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# Chapter 5

## Cumulative Effects

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- 5.2 Context for Analysis
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5.1 INTRODUCTION

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The National Environmental Policy Act (NEPA) defines cumulative effects as “the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions, regardless of what agency (Federal or non-Federal) or person undertakes such other actions” (40 CFR1508.7). This chapter presents an analysis of the cumulative effects (negative or beneficial) of the alternatives, including No Action, on the environment in the context of other local, State, tribal, and Federal management activities in the State of Washington.

The substantive scope of this cumulative effects analysis for future effects is predicated on a review of statutes, regulations, plans, and programs that may interact with the Washington Forest Practices Rules and/or pertain to forest environments, and that may have a direct or indirect effect on aquatic resources. These statutes, regulations, plans, and programs are described in subsection 5.2.2 (Statutes, Regulations, Plans, and Programs). Due to the large geographic scope of the analysis area, it is not feasible to analyze all habitat-specific activities that are occurring, have occurred in the past, or that will occur in the future in a quantitative manner. Past actions are discussed for each resource and are assumed to have developed the current and existing conditions for each resource. By reviewing applicable statutes, regulations, plans, and programs the analysis captures the intent of management activities that are occurring or are planned to occur in the future that may interface with aquatic resources on lands regulated by the Washington Forest Practices Rules. This review is based on the environmental objectives of each applicable statute, regulation, plan, and program. It is assumed that no management activity is occurring or would occur outside of an implemented statute, regulation, plan, or program at the Federal, tribal, State, or local level. Although the analysis is necessarily qualitative, it provides a thorough review of other activities within the region that, when combined with the alternatives considered in this Final Environmental Impact Statement (FEIS), could have a negative or beneficial effect on aquatic resources.



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1 The chapter begins with a description of the context for the cumulative effects analysis;  
2 first providing an overview of land management and use within the State, then describing  
3 the statutes, regulations, plans, and programs with potential cumulative effects  
4 implications (for Federal, State, and local programs). The discussion of cumulative  
5 effects is grouped into the following categories:

- 6 • Air Quality
- 7 • Land Ownership and Use
- 8 • Aquatic Resources
- 9 • Vegetation and Wildlife
- 10 • Social, Economic, and Cultural Issues

### 11 **5.2 CONTEXT FOR ANALYSIS**

12 The analysis area for the project is the entire State of Washington, which contains  
13 approximately 43 million acres. The HCP covered lands are described in Appendix A  
14 (Regional Summaries) and Chapter 3 (Affected Environment). Subsection 5.2.1 (Land  
15 Ownership and Past and Present Land Uses) provides context for the cumulative effects  
16 analysis by summarizing the present ownership of lands in the State, as well as the past  
17 and present uses of these lands. Subsection 5.2.2 (Statutes, Regulations, Plans, and  
18 Programs) provides further context by summarizing other ongoing and reasonably  
19 foreseeable future actions as statutes, regulations, plans, and programs. Additional  
20 actions and other programs that are relevant to the cumulative effects analysis of a  
21 specific resource area are identified in Section 5.3 (Analysis of Cumulative Effects) as  
22 appropriate.

#### 23 **5.2.1 Land Ownership and Past and Present Land Uses**

24 Land ownership and use is extremely varied within the State and is described in  
25 subsection 3.2 (Land Ownership and Use). This subsection provides a general overview  
26 as context for the reader. It also summarizes land uses from an historical perspective.  
27 Subsection 3.2 should be referred to for further discussion, but many other subsections of  
28 Chapter 3 (Affected Environment) include descriptions of past land use practices and  
29 their resulting effects on present conditions (e.g., subsection 3.4.2.3, History of Forest  
30 Practices Affecting Erosion and Sedimentation; subsection 3.7.1.6, Historic Protection of  
31 Riparian Areas; and subsection 3.7.2.53, Historic and Current Conditions of Wetlands  
32 Protection). Also, DEIS Appendix A (Regional Summaries) describes current conditions  
33 by analysis region, which represents the effects of past land use practices. These current  
34 conditions represent the environmental baseline for the impacts assessment.

##### 35 **5.2.1.1 Land Ownership**

36 As discussed in subsection 3.2.1 (Introduction), Federal lands cover about 30 percent of  
37 the State and are dominant in the mountainous regions (Table 3-1). Slightly over one-  
38 third of the Federal land (11 percent of the State) is in a highly protected management  
39 status, such as wildernesses, national parks, and wildlife refuges. The majority of the  
40 remaining Federal land is in national forests outside of wilderness; a large portion of  
41 these National Forest lands are managed under a protected status identified by the



1 Northwest Forest Plan (USDA Forest Service and USDI Bureau of Land Management  
2 1994) (subsection 5.2.1.2, Past and Present Land Uses). State lands cover about 10  
3 percent of Washington. The vast majority of these lands (about 8 percent of the State)  
4 are managed by Washington DNR. Most of the remainder is in State Wildlife Areas and  
5 State Parks. Counties and cities own less than 1 percent of the State, and tribal lands  
6 cover about 7 percent. The remaining 53 percent of the lands are in private ownership.

7 In western Washington, Federal lands comprise 354 percent of the area. Over half of this  
8 area (18 percent of western Washington) consists of Federal lands with a highly protected  
9 management status (i.e., wildernesses, national parks, and wildlife refuges). The majority  
10 of the remaining Federal land is in national forests outside of wilderness; a large portion  
11 of these National Forest System lands are managed under a protected status identified by  
12 the Northwest Forest Plan (USDA Forest Service and USDI Bureau of Land Management  
13 1994) (subsection 5.2.1.2, Past and Present Land Uses). State lands comprise about 12  
14 percent of western Washington, and Washington DNR manages the vast majority of these  
15 lands (about 11 percent of the westside). Counties and cities own about 1 percent, and  
16 tribal lands comprise about 2 percent of western Washington. Private lands make up the  
17 remaining 50 percent of westside lands.

18 About 27 percent of eastern Washington lands are in Federal ownership. About one-  
19 quarter of these lands (7 percent of the eastside) is comprised of Federal lands with a  
20 highly protected management status (i.e., wildernesses, national parks, and wildlife  
21 refuges). The majority of the remaining Federal land is in national forests outside of  
22 wilderness. State lands comprise about 9 percent of the eastside of the State, and  
23 Washington DNR manages the vast majority of these lands (about 7 percent of eastern  
24 Washington). Counties and cities own much less than 1 percent of the lands. Tribal  
25 lands (primarily the Yakama, Colville, and Spokane Indian Reservations) comprise 10  
26 percent of the eastside land area, and private lands make up 55 percent of eastern  
27 Washington lands.

### 28 **5.2.1.2 Past and Present Land Uses**

29 Washington State has a highly varied history of land development and use, but the major  
30 factors influencing present conditions have occurred in the past 100 years. Major factors  
31 have included conversion of lands to urban and industrial developments; diking,  
32 channelizing, hydropower development, and water withdrawals along rivers; conversion  
33 of lands to agriculture; forest management and associated road development;  
34 development of highways and road systems throughout the State; and mining activities.  
35 This development has produced the present distribution of land cover types in the State  
36 (Table 3-2), with major differences among regions of the State and between the west and  
37 eastsides. Descriptions of the historic development in the State are presented by analysis  
38 region in DEIS Appendix A. The information contained in these regional summaries has  
39 been considered throughout this cumulative effects analysis.

40 In western Washington, 83 percent of the land is presently forested, agricultural lands make  
41 up 5 percent, urban-industrial lands make up 4 percent, and the remaining 8 percent are



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1 comprised of water and wetlands, ice/snow and bare rock, shrubland, and grassland. Most  
2 of the development has occurred along Puget Sound and along the major river systems.

3 In contrast, eastern Washington is 36 percent forested; 26 percent agricultural; 35 percent  
4 shrubland and grassland; 1 percent urban-industrial; and the remaining 3 percent water,  
5 wetlands, ice/snow, and bare rock. Major hydroelectric and irrigation developments  
6 along the Columbia River system have resulted in the greatest change in eastern  
7 Washington, particularly in non-forested areas.

8 Development and land use in Washington State has been heavily affected by the  
9 distribution and size of the human population, and the human population is expected to  
10 continue growing at a rapid rate (subsection 3.14, Social and Economic Environment).  
11 The State's population grew by 21 percent from 1990 to 2000 and is projected to  
12 continue to grow at a fairly rapid rate over the next 20 years (Washington Office of  
13 Financial Management 2004). Increasing population will increase urban and industrial  
14 development and result in continued conversion of forestland to other types of land use.

15 The present ownership and management of Washington's forestlands are summarized in  
16 Table 3-3. This table shows that 32 percent of the forestlands in western Washington are  
17 in Federal or State protected status lands that are not primarily managed for timber  
18 production. This includes lands that are in wildernesses, national and State parks, and  
19 wildlife refuges, but also includes lands set aside by the Northwest Forest Plan in late  
20 successional reserves and adaptive management areas (See below) (USDA Forest Service  
21 and USDI Bureau of Land Management 1994). About 7 percent of the westside  
22 forestlands are in other Federal or tribal ownerships. The remaining 62 percent of the  
23 westside forests are subject to Washington Forest Practices Rules and consist of State  
24 lands (13 percent), private lands (47 percent), and county and city lands (less than 2  
25 percent). Many of these lands that are subject to the Washington Forest Practices Rules  
26 are also managed under a Habitat Conservation Plan (HCP) agreement under the  
27 Endangered Species Act that restricts forest management activities. For example, most of  
28 the State forestlands in western Washington are managed under the State Trust Lands  
29 HCP (12 percent of the westside forests) (Washington DNR 1997d), and a portion of the  
30 private lands (3 percent of westside forests) and city/county lands (1 percent of westside  
31 forests) are managed under individual HCPs (subsection 5.2.2.3, Local Statutes and  
32 Regulations and Local and Private Plans and Programs) (Table 5-1). As a result, of the  
33 62 percent of westside forests subject to Washington Forest Practices Rules, almost one-  
34 quarter of them (15 percent of westside forests) are covered under existing HCPs. Figure  
35 5-1 gives a statewide view of the forestlands in Washington, along with broad categories  
36 of ~~preservation~~ protection and conservation.

37 In eastern Washington, about 24 percent of all forestlands are in Federal or State  
38 protected status that is not primarily managed for timber production. About 43 percent of  
39 the eastside forests are in other Federal or tribal ownerships. The remaining 34 percent of  
40 the eastside forests are subject to Washington Forest Practices Rules and consist of State  
41 lands (7 percent), private lands (26 percent), and a very small amount of city/county lands  
42 (much less than 1 percent). Of the 34 percent of eastside forests subject to Washington

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1 **Table 5-1. Habitat Conservation Plans in Washington State (as of June 1, 2004).**

Name	Species	Approximate Start Date <sup>1/</sup>	Status	Acres <sup>2/</sup>
West Fork Timber <sup>3/</sup>	Spotted Owl	1992	Completed 1993	53,500
West Fork Timber	All Species	1994	Completed 1995	53,500
Scofield	Spotted Owl	1996	Completed 1996 <sup>4/</sup>	40
Plum Creek (Cascades)	All Vertebrates	1993	Completed 1996	170,000
Port Blakely (Robert B. Eddy)	All Species	1994	Completed 1996	7,500
Washington DNR	All Species	1993	Completed 1997	1,600,000
Seattle Public Utilities	Multiple Species	1994	Completed 2000	91,000
Green Diamond Resource Company <sup>5/</sup>	Multiple Species	1997	Completed 2000	262,000
Tacoma Water	Multiple Species	1997	Completed 2001	15,000
Boise Cascade	Spotted Owl	2001	Completed 2001	620
Day Break Mine (Storehdahl)	Aquatic Species	1999	Completed 2004	300

2 <sup>1/</sup> Start dates are approximate. Applicants often prepare in advance of initiating active involvement with the Services.

3 <sup>2/</sup> Acres presented here are rounded from acres reported in the original HCP documents. In some cases, lands have been added to or subtracted from that reported in the original documents and actual acres managed presently under the HCPs may be slightly different.

4 <sup>3/</sup> Previously known as the Murray-Pacific Corporation, name was changed to the original company name.

5 <sup>4/</sup> The original documents were completed in 1996. However, unlike the other completed HCPs, this resulted in a short-term (1 year) permit, which has since expired. The mitigation continues in the form of a perpetual deed restriction.

6 <sup>5/</sup> Previously known as the Simpson Resource Company.

7 Source: USFWS 2004a.

10 Forest Practices Rules, about 10 percent (3 percent of eastside forests) are covered under  
11 existing HCPs (Figure 5-1).

12 The present condition of most forestlands and associated riparian areas in Washington  
13 State is a function of historic timber harvest, associated road construction activities, and  
14 many other activities (See above). These activities have occurred over a period of more  
15 than 100 years, during which there were few environmental restrictions. Prior to the  
16 adoption of the Washington Forest Practices Act in 1974, there were no rules or  
17 regulations that protected public resources from the impacts of forest practices activities  
18 on State and private forestlands. The Washington Forest Practices Rules have become  
19 more restrictive ever since, culminating with the current Washington Forests Practices  
20 Rules adopted in 2001. In part, changes to the rules have been due to an evolving  
21 understanding of the scientific underpinnings associated with public resource protection.  
22 Also, in an effort to increase protection of the environment, public interest groups have  
23 identified areas for improvement in resource protection.

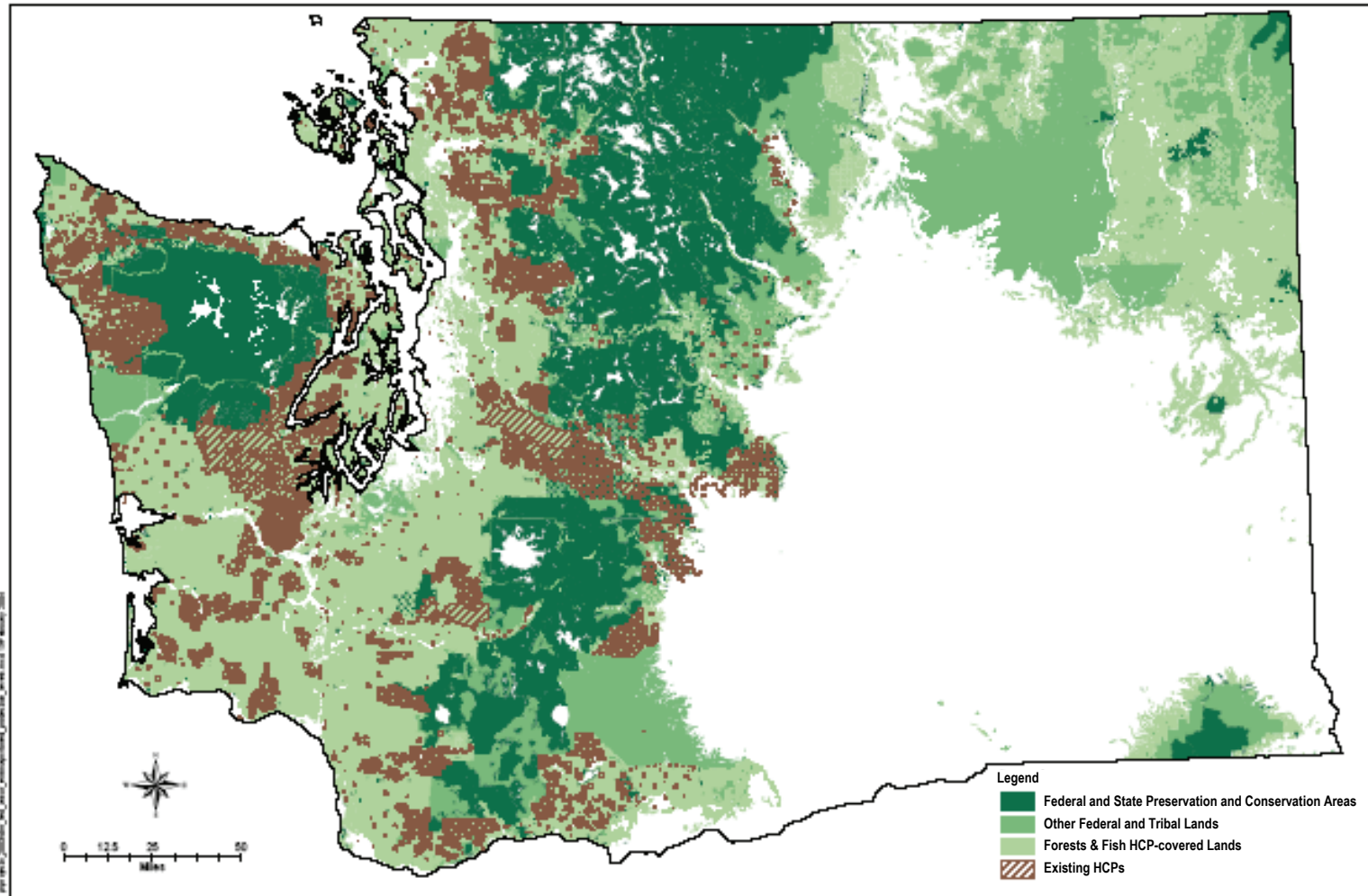
24 As a result of timber harvest and other activities during the periods with less restrictive  
25 regulations, the condition of riparian areas on State and private lands is now dominated by  
26 early and mid-seral vegetation (subsection 3.7.1.7, Current Condition of Riparian Areas).  
27 Similarly, as a result of extensive road development and harvest on unstable slopes,  
28 sediment-related impacts have occurred in many watersheds (subsection 3.4.2.3, History  
29 of Forest Practices Affecting Erosion and Sedimentation). In addition, many other land  
30 uses discussed above have added to adverse impacts that have occurred due to past  
31 actions. Although the sources of many of these problems have been corrected, many  
32 riparian areas and stream systems on forestlands have not yet fully recovered from forest  
33 practices conducted prior to the 1974 Washington Forest Practices Act. Some resources,  
34 such as large woody debris (LWD), may require many additional decades to fully recover.





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Figure 5-1. Forestlands in Washington State by Broad Protection/Conservation Category.







1     **5.2.2 Statutes, Regulations, Plans, and Programs**

2     This subsection presents a summary of the statutes, regulations, plans, and programs with  
3     cumulative effects implications for the proposed action and the alternatives. The focus of  
4     this review is on the environmental objectives of each applicable statute, regulation, plan,  
5     and program recognizing that more improvements are needed for these programs to reach  
6     full compliance. Federal, State, and local government statutes, regulations, plans, and  
7     programs may interact with the Washington Forest Practices Rules under all of the  
8     alternatives; working together to cumulatively affect species and their habitat, in either a  
9     positive or negative manner.

10    These statutes, regulations, plans, and programs are considered and factored into the  
11    effects analysis in subsection 5.3 (Analysis of Cumulative Effects). Following is a brief  
12    summary of those statutes, regulations, plans, and programs most relevant to forest  
13    practices activities. Others are discussed in subsection 5.3, as appropriate.

