id.* at 644. In that unique circumstance, the BiOp and ITS apportioned
15 rights to parties and was "functionally equivalent to a permit." *Id.* (quoting
16 *Ramsey*, 96 F.3d at 444). By contrast, in an ordinary case, it is the action agency
17 that has the ultimate responsibility to determine whether and how to implement an
18 ITS. *Id.* The court concluded that there was "no reason to require a consulting
19 agency . . . to complete an EIS when an action agency . . . will either (1) prepare

20

1 an EIS when it implements [the consulting agency’s] proposal or (2) reject [the
2 consulting agency’s] proposal and prepare an EIS on whatever it implements.” *Id.*

3 *San Luis & Delta-Mendota* is dispositive. NMFS had no NEPA obligation
4 in this case.³

5 **E. FWS and BOR properly relied on NMFS’s BiOp and ITS to satisfy
6 their obligations under ESA Section 7.**

7 The Conservancy argues that FWS and BOR have violated their duty to
8 insure that Hatchery operations do not jeopardize ESA-listed species or adversely
9 affect their critical habitat. ECF No. 92 at 48. The conservancy argues that the
10 agencies cannot simply rely on the BiOp because the decision to rely on the 2015
11 BiOp must itself not be arbitrary and capricious. ECF No. 92 at 48. An action
12 agency has an independent duty to insure that its action is not likely to jeopardize
13 listed species or adversely modify critical habitat. *Pyramid Lake Paiute Tribe of
14 Indians v. U.S. Dep’t of the Navy*, 898 F.2d 1410, 1415 (9th Cir. 1990). The
15 agency’s decision to rely on the BiOp itself must not have been arbitrary and
16 capricious. *Res. Ltd., Inc. v. Robertson*, 35 F.3d 1300, 1304 (9th Cir. 1993).

17 Where there are factual objections to a BiOp, an action agency’s reliance on
18 even an “admittedly weak” BiOp is generally not arbitrary or capricious. *Id.*; *Defs.*

19 ³ The parties’ intend to file separate motions for summary judgment on Plaintiff’s
20 recently added claim that FWS and BOR were required to comply with NEPA and
produce an EIS. The court is scheduled to hear these motions in March, 2017.
ECF No. 117.

1 *of Wildlife v. EPA*, 420 F.3d 946, 976 (9th Cir. 2005), *reversed on other grounds*
2 *by Nat'l Ass'n of Home Builders v. Defs. of Wildlife*, 551 U.S. 644 (2007).

3 However, an action agency may be held to account for relying on a legally
4 insufficient BiOp. *Id.*

5 In this case, the BiOp, in failing to consider an important factor in its
6 analysis, is factually, not legally, insufficient. FWS and BOR's reliance on the
7 BiOp satisfied their duties under ESA Section 7.

8 VI. CONCLUSION

9 For the reasons discussed, **IT IS HEREBY ORDERED:**

- 10 1. Plaintiff Wild Fish Conservancy's Motion for Summary Judgment
11 **ECF No. 92**, is **GRANTED IN PART and DENIED IN PART**.
- 12 2. Defendants' Cross-Motions for Summary Judgment, **ECF Nos. 97,**
13 **98, and 100**, are **GRANTED IN PART and DENIED IN PART**.
- 14 3. The Biological Opinion issued by National Marine Fisheries Service
15 is arbitrary and capricious for the reasons articulated in this opinion.
- 16 4. Plaintiff's Fifth Cause of Action and Seventh Cause of Action are
17 **DISMISSED**.
- 18 5. This matter is **REMANDED** for further consultation consistent with
19 this opinion.

ATTACHMENT 3

Full-Cost Accounting for Washington's State-Owned Forests: An Overview

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INTRODUCTION

The Washington Board of Natural Resources (BNR) is responsible for overseeing the management of more than 5 million acres of state-owned land to provide benefits for today's citizens and for generations to come. In this capacity, the BNR must weigh the potential costs and benefits of alternative land-management proposals for individual categories of land and select the alternative that offers the greatest, long-run, net benefit.

Over the next year or so, the BNR will make two major decisions that will affect the management of state-owned forest land over at least the next decade. One of these, called the "Sustainable Harvest Calculation," will set the level of timber harvest from western Washington state forest lands. The other will determine whether or not the state will secure certification from one or more entities that have established environmental, social, and economic standards of forest stewardship.

In theory, the BNR would consider the full range of potential costs and benefits from alternative harvest levels and certification programs before making its decisions on these matters. In the distant past, these tasks would have been straightforward and intuitive. Benefits were derived from the state's forest lands through logging, and the net benefit of logging a parcel was the revenue from selling logging rights minus the administrative and other related costs incurred by the state's Department of Natural Resources.

Today, though, conditions are much different. There is broad scientific evidence and widespread public perception that industrial logging can generate numerous costs for others. Degradation in the quality of water in streams arising from logging, for example, might harm salmon populations and lead to the loss of fishing-related jobs or to reductions in

This report does not address the much-discussed question of whether or not the *Skamania* court decision was correct in interpreting the BNR's trust duties as requiring undivided loyalty to the trustees. It does not need to. The utility of full-cost accounting as a tool for informing the BNR's forest-management decisions does not rely on any particular interpretation of *Skamania*. Rather, full-cost accounting is essential to the BNR's undisputed trust responsibilities to manage state-owned forests with appropriate attention to intergenerational equity and avoiding unreasonable risks to the trusts.

the value of residential properties adjacent to these streams. Some of the costs might not be realized immediately, or in the immediate vicinity, but be spread over the state's entire economy and extend to future generations. Some of the costs are easily quantifiable but others are not and some are not quantifiable at all, given today's incomplete scientific understanding of the ecological consequences of forest-management decisions and how they interact with other forces, such as global climate change.

Changes in the state's population and economy also affect the number and dimensions of the costs accompanying logging on the state's forest lands. Actions that were acceptable in the past, such as degradation of habitat for species facing extinction now are seen as unacceptable. Communities where family incomes once depended solely on the timber industry now may find the mills and logging crews

The purpose of this paper is to outline the central concepts of full-cost accounting. It also discusses past decisions that may have been modified, had their costs been fully taken into account, and describes how forest-management approaches that emphasize sustainability and stewardship can have positive economic consequences.

have disappeared and incomes depend on an unlogged forest's contributions to the local quality of life.

The timber industry is, and will remain an important component of the economy, in individual communities and for the state as a whole. Logging is, and for the foreseeable future will remain one of the tools used to manage and derive revenues from state-owned forest lands. As Washington's population grows and the economy evolves, however, the costs that might materialize from logging become more diverse and the potential

consequences of setting logging levels too high and environmental standards too low become more severe. Logging methods and programs that made sense in the past may no longer be the best for the beneficiaries who receive revenues from the lands or for the economy as a whole.