14    **5.2.2.1 Federal Statutes, Regulations, Plans, and Programs**

15    **Endangered Species Act**

16    The Endangered Species Act (ESA) was passed in 1973 and is intended to protect and  
17    conserve species listed as endangered or threatened and conserve the habitats upon which  
18    they depend. Furthermore, the ESA mandates that all Federal agencies seek to conserve  
19    endangered and threatened species and use their resources and authorities to further such  
20    purposes. See subsection 1.5.1.1 (Endangered Species Act) for a description of the ESA  
21    and the sections of the Act related to this project. Of particular note here is Section 10 of  
22    the ESA. This section allows the Services to issue an Incidental Take Permit (ITP),  
23    which authorizes the take of listed species by non-Federal entities. To obtain an ITP,  
24    applicants must manage their lands under an approved HCP. The approved HCPs in  
25    Washington are discussed in subsection 5.2.2.2 (State Statutes, Regulations, Plans, and  
26    Programs) and 5.2.2.3 (Local Statutes and Regulations and Local and Private Plans and  
27    Programs).

28    The 1982 and 1988 amendments to the ESA require that recovery plans be developed and  
29    implemented to promote the conservation of listed species. Recovery plans have been  
30    developed for some threatened and endangered species in Washington. These are  
31    discussed in subsection 5.3 (Analysis of Cumulative Effects), where appropriate.

32    Specific forest practices conducted on or near critical habitat of State-designated  
33    threatened and endangered species are considered Class IV Special forest practices and  
34    must comply with the State Environmental Policy Act (SEPA) as well as other species  
35    specific protection measures listed in WAC 222-16-080.

36    ~~Cumulatively, the proposed action and the ESA objectives would continue to protect~~  
37    ~~listed species in the State of Washington through compatible resource management.~~  
38    Cumulatively, the proposed action and the ESA would continue to improve conditions for  
39    listed species across the analysis area, as compared to current conditions and past  
40    impacts, through compatible resource management goals. As stated above, the objectives



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1 of the ESA are to protect and conserve species listed as endangered or threatened and to  
2 conserve the habitats upon which they depend. Implementation of the proposed action  
3 would be consistent with these objectives by furthering habitat protections on forestlands  
4 regulated by the Forest Practices Act in the State of Washington. This would be  
5 accomplished through measures aimed at protecting riparian and aquatic habitats such as  
6 Riparian Management Zones (RMZs), no-harvest buffers around unstable slopes, and  
7 implementation of road maintenance and abandonment plans. Cumulatively, both No  
8 Action Alternative scenarios, Alternative 3, and Alternative 4 would not none of the  
9 alternatives would contribute as effectively as Alternative 2 to ESA objectives of  
10 protecting listed species. The reasons for this lower level of effectiveness include lack of  
11 regulatory assurances (No Action Alternative scenarios 1 and 2), likely reduced support  
12 and funding for adaptive management and potential increases in forestland conversion as  
13 a result of reduced regulatory assurances (Alternative 3), and requirements for wide  
14 riparian buffers that would be economically prohibitive for some landowners to maintain  
15 (Alternative 4).

### 16 **Clean Water Act**

17 The Clean Water Act (33 U.S.C. 1251), ~~under the jurisdiction of~~ administered by the  
18 Environmental Protection Agency (EPA) and the U.S. Army Corps of Engineers, was  
19 enacted in 1972 and is the cornerstone of surface water quality protection in the United  
20 States. The U.S. Army Corps of Engineers is responsible for administering Section 404  
21 of the Clean Water Act, which addresses permits for the discharge of dredge and/or fill  
22 material into waters of the United States, including wetlands; although, the EPA has  
23 authority to veto any U.S. Army Corps of Engineers permit. The EPA is responsible for  
24 administering Section 402 of the Act, which regulates point sources that discharge  
25 pollutants into waters of the United States. The statute employs a variety of regulatory  
26 and non-regulatory tools to reduce direct pollutant discharges into waterways, manage  
27 polluted runoff, and finance municipal wastewater treatment facilities and non-point  
28 source pollution control activities. These tools are employed to achieve the broader goal  
29 of restoring and maintaining the chemical, physical, and biological integrity of the  
30 Nation’s waters so that they can support “the protection and propagation of fish, shellfish,  
31 and wildlife and recreation in and on the water.”

32 ~~For many years~~ Initially, the Clean Water Act’s focus was mainly on restoring and  
33 maintaining the chemical integrity of water bodies; ~~however, the Act is now administered~~  
34 by the EPA and U.S. Army Corps of Engineers to address the overall chemical, physical,  
35 and biological integrity of our nation’s waters. During the last decade, however, more  
36 ~~attention has been given to water’s physical and biological integrity.~~ Evolution of Clean  
37 Water Act programs has also included a shift from a program-by-program, source-by-  
38 source, pollutant-by-pollutant approach to more holistic watershed-based strategies in  
39 which equal emphasis is placed on protecting healthy waters and restoring impaired ones.  
40 The Washington Department of Ecology (Ecology) is the agency responsible for carrying  
41 out the State’s regulatory provisions of the Clean Water Act (See subsection 5.2.2.2,  
42 Washington Department of Ecology Water Quality Plans and Programs, for further



1 elaboration on the Clean Water Act and how it interacts with the Washington Forest  
2 Practices Rules).

3 ~~Cumulatively, the proposed action and the strategies of the Clean Water Act would~~  
4 ~~continue to protect listed species in the State of Washington through compatible resource~~  
5 ~~management. Cumulatively, the proposed action and the strategies of the Clean Water~~  
6 ~~Act would continue to improve conditions for listed species across the analysis area, as~~  
7 ~~compared to current conditions and past impacts, through compatible resource~~  
8 ~~management goals. As stated above, the strategies of the Clean Water Act are to protect~~  
9 healthy waters and restore impaired ones. Implementation of the proposed action would  
10 be consistent with these strategies by protecting and restoring aquatic resources on  
11 forestlands regulated by the Washington Forest Practices Act. This would be  
12 accomplished through measures aimed at protecting riparian habitat and aquatic resources  
13 such as RMZs, no-harvest buffers around unstable slopes, and implementation of road  
14 maintenance and abandonment plans. Consistent with the Ecology’s policy guidance for  
15 Section 303(d) listings, the proposed action would also employ adaptive management as  
16 a primary component to reduce scientific uncertainty and to determine the effectiveness  
17 of the protection measures (Washington Department of Ecology 2002d). Cumulatively,  
18 both No Action Alternative scenarios, Alternative 3, and Alternative 4 would not none of  
19 the alternatives would contribute as effectively as Alternative 2 to Clean Water Act  
20 strategies that protect listed species. The reasons for this lower level of effectiveness  
21 include lack of regulatory assurances (No Action Alternative scenarios 1 and 2), likely  
22 reduced support and funding for adaptive management and potential increases in  
23 forestland conversion as a result of reduced regulatory assurances (Alternative 3), and  
24 requirements for wide riparian buffers that would be economically prohibitive for some  
25 landowners to maintain (Alternative 4).

## 26 **National Historic Preservation Act**

27 The National Historic Preservation Act (NHPA) was passed in 1966. The goal of the  
28 NHPA is for Federal agencies to act as responsible stewards of our Nation’s resources  
29 when their actions affect historic properties. The NHPA established the Advisory  
30 Council on Historic Preservation as the entity with the legal responsibility to encourage  
31 Federal agencies to factor historic preservation into Federal project requirements.  
32 Section 106 of the NHPA requires Federal agencies to take into account the effects of  
33 their undertakings on historic properties, and afford the Advisory Council on Historic  
34 Preservation a reasonable opportunity to comment. The historic preservation review  
35 process mandated by Section 106 is outlined in regulations issued by the Advisory  
36 Council on Historic Preservation (Protection of Historic Properties [36 CFR Part 800]).

37 As defined in the U.S. Department of Interior regulations, “undertaking” means a project,  
38 activity, or program funded in whole or in part under the direct or indirect jurisdiction of  
39 a Federal agency, including those carried out by or on behalf of a Federal agency; those  
40 carried out with Federal financial assistance; or those requiring a Federal permit, license  
41 or approval. The issuance of a permit for an HCP is generally considered by the Services  
42 to be an undertaking subject to compliance with Section 106 of the NHPA, although each  
43 HCP is unique and may or may not have an affect on historic properties. Consultation



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1 with the tribes and the public is emphasized, while consultation with the State Historical  
2 Preservation Officer is required. Section 106 review requires that agencies: 1) determine  
3 if their action is an undertaking; 2) if so, gather information to determine if any cultural  
4 or historic properties within the area of potential effect are eligible for the National  
5 Register of Historic Places; 3) determine how historic properties might be affected; 4)  
6 explore alternatives to avoid or reduce harm to historic properties; and 5) reach  
7 agreement with the State Historic Preservation Officer and tribes affected by the action  
8 on measures to address any adverse effects.

9 The Services will comply with Section 106 of the NHPA by making a determination  
10 whether or not the proposed Federal action is an undertaking, as previously defined, and,  
11 if so, whether the proposed action has the potential to cause effects on historic properties,  
12 (i.e., change the characteristics of historic properties). The Federal review will focus on  
13 the proposed action of issuing a permit or approval for activities conducted according to  
14 requirements of the Washington Forest Practices Rules. Thus, the Services' NHPA  
15 Section 106 compliance responsibilities will be the same for all of the Action  
16 Alternatives.

17 ~~Cumulatively, the proposed action and the National Historic Preservation Act would~~  
18 ~~continue to protect listed species in the State of Washington through compatible resource~~  
19 ~~management. Cumulatively, the proposed action and the NHPA would continue to~~  
20 ~~improve conditions for listed species across the analysis area, as compared to current~~  
21 ~~conditions and past impacts, through compatible resource management goals. As stated~~  
22 ~~above, the goal of the National Historic Preservation Act-NHPA is to serve as responsible~~  
23 ~~stewards of our Nation's historic resources when management actions could affect these~~  
24 ~~resources. Implementation of the proposed action would be consistent with this goal by~~  
25 ~~furthering protection of sensitive sites and riparian areas on forestlands regulated by the~~  
26 ~~Washington Forest Practices Act. These areas are where cultural and historic resources~~  
27 ~~are often found. Further, forest landowners and many tribes in Washington have agreed~~  
28 ~~to voluntary procedures, via the collaborative Forest and Fish Report (FFR) process, for~~  
29 ~~identifying and protecting historic and cultural resources beyond what is required by~~  
30 ~~State regulation. Cumulatively, both No Action Alternative scenarios, Alternative 3, and~~  
31 ~~Alternative 4 would not none of the alternatives would contribute as effectively as~~  
32 ~~Alternative 2 to NHPA strategies that protect listed species. The reasons for this lower~~  
33 ~~level of effectiveness include lack of regulatory assurances (No Action Alternative~~  
34 ~~scenarios 1 and 2), likely reduced support and funding for adaptive management and~~  
35 ~~potential increases in forestland conversion as a result of reduced regulatory assurances~~  
36 ~~(Alternative 3), and requirements for wide riparian buffers that would be economically~~  
37 ~~prohibitive for some landowners to maintain (Alternative 4).~~

### 38 **The Pacific Northwest Electric Power Planning and Conservation Act**

39 This Act passed by Congress in 1980 includes a compact of interstate agencies of Idaho,  
40 Montana, Oregon, and Washington directing the Northwest Power and Conservation  
41 Council (previously known as the Northwest Power Planning Council) to “protect,  
42 mitigate, and enhance fish and wildlife habitat, including related spawning habitat on the

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1 Columbia River and its tributaries affected by the development, operation, and  
2 management of [hydroelectric projects] while assuring the Pacific Northwest an  
3 adequate, effective, economical, and reliable power supply.” The Council is primarily a  
4 planning, policymaking, and review body for implementation of actions taken by Federal  
5 agencies relating to Federal hydropower in the Columbia River Basin.

6 Part of the Northwest Power and Conservation Council tasks include development of the  
7 Columbia River Basin Fish and Wildlife Program, which establishes goals, objectives,  
8 and mitigation relative to Federal hydroelectric and water storage projects in the basin.  
9 These directions have resulted in improvements to fish passage facilities on Federal  
10 mainstem dams on the Columbia River and its tributaries. Additionally under this  
11 program, habitat for both fish and wildlife has been and continue to be purchased and  
12 improved. This has included restoration of streams in forested regions along the  
13 Columbia River tributaries.

14 Currently there is a planning process that will result in development of a subbasin plan  
15 for each of the 50 subbasins in the Columbia River system, which would include  
16 recommendations for actions that should be taken in each of these subbasins to improve  
17 conditions for fish and wildlife. Results of these subbasin plans will help direct where  
18 Federal monies will be spent to enhance environmental conditions. These actions will  
19 have effects in all Columbia River subbasins, which will benefit fish in all of the  
20 Columbia River basins affected by the Washington Forest Practices Rules. This would  
21 include improvements in up to 6 of the 12 analysis regions. The specific details in each  
22 will vary but could include: wildlife habitat or streamside land purchases, instream  
23 structural enhancements, increased diversion screening for fish protection, improved  
24 water supply and improved water quality conditions, and improved hatchery management  
25 for the benefit of wild listed stocks. Additionally, funding would be supplied for research  
26 to determine the effects of actions taken in the subbasins.

27 ~~Cumulatively, the proposed action and the objectives of the Pacific Northwest Electric~~  
28 ~~Power Planning and Conservation Act would continue to protect listed species in the~~  
29 ~~State of Washington through compatible resource management. Cumulatively, the~~  
30 proposed action and the strategies of the Pacific Northwest Electric Power Planning and  
31 Conservation Act would continue to improve conditions for listed species across the  
32 analysis area, as compared to current conditions and past impacts, through compatible  
33 resource management goals. As stated above, the objectives of the Pacific Northwest  
34 Electric Power Planning and Conservation Act are to primarily serve as a planning,  
35 policymaking, and review body for implementation of actions taken by Federal agencies  
36 relating to Federal hydropower in the Columbia River Basin. Implementation of the  
37 proposed action would be consistent with these objectives by furthering protection of  
38 aquatic resources on forestlands regulated by the Washington Forest Practices Act. This  
39 would be accomplished through measures aimed at protecting riparian and aquatic  
40 habitats such as RMZs, no-harvest buffers around unstable slopes, and implementation of  
41 road maintenance and abandonment plans. ~~Cumulatively, both No Action Alternative~~  
42 ~~scenarios, Alternative 3, and Alternative 4 would not none of the alternatives would~~  
43 contribute as effectively as Alternative 2 to Pacific Northwest Electric Power Planning





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1 and Conservation Act strategies that protect listed species. The reasons for this lower  
2 level of effectiveness include lack of regulatory assurances (No Action Alternative  
3 scenarios 1 and 2), likely reduced support and funding for adaptive management and  
4 potential increases in forestland conversion as a result of reduced regulatory assurances  
5 (Alternative 3), and requirements for wide riparian buffers that would be economically  
6 prohibitive for some landowners to maintain (Alternative 4).

### 7 **Magnuson-Stevens Fishery Conservation and Management Act**

8 This Federal act was created to restore and maintain harvestable numbers of fish,  
9 including salmon. Like the Salmon and Steelhead ESA Section 4(d) rule, it may have  
10 indirect benefits to bald eagles by providing an important source of food.

11 ~~Cumulatively, the proposed action and the Magnuson-Stevens Fishery Conservation and~~  
12 ~~Management Act would continue to protect listed species in the State of Washington~~  
13 ~~through compatible resource management. Cumulatively, the proposed action and the~~  
14 ~~Magnuson-Stevens Fishery Conservation and Management Act would continue to~~  
15 ~~improve conditions for listed species across the analysis area, as compared to current~~  
16 ~~conditions and past impacts, through compatible resource management goals. As stated~~  
17 ~~above, the objectives of the Magnuson-Stevens Fishery Conservation and Management~~  
18 ~~Act are to restore and maintain harvestable numbers of fish, including salmon.~~

19 Implementation of the proposed action would be consistent with these objectives by  
20 furthering protections of salmon habitat on forestlands regulated by the Washington  
21 Forest Practices Act. This would be accomplished through measures aimed at protecting  
22 riparian and aquatic habitats such as RMZs, no-harvest buffers around unstable slopes,  
23 and implementation of road maintenance and abandonment plans. ~~Cumulatively, both~~  
24 ~~No Action Alternative scenarios, Alternative 3, and Alternative 4 would not~~ none of the  
25 ~~alternatives would contribute as effectively as Alternative 2 to Magnuson-Stevens~~  
26 ~~Fishery Conservation and Management Act strategies that protect listed species. The~~  
27 ~~reasons for this lower level of effectiveness include lack of regulatory assurances (No~~  
28 ~~Action Alternative scenarios 1 and 2), likely reduced support and funding for adaptive~~  
29 ~~management and potential increases in forestland conversion as a result of reduced~~  
30 ~~regulatory assurances (Alternative 3), and requirements for wide riparian buffers that~~  
31 ~~would be economically prohibitive for some landowners to maintain (Alternative 4).~~

### 32 **Northwest Forest Plan**

33 The Northwest Forest Plan was developed after years of controversy surrounding the  
34 management of Federal forestlands, including struggles over timber harvest, habitat needs  
35 of the Northern spotted owl and native salmon, old-growth preservation, and jobs.  
36 Implemented in 1994, the Northwest Forest Plan, an ecosystem approach to forest  
37 management, covers approximately 24 million acres of Federal forestland in western  
38 Washington, western Oregon, and northern California (USDA Forest Service and USDI  
39 Bureau of Land Management 1994). The Bureau of Land Management and the U.S.  
40 Forest Service jointly manage the Northwest Forest Plan. The lands under the Plan are  
41 divided into different areas according to allowable management activities:



- 1       • Congressional Reserves make up approximately 7 million acres or 30 percent of  
2       the total land in the Northwest Forest Plan and include National Parks and  
3       Monuments, Wilderness Areas, Wild and Scenic Rivers, National Wildlife  
4       Refuges, and Department of Defense lands. These lands have been reserved by  
5       act of Congress and are preserved from forest management. There are currently  
6       23 designated Wilderness Areas in Washington State.
  
  - 7       • Late-Successional Reserves also make up approximately 7 million acres or 30  
8       percent of the total land under the Northwest Forest Plan and aim to provide and  
9       promote a “functional, interactive, late-successional old-growth forest  
10      ecosystem” for old-growth and late-successional dependent wildlife species such  
11      as the northern spotted owl. Commercial timber harvest is not allowed in late-  
12      successional reserves, although select silvicultural treatments (for example,  
13      thinning) may be permissible in stands up to 80 years of age if the activity  
14      furthers late-successional or old-growth forest conditions.
  
  - 15      • Adaptive Management Areas represent 1.5 million acres or 6 percent of the land  
16      under the Northwest Forest Plan and are managed to explore and develop  
17      different methods of forestry management to achieve ecological, economic,  
18      social, and community objectives.
  