Given these changes in Washington's economy, the Washington Environmental Council (WEC) and the Seattle Audubon Society (SAS) are recommending that the BNR adopt an accounting system that fully identifies and weighs all the potential costs and benefits of different forest-management alternatives and assesses how they are likely to shift over time. WEC and SAS have emphasized that their recommendation is not about whether or not logging should occur on state-owned lands. Rather, their goal is to see full-cost accounting used as an efficient tool for shaping the characteristics of logging and other forest-management programs to ensure that they yield maximum, net benefits for this and future generations, in accordance with the BNR's trust responsibilities to beneficiaries and the public.

With the economic stakes surrounding logging of the state's forests rising, and with the BNR considering policies that will guide management of state-owned forests for at least the next decade, now is an opportune time to develop a conceptually sound, procedurally transparent process for comparing all the costs and benefits of different forest-management alternatives.

The purpose of this paper is to extend some assistance to the BNR by outlining the central concepts of a full-cost accounting system for evaluating forest-management policies and practices for the state's lands. We also illustrate the importance of full-cost accounting by including in the discussion examples of past decisions that may have been modified had such a system been in place and examples of how forest-management approaches that emphasize sustainability can have positive economic consequences.

The author of this report, the Washington Environmental Council, and the Seattle Audubon Society hope the BNR will use this as a starting point for developing and adopting its own full-cost accounting system.

We anticipate that full-cost accounting will, increasingly, become a central feature of the BNR's discussions with stakeholders and the public regarding its major forest-management decisions.

The remainder of this report has three sections. We first describe some general principles that should guide the development and application of full-cost accounting for the BNR's management decisions regarding Washington's state-owned, forest lands.

Next, we discuss some lessons from the past that might usefully inform deliberations of current board members. These lessons arise from past decisions that have proven inconsistent with the BNR's trust responsibilities, but could have been avoided if past board members had evaluated those decisions using a full-cost accounting system.

In the appendix, we briefly summarize some of the relevant economic literature regarding full-cost accounting as it might apply to Washington's state-owned forests.

PRINCIPLES OF FULL-COST ACCOUNTING

The major principles for applying full-cost accounting to BNR's forest-management decisions are illustrated by Figure 1, which shows a generalized equation for determining the net economic benefits of a forest-management alternative. In concept, the equation is straightforward: the net benefits are the gross economic benefits minus the costs, taking into account uncertainty and risk, as well as the distribution of effects, and comparing a given alternative against the next-best alternative. In practice, each element of the equation embraces many issues, issues that are before the BNR as it weighs options for managing state-owned forests. Below, we discuss each element of the equation in Figure 1 in greater detail.

Gross Economic Benefits

The gross economic benefits of decisions setting the timber harvest levels and forest-management standards for the next decade include more than just the revenues from ten years of timber sales. For example, if implementation of forest-management practices consistent with the standards of one or more certification organizations would increase the quality and, hence, the value of timber that would be logged in later decades, then these increases should be taken into account. In addition, managing the state's forests to meet certification standards might yield ancillary revenues. With certified forests, for example, BNR might be better positioned to earn revenues by selling carbon-sequestration credits, if carbon markets should evolve in the future, as many observers predict.

Some benefits might accrue to entities other than the trust beneficiaries. For example, if the BNR gives additional protection to water quality in streams on state lands, and if the improved water quality would stimulate additional recreational activities, these may generate additional revenues for local businesses and governments, some of whom may not be beneficiaries of state trust lands.

Some benefits might not materialize as monetary revenues, and, hence, not address the BNR's objectives of providing revenues to beneficiaries. Nonetheless, these benefits can be sufficiently substantial that overlooking them would undermine the BNR's larger responsibilities and, perhaps, jeopardize future revenues from state-owned lands. For example, adopting forest-management standards that forgo logging on steep, unstable slopes might reduce the risk of future landslides originating on state lands. Fewer landslides may mean lower risk of human injury and death, from the landslides themselves or from downstream flooding that can accompany landslides. All these benefits, even though some are not monetized, might be large enough to warrant consideration as the BNR makes its forest-management decisions.

Figure 1: Major Principles of Full-Cost Accounting

The major principles for applying full-cost accounting to the BNR's forest-management decisions are illustrated by this equation:

The Net Economic Benefits of a Selected Forest-Management Alternative

equal **The alternative's gross economic benefits**

Economic benefits include monetary revenues derived from the sale of goods and services from the forest, plus any increase in the value of future sales, plus monetary revenues from the sale of any ancillary good or service, plus any increase in the value of non-monetized goods and services derived from the forest.

Direct benefits are realized by the trust beneficiaries and state forest managers, e.g., as revenues from the sale of logs. Indirect benefits, if any, are realized by others, e.g., other state agencies, other landowners, and the general public.

minus **The alternative's direct and indirect costs**

Economic costs include monetary expenditures associated with implementation of the selected alternative, plus any increase in future expenditures, plus any decrease in the (monetized or non-monetized) value of a good or service derived from the forest.

Direct costs are incurred by the trust beneficiaries and state forest managers. Indirect costs, if any, accrue to others, e.g., other state agencies, other landowners, and the general public.

taking into account **Differences in uncertainty and risk between this and other alternatives**

The net economic benefits of a given alternative are reduced to the extent that there exists uncertainty about its ability to generate the expected benefits and/or risk that it may generate costs substantially higher than expected.

and **The distribution of costs and benefits**

A forest-management alternative may not be desirable if it is seen as grossly unfair because one group bears the costs and another enjoys the benefits. The greater the sense of unfairness, the greater the likelihood that forest-management decisions will be challenged.

and comparing with **The net benefits forgone by not selecting the next-best alternative**

When more than one forest-management alternative is being considered, the net benefits of a given alternative must be compared against those of the others.

Moreover, there may be a link between the non-monetized benefits and monetized benefits to trust beneficiaries. To continue this example, even though forgoing logging on steep, unstable lands might reduce timber-sale revenues, the overall, net income to the trust beneficiaries might rise. Such an outcome could come about if logging on these lands would markedly increase the risk of landslides resulting in expensive lawsuits filed against the BNR over injuries, death, and damages. Under these circumstances, logging reductions could yield higher net income for beneficiaries.

Costs

The first step in determining if a given forest-management alternative would yield net economic benefits is to subtract from its expected revenues the expenditures forest managers would incur to implement it. To determine the full, potential costs of a given forest-management alternative, though, the BNR should look beyond this limited calculus.