  - 19      • Managed Late-Successional Areas are lands mapped and defined as known  
20      northern spotted owl activity centers and unmapped buffer areas set up to protect  
21      rare and locally endemic species. While their location may shift over time,  
22      managed late-successional areas make up 102,200 acres, or 1 percent of the land  
23      under the Northwest Forest Plan.
  
  - 24      • Administratively Withdrawn Areas cover 1.5 million acres or 6 percent of the  
25      lands under the Northwest Forest Plan and are lands not scheduled for timber  
26      harvest, including recreational areas, visual areas, backcountry, and other lands  
27      not suitable for harvest.
  
  - 28      • Riparian Reserves make up approximately 2.6 million acres or 11 percent of the  
29      total land under the Northwest Forest Plan. They are riparian areas along  
30      streams, wetlands, ponds, and lakes, along with unstable areas and other areas  
31      that are designed to help maintain and conserve aquatic and riparian-dependent  
32      species habitat and riparian function, to improve travel and dispersal corridors for  
33      terrestrial plants and animals, and to provide a connection between late-  
34      successional forest habitats.
  
  - 35      • Matrix Lands cover almost 4 million acres, or 16 percent of the land under the  
36      Northwest Forest Plan, and consist of Federal lands not assigned to one of the six  
37      land allocations described above.
- 38      Riparian Reserves range from 100 feet (seasonal streams) to 300 feet (fish-bearing  
39      streams) in width on each side of a stream. Consequently, streams on most Federal lands  
40      within Washington have more protection for aquatic and riparian-associated wildlife than





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1 any of the alternatives considered in this FEIS. A majority of Federal lands are located at  
2 higher elevations along the Cascade Crest and on the Olympic Peninsula. Consequently,  
3 on a broad-scale Federal lands include a higher proportion of low order, non-fish-bearing  
4 streams compared to State and private forestlands.

5 Although limited thinning and salvage activities may be allowed in the Reserves, only 5.5  
6 million acres or 22 percent of the lands under the Northwest Forest Plan are available for  
7 commercial timber harvest (USDA Forest Service and USDI Bureau of Land  
8 Management 1994). Most timber harvest occurs on Matrix Lands, and to a limited  
9 extent, on Adaptive Management lands. On lands available for commercial timber  
10 harvest, the U.S. Forest Service and U.S. Bureau of Land Management have established  
11 standards and guidelines to ensure a sustainable ecosystem and to protect known northern  
12 spotted owl activity centers (USDA Forest Service and USDI Bureau of Land  
13 Management 1994).

14 Additionally, the Northwest Forest Plan includes an Aquatic Conservation Strategy  
15 developed to restore and maintain the ecological health of aquatic ecosystems in the  
16 Northwest Forest Plan area (USDA Forest Service and USDI Bureau of Land  
17 Management 1994). The Aquatic Conservation Strategy sets up a system of Riparian  
18 Reserves, designates key watersheds in the Northwest Forest Plan area, describes  
19 requirements and procedures for conducting watershed analyses, and establishes  
20 watershed restoration programs for lands in the Northwest Forest Plan area. Riparian  
21 Reserves require that wide riparian buffers be maintained along all streams. The interim  
22 widths are designed to provide a high level of fish and riparian protection until watershed  
23 and site-specific analysis can be conducted. This strategy was recently clarified in a  
24 Record of Decision, which amended the Northwest Forest Plan in March 2004. This  
25 decision clarifies that the Aquatic Conservation Strategy objectives are intended to be  
26 met at the fifth-field watershed or larger scale, and not at the project-level scale. A fifth-  
27 field watershed ranges from approximately 30 to 150 square miles (20,000 to 100,000  
28 acres).

29 The standards and guidelines in the Northwest Forest Plan, which include riparian buffers  
30 and other protective measures, are designed to meet the Aquatic Conservation Strategy  
31 objectives over time (USDA Forest Service and USDI Bureau of Land Management  
32 1994). The Aquatic Conservation Strategy clarification allows projects that may have  
33 short term adverse effects, such as watershed restoration projects, to move forward as  
34 long as they comply with all of the protective measures specified in the Northwest Forest  
35 Plan standards and guidelines.

36 The combined effects of the Aquatic Conservation Strategy and allowable uses of the  
37 Northwest Forest Plan work together to maintain and improve habitats for aquatic and  
38 riparian-dependent species on Federal forestland. Over time, the Northwest Forest Plan  
39 will create millions of acres in additional late successional forest as younger stands are  
40 preserved and silvicultural treatments are limited to helping accelerate the development  
41 of older forest stand conditions (USDA Forest Service and USDI Bureau of Land  
42 Management 1994).

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1 Approximately 7 million acres of Federal forestland are managed in accordance with the  
2 Northwest Forest Plan in Washington State (FEMAT 1993) (USDA Forest Service and  
3 USDI Bureau of Land Management 1994). This represents about 30 percent of all  
4 forestlands. The breakdown of lands within the Northwest Forest Plan by acres within  
5 each area and percent of total lands within the Northwest Forest Plan follows:

- 6 • Congressional Reserves – 4.2 million acres, or 60 percent
- 7 • Managed and Late-Successional Reserves – 1.5 million acres, or 22 percent
- 8 • Adaptive Management Areas – 292,000 acres, or 4 percent
- 9 • Administratively Withdrawn Areas – 250,100 acres, or 4 percent
- 10 • Riparian Reserves – 232,300 acres, or 3 percent
- 11 • Matrix Lands – 465,000 acres, or 7 percent

12 The majority of Washington forestland under the Northwest Forest Plan are protected in  
13 reserves and is not available for forest management activities, including commercial  
14 timber harvest. Silvicultural treatments are limited on lands within Managed and Late-  
15 Successional Reserves to those that foster older forest stand conditions. Commercial  
16 timber harvest occurs primarily within the Matrix Lands, or on only 7 percent of the lands  
17 under the Northwest Forest Plan in Washington State. There are additional protection  
18 measures in place on these lands that further restrict timber harvest, such as a 15 percent  
19 green tree retention requirement and special protection for sensitive species habitat and  
20 wildlife needs (FEMAT 1993).

21 ~~Cumulatively, the proposed action and the Northwest Forest Plan would continue to~~  
22 ~~protect listed species in the State of Washington through compatible resource~~  
23 ~~management.~~ Cumulatively, the proposed action and the Northwest Forest Plan would  
24 continue to improve conditions for listed species across the analysis area, as compared to  
25 current conditions and past impacts, through compatible resource management goals. As  
26 stated above, the purpose of the Northwest Forest Plan is to allow multipurpose  
27 management of Federal forestlands by balancing the need for timber harvest, habitat, old-  
28 growth preservation, and jobs. Implementation of the proposed action would be  
29 consistent with the purpose of the Northwest Forest Plan by furthering habitat protection  
30 while providing for a viable forest products industry on forestlands regulated by the  
31 Washington Forest Practices Act. This would be accomplished through measures aimed  
32 at protecting riparian and aquatic habitats such as RMZs, no-harvest buffers around  
33 unstable slopes, and implementation of road maintenance and abandonment plans, while  
34 also fostering a viable and responsible forest products industry. ~~Cumulatively, both No~~  
35 ~~Action Alternative scenarios, Alternative 3, and Alternative 4 would not~~ none of the  
36 alternatives would contribute as effectively as Alternative 2 to Northwest Forest Plan  
37 strategies that protect listed species. The reasons for this lower level of effectiveness  
38 include lack of regulatory assurances (No Action Alternative scenarios 1 and 2), likely  
39 reduced support and funding for adaptive management and potential increases in  
40 forestland conversion as a result of reduced regulatory assurances (Alternative 3), and  
41 requirements for wide riparian buffers that would be economically prohibitive for some  
42 landowners to maintain (Alternative 4).



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### 1 Columbia River Gorge National Scenic Area

2 The states of Oregon and Washington entered into a compact pre-authorized by Congress  
3 to implement the Columbia River Gorge National Scenic Area Act (16 U.S.C. §§ 544, et  
4 seq.; RCW Chapter 43.97; 16 U.S.C. § 544c). The Act established a national scenic area  
5 in 1986 to protect and enhance the scenic, cultural, recreational, and natural resources of  
6 the Columbia River Gorge; to support the economy of the area by encouraging growth to  
7 occur in urban areas; and to allow economic development consistent with resource  
8 protection. The Act encompasses 300,000 acres of scenic vistas; habitat for rare,  
9 threatened and endangered plants, animals, and anadromous fish; ancient Indian rock art  
10 and other cultural sites; and privately owned timber, farmland, and orchards.

11 A bi-state agency, the Columbia River Gorge Commission, was authorized by the Act to  
12 develop and adopt a land use and resource protection policy. The Columbia River Gorge  
13 Commission works closely with State and Federal agencies and tribal and community  
14 partners to accomplish its goals.

15 The Act's special management area guidelines were established and apply to all forest  
16 practices within the Columbia River Gorge National Scenic Area special management  
17 area, along with the Washington Forest Practices Rules. The Washington DNR consults  
18 with the U.S. Forest Service and the Columbia River Gorge Commission when reviewing  
19 forest practices applications or notifications within the Columbia River Gorge National  
20 Scenic Area special management area, and prior to making any determination.

21 ~~Cumulatively, the proposed action and the Columbia River Gorge National Scenic Area~~  
22 ~~Act would continue to protect listed species in the State of Washington through~~  
23 ~~compatible resource management. Cumulatively, the proposed action and the Columbia~~  
24 ~~River Gorge National Scenic Act would continue to improve conditions for listed species~~  
25 ~~across the analysis area, as compared to current conditions and past impacts, through~~  
26 ~~compatible resource management goals. As stated above, the purpose of the Columbia~~  
27 ~~River Gorge National Scenic Area Act is to protect and enhance the scenic, cultural,~~  
28 ~~recreational, and natural resources of the Columbia River Gorge; to support the economy~~  
29 ~~of the area by encouraging growth to occur in urban areas; and to allow economic~~  
30 ~~development consistent with resource protection. Implementation of the proposed action~~  
31 ~~would be consistent with this purpose by fostering a viable and responsible forest~~  
32 ~~products industry while also furthering aquatic resource protection on forestlands~~  
33 ~~regulated by the Washington Forest Practices Act. This would be accomplished through~~  
34 ~~measures aimed at protecting riparian and aquatic habitats such as RMZs, no-harvest~~  
35 ~~buffers around unstable slopes, and implementation of road maintenance and~~  
36 ~~abandonment plans. Cumulatively, both No Action Alternative scenarios, Alternative 3,~~  
37 ~~and Alternative 4 would not none of the alternatives would contribute as effectively as~~  
38 ~~Alternative 2 to Columbia River Gorge National Scenic Act strategies that protect listed~~  
39 ~~species. The reasons for this lower level of effectiveness include lack of regulatory~~  
40 ~~assurances (No Action Alternative scenarios 1 and 2), likely reduced support and funding~~  
41 ~~for adaptive management and potential increases in forestland conversion as a result of~~



1 reduced regulatory assurances (Alternative 3), and requirements for wide riparian buffers  
2 that would be economically prohibitive for some landowners to maintain (Alternative 4).

### 3 **5.2.2.2 State Statutes, Regulations, Plans, and Programs**

#### 4 **Washington Department of Ecology Water Quality Plans and Programs**

5 The Washington State Water Pollution Control Act (RCW Chapter 90.48) designates the  
6 Ecology as the agency responsible for carrying out provisions of the Clean Water Act  
7 using its own independent regulatory authority. Ecology establishes Washington’s water  
8 quality standards, pursuant to periodic review and approval by EPA to ensure protection  
9 of beneficial uses based on best available science. Ecology, ~~and~~ may directly enforce  
10 provisions of the Clean Water Act, or may use the State’s water quality statutes and rules.  
11 Temperature requirements for multiple species, including stream-associated amphibians  
12 and macro-invertebrates were considered during development of the 2003 State Water  
13 Quality Standards; sensitive “key species” were selected to aid in identifying aquatic  
14 communities requiring unique temperature criteria to ensure all the resident species are  
15 fully protected.

16 The Clean Water Act established a process to identify and clean up polluted waters.  
17 Every 2 years, states are required to prepare a list of water bodies that do not meet State  
18 water quality standards. This list is referred to as the 303(d) list because it is described in  
19 Section 303(d) of the Clean Water Act. Before compiling the list, Ecology develops,  
20 through a public process, a listing policy that describes how Ecology will determine  
21 which water bodies are included on the 303(d) list.

22 The Clean Water Act requires that a water cleanup plan, also known as a total maximum  
23 daily load (TMDL), be developed for each of the water bodies on the 303(d) list. A  
24 TMDL is the maximum amount of pollution or “pollutant load” that a water body can  
25 assimilate without violating water quality standards. A water body stays on the 303(d)  
26 list until a TMDL has been developed for it, its pollution problem is addressed through  
27 some other pollution control process, or it meets water quality standards. Ecology  
28 monitors the effectiveness of TMDLs and other pollution controls, and if found to be  
29 ineffective, can relist the water body and require more stringent pollution controls.

30 In response to litigation on TMDLs in 1992, EPA and Ecology developed a  
31 Memorandum of Agreement stipulating that TMDLs for all of the water bodies on the  
32 State’s 1996 303(d) list would be completed by 2013.

33 Each TMDL has five major components:

- 34 1. An identification of the type, amount, and sources of water pollution in a  
35 particular water body or segment;
- 36 2. A determination of the capacity of the water to assimilate pollution and still  
37 remain healthy;
- 38 3. An allocation showing how much pollution each source will be allowed to  
39 discharge;



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- 1 | 4. A strategy to attain the allocations; and
- 2 | 5. Implementation of a monitoring plan to assess effectiveness as the TMDL.

3 For pollution coming from point sources, identifying sources and developing a TMDL  
4 implementation strategy is usually straightforward. “Point sources” are locations from  
5 which discharge occurs from a specific source(s), such as industrial plants or municipal  
6 wastewater treatment plants. Ecology permits regulate point sources, so the TMDL  
7 discharge limit is included in the permit.

8 For pollution coming from non-point sources, implementing a TMDL is more  
9 complicated. “Non-point source” pollution is generated by a wide variety of land uses,  
10 including forest practices. Loss of shade to a stream, sediment-laden runoff from a  
11 poorly maintained forest road, or pesticide over spray reaching surface water are all  
12 examples of non-point pollution that can result from forest practices. For non-point  
13 sources, a TMDL must evaluate potential methods to control the pollutants and suggest  
14 an array of methods that can be used. These methods are referred to as best management  
15 practices (BMPs) Usually there are many BMPs that could be used to address a non-  
16 point source pollution problem. It is up to the landowner to select and implement the  
17 array of practices that will address the pollution generated on their property.

18 The process of identifying polluted waters, developing and implementing TMDLs, and  
19 monitoring 303(d) listed waters is not the only approach Ecology uses to maintain water  
20 quality in the State. Water quality is also protected through implementation of the  
21 Washington Forest Practices Rules.

22 Ecology has a unique role in adoption and implementation of the Washington Forest  
23 Practices Rules because the Washington Forest Practices Act and rules were designed and  
24 adopted, in part, to meet requirements of the Clean Water Act and State water quality  
25 standards. The Forest Practices Board is the agency responsible for adopting the  
26 Washington Forest Practices Rules. However, for those sections of the rules pertaining to  
27 water quality protection, the Forest Practices Board must reach agreement with the  
28 director of Ecology, or the director’s designee on the Forest Practices Board, prior to rule  
29 adoption (RCW Chapter 76.09.040(1)(e)). Washington DNR implements and enforces  
30 the rules. Ecology also has authority to independently enforce the “water quality”  
31 sections of the rules (RCW Chapter 76.09.100), and has a continuing obligation to seek  
32 adjustments to Forest Practices Rules and Guidance through Adaptive Management when  
33 necessary to ensure they meet or exceed water quality standards.

34 ~~Cumulatively, the proposed action and the Washington State Water Pollution Control Act~~  
35 ~~would continue to protect listed species in the State of Washington through compatible~~  
36 ~~resource management. Cumulatively, the proposed action and the Washington State~~  
37 ~~Pollution Control Act would continue to improve conditions for listed species across the~~  
38 ~~analysis area, as compared to current conditions and past impacts, through compatible~~  
39 ~~resource management goals and continued improvements to water quality conditions. As~~  
40 stated above, the purpose of the Washington State Water Pollution Control Act is to  
41 establish a process to identify and clean up polluted waters. Implementation of the





1 proposed action would be consistent with this purpose by working to protecting and  
2 restoring aquatic resources on forestlands regulated by the Washington Forest Practices  
3 Act as compared to current conditions. This would be accomplished through measures  
4 aimed at protecting riparian habitat and aquatic resources such as RMZs, no-harvest  
5 buffers around unstable slopes, and implementation of road maintenance and  
6 abandonment plans. Consistent with Ecology’s policy guidance for Section 303(d)  
7 listings (Washington Department of Ecology 2002d), the proposed action would also  
8 employ adaptive management as a primary component to reduce scientific uncertainty  
9 and to determine the effectiveness of the protection measures. ~~Cumulatively, both No~~  
10 ~~Action Alternative scenarios, Alternative 3, and Alternative 4 would not contribute as~~  
11 ~~effectively as~~ Cumulatively, none of the alternatives would contribute as effectively as  
12 Alternative 2 to Washington State Pollution Control Act strategies that protect listed  
13 species. The reasons for this lower level of effectiveness include lack of regulatory  
14 assurances (No Action Alternative scenarios 1 and 2), likely reduced support and funding  
15 for adaptive management and potential increases in forestland conversion as a result of  
16 reduced regulatory assurances (Alternative 3), and requirements for wide riparian buffers  
17 that would be economically prohibitive for some landowners to maintain (Alternative 4).

### 18 **Hydraulic Project Approvals**

19 The 1949 Hydraulic Code (RCW Chapter 75.20.100-160) gives regulatory authority to  
20 Washington Department of Fish and Wildlife (WDFW) to issue a Hydraulic Project  
21 Approval for any construction activity in or near State waters. A Hydraulic Project  
22 Approval is also required for work that will use, divert, obstruct, or change the natural  
23 flow or bed of any waters of the State. The purpose of the law is to ensure that any  
24 construction carried out in or near waters, has minimal adverse impact to Washington  
25 State’s fish, shellfish, and their habitat (Washington Department of Fish and Wildlife  
26 2003). The Hydraulic Project Approval may include site-specific mitigation measures.

27 A Hydraulic Project Approval is required for forest practices involving activities in or  
28 near many State waters. Examples of forestry activities in or near streams that may  
29 require a Hydraulic Project Approval include, but are not limited to: felling and yarding  
30 timber, the construction or repair of culverts and bridges, placement of LWD, dredging,  
31 debris removal, changes in channel structure, and the placement of outfall structures  
32 (Washington Department of Fish and Wildlife 2003).

33 ~~Cumulatively, the proposed action and the Hydraulic Code would continue to protect~~  
34 ~~listed species in the State of Washington through compatible resource management.~~  
35 Cumulatively, the proposed action and the Hydraulic Code would continue to improve  
36 conditions for listed species across the analysis area, as compared to current conditions  
37 and past impacts, through compatible resource management goals. As stated above, the  
38 purpose of Hydraulic Code is to ensure that any construction carried out in or near  
39 waters, has minimal adverse impact to Washington State’s fish, shellfish, and their  
40 habitat. Implementation of the proposed action would be consistent with this purpose by  
41 furthering aquatic habitat protection on forestlands regulated by the Washington Forest  
42 Practices Act. This would be accomplished through measures aimed at protecting  
43 riparian and aquatic habitats such as RMZs, no-harvest buffers around unstable slopes,



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1 and implementation of road maintenance and abandonment plans. ~~Cumulatively, both~~  
2 ~~No Action Alternative scenarios, Alternative 3, and Alternative 4 would~~  
3 ~~not~~Cumulatively, none of the alternatives would contribute as effectively as Alternative  
4 2 to Hydraulic Code strategies that protect listed species. The reasons for this lower level  
5 of effectiveness include lack of regulatory assurances (No Action Alternative scenarios 1  
6 and 2), likely reduced support and funding for adaptive management and potential  
7 increases in forestland conversion as a result of reduced regulatory assurances  
8 (Alternative 3), and requirements for wide riparian buffers that would be economically  
9 prohibitive for some landowners to maintain (Alternative 4).

### 10 **Wild Salmon Policy**

11 The Washington Fish and Wildlife Commission adopted the State of Washington's Wild  
12 Salmon Policy in 1997 in response to the proposed and final listings of several salmon  
13 stocks. Like comparable Federal programs, the document contains policy  
14 recommendations aimed at protecting, restoring, and enhancing fisheries in Washington.

15 ~~Cumulatively, the proposed action and the Wild Salmon Policy would continue to protect~~  
16 ~~listed species in the State of Washington through compatible resource management.~~  
17 Cumulatively, the proposed action and the Wild Salmon Policy would continue to  
18 improve conditions for listed species across the analysis area, as compared to current  
19 conditions and past impacts, through compatible resource management goals. As stated  
20 above, the Wild Salmon Policy contains policy recommendations aimed at protecting,  
21 restoring, and enhancing fisheries in Washington. Implementation of the proposed action  
22 would be consistent with these policy recommendations by furthering aquatic habitat  
23 protection on forestlands regulated by the Washington Forest Practices Act. This would  
24 be accomplished through measures aimed at protecting riparian and aquatic habitats such  
25 as RMZs, no-harvest buffers around unstable slopes, and implementation of road  
26 maintenance and abandonment plans. ~~Cumulatively, both No Action Alternative~~  
27 ~~scenarios, Alternative 3, and Alternative 4 would not~~none of the alternatives would  
28 contribute as effectively as Alternative 2 to Wild Salmon Policy strategies that protect  
29 listed species. The reasons for this lower level of effectiveness include lack of regulatory  
30 assurances (No Action Alternative scenarios 1 and 2), likely reduced support and funding  
31 for adaptive management and potential increases in forestland conversion as a result of  
32 reduced regulatory assurances (Alternative 3), and requirements for wide riparian buffers  
33 that would be economically prohibitive for some landowners to maintain (Alternative 4).

### 34 **Comprehensive Watershed Planning Act**

35 The 1998 Comprehensive Watershed Planning Act complements the Salmon Recovery  
36 Act by providing for locally led, cooperative efforts to assess water resource needs and  
37 by developing effective solutions on a Water Resource Inventory Areas (WRIA) (or  
38 watershed) basis. These watershed plans assist the State's overall efforts to manage  
39 growth, protect threatened and endangered salmon runs, and improve water quality. The  
40 plans encourage the integration of existing laws, rules, or ordinances that protect, restore,  
41 or enhance fish habitat, including the Washington Forest Practices Rules (RCW Chapter  
42 90.82.100). See subsection 3.5 (Relationship to Other Plans) and DEIS Appendix A





1 (Regional Summaries) for more information on regional watershed planning efforts in  
2 support of salmon recovery.

3 ~~Cumulatively, the proposed action and the 1998 Comprehensive Watershed Planning Act~~  
4 ~~would continue to protect listed species in the State of Washington through compatible~~  
5 ~~resource management. Cumulatively, the proposed action and the Comprehensive~~  
6 ~~Watershed Planning Act would continue to improve conditions for listed species across~~  
7 ~~the analysis area, as compared to current conditions and past impacts, through compatible~~  
8 ~~resource management goals. As stated above, the 1998 Comprehensive Watershed~~  
9 ~~Planning Act provides for locally led, cooperative efforts to assess water resource needs~~  
10 ~~and allows for development of effective solutions on a WRIA basis. Implementation of~~  
11 ~~the proposed action would be consistent with the 1998 Comprehensive Watershed~~  
12 ~~Planning Act by furthering aquatic resource protection on forestlands regulated by the~~  
13 ~~Washington Forest Practices Act. This would be accomplished through measures aimed~~  
14 ~~at protecting riparian and aquatic habitats such as RMZs, no-harvest buffers around~~  
15 ~~unstable slopes, and implementation of road maintenance and abandonment plans.~~  
16 ~~Cumulatively, both No Action Alternative scenarios, Alternative 3, and Alternative 4~~  
17 ~~would not~~none of the alternatives would contribute as effectively as Alternative 2 to  
18 Comprehensive Watershed Planning Act strategies that protect listed species. The  
19 reasons for this lower level of effectiveness include lack of regulatory assurances (No  
20 Action Alternative scenarios 1 and 2), likely reduced support and funding for adaptive  
21 management and potential increases in forestland conversion as a result of reduced  
22 regulatory assurances (Alternative 3), and requirements for wide riparian buffers that  
23 would be economically prohibitive for some landowners to maintain (Alternative 4).

24 **State Listing of Endangered, Threatened, and Sensitive Species**

25 WDFW maintains a list of State endangered, threatened, and sensitive species (WAC  
26 232-12-014 and 232-12-011). In 1990, the Washington Fish and Wildlife Commission  
27 adopted procedures that identify how species are listed, criteria for listing and de-listing,  
28 and requirements for management and recovery plans (WAC 232-12-297). These lists  
29 are separate from the Federal ESA lists because they focus on a species' status exclusive  
30 to Washington State. Critical wildlife habitats associated with State or federally listed  
31 species are identified in WAC 222-16-080.

32 Forest practices that are proposed within critical wildlife habitats associated with State-  
33 listed species are considered Class IV Special activities. Compliance with SEPA  
34 guidelines and policies is required. Washington DNR is also required to consult with  
35 WDFW regarding the protection of listed species' habitats when reviewing forest  
36 practices applications.

37 ~~Cumulatively, the proposed action and the State listing of endangered, threatened, and~~  
38 ~~sensitive species would continue to protect listed species in the State of Washington~~  
39 ~~through compatible resource management. Cumulatively, the proposed action and the~~  
40 ~~State listing of endangered, threatened, and sensitive species would continue to improve~~  
41 ~~conditions for listed species across the analysis area, as compared to current conditions~~  
42 ~~and past impacts, through compatible resource management goals. As stated above, State~~



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1 listing of endangered, threatened, and sensitive species includes criteria for listing and de-  
2 listing and requirements for management and recovery plans. Implementation of the  
3 proposed action would be consistent with State listing by furthering aquatic resource  
4 protection to limit impacts on threatened and endangered species on forestlands regulated  
5 by the Washington Forest Practices Act. This would be accomplished through measures  
6 aimed at protecting riparian and aquatic habitats such as RMZs, no-harvest buffers  
7 around unstable slopes, and implementation of road maintenance and abandonment plans.  
8 Cumulatively, both No Action Alternative scenarios, Alternative 3, and Alternative 4,  
9 would not none of the alternatives would contribute as effectively as Alternative 2 to State  
10 listing of endangered, threatened, and sensitive species strategies actions that protect  
11 federally listed species. The reasons for this lower level of effectiveness include lack of  
12 regulatory assurances (No Action Alternative scenarios 1 and 2), likely reduced support  
13 and funding for adaptive management and potential increases in forestland conversion as  
14 a result of reduced regulatory assurances (Alternative 3), and requirements for wide  
15 riparian buffers that would be economically prohibitive for some landowners to maintain  
16 (Alternative 4).

### **Shoreline Management Act**

17 The Shoreline Management Act was passed by the Legislature in 1971 and is intended

18  
19 *To provide for the management of the shorelines of the State by planning*  
20 *for and fostering all reasonable and appropriate uses. This policy is*  
21 *designed to insure the development of these shorelines in a manner, which,*  
22 *while allowing for limited reduction of rights of the public in the navigable*  
23 *waters, will promote and enhance the public interest. This policy*  
24 *contemplates protecting against adverse effects to the public health, the*  
25 *land and its vegetation and wildlife, and the waters of the State and their*  
26 *aquatic life, while protecting generally public rights of navigation and*  
27 *corollary rights incidental thereto (RCW Chapter 90.58.020).*

28 The Shoreline Management Act applies to more than 2,300 miles of lakeshores, 16,000  
29 miles of streams, and 2,400 miles of marine shoreline all designated as “Shorelines of the  
30 State” (Washington Department of Ecology 1999b). The Shoreline Management Act  
31 establishes a balance of authority between local and State government and is  
32 implemented by Ecology and the relevant local governmental entity. Cities and counties  
33 are the primary regulators, but Ecology retains the authority to review local programs and  
34 permit decisions (Washington Department of Ecology 1999b). Shorelines of the State  
35 that are regulated by the Shoreline Management Act include (Washington Department of  
36 Ecology 1999b; RCW Chapter 90.58.030(20)):

- 37 • All marine waters
- 38 • Streams with greater than 20 cubic feet per second mean annual flow

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- 1 • Lakes 20 acres or larger
- 2 • Upland areas called shorelands that extend 200 feet landward from the edge of the  
3 ordinary high water mark and may include up to the entire 100 year floodplain, and  
4 wetlands and river deltas when they are associated with one of the above
- 5 Cities and counties with waters that meet the definition under Shorelines of the State are  
6 required to develop a Shoreline Master Program that regulates uses of the shorelines and  
7 is consistent with the Shoreline Management Act (RCW Chapters 90.58.070 and  
8 90.58.080).
- 9 Type 1 waters are defined by the Washington Forest Practices Rules as those inventoried  
10 as Shorelines of the State under RCW Chapter 90.58 and regulated under the Shoreline  
11 Management Act (WAC 222-16-030(1)), including their wetlands. Forest practices  
12 operations must comply with the rules under the local city or county Shoreline Master  
13 Program, or the Washington Forest Practices Rules, whichever is the most protective of  
14 the resource. Substantial developments along these shorelines require a special permit  
15 from the local city or county responsible for administering the Shoreline Management  
16 Act (RCW Chapter 90.58.140(2)).
- 17 The Shoreline Management Act also designates certain waters as “Shorelines of  
18 Statewide Significance” where, in their management, “the interests of all the people shall  
19 be paramount” (RCW Chapter 90.58.020). These waters are defined in the Shoreline  
20 Management Act as (Washington Department of Ecology 1999b):
- 21 • Pacific Coast, Hood Canal, and certain Puget Sound shorelines
- 22 • All waters of Puget Sound and the Strait of Juan de Fuca
- 23 • Lakes or reservoirs with more than 1,000 surface acres
- 24 • Larger rivers (1,000 cubic feet per second or greater mean annual flow for rivers in  
25 Western Washington, 200 cubic feet per second and greater mean annual flow east of  
26 the Cascade crest)
- 27 • Shorelands and wetlands associated with all of the above
- 28 • All other areas of Puget Sound and the Strait of Juan de Fuca below extreme low  
29 water
- 30 Landowners wishing to harvest timber within 200 feet of Shorelines of Statewide  
31 Significance are permitted only selective commercial timber cutting, and may harvest no  
32 more than 30 percent of the merchantable trees within a 10 year time frame (RCW  
33 Chapter 90.58.150). Exceptions are provided only in limited cases where topography,  
34 soil conditions, or silvicultural practices necessary for regeneration render selective  
35 logging ecologically detrimental. Clearcutting may be permitted if it is solely incidental  
36 to the preparation of land for other uses authorized by the Shoreline Management Act  
37 (RCW Chapter 90.58.150).
- 38 ~~Cumulatively, the proposed action and the Shoreline Management Act would continue to~~  
39 ~~protect listed species in the State of Washington through compatible resource~~  
40 ~~management. Cumulatively, the proposed action and the Shoreline Management Act~~



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1 would continue to improve conditions for listed species across the analysis area, as  
2 compared to current conditions and past impacts, through compatible resource  
3 management goals. As stated above, the Shoreline Management Act provides for the  
4 management of shorelines of the State by planning for and fostering all reasonable and  
5 appropriate uses while protecting against adverse effects to public health, the land and its  
6 vegetation and wildlife, and the waters of the State and their aquatic life. Implementation  
7 of the proposed action would be consistent with the Shoreline Management Act by  
8 allowing for timber management activities while protecting against adverse effects to  
9 aquatic resources on forestlands regulated by the Washington Forest Practices Act. This  
10 would be accomplished through measures aimed at protecting riparian and aquatic  
11 habitats such as RMZs, no-harvest buffers around unstable slopes, and implementation of  
12 road maintenance and abandonment plans. Cumulatively, both No Action Alternative  
13 scenarios, Alternative 3, and Alternative 4 would not none of the alternatives would  
14 contribute as effectively as Alternative 2 to Shoreline Management Act strategies that  
15 protect listed species. The reasons for this lower level of effectiveness include lack of  
16 regulatory assurances (No Action Alternative scenarios 1 and 2), likely reduced support  
17 and funding for adaptive management and potential increases in forestland conversion as  
18 a result of reduced regulatory assurances (Alternative 3), and requirements for wide  
19 riparian buffers that would be economically prohibitive for some landowners to maintain  
20 (Alternative 4).

### 21 **Washington Pesticide Laws and Regulations**

22 The Washington State Department of Agriculture regulates the distribution, use, and  
23 disposal of pesticides and fertilizers in Washington State (RCW Chapter 15.58).  
24 Landowners who apply pesticides for forest management are required to keep records of  
25 their applications pursuant to the applicator requirements of the General Pesticide Rules  
26 (WAC 16-228-1320). The Department of Agriculture may also require landowners to  
27 obtain a pesticide license to apply certain “restricted use” pesticides that pose a potential  
28 threat to humans or the environment (Washington State Department of Agriculture 2002;  
29 RCW Chapter 15.58.160(2)(a); RCW Chapter 7.21). Both the Washington DNR and  
30 Ecology enforce regulations regarding the handling, storage, and application of  
31 pesticides, fertilizers, and other forest chemicals to ensure compliance with all  
32 Washington Forest Practices Rules relating to forest chemicals (WAC 222-38).

33 Forest practices applications or notifications are not required for forest practices  
34 conducted to control exotic forest insect or disease outbreaks, when conducted by or  
35 under the direction of the Department of Agriculture, and when ordered by the governor  
36 or the director of the Department of Agriculture. Forest practices applications or  
37 notifications are also not required when emergency pest control measures are conducted  
38 by the Washington DNR under a forest health emergency declaration by the  
39 Commissioner of Public Lands (RCW Chapter 76.09.060 (8)).

40 Cumulatively, the proposed action and the Washington Pesticide Laws and Regulations  
41 would continue to protect listed species in the State of Washington through compatible  
42 resource management. Cumulatively, the proposed action and the Washington Pesticides



1 Laws and Regulations would continue to improve conditions for listed species across the  
2 analysis area, as compared to current conditions and past impacts, through compatible  
3 resource management goals. As stated above, the Washington Pesticide Laws and  
4 Regulations regulate the distribution, use, and disposal of pesticides and fertilizers in  
5 Washington State. Implementation of the proposed action would be consistent with  
6 Washington Pesticide Laws and Regulations as these requirements would continue to be  
7 enforced on forestlands regulated by the Washington Forest Practices Act. This would be  
8 accomplished through measures aimed at restricting the type and method of pesticide  
9 application near riparian areas and associated water bodies. Cumulatively, both No  
10 Action Alternative scenarios, Alternative 3, and Alternative 4, would not none of the  
11 alternatives would contribute as effectively as Alternative 2 to Washington Pesticide  
12 Laws and Regulations strategies that protect listed species. The reasons for this lower  
13 level of effectiveness include lack of regulatory assurances (No Action Alternative  
14 scenarios 1 and 2), likely reduced support and funding for adaptive management and  
15 potential increases in forestland conversion as a result of reduced regulatory assurances  
16 (Alternative 3), and requirements for wide riparian buffers that would be economically  
17 prohibitive for some landowners to maintain (Alternative 4).

### 18 **Growth Management Act**

19 The Growth Management Act was passed in 1990 out of concern that population growth  
20 and suburban sprawl were threatening Washington’s ecosystems and quality of life  
21 (Growth Management Services 1999). The Growth Management Act requires local  
22 governments to develop growth management plans for their communities including  
23 growth planning, the establishment of urban growth boundaries (or “Urban Growth  
24 Areas”), the designation and protection of critical areas (such as wetlands, unstable  
25 slopes, fish and wildlife habitat conservation areas, and floodplains), and the  
26 classification and designation of resource lands (forest, agricultural, and mineral lands)  
27 (Growth Management Services 1999). While the specific requirements under the Growth  
28 Management Act are different for cities and counties depending on their size and rate of  
29 growth, all local governments have some planning requirements and must develop their  
30 own regulations consistent with their Growth Management Act plans (Growth  
31 Management Services 1999).

32 Much of the forestland covered under the Forest Practices Habitat Conservation Plan  
33 (FPHCP) has been designated under the Growth Management Act as “resource lands,”  
34 which requires cities and counties to develop special policies for their use and  
35 conservation (Growth Management Services 1999). Forest practices activities that occur  
36 in designated urban growth areas must also comply with the local jurisdiction’s critical  
37 areas ordinances, and these ordinances must be at least as protective as the current  
38 Washington Forest Practices Rules. If the local jurisdiction has assumed regulatory  
39 authority for all Class IV General Forest Practices, the local forest practices regulations  
40 must be as protective as the state Forest Practices Act and Rules at the time of adoption.

41 ~~Cumulatively, the proposed action and the Growth Management Act would continue to~~  
42 ~~protect listed species in the State of Washington through compatible resource~~  
43 ~~management.~~ Cumulatively, the proposed action and the Growth Management Act





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1 would continue to improve conditions for listed species across the analysis area, as  
2 compared to current conditions and past impacts, through compatible resource  
3 management goals. As stated above, the Growth Management Act requires the  
4 designation and protection of critical areas and the classification and designation of  
5 resource lands. Implementation of the proposed action would be consistent with the  
6 Growth Management Act by furthering protection of many of these same critical areas on  
7 forestlands regulated by the Washington Forest Practices Act. In addition, forest  
8 practices conducted within Urban Growth Areas must comply with both the Washington  
9 Forest Practices Act and Rules as well as the local jurisdictions critical areas ordinance.  
10 Cumulatively, both No Action Alternative scenarios, Alternative 3, and Alternative 4  
11 would not none of the alternatives would contribute as effectively as Alternative 2 to  
12 Growth Management Act strategies that protect listed species. The reasons for this lower  
13 level of effectiveness include lack of regulatory assurances (No Action Alternative  
14 scenarios 1 and 2), likely reduced support and funding for adaptive management and  
15 potential increases in forestland conversion as a result of reduced regulatory assurances  
16 (Alternative 3), and requirements for wide riparian buffers that would be economically  
17 prohibitive for some landowners to maintain (Alternative 4).