Additional expenditures may materialize in future periods. For example, using conventional harvest practices and maximizing the harvest during the coming decade might trigger future landslides, higher sedimentation of streams, more extensive forest fires in regenerated plantations, or other damage that must be corrected in subsequent decades. Or, other entities may incur expenditures as a result of the BNR's actions. This might occur, for instance, if logging on state-owned lands were to increase sedimentation in streams so that water utilities downstream incur higher costs to produce potable municipal water supplies, or downstream communities experience more severe flooding because sedimentation clogs river channels.

Additional costs could materialize if the forest-management policies adopted by the BNR were to reduce its ability to generate future revenues. This outcome could occur, for example, if certified forests proved able to yield higher-quality timber that would command a higher price than timber from uncertified forests, but, by opting now not to pursue certification, the BNR foreclosed the realization of the higher revenues. A similar outcome could arise if national carbon-sequestration markets were to develop in the future, but the BNR foreclosed the option of earning revenues from them through forest-management policies that failed to account for this possibility.

Long-lasting reductions in revenue-generating ability would materialize if a forest-management decision damaged the fundamental, ecological productivity of state-owned lands. Concern about such an outcome has long accompanied management of forests for industrial timber production, especially on short rotations. Consider, for example, this summary statement about the impacts on the long-term, forest productivity:

"[I]ntensive, frequent harvests accelerate nutrient export [from a site] and can accelerate leaching and soil loss; site preparation can cause nutrient losses via removal, displacement, or topsoil erosion; and prescribed burning causes additional losses through volatilization or ash being blown away." (Miller et al. 1992)

The authors note that, in some settings, as when soils are lost, the decreases in productivity are permanent. In others, the loss can be offset, but at a cost. For example, nutrients leached from soils can be replaced through the application of fertilizers, or by giving the forest enough time to restore the nutrients naturally. Full-cost accounting should fully recognize such costs.

Considerable costs also could materialize if logging on state lands were to reduce significantly the value of resources owned by others. For example, a significant increase in timber production from state-owned lands over a short period could depress the demand for and, hence, the price of timber owned by others on adjacent lands. The affected landowners would not be the only ones affected if, to continue the example, they were to reduce their harvest, lay off workers, and thereby reduce the tax receipts of local governmental entities. Similar outcomes could occur if logging on state lands were to cause job and income losses associated with other sectors, e.g., if logging of a scenic hillside depressed local housing markets because homeowners do not like to live near the unattractive stumps of a clearcut.

Uncertainty and risk

It is the nature of planning processes to focus on expectations. Thus, each forest-management alternative is typically designed and compared against others by assuming that its costs and benefits will fit a narrow set of expectations. Costs are expected to fit within expected budgetary, staffing and other constraints, benefits are expected to materialize when timber is sold at projected prices.

But things don't always go as planned.

Consequently, as the BNR compares forest-management alternatives it is appropriate for it to look beyond how they stack up against one another at face value, to see how the alternatives compare if things don't turn out as planned. It should consider the probability that each alternative will, in fact, yield unexpected outcomes and weigh the importance of such outcomes, should they materialize. All else equal, it should prefer alternatives that embody a low probability of extreme surprises, especially negative ones.

Two terms, uncertainty and risk, are commonly used to represent the likelihood that the future will not turn out as expected. Uncertainty is the more general of the two, and refers to any situation where there is a finite (but unknown) probability that an unexpected outcome, positive or

negative, will materialize. Risk refers to situations where the potential outcome is negative.¹

Uncertainty and risk can stem from nature, the economy, or human decisions. The likelihood of future drought, for example, is a natural uncertainty, but if severe drought were to occur, it could increase the risks of intense forest fires, reduced forest growth, and diminished habitat for at-risk species. Risks associated with uncertainty about the future economy include potential changes in global lumber markets that would reduce the price of timber the BNR plans to sell in the future. Or, an unexpected boom in Washington's economy could generate unforeseen urban settlement adjacent to state-owned lands, significantly increasing the hassle costs land managers and trust beneficiaries would incur to log them.

Potent potential risks from individual, human decisions are those associated with lawsuits or boycotts. No one can predict the probability that consumer groups and major retailers would boycott lumber and wood products from Washington's state lands if the BNR were to reject proposals that these lands be managed to meet certification standards. But if such a boycott materialized, the risk of financial losses could be considerable.

Neither uncertainty nor risk will be the same across all alternatives facing the BNR, and the differences may significantly influence the alternatives' overall, relative, net benefits. If the BNR were to adopt an alternative that called for not logging a specific parcel during the next decade, for example, but subsequent changes in economic and ecological conditions warranted logging, then the option would remain available. Conversely, if the parcel were logged and future conditions dictated that the parcel would, instead, be far more valuable unlogged, it will be too late. Similar differences among the alternatives relate to numerous natural, economic, and human-decision risks.

This asymmetry is unavoidable. Thus, how the BNR weighs uncertainty and risk will heavily influence its perceptions of the net benefits of the different alternatives. Past experience shows that many of today's risks, such as the threat of restrictions from the Endangered Species Act, were triggered by forest-management practices that took an industrial approach, focused on generating short-run revenues, and overlooked the accompanying risks. A growing body of research indicates that these

¹ In some contexts, economists use the term, risk, only in situations where the probability of an undesirable event is known. We use the term more broadly to refer to any situation where the BNR's decisions could yield outcomes significantly worse than those that are expected. This broader perspective is useful, insofar as society generally is risk averse, i.e., it places a greater value on avoiding potential, negative outcomes than on experiencing potential, positive ones, all else equal.

risks may be mitigated in the future through approaches that focus on producing both revenues and ecological conservation.²

Distribution of costs and benefits

The distribution of costs and benefits among different groups can have an important influence on the overall, net economic benefits of different forest-management alternatives. This is especially true if a decision by the BNR would cause one group to bear large costs and another to enjoy large benefits, and if this disparity were broadly seen as grossly unfair. In such situations, those who bear the costs would have not just economic incentives to oppose the decision, but political support for doing so. The greater the opposition from individuals, groups, and political leaders, the higher the costs the BNR will face to implement the decision.

Distributional issues are, perhaps, most easily seen when they involve the current, competing interests that generate controversy surrounding the BNR's actions. This controversy can delay the BNR's proceedings, tie-up decisions in courts, and undermine legislative support for the BNR's programs.

Perhaps less visible, but no less important from an economic perspective, are the distributional issues that emerge when a forest-management alternative would generate benefits for this generation but costs for those of the future. Consider an example discussed above: the prospect that short-rotation, industrial timber production might significantly lower soil productivity. In such circumstances, today's Washingtonians would pass to their descendants a depleted asset, the corpus of the trust managed by the BNR would decline in value, and future beneficiaries of the trust would enjoy less revenue from these assets.

Such threats to the interests of future generations can have more than just a theoretical significance for today's trust beneficiaries and members of the BNR. Real impacts on the BNR's proceedings and on the near-term revenues to beneficiaries can materialize if (current) advocates for future generations generate publicity and controversy regarding perceived inequities, file lawsuits or take other direct actions to prevent future harm to trust assets.