### 18 **State Conservation Areas**

19 Washington DNR's Natural Resource Conservations Areas and Natural Area Preserves  
20 include lands managed by the State to conserve important native ecosystems, rare plant  
21 and animal species, and unique natural features.

22 Natural Area Preserves protect the best remaining examples of many ecological  
23 communities including rare plant and animal habitat. The Natural Area Preserves system  
24 presently includes 26,400 acres on 47 sites distributed throughout the State. In eastern  
25 Washington, habitats protected on preserves include outstanding examples of arid land  
26 shrub-steppe, grasslands, vernal ponds, oak woodlands, subalpine meadows and forest,  
27 ponderosa pine forests, and rare plant habitats. Western Washington preserves include  
28 five large coastal preserves supporting high quality wetlands, salt marshes, and forested  
29 buffers. Other habitats include mounded prairies, sphagnum bogs, natural forest  
30 remnants, and grassland.

31 Twenty-five Natural Resource Conservation Areas, totally more than 80,500 acres in  
32 Washington, protect outstanding examples of native ecosystems, habitat for endangered,  
33 threatened and sensitive plants and animals, and scenic landscapes. Habitats protected in  
34 Natural Resource Conservations Areas include coastal and high elevation forests, alpine  
35 lakes, wetlands, scenic vistas, nesting birds of prey, rocky headlands, and unique plant  
36 communities. Critical habitat is provided for many plant and animal species, including  
37 rare species. Conservation areas also protect geologic, cultural, historic, and  
38 archeological sites.

39 Other conserved and protected State lands in Washington include lands managed by the  
40 Washington State Parks and Recreation Commission. The Washington State Parks and  
41 Recreation Commission enhances and protects a diverse system of recreational, cultural,  
42 historical, and natural sites, located in 120 State parks encompassing over 250,000 acres.



1 ~~Cumulatively, the proposed action and the State Conservation Areas and Natural Area~~  
2 ~~Preserves would continue to protect listed species in the State of Washington through~~  
3 ~~compatible resource management. Cumulatively, the proposed action and the strategies~~  
4 ~~of the State Conservation Areas and Natural Area Preserves would continue to improve~~  
5 ~~conditions for listed species across the analysis area, as compared to current conditions~~  
6 ~~and past impacts, through compatible resource management goals. As stated above, the~~  
7 State Conservation Areas and Natural Area Preserves serve to conserve important native  
8 ecosystems, rare plant and animal species, and unique natural features. Implementation  
9 of the proposed action would be consistent with the State Conservation Areas and Natural  
10 Area Preserves by furthering protection of sensitive sites on forestlands regulated by the  
11 Washington Forest Practices Act. ~~Cumulatively, both No Action Alternative scenarios,~~  
12 ~~Alternative 3, and Alternative 4, would not~~ none of the alternatives would contribute as  
13 effectively as Alternative 2 to State Conservation Areas and Natural Areas Preserves  
14 ~~strategies that protect listed species. The reasons for this lower level of effectiveness~~  
15 ~~include lack of regulatory assurances (No Action Alternative scenarios 1 and 2), likely~~  
16 ~~reduced support and funding for adaptive management and potential increases in~~  
17 ~~forestland conversion as a result of reduced regulatory assurances (Alternative 3), and~~  
18 ~~requirements for wide riparian buffers that would be economically prohibitive for some~~  
19 ~~landowners to maintain (Alternative 4).~~

### 20 **Washington DNR State Trust Lands Habitat Conservation Plan**

21 The largest HCP in Washington is the Washington DNR State Trust Lands HCP  
22 (Washington DNR 1997d). The multi-species HCP, one of the most comprehensive  
23 HCPs in the Nation, covers approximately 1.6 million acres of State trust land. The HCP  
24 covers all Washington DNR-managed forestlands within the range of the northern spotted  
25 owl. This includes all of the western part of the State as well as lands on the east slopes  
26 of the Cascade Range, covering approximately 7 percent of all forestlands in Washington  
27 State.

28 The HCP minimizes and mitigates for the incidental take of all federally listed species  
29 within the range of the northern spotted owl, including the following listed species:  
30 northern spotted owl, marbled murrelet, Oregon silverspot butterfly, Aleutian Canada  
31 goose, peregrine falcon (which has since been federally delisted), bald eagle, gray wolf,  
32 grizzly bear, and the Columbia white-tailed deer. The HCP also provides protection for  
33 39 additional species, including various mollusks, arthropods, fish species (including all  
34 federally listed salmon, steelhead, and native trout), amphibians, reptiles, birds, and  
35 mammals (Washington DNR 1997d; USFWS 2003b).

36 The State Trust Lands HCP includes a riparian conservation strategy to protect salmonid  
37 habitat in western Washington (Washington DNR 1997d). The RMZ prescriptions  
38 consist of an inner riparian buffer and an outer wind buffer where needed. The primary  
39 purpose of the riparian buffer is to maintain or restore salmonid freshwater habitat and to  
40 contribute to the conservation of other aquatic and riparian-associated species, while the  
41 function of the wind buffer is to protect the riparian buffer (Washington DNR 1997d, p.  
42 56). The State Trust Lands HCP also includes measures that address wetlands, unstable  
43 slopes, roads, and rain-on-snow hydrology.





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1 ~~Cumulatively, the proposed action and the Washington DNR State Trust Lands HCP~~  
2 ~~would continue to protect listed species in the State of Washington through compatible~~  
3 ~~resource management. Cumulatively, the proposed action and Washington DNR State~~  
4 ~~Trust Lands HCP would continue to improve conditions for listed species across the~~  
5 ~~analysis area, as compared to current conditions and past impacts, through compatible~~  
6 ~~resource management goals. As stated above, the Washington DNR State Trust Lands~~  
7 HCP minimizes and mitigates for the incidental take of all federally listed species within  
8 the range of the northern spotted owl. Implementation of the proposed action would be  
9 consistent with the Washington DNR State Trust Lands HCP by furthering the protection  
10 of aquatic and riparian habitat on forestlands regulated by the Washington Forest  
11 Practices Act. This would be accomplished through measures aimed at protecting  
12 riparian and aquatic habitats such as RMZs and no-harvest buffers around unstable  
13 slopes. The Washington DNR State Trust Lands HCP defers to the Forest Practices Act  
14 and Rules for road construction, maintenance, and abandonment requirements.  
15 ~~Cumulatively, both No Action Alternative scenarios, Alternative 3, and Alternative 4,~~  
16 ~~would not~~ none of the alternatives would contribute as effectively as Alternative 2 to  
17 Washington DNR State Trust Lands ~~Habitat Conservation Plan~~ HCP strategies that  
18 protect listed species. The reasons for this lower level of effectiveness include lack of  
19 regulatory assurances (No Action Alternative scenarios 1 and 2), likely reduced support  
20 and funding for adaptive management and potential increases in forestland conversion as  
21 a result of reduced regulatory assurances (Alternative 3), and requirements for wide  
22 riparian buffers that would be economically prohibitive for some landowners to maintain  
23 (Alternative 4).

### 24 **State Salmon Recovery Strategy**

25 The 1998 Salmon Recovery Act represents a statewide effort to improve salmon habitat  
26 and is part of a statewide salmon recovery strategy. The Act creates the Governor's  
27 Salmon Recovery Office and a Salmon Recovery Funding Board to support salmon  
28 recovery, establishes and assigns regional councils as "Lead Entities" for salmon habitat  
29 improvement efforts, puts forth a critical timeline for salmon recovery, and establishes an  
30 Independent Science Panel to assist in oversight and scientific review.

31 The Salmon Recovery Act also recognizes that the Washington Forest Practices Rules,  
32 consistent with the FFR, contribute substantially to the recovery of salmonids and  
33 protection of water quality. The Salmon Recovery Act designated the Forests and Fish  
34 process as the "forestry module" of the statewide recovery strategy.

35 The primary purpose of the Governor's Salmon Recovery Office is to coordinate and  
36 assist in the development of regional and local salmon recovery plans and efforts. In  
37 pursuit of this goal, the Governor's Joint Natural Resource Cabinet published a 1999  
38 comprehensive report, *Statewide Strategy to Recover Salmon: Extinction is Not an*  
39 *Option*. The Statewide Strategy provides overarching goals and strategies for salmon  
40 recovery in all four factors that influence the health of salmon: habitat, harvest,  
41 hatcheries, and hydropower – commonly referred to as the "four H's" (subsection 4.8.4,  
42 Synthesis by Analysis Region) (Federal Caucus 1999). It addresses land use issues,



1 growth management plans, critical area ordinances, and shorelines programs to protect  
2 salmon, salmon habitat, water quality, and water quantity. The following paragraphs  
3 describe several of the larger regional planning efforts for salmon recovery.

4 Counties, tribes, businesses, and other interested groups have joined forces across the  
5 State to support salmon recovery through regional watershed-based strategies. Many of  
6 these regional strategies implement the 1998 Watershed Planning Act and serve to assess  
7 the status of water resources within a WRIA or in a group of WRIsAs. Activities within  
8 the WRIsAs include: watershed studies, riparian revegetation projects, recruitment of  
9 LWD, fish barrier removal projects, and the facilitation of conservation easements. The  
10 goal of these planning efforts is to protect and preserve salmon habitat and water quality  
11 and, ultimately, to lead to the de-listing of threatened and endangered salmonid species.  
12 The Salmon Recovery Funding Board, established within the Governor’s Salmon  
13 Recovery Office, provides financial support for a number of the following regional  
14 salmon recovery planning efforts.

### 15 **Puget Sound**

16 The Shared Strategy for the Recovery of Salmon in Puget Sound (Shared Strategy)  
17 encompasses the watersheds surrounding Puget Sound. It is a collaborative effort  
18 involving local citizens, tribes, watershed planning groups, large stakeholder groups  
19 working in the watersheds, State agencies, Federal agencies, and local government  
20 agencies to create a recovery plan to protect and restore salmon runs, recover listed  
21 species, and improve conditions in the entire ecosystem.

22 In addition, the Tri-County Salmon Recovery Initiative heads up recovery efforts in the  
23 central Puget Sound area covering the three most populous and urbanized counties -  
24 Snohomish, King, and Pierce. Along with the county governments, other contributors to  
25 the planning effort to protect and recover listed species include Federal and State  
26 agencies, tribes, local communities, businesses, and environmental organizations (Salmon  
27 Info Center 2003; Joint Natural Resources Cabinet 1999). This group faces the particular  
28 challenge of protecting and restoring aquatic resources in an increasingly urbanized  
29 environment.

### 30 **Lower Columbia River**

31 The Lower Columbia Fish Recovery Board develops salmon recovery plans for all ESA-  
32 listed salmon (bull trout, chinook, chum, and steelhead) in Clark, Cowlitz, Lewis,  
33 Wahkiakum, and Skamania Counties and includes members from the Cowlitz Tribe,  
34 county commissioners, citizens, and private interests. The Lower Columbia Fish  
35 Recovery Board was created by the Legislature in 1998 and aims to implement watershed  
36 conservation strategies for waters from the White Salmon River to the mouth of the  
37 Columbia River (Lower Columbia Fish Recovery Board 2003; Joint Natural Resources  
38 Cabinet 2002).

### 39 **Upper Columbia River**

40 The Upper Columbia Salmon Recovery Board includes representatives of Chelan,  
41 Okanogan, and Douglas Counties, the Confederated Tribes of the Colville Reservation,



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1 and the Yakama Nation. The Forest Practices Board is developing fish and wildlife plans  
2 for watersheds in north central Washington (Joint Natural Resources Cabinet 2002).

### 3 **Snake River**

4 The Snake River Salmon Recovery Board includes citizen and technical representatives  
5 from Walla Walla, Garfield, Asotin, Columbia, Franklin, and Whitman Counties, the Nez  
6 Perce Tribe, Confederated Tribes of Umatilla Indian Reservation, and partnerships with  
7 State and Federal agencies. The Snake River Salmon Recovery Board coordinates  
8 salmon recovery projects, and is developing an HCP for the Walla Walla watershed  
9 (Snake River Salmon Recovery Board 2001; Joint Natural Resources Cabinet 2002).

### 10 **Middle Columbia River**

11 The Yakima Subbasin Fish and Wildlife Planning Board includes counties, cities, and the  
12 Yakama Nation, and is working on draft regional fish and wildlife plans that address  
13 ESA-listed fish.

### 14 **Other Groups**

15 In addition, the WDFW administers and funds, with support from the U.S. Fish and  
16 Wildlife Service (USFWS), groups known as Regional Fisheries Enhancement Groups.  
17 The Regional Fisheries Enhancement Groups develop and implement habitat projects  
18 including habitat restoration, fish passage barrier removal, erosion control, along with  
19 projects for salmon production, stream nutrient enrichment, watershed monitoring, and  
20 education and outreach to encourage watershed stewardship (Joint Natural Resources  
21 Cabinet 2002). The groups include the Nooksack Salmon Enhancement Association,  
22 Skagit Fisheries Enhancement Group, Stilly-Snohomish Fisheries Enhancement Task  
23 Force, Mid-Sound Regional Fisheries Enhancement Group, Hood Canal Salmon  
24 Enhancement Group, South Puget Sound Salmon Enhancement Group, North Olympic  
25 Salmon Coalition, Pacific Salmon Coalition, Chehalis Basin Fisheries Task Force,  
26 Willapa Regional Fisheries Enhancement Group, Lower Columbia River Fisheries  
27 Enhancement Group, Eastern Washington Fisheries Enhancement Group, Tri-State  
28 Steelheaders Regional Fisheries Enhancement Group, and Upper Columbia Fisheries  
29 Enhancement Group.

30 ~~Cumulatively, the proposed action and the State Salmon Recovery Strategy would~~  
31 ~~continue to protect listed species in the State of Washington through compatible resource~~  
32 ~~management. Cumulatively, the proposed action and the State Salmon Recovery~~  
33 ~~Strategy would continue to improve conditions for listed species across the analysis area,~~  
34 ~~as compared to current conditions and past impacts, through compatible resource~~  
35 ~~management goals. As stated above, the State Salmon Recovery Strategy represents a~~  
36 statewide effort to improve salmon habitat. Implementation of the proposed action would  
37 be consistent with the State Salmon Recovery Strategy by furthering aquatic habitat  
38 protection on forestlands regulated by the Washington Forest Practices Act. This would  
39 be accomplished through measures aimed at protecting riparian and aquatic habitats such  
40 as RMZs, no-harvest buffers around unstable slopes, and implementation of road  
41 maintenance and abandonment plans. ~~Cumulatively, both No Action Alternative~~



1 ~~scenarios, Alternative 3, and Alternative 4 would not~~none of the alternatives would  
2 contribute as effectively as Alternative 2 to State Salmon Recovery strategies that protect  
3 listed species. The reasons for this lower level of effectiveness include lack of regulatory  
4 assurances (No Action Alternative scenarios 1 and 2), likely reduced support and funding  
5 for adaptive management and potential increases in forestland conversion as a result of  
6 reduced regulatory assurances (Alternative 3), and requirements for wide riparian buffers  
7 that would be economically prohibitive for some landowners to maintain (Alternative 4).

### 8 **Salmon and Steelhead Habitat Inventory and Assessment Program**

9 In 1991, WDFW and the western Washington Treaty Indian Tribes began the Wild Stock  
10 Restoration Initiative to catalog and inventory salmon and steelhead stocks to determine  
11 their population status. The first product of this partnership was the Salmon and  
12 Steelhead Stock Inventory (also known as the SASSI Report), which delineated fish  
13 stocks, and determined their origin and status.

14 In 1995, as a continuation of the Wild Stock Restoration Initiative and the work  
15 completed in SASSI, the Salmon and Steelhead Habitat Inventory and Assessment  
16 Program began. The program is co-managed by the WDFW and the Northwest Indian  
17 Fisheries Commission. With the help of partner organizations throughout the Pacific  
18 Northwest, and funding from the Governor's Salmon Recovery Office, the Salmon and  
19 Steelhead Habitat Inventory and Assessment Program collects information about habitat  
20 conditions and fish stocks and consolidates it into a single database. It is an important  
21 tool that assists resource managers in identifying habitat restoration projects having the  
22 greatest benefit to fish. Computer generated maps are available that allow the user to  
23 view salmon conditions over a large geographic area, or to find information on a single  
24 stream segment. It helps those working to restore salmon habitat to:

- 25 • Analyze habitat conditions
- 26 • Identify barriers to salmon migration
- 27 • Identify and prioritize habitat protection and restoration projects
- 28 • Develop recovery plans

29 The Salmon and Steelhead Habitat Inventory and Assessment Program currently covers  
30 WRIAs 1-23 (western Washington). Work is partially funded and underway to extend  
31 program coverage to WRIAs 24-62 (eastern Washington). Twenty-nine partner  
32 organizations throughout the Pacific Northwest include colleges and universities; Federal,  
33 State, and local governments; conservations groups; western Washington Treaty Indian  
34 Tribes; the Yakama Nation; and the Confederated Tribes of the Colville Reservation.

35 ~~Cumulatively, the proposed action and the Salmon and Steelhead Habitat Inventory and~~  
36 ~~Assessment Program would continue to protect listed species in the State of Washington~~  
37 ~~through compatible resource management.~~ Cumulatively, the proposed action and the  
38 Salmon and Steelhead Habitat Inventory and Assessment Program would continue to  
39 improve conditions for listed species across the analysis area, as compared to current  
40 conditions and past impacts, through compatible resource management goals. As stated  
41 above, the Salmon and Steelhead Habitat Inventory and Assessment Program establishes



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1 a partnership between the WDFW and the western Washington Treaty Indian Tribes to  
2 catalog and inventory salmon and steelhead stocks to determine their population status.  
3 Implementation of the proposed action would be consistent with the Salmon and  
4 Steelhead Habitat Inventory and Assessment Program by furthering aquatic habitat  
5 protection on forestlands regulated by the Washington Forest Practices Act. This would  
6 be accomplished through measures aimed at protecting riparian and aquatic habitats such  
7 as RMZs, no-harvest buffers around unstable slopes, and implementation of road  
8 maintenance and abandonment plans. Cumulatively, both No Action Alternative  
9 scenarios, Alternative 3, and Alternative 4 would not none of the alternatives would  
10 contribute as effectively as Alternative 2 to Salmon and Steelhead Habitat Inventory and  
11 Assessment Program strategies that protect listed species. The reasons for this lower  
12 level of effectiveness include lack of regulatory assurances (No Action Alternative  
13 scenarios 1 and 2), likely reduced support and funding for adaptive management and  
14 potential increases in forestland conversion as a result of reduced regulatory assurances  
15 (Alternative 3), and requirements for wide riparian buffers that would be economically  
16 prohibitive for some landowners to maintain (Alternative 4).

### 17 **5.2.2.3 Local Statutes and Regulations and Local and Private Plans and** 18 **Programs**

#### 19 **Private and Local Government Habitat Conservation Plans**

20 Several private timber companies and local government entities have completed HCPs  
21 that include aquatic species (Table 5-1). Most of the HCPs prepared in Washington  
22 address issues concerning multiple listed wildlife and/or aquatic species. Through  
23 cooperation with USFWS and National Marine Fisheries Service (NMFS), the plans  
24 allow for management of lands for various uses while ensuring the conservation and  
25 protection of threatened and endangered salmon, trout, and steelhead species. The  
26 following forest landowner HCPs represent efforts across the State to maintain  
27 compliance with the ESA while continuing land management activities.

- 28 • Green Diamond Resource Company (formerly Simpson Resource Company) has an  
29 HCP for operations on 261,575 acres of forestland in Grays Harbor, Mason, and  
30 Thurston Counties in western Washington. The HCP provides coverage for 24  
31 species, among them a number of aquatic species including chinook, chum, and coho  
32 salmon, bull trout, coastal cutthroat trout, and steelhead (USFWS 2003b). Aquatic  
33 resource protection is based on 49 different geomorphological stream channel  
34 classifications.
- 35 • Plum Creek Timber Company implements an HCP for bull trout and 25 other species  
36 on 169,177 acres of its lands along the Interstate-90 corridor between Seattle and  
37 Ellensburg (Plum Creek 1996). The Plum Creek Timber HCP includes a riparian  
38 management strategy that consists of five parts: 1) compliance with the Washington  
39 Forest Practices Rules, 2) Watershed Analysis, 3) maintenance and protection of over  
40 12,000 acres of riparian habitat areas and wetlands, 4) deferred harvest on stream  
41 segments listed as impaired on the Clean Water Act 303(d) list and Wetland





- 1 Management Zones, and 5) an aquatic resources monitoring program (Plum Creek  
2 1996, p. 259).
- 3 • West Fork Timber HCP (formerly Murray Pacific) covers multiple terrestrial and  
4 aquatic species including bull trout on 53,527 acres in Lewis County (USFWS  
5 2003b). The HCP calls for the creation and maintenance of riparian buffers and no-  
6 harvest zones. It also calls for road maintenance and abandonment in accordance  
7 with the Washington Forest Practices Rules (Murray Pacific 1995).
  - 8 • Port Blakely HCP covers the 7,486-acre Robert B. Eddy Tree Farm in Grays Harbor  
9 and Pacific Counties. The HCP covers multiple terrestrial and aquatic species  
10 including bull trout, coastal tailed frog, Cascades frog, and Van Dyke's salamander.

11 Two local governments, the City of Seattle and Tacoma Water, have HCPs for  
12 watersheds within their jurisdictions.

- 13 • The City of Seattle manages the Cedar River Watershed HCP for 77 species,  
14 including bull trout, on 90,545 acres in King County (City of Seattle 1998). The  
15 HCP includes a number of riparian and aquatic strategies, including commitments to:  
16 eliminate timber harvest for commercial purposes on all land and to set aside that  
17 land into an ecological reserve; to commit approximately \$27.2 million for a fish and  
18 wildlife habitat restoration program; and to remove approximately 38 percent of the  
19 forest roads within the watershed in the first 20 years of the HCP (City of Seattle  
20 1998, Executive Summary).
- 21 • The Tacoma Water HCP stretches over 15,000 acres of the Green River Watershed  
22 and provides protection for 30 species including chum, sockeye, and chinook salmon,  
23 coastal cutthroat trout, steelhead, and bull trout.

24 ~~Cumulatively, the proposed action and private and local government HCPs would~~  
25 ~~continue to protect listed species in the State of Washington through compatible resource~~  
26 ~~management. Cumulatively, the proposed action and private and local government HCPs~~  
27 ~~would continue to improve conditions for listed species across the analysis area, as~~  
28 ~~compared to current conditions and past impacts, through compatible resource~~  
29 ~~management goals. As stated above, the objectives of private and local government~~  
30 HCPs are generally to allow for the management of lands for various uses while ensuring  
31 the conservation and protection of threatened and endangered salmon, trout, and  
32 steelhead species. Implementation of the proposed action would be consistent with  
33 private and local government HCPs by furthering aquatic habitat protection on  
34 forestlands regulated by the Washington Forest Practices Act, while allowing for a viable  
35 forest products industry. This would be accomplished through measures aimed at  
36 protecting riparian and aquatic habitats such as RMZs, no-harvest buffers around unstable  
37 slopes, and implementation of road maintenance and abandonment plans. Cumulatively,  
38 both No Action Alternative scenarios, Alternative 3, and Alternative 4, would not  
39 one of the alternatives would contribute as effectively as Alternative 2 to private and local  
40 government HCP strategies that protect listed species. The reasons for this lower level of  
41 effectiveness include lack of regulatory assurances (No Action Alternative scenarios 1  
42 and 2), likely reduced support and funding for adaptive management and potential



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1 increases in forestland conversion as a result of reduced regulatory assurances  
2 (Alternative 3), and requirements for wide riparian buffers that would be economically  
3 prohibitive for some landowners to maintain (Alternative 4).

### 4 **Land Exchanges and Purchases**

5 Other voluntary efforts that can promote natural resource conservation include land  
6 exchanges and purchases among private and public forest landowners. Land exchanges  
7 and purchases can serve a variety of purposes, including consolidation for protection of  
8 sensitive habitats and corridors, other environmental benefits, management efficiency,  
9 and economic benefits. The Interstate 90 land exchange and the Huckleberry land  
10 exchange are two of the largest and most recent land exchanges. Both involved a major  
11 private forest landowner and the U.S. Forest Service.

12 ~~Cumulatively, the proposed action and voluntary land exchanges among private and~~  
13 ~~public forest landowners would continue to protect listed species in the State of~~  
14 ~~Washington through compatible resource management. Cumulatively, the proposed~~  
15 action and voluntary land exchanges among private and public forest landowners would  
16 continue to improve conditions for listed species across the analysis area, as compared to  
17 current conditions and past impacts, through compatible resource management goals. As  
18 stated above, many of these exchanges are designed to protect and consolidate sensitive  
19 habitats and corridors. Implementation of the proposed action would be consistent with  
20 the intended benefits of land exchanges by furthering aquatic habitat protection on  
21 forestlands regulated by the Washington Forest Practices Act. This would be  
22 accomplished through measures aimed at protecting riparian and aquatic habitats such as  
23 RMZs, no-harvest buffers around unstable slopes, and implementation of road  
24 maintenance and abandonment plans. ~~Cumulatively, both No Action Alternative~~  
25 ~~scenarios, Alternative 3, and Alternative 4 would not~~ none of the alternatives would  
26 contribute as effectively as Alternative 2 to land exchanges and purchases that protect  
27 listed species. The reasons for this lower level of effectiveness include lack of regulatory  
28 assurances (No Action Alternative scenarios 1 and 2),- likely reduced support and  
29 funding for adaptive management and potential increases in forestland conversion as a  
30 result of reduced regulatory assurances (Alternative 3), and requirements for wide  
31 riparian buffers that would be economically prohibitive for some landowners to maintain  
32 (Alternative 4).

## 33 **5.3 ANALYSIS OF CUMULATIVE EFFECTS**

### 34 **5.3.1 Air Quality**

35 The main sources of air pollution in western Washington are: motor vehicles (55  
36 percent), industrial (13 percent), and wood stoves (9 percent). The resource parameters  
37 for analysis are smoke and dust pollution. Approximately 4 percent is generated from  
38 outdoor burning, a portion of which comes from forest management activities  
39 (Washington Department of Ecology 2003). Air quality in Washington is generally good  
40 or moderate, although some areas do not meet Federal standards on some days. Air  
41 quality has improved greatly since 1987 when Washington air violated air quality





1 standards on 150 days. This figure dropped to 7 days in 1999 (Washington Department  
2 of Ecology 2003). However, air pollution in a number of communities in the State is  
3 within 10 percent of violating Federal standards for smog (ozone), carbon monoxide, and  
4 fine particles. Population growth and economic expansion, which result in more cars on  
5 the roads, may push emissions of air pollutants higher.

6 Smoke and dust pollution are still a problem in some areas, primarily in central and  
7 eastern Washington. To address these problems, Ecology implements a program that  
8 includes:

- 9 • Requiring permits for agricultural burning, land clearing, fire training, and other  
10 outdoor burning
- 11 • Setting conditions under which burning may be conducted
- 12 • Producing daily burn forecasts using local air quality, weather, and burning demand  
13 information
- 14 • Responding to and resolving complaints related to smoke and dust
- 15 • Providing technical assistance to manage and prevent dust and outdoor burning  
16 impacts
- 17 • Designing and delivering community-education programs, technical assistance,  
18 research and demonstration projects
- 19 • Fostering development and use of dust mitigation techniques and practical  
20 alternatives to burning

21 Ecology's goals for improving air quality in areas where smoke and dust are a problem  
22 include:

- 23 • Reducing emissions from cereal grain stubble burning by 50 percent of the 1998 level  
24 by 2005
- 25 • Improving and streamlining outdoor burning permit and smoke management systems
- 26 • Auditing local burn permit programs to ensure effective and efficient operations
- 27 • Fostering the development and use of practical alternatives and BMPs for burning  
28 and dust mitigation

29 Throughout most of Washington, burning on State and private lands to reduce harvest  
30 slash is a very minor contributor to air pollution. It is a small part of outdoor burning,  
31 which in turn is a very small component of total air pollution (4 percent). This is  
32 especially true in western Washington where little broadcast burning of slash occurs and  
33 where the normally wet weather contributes to dust control. In those portions of eastern  
34 Washington where smoke and dust are still a problem, forest operations on State and  
35 private land play a role in regional air quality. However, the alternatives do not directly  
36 affect the amount of burning or dust emissions, and the cumulative effects associated  
37 with the alternatives would be minor, at most, when compared to current conditions.

38 As compared to No Action Alternative 1-Scenario 2, No Action Alternative 1-Scenario 1,  
39 Alternative 2, and Alternative 3 may have a slightly lower contribution to cumulative air



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1 quality problems from slash burning due to reduced harvest levels. Alternative 4 may  
2 reduce this contribution further due to additional harvest restrictions. However, the  
3 potential for increased wildfire activity associated with Alternative 4 may periodically  
4 offset these reductions.

### 5 **5.3.2 Land Ownership and Use**

6 The only potential for cumulative effects on land ownership or use that is associated with  
7 the alternatives is the issue of forestland conversion, which is the main resource  
8 parameter for analysis. As noted in subsection 4.2.3.2 (Forestland Conversion),  
9 restrictions of forestland use, and in particular RMZ restrictions, can affect the rate of  
10 conversion of forestlands to other uses. While this factor would affect all forest  
11 landowners to some degree, it is especially important for small forest landowners in  
12 western Washington where population growth rates and development pressures are high  
13 (Washington DNR 1998).

14 It was noted that non-industrial private forestlands in Washington were converted from  
15 primary forestland to non-primary forest use between 1979 and 1989 at a rate of almost  
16 100 acres per day (Washington DNR 1998). Non-primary forest use in this study  
17 included other land uses, such as residential development, as well as conversion to  
18 smaller or less dense parcels of forestland. Most of this conversion occurred in western  
19 Washington typically within urban growth boundaries and on the fringes of the  
20 suburban/rural interface. Conversion information available from Washington DNR's  
21 Forest Practices Application Review System database indicates that 53,821 acres were  
22 converted from forestland to other uses between 1997 and 2003 (Table 3-11). A study  
23 conducted by The Wilderness Society that assessed changes in forest cover in King,  
24 Pierce, and Kittitas Counties from 1985 to 1999 found that approximately 96,000 acres  
25 had been converted from forest to urban development during that period in the three-  
26 county study area (Thomson et al. 2003).

27 Subsection 4.2.3.2 (Forestland Conversion) concluded that the rate of forestland  
28 conversion would remain similar to past rates under No Action Alternative 1-Scenario 2,  
29 and the rate of conversion would likely increase under the other alternatives. It was  
30 concluded that No Action Alternative 1-Scenario 1 would result in reduced stakeholder  
31 support and lower funding levels for adaptive management from current levels.  
32 Alternative 3 would also be expected to have lower funding levels from adaptive  
33 management compared to current levels. Alternative 2 would have stakeholder support  
34 and funding levels similar to current levels, which would be expected to be higher than  
35 No Action Alternative 1-Scenario 1, and substantially higher than No Action Alternative  
36 1-Scenario 2. Small landowner mitigation viewed in terms of financial compensation  
37 would, therefore, be lowest under No Action Alternative 1-Scenario 1, higher under  
38 Alternative 3, and highest under Alternative 2.

39 This effect would likely result in the lowest rate of conversion under No Action  
40 Alternative 1-Scenario 2, due to the least RMZ restrictions. Alternative 2 would likely  
41 have the next lowest conversion rates even though RMZ restrictions under Alternative 2



1 would be greater than No Action Alternative 1-Scenario 2. This is because small  
2 landowner compensation programs would likely be well funded under Alternative 2, and  
3 all forest landowners would be afforded substantially more regulatory certainty than  
4 under either scenario of No Action Alternative 1. No Action Alternative 1-Scenario 1  
5 and Alternative 3 are likely to result in increased conversion rates as compared to No  
6 Action Alternative 1-Scenario 2 due to restrictive RMZ rules (relative to No Action  
7 Alternative 1-Scenario 2), a lack of regulatory certainty, and a decrease in small  
8 landowner compensation programs.

9 RMZ restrictions would be substantially higher under Alternative 4 than under all other  
10 alternatives. As a result, it is likely that the economic viability for forest landowners,  
11 especially small landowners would be substantially lower under Alternative 4, and the  
12 potential for forestland conversion could be substantially higher than under any of the  
13 other alternatives. These types of effects would be particularly likely in the South Puget  
14 Sound and West Puget Sound Regions, as well as the North Puget Sound Region, where  
15 substantial urban development pressures exist, and non-industrial private forestlands are  
16 often located along the urban-wildland interface. Still, county regulations, the proximity  
17 of properties to urban areas, the current real estate market, and other factors would  
18 contribute to how fast conversion could take place under any alternative.

### 19 **5.3.3 Aquatic Resources**

20 This subsection is divided into three parts. The landscape-level cumulative effects on  
21 water resources and fish and fish habitat are addressed in the first two subsections. This  
22 is followed by a cumulative watershed effects analysis for aquatic resources in general.  
23 The primary resource parameters for review are water quality and flow regimes.

#### 24 **5.3.3.1 Water Resources**

25 Forestlands cover approximately one-half of all lands in Washington State, and the  
26 Washington Forest Practices Rules apply to a substantial portion of these lands on both  
27 the east and west sides of the Cascade crest. Table 3-3 describes the ownership by region  
28 of these forested lands. The importance of the Washington Forest Practices Rules to  
29 regional water quality depends on the percentage of forestlands that are subject to these  
30 rules regionally, as well as to other land uses in the region. For example, the percentage  
31 of protected forestland that is not available for timber production varies substantially  
32 from region to region (subsection 4.8.4, Synthesis by Analysis Region); it ranges from 48  
33 percent in the North Puget Sound Region to less than 1 percent in the Columbia Basin.  
34 Additionally, the impact of forestland conversion would be more of a concern for some  
35 regions than others.

36 The total percentage of forestland governed by the Washington Forest Practices Rules on  
37 the westside is approximately 62 percent (8.0 million acres) and on the eastside is  
38 approximately 34 percent (3.4 million acres) (these acreages include existing HCP lands).  
39 On the eastside, forestlands contain approximately 46 percent of all stream miles, and on  
40 the westside forestlands contain about 84 percent. Statewide, the percentage of forested  
41 lands that is subject to the Washington Forest Practices Rules and is available for timber



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1 management varies from 17 percent (Upper Columbia-Downstream of Grand Coulee  
2 Region) to 93 percent (Southwest Region) (almost 100 percent of the forestlands in the  
3 Columbia Basin Region are subject to the Washington Forest Practices Rules, but the  
4 Region has a very small acreage of forestlands [13,000 acres]).

5 Across the State, various statutes, regulations, plans, and programs cover forestland and  
6 adjacent lands and are designed to benefit water quality and flows, as well as associated  
7 aquatic resources (subsection 5.2.2, Statutes, Regulations, Plans, and Programs).  
8 Foremost among these are the Clean Water Act, Northwest Forest Plan, Washington  
9 Department of Ecology Water Quality Plans and Programs, and Washington Pesticide  
10 Laws and Regulations. The Washington Forest Practices Rules contribute to the  
11 protection of surface water resources in concert with these other regulations.

12 An evaluation of cumulative effects to water resources as a result of the adoption of any  
13 of the alternatives on water quality and peak flows can logically be assessed by region in  
14 terms of past land and water use and water resources impacts, current land use, and  
15 regulations. A description of historic practices and actions that produced the current  
16 resource conditions is presented by region in DEIS Appendix A (Regional Summaries).  
17 In effect, these regional summaries represent a summary of past and present cumulative  
18 effects by region.

19 The Snake and Columbia Basin Regions should experience the lowest potential for  
20 cumulative water quality and peak flow effects due to changes in the Washington Forest  
21 Practices Rules because these Regions have a small percentage of forestland, and  
22 agriculture is the dominant land use. The Middle Columbia and Upper Columbia  
23 Regions (Upstream and Downstream of Grand Coulee Dam) have substantial acreages of  
24 forestlands, but land use and land cover are mixed. Additionally, hydropower dams and  
25 alterations to surface water flow for agricultural uses are often the overriding concern  
26 related to water temperature, sediment, and peak flows.

27 On the westside of the State, all regions contain substantial amounts of forestland that is  
28 affected by the Washington Forest Practices Rules. Only the Olympic Coast and North  
29 Puget Sound Regions do not have a majority of the forestlands managed under the  
30 Washington Forest Practices Rules (both have 45 percent in forestland under the rules).  
31 In both the Islands and Southwest Regions, greater than 90 percent of the forestland is  
32 subject to the Washington Forest Practices Rules and, therefore, could experience a  
33 substantial local effect from changes in them. However, the Islands Region represents  
34 less than 1 percent of lands in the State.

35 West Puget Sound (57 percent), Lower Columbia (63 percent), and South Puget Sound  
36 (73 percent) Regions could experience moderate effects on water quality and peak flows  
37 relative to other westside regions. The issue of forestland conversion and urbanization is  
38 substantial on the westside, however. Compared to all other regions West Puget Sound  
39 contains the largest percentage of stream miles on exempt 20-acre parcels (approximately  
40 5 percent) (Rogers 2003), and presumably a substantial amount of other small forest  
41 landowners.