These issues accompany proposals for the BNR to pursue certification by the Forest Stewardship Council and/or other institutions. Relative to other alternatives facing the BNR, certification standards that embody the greatest emphasis on protecting the long-run productivity of forest assets also carry the lowest risk that forest-management policies will

² See, for example, Carey, et al. (1999). Also, see the summaries in the Appendix of literature that describes the spillover costs of past forest-management practices and the potential opportunities for modifying future practices so the overall value of goods and services produced from forests rises, with less accompanying risk.

generate intergenerational inequities sufficient to trigger challenges to the BNR's decisions and costs for the beneficiaries.

Comparison of alternatives

It may be useful for the BNR to weigh different forest-management alternatives using more than one set of economic scales. One might measure just the alternatives' expected revenues, for example, while another would consider the full set of costs, uncertainties, and risks described above. If they both show that one alternative dominates the others, then the BNR could have confidence that choosing it would be the best, from an economic perspective.³

The BNR also could learn important information if the two scales did not agree with one another. The first scale, for example, might show one alternative promises substantially higher timber-sale revenues than the others over the next decade, but the second scale might show the revenues are highly uncertain, and the alternative, if implemented, would significantly reduce future revenues, impose large costs on groups outside the revenue stream, and stimulate perceptions of gross unfairness. Such findings might help the BNR determine that another alternative, though it promises lower timber-sale revenues, would be preferable because the risks would be less, the revenues more certain, and the overall consequences more in line with the BNR's stewardship obligations.

Even if the BNR opts not to apply full-cost accounting and make such comparisons, it should anticipate that others will do so. Evolving scientific knowledge about forest management and growing awareness about the economic stakes associated with management alternatives will encourage individuals, interest groups, and even communities to look at the full suite of benefits and costs of forest-management alternatives. If the BNR ignores a particular benefit or cost, someone will ask "Why?" and have in hand information buttressing his or her belief that the benefit or cost is economically important. In this context, the BNR can reassure everyone by taking the lead.

³ The Appendix provides evidence, derived from several research efforts, reinforcing the importance of evaluating forest-management alternatives using broad economic criteria rather than just the present discounted value of revenues from timber sales. Note especially the findings of the Wood Compatibility Initiative and other research regarding the ability of different alternatives to jointly produce wood fiber and other valuable goods and services. (See Appendix section "D. Joint Production of Timber and Other Goods and Services.")

APPLYING THE PRINCIPLES: SOME LESSONS FROM THE PAST

Concern about full-cost accounting and maximizing the net benefits from state-owned forests — taking into account all the factors shown in Figure 1 — is not new. Past members of the BNR, school and local-government beneficiaries of state land trusts, and members of the public have long seen the merits of weighing all the costs when choosing among alternative approaches to managing the state's forests.

A review of this experience shows, however, that the BNR has systematically taken too narrow a view of full-cost accounting. Subsequent outcomes have proven its decisions over-emphasized the benefits of timber production, under-emphasized or failed to see important costs, and inadequately accounted for the economic risks of approaches that preferred short-run revenues at the expense of ecological health and long-run revenues. Figure 2 identifies some of the costs not fully taken into account by past boards. We separate these and other, related examples, into two categories: those that failed to see the ecological risks of logging, and those that did not fully anticipate changes in economic preferences.

Ecological Risk

There can be no doubt that past forest-management decisions by the BNR did not fully account for the ecological risks and related economic costs that resulted from its decisions regarding logging levels and environmentally harmful forest practices. Consequently, subsequent generations have borne extraordinary costs to cope with deteriorating roads, risks to threatened and endangered species, fire-related risks, and damage from disease and insects.

Similar mistakes can be avoided in the future if forest scientists and managers fully understand all the ecological consequences of logging on state lands. If they do not, however, then the lack of understanding means that any decision to log state lands embodies further ecological and, hence, economic risks. Generally accepted principles of asset management indicate the BNR should act to curtail the risks by implementing logging practices and levels that mitigate the risks.

The BNR also should ask, What are the chances that the forest's response to the decisions made today will be less robust than currently expected? In answering this question, it should take into account the considerable research, much of it conducted by scientists in Washington, identifying the potential ecological impacts of global warming.

Figure 2: Some Examples of Costs Not Fully Taken into Account by the BNR's Past Decisions

Ecological Risk

Roads

Built to support logging, many roads have caused subsequent generations to incur the costs of ecological damage, repair costs and/or decommissioning costs.

Fire on logged-over state lands

Past forest-management practices have resulted in state lands having dense, single-age stands less resistant to fire than more diverse, older forests. Subsequent generations have incurred additional fire costs.

Diseases and insects

Past forest-management practices have resulted in dense, single-age stands less resistant to some diseases and insect infestations than more diverse, older forests. Forest productivity beneficial to subsequent generations has been diminished.

Soils

Past forest-management practices have caused soil erosion, reduced soil productivity, and diminished forest productivity beneficial to subsequent generations.

Fire-suppression

Past fire-suppression activities often aimed to protect trees so they could be logged. Subsequent generations face increased risk of intense fire and economic damage.

Habitat modification

Past forest-management practices adversely modified habitat. Compensatory conservation costs have reduced the net benefit for subsequent generations.

Economic Preferences

Services vs. timber

Past timber production often had persistent, adverse impacts on recreational and other services that are becoming more valuable. These adverse effects erode public support for the BNR's management of state-owned lands and potentially jeopardize the continued flow of timber-sale revenues to trust beneficiaries.

Green markets

Consumer groups and major retailers have created new demands for forest products produced in accordance with forest-stewardship standards.

Market sanctions

Consumer groups have boycotted products that do not meet stewardship standards.

Rainfall Change Is Expected to Reduce Forest Production

"Some types of trees grow better with more CO₂ in the air, but for most Northwestern trees, the normal summer dry period is the strongest limitation they face to growth. Furthermore, drought increases the likelihood that trees will be weakened or killed by insects or forest fires. ... Looking to the future then, a warmer climate poses problems for Northwest forests."

Climate Impacts Group. 1999. *Impacts of Climate change on the Pacific Northwest. Summary.*

Several recent analyses predict that global warming is likely to change precipitation patterns throughout the Pacific Northwest. One study, for example, predicts that, although total annual precipitation in this region is likely to remain about the same, the distribution of precipitation will be different (Climate Impacts Group 1999). Winters are expected to be wetter, but with more rain and less snow, and summers are expected to have less rainfall as well as lower runoff from the smaller snowpacks. "The future, therefore, probably holds increases in winter flooding and—paradoxically—increases in summer drought."

Researchers examining the potential impacts of climate change readily acknowledge that the models they employ are not perfect, though there are strong reasons to believe they capture

precipitation trends in the region with reasonable accuracy. If their forecasts are correct, then the costs of sustaining a given level of timber harvest on state-owned lands could increase, for hotter, drier summer days will slow tree growth and make it more difficult to establish seedlings.

Economic Preferences

Unforeseen changes in economic preferences also have diminished the net economic benefits derived from past forest-management decisions. Particularly important have been the growing value, relative to timber, of recreational and other services derived from forests. An extension of this shift has been the emergence of markets for forest products certified as being produced in accordance with stewardship standards, and sanctions for products that do not meet these standards.

Figure 3 illustrates the growing economic importance of recreational and other services. It presents some of the results from a 1995 study that tallied the contributions to the Gross Domestic Product, or GDP, of different goods and services from the national forests (U.S. Department of Agriculture 1995). GDP is the value of all domestically produced goods and services and, though it is widely accepted as a measure of the nation's economic production, many fault it for generally ignoring the environment and unpriced items, such as recreation. In this study researchers attempted to fill in some of the blanks.

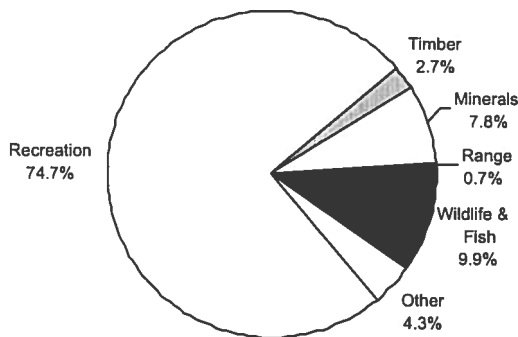
The analysis projected that the most easily measured goods and services from the national forests would contribute \$145.1 billion to GDP in 2000. Recreation accounts for three-quarters of this contribution, as shown on the left side of the figure, and fish and wildlife accounts for 10 percent. In contrast, timber accounts for only 2.7 percent of the total. The authors of

the report also predicted that, for the foreseeable future, the value of the services would increase, relative to the value of timber.

Figure 3: Recreational and Other Services, Not Timber, Account for the Bulk of the Value and Jobs Produced by the National Forests

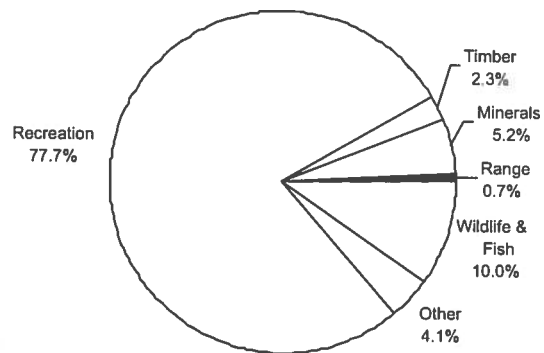
Contribution to Gross Domestic Product

Total Value: \$145 billion (1999 dollars).
Excludes carbon sequestration, clean water
and other services provided by national forests.



Contribution to Jobs

3.3 million jobs derived from the national forests.
Excludes carbon sequestration, clean water
and other services provided by national forests.



Source: U.S. Department of Agriculture (1995).

Recreation similarly dominates timber in jobs. Recreation accounts for more than three-quarters of all jobs derived from the national forests, as shown on the right side of Figure 3, and timber for less than 3 percent.⁴

There are, of course, important differences between the national forests and Washington's state-owned forests, and we do not imply that the distribution of goods and services for state-owned lands would be the same as those in Figure 3. That said, however, the data in Figure 3 provide some context for evaluating the long-run economic consequences of alternative schemes for managing state-owned forests.

⁴ The analysis underlying Figure 3 is currently being revisited in response to questions raised about the accuracy of the data on recreation. Even if the recreation numbers are adjusted downward, however, we expect the conclusion that services outweigh timber to remain robust, insofar as adding in carbon sequestration, the provision of clean water, and protecting existence values associated with unroaded areas—services excluded from the original analysis—would outweigh any reduction in the value of recreational services.

To the extent that Washington's state-owned lands resemble the national forests, then the value of services derived from these lands outweighs the value of timber, and the difference in value will grow in the future. This may not be true of all state-owned lands, but it is more likely for lands where the services are already identifiably important — where there is high recreational use or where state lands are a component of municipal watersheds, for example.

To the extent that services derived from a parcel of state-owned land are more valuable than timber, then the BNR could damage the overall economy if it were to decide the parcel should be logged in a manner that significantly reduced the value of the services. This economic damage also could reduce the net benefits to trust beneficiaries, both current and future.

The threat to current beneficiaries is illustrated by recent growth in the demand for certified wood products and by evidence that the market might sanction products produced from state-owned lands in a manner contrary to widely-recognized standards of stewardship.

Numerous retailers of wood products have responded to consumer demands by curtailing their sales of wood products perceived as coming from environmentally harmful practices. For example, Home Depot and Lowes have reduced their stocks of lumber and other wood products derived from old-growth forests, Staples and Kinkos have begun eliminating the use of paper derived from old-growth forests, and McDonalds switched to paper packaging with a high content of recycled fibers. Similar actions are expanding the effort to restrict stocks of wood products lacking forest-stewardship certification. If these efforts are successful, the BNR could find itself excluded from a valuable marketplace.

The overall significance of consumer demands for green products is illustrated by a recent analysis (IBM Business Consulting Services 2003). After interviewing 30 individuals representing major corporations that purchase forest products from mills in British Columbia, the report concludes there are significant financial risks for landowners, manufacturers, and retailers that do not demonstrate they have avoided unnecessary harm to the environment.

The threat to future beneficiaries arises from the possibility that future generations may find the consequences of today's forest-management decisions so undesirable they impose constraints on the BNR's ability to generate future revenues from state-owned lands. For example, if future Washingtonians strongly prefer that watersheds in a region of the state provide high-quality water, but find that the legacy of past logging jeopardizes their ability to do so, they may seek to ban all additional logging in the watersheds. Revenues to beneficiaries from logging could plummet.

Changes in economic conditions unrelated to the demand for services also could bring about a similar fall-off in revenues. For example,

revenues to beneficiaries from timber sales could drop precipitously if the BNR adopts policies that move state-owned lands toward producing low-quality wood from short-rotation timber harvests, only to find that future prices for such wood are not sufficiently robust to cover logging costs.

This discussion touches on only a few of the substantial economic trends and uncertainties that complicate the BNR's task of managing state-owned forests in a sustainable manner. But it highlights a threshold the BNR must cross if it is to meaningfully integrate issues of sustainability into forest-management planning: it must look beyond the present into the future. A harvest level that would be sustainable if economic conditions were to remain as they are today, may prove unsustainable as the economy evolves. Thus, the BNR must explicitly identify foreseeable economic changes and consider their implications for forest-management decisions made today. These implications cover the sustainability of both forest resources on state-owned lands and the flow of benefits to trust beneficiaries.