1 The North and South Puget Sound and Lower Columbia Regions contain urban growth  
2 areas associated with Bellingham, Everett, Seattle, Tacoma, Longview, and Vancouver,  
3 as well as agricultural lands on mainstem rivers. Forestland conversion to more intense  
4 land uses in these Regions and the often accompanying adverse effects of diminished  
5 water quality and altered hydrologic regimes would likely vary between the alternatives.  
6 Additionally, the potential for landslides varies by region (DEIS Appendix A). All  
7 regions in western Washington except the Islands Region have substantial areas of  
8 potentially unstable slopes on forestlands, which could affect water quality on a regional  
9 scale and vary between the alternatives.

### 10 **No Action Alternative 1-Scenario 2**

11 In terms of regional and statewide cumulative effects, No Action Alternative 1-  
12 Scenario 2 has the greatest likelihood of adverse effects to water quality and peak flows  
13 (as compared to current conditions) from rule changes in forested regions, but in some  
14 regions this alternative may slow the rate of forestland conversion, partially offsetting  
15 these effects (i.e., West, North, and South Puget Sound, and Lower Columbia Regions).

### 16 **No Action Alternative 1-Scenario 1**

17 No Action Alternative 1-Scenario 1 poses a minimal chance of cumulative effects on  
18 water quality and peak flows in the short term as compared to No Action Alternative 1-  
19 Scenario 2. However, over time, the potential for adverse cumulative effects increases  
20 due to the lack of an effective adaptive management program, as well as the potential for  
21 increased forestland conversion. There may be negative effects on water quality and  
22 peak flows, particularly in regions that contain a large percentage of small landowners  
23 and in close proximity to rapidly growing urban areas. A lack of regulatory certainty and  
24 decreases in financial mitigation funding for small landowners are expected to increase  
25 the rates of conversion, particularly in the West, North and South Puget Sound, and  
26 Lower Columbia Regions. Conducting Watershed Analysis would aid in addressing  
27 cumulative effects at the watershed scale, and there may be some incentive for private  
28 landowners to do so to gain some State level regulatory stability.

### 29 **Alternative 2**

30 Alternative 2 represents the current Washington Forest Practices Rules with the  
31 assurances of an HCP and, therefore, poses no increased potential for adverse cumulative  
32 effects to water quality or peak flows in comparison to current conditions and past  
33 impacts. Over time, the potential for adverse cumulative effects would likely decrease  
34 due to adaptive management, which would be applied based on regularly scheduled  
35 monitoring. Due to long-term regulatory/funding stability, Alternative 2 likely results in  
36 the greatest potential for beneficial cumulative effects and the best opportunity to slow, or  
37 at least not increase, the rate of forestland conversion. Compared to No Action  
38 Alternative 1-Scenario 1, the likelihood of adverse cumulative effects would decrease  
39 over time under this alternative. This is due to a fully supported adaptive management  
40 program. Compared to No Action Alternative 1-Scenario 2, the likelihood of adverse  
41 cumulative effects would decrease immediately due to more restrictive protection





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1 measures, and would become much less of a concern over time due to a fully supported  
2 adaptive management program.

3 Similar to Alternative 3, Alternative 2 also includes protection measures in two general  
4 categories: a riparian strategy and an upland strategy. The riparian strategy includes  
5 measures designed to maintain and restore riparian processes that create aquatic habitat,  
6 with particular emphasis on LWD recruitment and shade retention, but also including  
7 sediment filtration, stream bank stability, litterfall, and nutrients, in addition to other  
8 processes important to riparian and aquatic systems. The upland strategy includes  
9 measures that apply to upslope areas generally located outside the aquatic and riparian  
10 environments. These measures are designed to maintain and restore upslope processes  
11 that affect aquatic habitat such as erosion and hydrology that may adversely affect the  
12 quality and quantity of riparian and aquatic habitat lower in the watershed. The riparian  
13 and upland strategies found in Alternative 2, combined with a fully functioning adaptive  
14 management program, would likely result in a decrease in long-term adverse cumulative  
15 effects as compared to Alternative 1-Scenario 2.

### 16 **Alternative 3**

17 Alternative 3 represents the current Washington Forest Practices Rules with the  
18 assurances of an ESA Section 4(d) rule limit and, therefore, poses no immediate  
19 increased potential for adverse cumulative effects on water quality or peak flows as  
20 compared to current conditions. Over time the potential for adverse cumulative effects  
21 would likely decrease compared to No Action Alternative 1-Scenario 1 due to a more  
22 functional adaptive management program, and particularly compared to No Action  
23 Alternative 1-Scenario 2 due to more restrictive protection measures and a more  
24 functional adaptive management program. However, adaptive management is likely to  
25 be less well supported under Alternative 3 compared to current levels and, therefore,  
26 would present less certainty in preventing future adverse cumulative effects.

### 27 **Alternative 4**

28 Alternative 4 would have the lowest potential for adverse cumulative effects on water  
29 quality and peak flows in the short term compared to all other alternatives and current  
30 conditions, particularly No Action Alternative 1-Scenario 2. The regions that would  
31 likely benefit the most in terms of reduced adverse impacts to water quality and  
32 hydrology under Alternative 4 are Islands, Southwest, and Olympic Coast Regions,  
33 followed by South and West Puget Sound, Lower Columbia, and North Puget Sound  
34 Regions due to competing land use effects. Eastern Washington regions would be  
35 expected to see less of an effect on water quality and peak flows due to competing land  
36 use effects, a smaller percentage of land under the Washington Forest Practices Rules,  
37 and fewer areas of steep or potentially unstable slopes as compared to western  
38 Washington.

39 Over the long term, forestland conversion rates would be expected to increase due to the  
40 economic impacts to forest landowners, especially small landowners. Also, adaptive  
41 management would not be well supported under Alternative 4. Forestland conversion,



1 especially in rapidly growing areas and with high numbers of small landowners (i.e.,  
2 West, North and South Puget Sound, and Lower Columbia Regions) has the potential to  
3 override the benefits of more restrictive rules. Further, a less functional adaptive  
4 management program would increase the uncertainty associated with rule effectiveness  
5 and may not provide a mechanism for identifying and correcting ineffective management  
6 prescriptions. This would likely result in an increasing potential for adverse cumulative  
7 effects in the future, or at least uncertainty about the effectiveness of the protection  
8 measures over the long term.

### 9 **5.3.3.2 Fish and Fish Habitat**

10 Washington’s salmon, steelhead, trout, and other species of fish represent an important  
11 part of the culture, economy, biology, and history of the State. A host of factors have  
12 contributed to the decline of salmon, steelhead, and trout (and some other species) across  
13 the State that resulted in the listing of many salmonids as threatened and endangered  
14 under the ESA. These factors include agricultural practices, urbanization, forest  
15 practices, hydropower dams, barriers to fish movement (such as road crossings),  
16 commercial and recreational fish harvest, and hatcheries along with natural factors such  
17 as predation and ocean conditions (Joint Natural Resources Cabinet 1999). Many of the  
18 factors that have contributed to the decline of salmon, steelhead, and trout are a result of  
19 historic practices that have and/or will continue to be improved as knowledge of land use  
20 impacts to habitat and species improves. While some practices require much more  
21 improvement than others to lessen or halt adverse impacts, they all are important  
22 components to salmon recovery.

23 In addition, the Washington State’s Forest Practices Act ~~Rules package and Forest~~  
24 ~~Practices Regulatory Program~~ represents only one of many other regulations that include  
25 protective measures and protection or conservation strategies for salmon and other  
26 aquatic and riparian-dependent species in the State. Plans that benefit fish habitat and  
27 water quality in Washington include large, multi-State Federal forest management plans  
28 (e.g., the Northwest Forest Plan), State and private landowner ~~Habitat Conservation~~  
29 ~~Plans~~ HCPs, local watershed planning efforts, individual conservation and management  
30 efforts, and a number of others efforts (subsection 5.2.2, Statutes, Regulations, Plans, and  
31 Programs). These are contributing cumulatively to the protection and conservation of  
32 Washington’s fish and their habitats. The following analysis focuses on those parameters  
33 resulting from factors of decline, which include water quality conditions and associated  
34 conservation and recovery efforts.

### 35 **Western Washington**

36 A very high portion of western Washington (13,007,000 acres or 83 percent) is forested.  
37 The Washington Forest Practices Rules regulate commercial timber activities for private  
38 holdings on a moderate portion, about 40 percent (6,289,000 acres) of lands, which  
39 includes 48 percent of all forestlands in western Washington. The State also manages an  
40 additional 11 percent of all lands (13 percent of all forests) primarily under the  
41 Washington DNR State Trust Lands HCP (Washington DNR 1997d). Federal and State  
42 protected forestlands, not managed for timber harvest, include a moderate portion (about



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1 26 percent) of all westside lands and a moderate portion (32 percent) of all forestlands.  
2 Also, Federal and tribal forestlands, available for timber harvest, equal about 6 percent of  
3 all westside lands (7 percent of all forestlands).

4 The portion of streams on affected lands can influence overall cumulative effects to fish  
5 and fish habitat. The amount of streams in western Washington is relatively high for the  
6 State (125,820 stream miles), having 47 percent of all State streams, but only 36 percent  
7 of the land area. But within the western Washington regions, a high portion of all  
8 Westside streams (47 percent) is protected under the Washington Forest Practices  
9 Rules. So the alternative actions have the potential to affect a large portion of all western  
10 Washington aquatic habitats.

11 Other land use activities have a major influence on aquatic habitat and fish within  
12 western Washington. Currently about 4 percent of the land base is  
13 residential/commercial, and 5 percent is agricultural (Table 3-2). Much of this area is  
14 along lower reaches of streams that have traditionally been the most productive, so the  
15 overall adverse effect of these activities has been much greater than their relative area due  
16 to higher intensity land uses (e.g., agricultural, residential, commercial). These lower  
17 basin areas, especially along portions of Puget Sound, where the intensity of both urban  
18 and agricultural development has been relatively high, have a great influence, typically  
19 much more so than forestry, on streams and the aquatic environment. Some of these and  
20 additional basin activities, such as hydroelectric projects and past estuary modifications,  
21 will likely continue to have cumulative negative effects on aquatic resources, independent  
22 of the Washington Forest Practices Rules.

23 | As noted earlier, many of the Federal, ~~and State, and local planning efforts, plans and~~  
24 programs will have cumulative positive effects on aquatic habitat and fish resources  
25 within western Washington (subsection 5.2.2, Statutes, Regulations, Plans, and  
26 Programs). These include the following: (1) the Northwest Forest Plan (especially in  
27 western Washington) USDA Forest Service and USDI Bureau of Land Management  
28 1994); (2) Federal recovery plans and those under development for listed salmon  
29 species, including Chinook, chum, sockeye, steelhead, and coho (See  
30 <http://www.nwr.noaa.gov/Salmon-Recovery-Planning/>, accessed: December 12, -2005);  
31 (3) Federal draft recovery plans for bull trout (See:  
32 <http://www.fws.gov/pacific/bulltrout/recovery.html>, -accessed: December 12, -2005); (4)  
33 Shared Salmon Strategy for Puget Sound (<http://www.sharedsalmonstrategy.org/>,  
34 accessed: December 12, -2005); (5) approved Habitat Conservation Plans (HCPs;  
35 and (6) and many others. (USDA Forest Service and USDI Bureau of Land  
36 Management 1994). As these various plans and programs continue to be implemented,  
37 the Aquatic Conservation Strategy under the Northwest Forest Plan is implemented in  
38 the long term, stream protection strategies on Federal lands will complement the  
39 strategies under No Action Alternative 1-Scenario 1, and Alternatives 2, 3, and 4,  
40 particularly in watersheds with substantial amounts of Federal and private mixed  
41 ownership in the Cascades and Olympics. Under No Action Alternative 1-Scenario 2 and  
42 the less restrictive protection measures, maintenance of properly functioning streams and



1 recovery of degraded streams may not be possible in forested watersheds with high  
2 proportions of private ownership.

### 3 **Eastern Washington**

4 Due to the arid nature of much of eastern Washington a much smaller portion of the area  
5 (9,939,000 acres or 36 percent) is designated as forestlands relative to the westside. The  
6 Washington Forest Practices Rules regulate commercial timber activities for private,  
7 Washington DNR, and other State holdings on a low portion (about 12 percent or  
8 3,365,000 acres) of all eastside lands, which includes a moderate portion (34 percent) of  
9 eastside forestlands. Federal and State protected forestlands, not managed for timber  
10 harvest, include a small portion of all lands (9 percent) but a moderate portion (24  
11 percent) of all forestlands. Also, Federal and tribal forestlands available for timber  
12 harvest equal about 15 percent of all lands, a relatively high portion (43 percent) of all  
13 forestlands.

14 The portion of streams on affected lands can influence overall cumulative effects to fish  
15 resources. The number of streams in eastern Washington, although abundant (139,310  
16 stream miles), is low relative to the westside due to the dry climate, with 53 percent of all  
17 streams, but on 64 percent of all lands. Additionally the eastside of the State has a low  
18 portion of all streams (16 percent) under the Washington Forest Practices Rules.  
19 However, streams covered under the rules make up 35 percent of all forested streams. So  
20 while the alternatives have a relatively low potential to cumulatively affect a large  
21 portion of aquatic habitat in eastern Washington, they can affect a moderate portion of  
22 forested streams, where much of the habitat for listed salmonids is found.

23 Land use practices on the eastside differ from the westside, but also can have marked  
24 cumulative effects on aquatic habitat and resources. Overall, 26 percent of the area is  
25 designated as agriculture, 10 percent grasslands, and 25 percent shrubland, with a small  
26 portion, about 1 percent, residential/commercial. Outside of forestry, the major land use  
27 effects on the eastside are centered on agricultural practices. These include the historical  
28 conversion of low-lying areas within river valleys to agricultural lands and a high level of  
29 water diversion for irrigation. These practices will be mostly maintained into the future  
30 over much of the landscape.

31 Almost all of the forestlands are upstream of the major agricultural areas and serve as  
32 refuge for many of the native fish species. Additional cumulative effects have included  
33 extensive hydroelectric and water storage development, which continue to impede the  
34 passage of many of the listed anadromous fish stocks in eastside areas. Most stocks ~~will~~  
35 have to migrate past four to nine dams on the Columbia and Snake Rivers on their  
36 migration to and from the ocean.

37 As with the westside, there are many ongoing Federal and State plans and actions that  
38 have cumulative positive effects to aquatic habitat and fish resources within eastern  
39 Washington. The Northwest Forest Plan, ~~however, only~~ affects only Federal forests  
40 along the east slope of the Cascades (USDA Forest Service and USDI Bureau of Land  
41 Management 1994); ~~however, other~~ Other Federal, State, and local planning efforts as



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1 | described in the western Washington section above, however, also apply to the much of  
2 | eastern Washington. Many Federal, State, and local planning efforts are taking place in  
3 | the watersheds and basins of eastern Washington with the objective of benefiting aquatic  
4 | resources in the future and will complement the strategies under No Action Alternative 1-  
5 | Scenario 1, and Alternatives 2, 3, and 4, particularly in watersheds with substantial  
6 | amounts of Federal and private mixed ownership. Under No Action Alternative 1-  
7 | Scenario 2 and its less restrictive protection measures, maintenance of properly  
8 | functioning streams and recovery of degraded streams may not be possible in forested  
9 | watersheds with high proportions of private ownership. Future ESA listings may occur  
10 | that would require additional ESA compliance under No Action Alternative 1-Scenario 1  
11 | and No Action Alternative 1-Scenario 2.

### 12 | **Conclusion**

13 | The various programs and plans described above reflect a substantial wide-spread effort  
14 | and financial commitment to improve water quality, putting listed species on a positive  
15 | trend towards recovery and providing substantial protection for other aquatic and  
16 | riparian-associated species across the State. For the most part, the strategies and  
17 | programs are complementary and reflect different land management goals and activities  
18 | that are needed to maintain economic viability in the region and to meet legal and  
19 | environmental responsibilities under the ESA and Clean Water Act. While some adverse  
20 | cumulative effects from the wide variety of land use activities are unavoidable, these  
21 | effects should diminish over time as the various statutes, regulations, plans, and programs  
22 | described earlier are implemented. Many of these efforts have been underway for many  
23 | years; some have just begun or are yet to begin. Thus, it will likely take many years for  
24 | the various efforts to interact in such a way as to halt and reverse negative cumulative  
25 | effects. In general, aquatic habitat on forestlands has been less impacted and should  
26 | recover more quickly than aquatic habitat on agricultural lands or developed lands.

27 | From the perspective of cumulative effects, No Action Alternative 1-Scenario 2 is  
28 | unlikely to meet the level of protection needed for the long-term recovery and  
29 | conservation of listed species. In contrast, No Action Alternative 1-Scenario 1 and  
30 | Alternatives 2 and 3 would provide substantial additional protections over No Action  
31 | Alternative 1-Scenario 2 that complements other activities in the region and contribute to  
32 | listed species recovery. Alternative 4 would provide even greater additional protection  
33 | than No Action Alternative 1-Scenario 2 where management would complement  
34 | activities in the region, but may or may not achieve more protection for aquatic resources  
35 | than No Action Alternative 1-Scenario 1. This protection would depend on the rate of  
36 | forestland conversion that is triggered by land use restrictions.

37 | Unlike No Action Alternative 1-Scenario 1 (and Alternatives 3 and 4), Alternative 2  
38 | incorporates a fully supported adaptive management program in the approach, which is  
39 | widely recognized as a cornerstone to many of the plans, policies, and programs  
40 | mentioned above. Adaptive management is necessary to determine the effectiveness of  
41 | the management prescriptions in meeting stated goals and objectives. Consequently, in  
42 | the long-term, Alternative 2 should result in adequate protection levels that would result





1 in improvements in water quality, the opportunity for recovery of listed species, and  
2 improved aquatic habitat for fish. While both No Action Alternative 1 scenarios include  
3 some level of adaptive management, it would not be as well funded or well supported by  
4 stakeholders as it would be under Alternative 2 due to less regulatory certainty.  
5 Alternative 4, with much more restrictive protection measures, would be expected to have  
6 a low level of stakeholder and funding support for adaptive management but may still  
7 result in adequate protection levels. However, increased forestland conversion rates in  
8 some areas may diminish some of the resource benefits of more restrictive rules, and  
9 therefore raise the uncertainty associated with this alternative. No Action Alternative 1-  
10 Scenario 2, due to much less restrictive protection measures, would be a very uncertain  
11 approach to achieving aquatic habitat benefits and may likely cause further degradation.

### 12 **5.3.3.3 Cumulative Watershed Effects**

13 Cumulative watershed effects are defined here as the changes to the environment caused  
14 by the interaction of multiple forest practices taking place within a watershed. Multiple  
15 forest practices include all possible combinations of forest practices including those  
16 occurring on the same site over time, or widely dispersed within the forest, occurring  
17 simultaneously or in a sequential manner (Geppert et al. 1984).