APPENDIX: A BRIEF DISCUSSION OF RELEVANT LITERATURE

Washingtonians have long been concerned about the sustainability of their forests. Until recently, this concern focused primarily on sustaining the flow of timber, as timber was seen as the primary, or even the only, forest product with significant economic value, and the prevailing view was that forests had to be logged if the state were to derive meaningful revenues, jobs, and other economic benefits from them. Accordingly, land managers, researchers, and the public encouraged the adoption of forest-management regimes aimed at producing as much wood fiber as possible. West of the Cascades, the principles of industrial forestry supported clearcutting and planting high-value commercial species (especially Douglas fir), plus the use of fertilizers to encourage growth and herbicides to discourage competing vegetation.

Over the past two decades, however, the reasoning underlying these practices has been called into question, as scientists, economists, and the public increasingly have come to recognize that those regimes produced timber at the expense of other goods and services, harmed many species, and imposed costs on subsequent generations. These adverse impacts are commonly called the spillover costs of conventional, industrial approaches to logging.

Spillover costs of logging on state-owned lands are important to the BNR for two reasons. First, they reduce the economic well-being of those who bear them, all else equal, and impair growth throughout the overall economy. Second, if large enough, they spur political and other actions to curtail them and, in the process, threaten the continued flow of revenues from logging.

In the following pages, we summarize some of the literature that describes some of the most significant spillover costs of conventional, industrial approaches to logging. This literature supports these conclusions:

- *State-owned lands play so many roles in the economy that the BNR cannot provide a full accounting of the net economic benefits of alternative forest-management schemes by looking solely at the direct costs and revenues of timber production.*
- *Insofar as industrial forest-management practices generate spillover costs for other sectors of the economy and for future generations, then a management scheme that adopts these practices to maximize timber production over the next decade will not — indeed, cannot — yield sustainable levels of other goods and services.*
- *Researchers are demonstrating that forest-management approaches that explicitly attempt to achieve joint objectives — for timber production, ecological health, and sustainable production of non-timber goods and services — may yield higher revenues than those that focus solely on timber.*

A. Spillover Effects on Salmonid Fishes and Their Habitats

Considerable effort has been made to increase understanding of the potential spillover costs associated with the impacts of conventional timber production on salmonids (salmon, steelhead, and trout). Table 1 illustrates the findings from one of the most extensive, but also earliest, summaries of the scientific literature.

Table 1. Illustrative Potential Impacts of Forest Management on Salmonid Fishes and Their Habitats

Forest-Management Activity	Illustrative Impacts
Timber Harvesting and Silviculture	<p>"[T]he effect of harvest and silviculture [on the water balance] can be grouped into three major categories....: influences on snow accumulation and melt rates; influences on evapotranspiration and soil water; and influences on soil structure that affect infiltration and water transmission rates."</p> <p>"The principal water quality variable that may be influenced by timber harvesting are temperature, suspended sediment, dissolved oxygen, and nutrients."</p> <p>"Forest harvest activities can influence both upland erosional processes and the way that forest streams process sediment in their channels. ... Remedial measures are available to correct surface erosion problems, but they are costly and far from perfect. Correcting the effects of accelerated mass movements may require tens or hundreds of years...."</p>
Forest Chemicals	<p>"The use of forest chemicals can result in both direct and indirect effects on salmonids and their habitats. Direct effects are those resulting from the exposure of fish to a chemical in water, food, or sediment. ... Indirect effects are manifested through chemically induced changes in the densities and community organization of aquatic and terrestrial plants and insects. These effects may include alteration of nutrient, sediment, and temperature characteristics of the water and changes in cover, food, or some other environmental characteristic important to the well-being of salmonid fishes."</p>
Road Construction and Maintenance	<p>"Forest and rangeland roads can cause serious degradation of salmonid habitats in streams."</p>

Source: (Meehan 1991)

B. Cumulative Effects of Forest Practices (1995)

Scientists at Oregon State University, at the direction of the Oregon Department of Forestry, summarized what was known in 1995 about the cumulative effects of current forest practices on air resources, soils, water resources, aquatic biota, and wildlife (Beschta et al. 1995). Table 2 illustrates the findings.

Table 2. Cumulative Effects of Forest Practices, ca. 1995

Affected Resource	Illustrative Impacts
Air Resources	"Forest practices ... have the potential to substantially affect air resources in and around forested areas. In some cases, the effects can extend many miles from forested areas due to transport of airborne material by prevailing winds. The most significant effects result from emissions of smoke and other air pollutants from forest burning. ... Changes in forest cover following harvest can cause major effects on ground-level temperatures. ... [and] have important effects on patterns of snow accumulation. ... While reintroduction of trees to a previously forested area will increase the carbon storage in biota, the tree harvest itself releases large amounts of carbon to the atmosphere. ... Carefully managed forests could represent a significant sink of CO ₂ ."
Soils	"Concerns about effects of forestry practices on soils involves individual 'immediate' effects and several associated 'intermediate' effects which have potential to impact soil conditions and productivity. These effects include: soil compaction, surface erosion, soil mass-movement, nutrient redistribution or loss, and effects on soil biota."
Water	"Scientific results indicate that while forest practices can significantly alter hydrologic systems in some instances, in others they may have little to no detectable effect. ... In most cases, it is not the fact that trees were harvested, but how they were harvested, where on the landscape, the methods of roading and yarding, the degree of riparian protection, and other factors that ultimately determine the impact of a forest practices operation."
Aquatic Biota	"A loss of stability in stream habitat and fish assemblages characterize systems recovering from logging-related disturbances. Though short-lived invertebrates and young fish may colonize disturbed sites, biological stability and habitat complexity are slow to return."
Wildlife	"Forest practices can affect habitat quality for the nearly 300 forest-associated vertebrate wildlife species [and] result directly in alteration of animal survival rates, or can indirectly cause changes in abundance and distribution of species by altering habitat throughout forested regions"

Source: (Beschta et al. 1995)

C. Goods and Services from Public Lands

In 1997, economists with the Forest Service developed the region's most thorough comparison of the economic values of different goods and services derived from public lands (Haynes and Horne 1997). They found that, for federal lands in the Washington portion of the eastern Cascades, timber constituted only 7.76 percent of the total value of all goods and services derived from those lands in 1995, and estimated that this percentage would fall to 1.95 percent by 2045. Table 3 shows the breakdown.

Table 3. Percent of Total Value of Goods and Services from Federal Lands in the Northern Cascades (Eastside), 1995 and 2045^a

Activity	Percent of Total Value	
	1995	2045
Timber	7.76	1.95
Camping	5.87	3.82
Day Use	4.2	3.78
Fishing	1.22	0.59
Hunting	3.22	1.54
Motor Boating	0.04	0.02
Motor Viewing	1.88	21.24
Non-Motor Boating	0.05	0.03
ORV	0.34	0.22
Snowmobiling	0.16	0.09
Trail Use	9.29	9.32
Viewing Wildlife	0.6	18.95
Winter Sports	5.43	3.85
Range	0.09	0.04
Unroaded Existence	59.83	34.55

Source: (Haynes and Horne 1997)

^a Excludes values for some goods and services, such as carbon storage, habitat for at-risk and other species, and provision of clean water.

Although the data represent federal lands on the eastern flank of the Cascades, they have important implications for Westside state lands, for they demonstrate that recreational values derived from public lands can far outweigh timber values. Moreover, this disparity is expected to grow. Thus, decisions that favor short-run production of timber but cause long-run reductions in recreational values may significantly lower the overall value of future goods and services produced from state-owned lands. The greater the reduction, the greater the likelihood that

recreationists will press their interests before the BNR and other institutions.

D. Joint Production of Timber and Other Goods and Services

The dramatic reduction in timber production on federal lands in the Pacific Northwest stimulated the initiation of research about the spillover costs from timber production. The most extensive is the Wood Compatibility Initiative of the Forest Service's Pacific Northwest Research Station, underway since 1998. It aims to (1) characterize the spillover costs, and (2) describe options for modifying timber production to reduce them. Other researchers, most notably at the University of Washington and Oregon State University, have conducted research on the same topics.

This research raises a red flag for the BNR and the trust beneficiaries. Initial reports confirm that the spillover costs are widespread and economically and socially significant, but the mechanisms by which the spillover costs manifest themselves are not always fully understood. Thus, the research sends a warning: adopting a forest-management regime emphasizing timber production probably will generate significant spillover costs that cannot now be fully understood and anticipated. To the extent that these spillover costs will redound to the BNR and the beneficiaries — through lawsuits or political opposition, for example — they constitute significant risks that net, forest-management revenues will be less and expected.

The research also finds there are opportunities for modifying timber-production practices to reduce the spillover costs. These opportunities include explicitly managing broad landscapes to jointly accomplish timber-production and ecological objectives. Here are some examples of research findings:

- “Virtually all aquatic species and many terrestrial plant and animal species closely associated with riparian zones are sensitive to management-induced changes in riparian condition” Peterson and Monserud (2002)
- “The tradeoff between negative public perceptions and silvicultural benefits of clearcuts is a long-standing dilemma in forest management” Peterson and Monserud (2002)
- “Whether intended or not, almost all forest management activities affect recreational opportunities and uses.” Peterson and Monserud (2002)
- “Ultimately, we need to examine scenarios comparing management alternatives at the regional scale. Forest harvesting can fundamentally alter landscape patterns, with potential impacts on biodiversity, regional hydrology, and certain wildlife populations. Compatibility itself is inherently a large-scale concept that cannot be properly evaluated by looking at a series of stands or even watersheds in isolation.” Peterson and Monserud (2002)
- “There has been an evolution of goals from the sustainability of individual product outputs to the sustainability of whole ecosystems. As a result, there is the recognition that sustainable timber harvests do not guarantee sustainable levels of other goods and services. ... The discussion of joint production and sustainability are inseparable

because the production of one output will have repercussions on other outputs and services." Stevens and Montgomery (2002)

- "Intentional management based on [conserving biodiversity] is a net benefit situation [relative to setting lands aside or maximizing net present value from timber production] for multiple-use and trust lands." Carey, et al. (1999)

Carbon Sequestration

Concerns over the prospect of global warming has led to research regarding the feasibility of proposals to retard growth in atmospheric concentrations of carbon dioxide (CO₂) by sequestering carbon in wood fiber. Several prominent proposals, if implemented, would restrict the total amount of emissions of CO₂ throughout the U.S. and other countries and establish market mechanisms that would allow firms and countries to offset emissions exceeding the limits by paying landowners to grow trees. Buyers and sellers of carbon sequestration, in effect, would conduct an on-going auction, with a buyer indicating a willingness to pay a landowner to manage his/her/its forest in a prescribed manner to store a given amount of carbon. Different landowners would compete with one another, establishing a market price per ton of carbon.

There is considerable uncertainty over what the prices would be, although some economists have attempted to fill-in the gap. Much of the research has looked broadly at the range of potential prices by looking at the potential sequestration costs for different types of forests and locations. These cost estimates represent the range of prices that would materialize if the market mechanism were implemented in the near future. A recent review of the literature indicates that these market prices would range from about \$17 to \$665 per ton of carbon for forests in the United States, and from about \$0 to \$103 for tropical forests (Zelek and Shively 2003).

Some studies have looked at what such schemes would mean for individual landowners. One of these was a 1999 study conducted in British Columbia by the Pacific Forest Trust, which found:

"In 1999, working with the World Resources Institute, we prepared an analysis for the Canadian timber giant, MacMillan Bloedel (since purchased by Weyerhaeuser) The analysis demonstrated how changing their forest management would increase their net carbon stores. ... The results showed that [MacMillan Bloedel] could increase its forest carbon stores by 32 million tons over 50 years. If sold at the price of \$10 per ton of carbon (\$2.72/ton CO₂), this would yield them \$33 million in the first decade—more than the value of the foregone timber harvest during the same period."

Taken together, these and other, related research findings demonstrate that there is movement toward establishing market mechanisms to sequester carbon and, if these were implemented in the near future, world market prices would begin near zero and then rise, perhaps to more than \$100 per ton.

If carbon-sequestration markets were established in the future, the BNR would be able to earn revenues by leaving trees standing. Larger trees contain more carbon than smaller ones and, all else equal, would earn higher revenues. Thus, if the BNR believes such markets will operate soon, then it should consider the merits of lengthening timber rotations and forgoing revenues from logging large trees so they are available to earn carbon-sequestration revenues in the future.

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ATTACHMENT 4

Projected Job creation at Chimacum Ridge

Summary: Chimacum Ridge has the potential to create an average of 12.8 FTEs over the next 50 years, starting at 10.9 FTEs and climbing to 14.8 FTEs over the next few decades. Employment is primarily direct but also captures indirect jobs associated with the projected logging activity. Employment is generated through timber harvesting and associated activities, such as logging, trucking, precommercial thinning, planting, and off-site jobs in wood processing (2.6 FTEs); nontimber harvesting and associated activities - primarily conifer needle harvesting and processing, both on-site and through services to other timber and agricultural landowners, but also including other forest foods and products (9.2 FTEs); and property management and environmental education (1 FTE).

Timber harvesting and associated activities: Under the projected forest management plan, harvesting is primarily through thinning with harvests of approximately 238 MBF (thousand board feet) per year, representing about 31% of growth. This level of harvesting was selected as it contributes to the desired future condition of an older, more diverse and structurally complex forest with inventory increasing to 26.7 MMBF (million board feet), or 31 MBF/gross acre. OFRI (Oregon Forest Resources Institute) estimates 11 direct and indirect jobs per 1 MMBF of harvest, yielding to an estimate of 2.6/FTEs/year on average for Chimacum Ridge. This does not factor in the potential establishment on site of a portable sawmill to custom mill larger timbers and other specialty cuts for local builders and boat builders. If this plan is adopted the direct FTEs associated with timber harvesting and processing would increase by 1-2 FTEs.

Non-timber harvesting and processing: Chimacum Ridge LLC plans to launch an essential oil and forest food harvesting and processing initiative. The essential oil operation will harvest and process fine branches and needles associated with precommercial thinning, pruning, and timber harvesting operations. Essential oil from western red cedar, true firs, Douglas-fir, spruce and other species is traded in the global marketplace, with current production primarily from Siberian and Canadian forests, and there is considerable demand for a local source. Essential oil is used in a number of industrial and consumer applications from air fresheners to household cleaning and personal care products. We estimate 4-6 FTEs per distillation operation with 2-3 harvesters, 1-2 FTEs running the distillation unit, and 1-2 FTEs involved in delivery, bottling, refining, and distribution. Essential oil will be initially sold to distributors, wholesalers and processors. In addition to conifer essential oil, we plan to offer custom distillation services to lavender and other growers in the region, especially during the summer months when conifer essential oil production is low (and other crops are in high production).

Once the operation is mature, a line of personal care products is projected to be added— salves, balms, soaps — featuring the essential oils and the Chimacum story, developing products both under a Chimacum Ridge label and engaging in private labeling for lavender and other producers that have products that lend themselves to essential oil production. This will add an additional 3-4 FTEs.

Forest foods: Chimacum Ridge is currently working with local food producers to explore commercialization of a number of forest foods including spruce tips (and tips from other conifers), fiddlehead ferns, bigleaf maple syrup, forest berries, and edible mushrooms. The conifer forests of the Pacific Northwest once served as a pantry, supporting one of the largest populations of hunter-

gatherers in the world. Spruce tips are the first green of the season and exceptionally high in Vitamin C and are used in a variety of foods and drinks; fiddlehead ferns are consumed globally with a growing local market; forest berries, especially salal, have great potential for a number of applications and have high antioxidants and other health benefits. While not currently in the estimated FTEs, we believe forest food harvesting and value added production could add another 2-3 FTEs to the existing estimate and would complement planned activities around value-added food production in the region.

Property management and environmental education: Chimacum Ridge and the surrounding forests and beverage and food production businesses such as Finn River Cidery, under the leadership of the Jefferson Land Trust, are collaborating on recreational access and environmental education. We anticipate 1 FTE engaged in property management and interpretive naturalist/environmental education activities with a number of area schools. This could grow to additional staffing needs as environmental education programming develops further.

ATTACHMENT 5

Role of Working Forest Conservation Easements and Community Forests in Supporting Local Rural Economies in Washington State

Summary Argument:

Forests managed on longer rotations (for example 80-100 years compared to 30-35 years) with intermediate thinning store more carbon (Harmon et al., 2009; Mitchell et al., 2012) and result in higher employment in logging and milling sectors (employment factors from Lippke and Mason, 2007).

Current industrial ownership is managed on short rotations and dominated by out of state owners/shareholders/investors.

There is going to be turnover of at least half the industrial timberland ownership over the next 10 years.

Smaller Washington State-based companies, land trusts, and community forests have the desire and capability to own more land and manage it for both better carbon stores and higher employment.

Working forest conservation easements help finance acquisition of timberlands by entities willing to manage for goals that improve both climate mitigation and employment in Washington communities.

Working Forest Conservation Easements can secure forests for management in perpetuity to prevent conversion and to increase carbon and timber stocking over time.

Current Timberland Ownership in Washington State:

- 4 of the 8 million acres of private forestlands are industrial (more than 2 million board feet of timber harvested per year).
- Three companies own and manage 60 percent (2.4 million acres) of the industrial forestland base and all of them do so to maximize return on investment on behalf of out of state shareholders and investors.
- At least 2 million acres of private forestland will change hands over the next 10 years due to the large proportion of industrial ownership of Timber Investment Management Organizations and Real Estate Investment Trusts

Risk of Ownership Change in the Absence Intervention

- Price of timberland is high so as lands are sold, existing timber stocks will likely be harvested to help finance regular business transactions – leads to even more unsustainable rates of harvest and boom and bust cycles in local timber-related employment
- Some of these lands will be converted to non-forest uses, which will reduce timber volume going to mills and thus employment

- Forest lands likely to be acquired by other TIMOs with the same intensive management and export oriented model

Employment Implications of Current Industrial Management

- Harvest cycles on industrial ownerships are 30-35 years
- There are no pre-commercial or commercial thinning treatments on short rotations.
- Short rotations and clear-cuts provide less employment than longer rotations with intermediate thinning treatments (from [Mason and Lippke, 2007](#))
 - Thinning produces between 3.73 and 4.57 logging jobs per thousand board feet harvested compared to 1.97 logging jobs on a short rotation clear-cut;
 - Long rotations produce 6.25 mill jobs per thousand board feet harvested compared to 4.46 mill jobs per thousand board feet harvested on short rotations.
 - A 65 year rotation produces twice the per acre volume to harvest than a 35 year rotation, so a landscape managed on a long rotation sustained yield harvest regime will produce more wood to mill and more jobs per thousand board feet both from thinning and final harvest
- Between 30 and 50 percent of private land harvest is exported as raw logs because Asian markets pay higher prices than domestic markets: raw log exports do not produce domestic mill employment

Opportunity in Ownership Change with Easement and Community Forest Funding

- As timberlands come on the market, a stable and robust pool of funding for working forest conservation easements and community forest acquisitions can be used by land trusts, family owned timber companies based in Washington, and community forest entities to shift ownership of some of these timberlands to local interests.
- Terms of easements can be used to guide sustainable management that provides higher levels of jobs in the woods for thinning, forest restoration, and more stable timber supply than short rotation management or conversion
- At least three Washington State-based family owned timber companies have expressed an interest in expanding their ownership through conservation easement-based financing (Port Blakely, Merrill and Ring, and Janicki).
- Easements reduce cost of land acquisition for private owners
- Four community forests are in either the planning or acquisition phase in Washington State. One goal of these forests is to support more local jobs.
- Community Forests can gain land either through direct acquisition or through easement financing.