18 Cumulative watershed effects from forest practices are addressed in the current  
19 Washington Forest Practices Rules. Changes outlined by the alternatives would affect  
20 these rules, as discussed below.

### 21 **Analysis of Alternatives**

22 Rule changes or modifications to the Washington Forest Practices Rules envisioned  
23 under each of the alternatives that could cumulatively affect water quality and hydrology  
24 include Watershed Analysis, Road Maintenance and Abandonment Plans (RMAPs),  
25 Hydrologic Maturity (rain-on-snow rule), riparian and wetland buffer widths, the fate of  
26 the adaptive management program, and possible changes in the rate of forestland  
27 conversion. These are the resource parameters reviewed in the following analysis.

### 28 **No Action Alternative 1-Scenario 2**

29 Under this scenario, the Washington Forest Practices Rules would revert back to the rules  
30 in effect prior to January 1, 1999, and no ITP or ESA Section 4(d) rule limit for take  
31 protection would be in place; this would likely lead to a high level of uncertainty  
32 regarding adverse cumulative effects to aquatic resources.

33 Watershed Analysis is assumed to continue on a voluntary basis, as there could be a  
34 benefit to landowners in the form of State regulatory certainty with respect to forest  
35 practices. However, considering the rate at which watershed analyses were undertaken  
36 and completed under the rules in effect on January 1, 1999, Watershed Analysis (under  
37 No Action Alternative 1-Scenario 2) is unlikely to provide protection to aquatic habitats  
38 within the majority of forested watersheds over the next decade under this scenario, as  
39 compared to current conditions.

40 Under this alternative, RMAPs would only be required based on Watershed Analysis  
41 prescriptions or Washington DNR request. The lack of a requirement for RMAPs from



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1 all landowners within a 5-year period increases the uncertainty and potential for mass  
2 wasting that could contribute sediment to surface waters.

3 Under this alternative, there could be less protection for hydrologic impacts as compared  
4 to current conditions because there would be less forest cover retained across the  
5 landscape, thus increasing the potential for increased peak flows associated with rain-on-  
6 snow events. Riparian buffers would be narrower than under current conditions, and in  
7 general, fewer restrictions would be placed on landowners for forest management due to  
8 potential slope instability than would be expected under the other alternatives.

9 The effects on adaptive management under this scenario are described in Chapter 2  
10 (Alternatives). It is anticipated that funding and support for the adaptive management  
11 program would be degraded or eliminated. With the loss of adaptive management, a  
12 program that would effectively monitor forest practices effects on sediment input and  
13 water quality and quantity would not likely be implemented. Without the ability to  
14 quantify and understand these effects it may be more difficult to manage lands  
15 appropriately to meet the goals of ESA and the Clean Water Act.

16 Adverse economic impacts, especially to small forest landowners, would likely be  
17 reduced under this alternative due to fewer regulatory restrictions as compared to current  
18 conditions. Economic impacts would vary by watershed, but would likely result in a  
19 slower rate of forestland conversion than is currently occurring, as discussed in  
20 subsection 5.3.2 (Landownership and Use). A slower rate of forestland conversion,  
21 especially at the forest-urban interface could be a net benefit to surface water quality and  
22 hydrology in some watersheds, as urbanization of these areas could degrade water quality  
23 and increase peak flows in the long term to a greater degree.

### 24 **No Action Alternative 1-Scenario 1**

25 Alternative 1-Scenario 1 anticipates the current Washington Forest Practices Rules, but  
26 without an ITP or ESA Section 4(d) rule limits for take protection. Under this scenario,  
27 Watershed Analysis may continue on a voluntary basis as there could be a benefit to  
28 landowners in the form of State regulatory certainty. RMAPs would still be required  
29 from most forestland owners on affected lands by 2016, and rain-on-snow and buffer  
30 rules would be to the same as current Washington Forest Practices Rules. Funding and  
31 support for adaptive management, however, is expected to degrade due to the lack of  
32 regulatory certainty.

33 Cumulative watershed impacts under this scenario would likely be mixed. Although  
34 protection measures would be better than under No Action Alternative 1-Scenario 2, it is  
35 likely that the rate of forestland conversion would be higher than current rates. Further,  
36 the adaptive management program would not likely be effective at determining if the  
37 rules are meeting established resource protection goals and objectives. Therefore, the  
38 potential for adverse impacts to aquatic resources at the watershed scale would be  
39 somewhat increased over No Action Alternative 1-Scenario 2 due to less effective  
40 adaptive management and an expected increase in forestland conversion.

### 41 **Alternatives 2 and 3**





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1 As compared to No Action Alternative 1-Scenario 1, Alternative 4 may have similar or a  
2 slightly reduced potential for adverse cumulative effects; this is due to the potential for  
3 increased forestland conversion to offset the aquatic habitat benefits of more restrictive  
4 protection measures. As compared to No Action Alternative 1-Scenario 2, Alternative 4  
5 would have less potential for adverse cumulative effects; this is due to the large  
6 difference in protection measures between these alternatives.

### 7 **5.3.4 Vegetation and Wildlife**

#### 8 **5.3.4.1 Vegetation**

9 The primary parameters analyzed for vegetation impacts are seral stage, riparian, and  
10 protected forest conditions. Statewide, approximately 28 percent of the forestland is  
11 either State or Federal land that is not available for timber management. Another 22  
12 percent is Federal and tribal land that is managed for timber, but management direction  
13 on these lands generally includes longer rotation lengths and, therefore, a higher ratio of  
14 late seral stands to early seral stands than is found on State and private lands managed for  
15 timber production. This is expected to result in more than one-third of the forestlands in  
16 the State supporting late seral forests over the long term.

17 Late seral forest characteristics are expected to develop on an additional 3 percent of the  
18 total forestland in Washington over the long term under~~The alternatives considered in this~~  
19 ~~analysis are expected to support late seral forests on an additional 6 percent (~~No Action  
20 Alternative 1-Scenario 2.) Under No Action Alternative 1-Scenario 1, Alternative 2, and  
21 Alternative 3, an additional 7 percent of all forestland is expected to develop late seral  
22 characteristics over the long term. This percentage is expected to increase to 15 percent  
23 over the long term under Alternative 4. to 20 percent (Alternative 4) over the long term,  
24 ~~while the other alternatives could support late seral forest on 9 to 10 percent of the~~  
25 ~~forestland in Washington over the long term.~~ Alternative 4 and, to a lesser extent, No  
26 Action Alternative 1-Scenario 1 and Alternative 3 would have a greater potential of  
27 encouraging conversion of forestland to other uses because of the uncertainty of future  
28 regulations on forest management and, in the case of Alternative 4, the much larger no-  
29 harvest riparian buffers. If additional land use conversions occur as compared to current  
30 conditions, this could contribute to cumulative loss of late-seral forests.

31 Federal and State lands not managed for timber production also provide protection for  
32 rare plants, and they are less likely to provide habitat for invasive weeds. Alternatives  
33 that have more land in no-harvest or light selective harvest riparian buffers are likely to  
34 contribute more, cumulatively, to protecting rare plants and reducing the spread of  
35 invasive plants. There are exceptions to this pattern. Some rare plants prefer disturbed  
36 areas, and these species would not benefit from the trend toward more late-seral forest.  
37 As discussed above, if No Action Alternative 1-Scenario 1, Alternative 3, and Alternative  
38 4 result in additional land use conversions, this could contribute to cumulative loss of rare  
39 plant habitat and is likely to increase habitat for invasive plants.

40 The distribution of protected forests is not uniform across the State. Over 90 percent of  
41 the West Puget Sound, Southwest, and Columbia Basin Regions are State, city, and



1 county lands that are available for timber management, as is over 70 percent of the South  
2 Puget Sound Region. The alternatives play a larger role in providing late-seral forest,  
3 protecting rare plants, and protecting against invasive plants in these Regions.  
4 Alternative 4 is expected to contribute about six times the amount of late-seral habitat  
5 over the long term in eastern Washington and four times the amount in western  
6 Washington than is expected under No Action Alternative 1-Scenario 2, and about two to  
7 three times as much as No Action Alternative 1-Scenario 1. This prospective gain could  
8 be offset if substantially more forestland conversion occurs under Alternative 4 than  
9 under these alternatives.

### 10 **5.3.4.2 Wildlife**

11 Cumulative effects on amphibians and other wildlife species are analyzed on a landscape  
12 scale, appropriate for each species. Historic effects and land ownership and use are  
13 discussed along with the statutes, regulations, plans, and programs that may work  
14 together to cumulatively affect wildlife in subsection 5.2 (Context for Analysis). Past  
15 disturbances are also summarized by analysis region in DEIS Appendix A. Key  
16 parameters for analysis include forest conditions that constitute wildlife habitat and  
17 mandates aimed at wildlife protection and habitat improvements.

18 The following discussion analyzes past, present, and reasonably foreseeable actions in  
19 connection with riparian and wetland resources; land ownership/use; and existing  
20 Federal, State and local plans, policies, and programs that play a role in protection and  
21 recovery efforts for ~~the amphibians and other~~ listed wildlife species.

22 There are a number of protection measures, at all levels of government, throughout  
23 Washington to maintain and recover listed species. Protection measures under Federal,  
24 State, and local plans, policies, and programs common to all of the amphibians and other  
25 wildlife are addressed in subsection 5.2 (Context for Analysis); additional species-  
26 specific protection measures are addressed below. It is important to note that species  
27 recovery plans, HCPs, and the broad-scale Northwest Forest Plan, which span the scale of  
28 the cumulative effects analysis area, pre-date the FFR and the associated changes to the  
29 current Washington Forest Practices Rules, and would not likely change under any of the  
30 alternatives.

### 31 **Species-Specific Measures**

#### 32 **Federal**

33 *The Bald Eagle and Golden Eagle Protection Act (16 USCS 668-668c).* The Bald Eagle  
34 and Golden Eagle Protection Act establishes prohibited acts and penalties to protect bald  
35 and golden eagles.

36 *Designation of Critical Habitat for the Marbled Murrelet, Final Rule.* The final  
37 designation of critical habitat for the marbled murrelet does not include all suitable  
38 habitat (U.S. Federal Register, Vol. 61, No. 102, May 24, 1996, pages 26255-26320).  
39 Emphasis was placed on those areas considered most essential to the species'  
40 conservation in terms of habitat, distribution, and ownership. A designation of critical





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1 habitat begins with identifying areas essential to the conservation of the species. In  
 2 Washington, the allocation of critical habitat by ownership is in Table 5-2.

3 *Recovery Plan for the Marbled Murrelet.* The recovery plan for the marbled murrelet  
 4 lists the loss of nesting habitat and poor reproductive success as the two major factors  
 5 leading to the decline of the population (USFWS 1997). Factors contributing to the poor  
 6 reproductive success are habitat fragmentation and edge effect, nest predation, low  
 7 productivity, adult mortality, and nest mortality.

8 *The Recovery Plan for the Northern Spotted Owl, Final Draft.* The final draft of the  
 9 recovery plan for the northern spotted owl divides the range of the northern spotted owl  
 10 into provinces (USFWS 1992). There are three provinces in the action area, including the  
 11 Western Washington Cascades Province, the Western Washington Lowlands Province,  
 12 and the Olympic Peninsula Province. For identifying significant threats to the northern  
 13 spotted owl, the recovery plan splits the Western Washington Cascades Province into two  
 14 segments (north and south). Interstate 90 is the dividing line between the two segments.

15 *Determination of Critical Habitat for the Northern Spotted Owl, Final Rule.* Designating  
 16 critical habitat for the northern spotted owl provides additional protection requirements  
 17 under Section 7 of the ESA with regard to activities that are funded, authorized, or  
 18 carried out by a Federal agency. The final designation of critical habitat ~~in the on~~  
 19 ~~January 15, 1992,~~ did not include private lands (U.S. Federal Register, Vol. 57, No. 10,  
 20 January 15, 1992, pages 1796-1838).

21 *Grizzly Bear Recovery Plan.* The grizzly bear was listed as threatened on July 28, 1975  
 22 (USFWS 1993). Habitat loss and human-caused mortality (both direct and indirect) were  
 23 responsible for the grizzly bears' decline in numbers. Seven recovery zones are identified  
 24 for possible grizzly bear recovery.

25 *Interagency Grizzly Bear Guidelines.* *The Interagency Grizzly Bear Guidelines* describe  
 26 five management situations relevant to management on public lands by the National Park  
 27 Service, the U.S. Forest Service, and the U.S. Bureau of Land Management.  
 28 Management direction and guidelines are provided for each management situation.

29 **Table 5-2.** Marbled Murrelet Designated Critical Habitat in Washington by  
 30 Ownership and Land Allocation.

Ownership Category	Acres
<b>Federal Lands</b>	
Congessionally Withdrawn Lands	1,800
Late Successional Reserves	1,200,200
<b>Non-Federal Lands</b>	
State Lands	426,800
Private Lands	2,500
<b>Total</b>	<b>1,631,300</b>

Source: U.S. Federal Register, Vol. 61, No. 102, May 24, 1996, page 26269.



1 *Feasibility Study on the Reintroduction of Gray Wolves to the Olympic Peninsula. The*  
2 *Feasibility Study on the Reintroduction of Gray Wolves to the Olympic Peninsula*  
3 concluded that the reintroduction of wolves was biologically feasible (USFWS 1998b).  
4 The analysis indicated that sufficient habitat and prey base exists to support a marginally  
5 viable wolf population over the long term. However, sportsmen have expressed concerns  
6 over a possible decline in elk and deer hunting success. Livestock and pet losses are not  
7 expected to be substantial, but would likely occur and would be a concern for the public.

8 *Canada Lynx Federally Listed as a Threatened Species.* The Canada lynx was listed  
9 under the ESA as threatened on March 24, 2000 (U.S. Federal Register, Vol. 65, No. 58,  
10 March 24, 2000, pages 16051-16086) with clarification to final rule issued in the U.S.  
11 Federal Register July 3, 2003 (U.S. Federal Register, Vol. 68, No. 128, July 3, 2003,  
12 pages 40075-40101). The range of the lynx includes portions of Washington State, and  
13 its habitat (high elevation forest) occurs primarily on Federal lands. Federal agencies are  
14 guided by the *Canada Lynx Conservation Assessment and Strategy* (Ruediger et al.  
15 2000), which was produced by an interagency team of biologists. To date, the USFWS  
16 has not yet designated critical habitat for the species, and preparation of a recovery plan  
17 for the lynx is in the initial stages.

18 *The Migratory Bird Treaty Act (16 USC 703-712, Chapter 128, as amended).* The  
19 Migratory Bird Treaty Act decreed that all migratory birds and their parts (including  
20 eggs, nests, feathers) were fully protected. The Act is a domestic law that affirms, or  
21 implements, the United States' commitment to four international conventions (with  
22 Canada, Japan, Mexico, and Russia) for the protection of a shared migratory bird  
23 resource. A list of all migratory bird species subject to the regulations of the Act is listed  
24 in 50 CFR 10.13.

### 25 **State**

26 *Washington Bald Eagle Protection Rules (WAC 232-12-292).* The purpose of these rules  
27 is to protect bald eagle habitat. The goal is to increase and maintain the population of the  
28 bald eagle so that it no longer is classified as threatened or endangered in Washington.  
29 The rules require site management plans to be developed if land use activities would  
30 adversely impact eagle habitat. As stated in the rules, any relevant factor will be  
31 considered in developing a site management plan.

32 *Washington Forest Practices Rules (WAC 222).* The Washington Forest Practices Rules  
33 designate certain forest practices as Class IV-Special if they would occur within critical  
34 wildlife habitat (State) and critical habitat (Federal) of threatened or endangered species.  
35 Forest practices applications that are designated as Class IV-Special require an  
36 Environmental Checklist in compliance with SEPA (WAC 222-16-080), and potentially  
37 an EIS. Specific harvest and timing prescriptions apply to various wildlife species and  
38 include the northern spotted owl, marbled murrelet, bald eagle, gray wolf, grizzly bear,  
39 mountain caribou, Oregon silverspot butterfly, peregrine falcon, sandhill crane, and  
40 western pond turtle.



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### 1 **Cumulative Effects Analysis**

2 Many of the programs or plans listed above pre-date the FFR and the associated changes  
3 to the current Washington Forest Practices Rules and would not likely change under any  
4 of the alternatives. ~~For Washington, a~~ Approximately 40-62 percent and 34 percent of  
5 forestlands and in western and eastern Washington, respectively, are currently  
6 subject to the rules in western and eastern Washington, respectively (Table 3-3). An  
7 additional 7 percent of western Washington forestlands and 43 percent of eastern  
8 Washington forestlands are Federal or Tribal lands available for timber management.  
9 The remainder of the forestlands are ~~is~~ Federal and/or State lands not ~~primarily~~-managed  
10 for timber production.

### 11 **No Action Alternative 1-Scenario 2**

12 If the Services do not grant the State of Washington take authorization through ESA  
13 Section 10(a)(1)(B) ITPs or take limits under ESA Section 4(d) rules, for any part of the  
14 Washington Forest Practices Rules, it is possible that the Legislature could review and  
15 rescind the 1999 Salmon Recovery Act, statutes could be modified, and current  
16 Washington Forest Practices Rules would revert back to those in effect prior to January 1,  
17 1999. In turn, the Legislature could also reduce funding for enforcement of the  
18 Washington Forest Practices Rules and reduce or terminate funding for adaptive  
19 management.

20 Under the Washington Forest Practices Rules in effect on January 1, 1999, buffers would  
21 provide some level of riparian protection for approximately ~~618,140 acres~~ (10 percent) of  
22 private, city, and county forestlands in western Washington (State lands in western  
23 Washington are already covered by an existing HCP). In eastern Washington, some level  
24 of riparian protection would be provided for approximately 6 percent of the private, city,  
25 county, and State forestlands ~~existing riparian areas in western Washington and 128,490~~  
26 acres (3.8 percent) of existing riparian areas for eastern Washington, respectively (Table  
27 3-3 and Figures 4.2-1 and 4.2-2). Fewer acres of riparian habitat would be left as no-  
28 harvest buffers, with more acres of selective harvesting occurring compared to current  
29 Washington Forest Practices Rules (No Action Alternative 1-Scenario 1). Under the  
30 Washington Forest Practices Rules in effect on January 1, 1999, forested lands subject to  
31 the rules would likely add cumulatively to past harvesting of riparian habitat on private,  
32 State, and Federal lands. Also, protections for amphibians, ~~and~~ riparian-associated  
33 wildlife species, ~~and upland wildlife species~~ -would be reduced compared to current  
34 conditions and the other alternatives, including a reduction in travel/dispersal corridors  
35 and connectivity to Federal and State protected lands. In conjunction, future ESA listings  
36 may occur that would require additional ESA compliance.

### 37 **No Action Alternative 1-Scenario 1 and Alternatives 2 and 3**

38 In contrast to No Action Alternative 1-Scenario 2, No Action Alternative 1-Scenario 1  
39 would maintain the current Washington Forest Practices Rules. Potential cumulative  
40 impacts to amphibians, ~~and other~~ riparian-associated wildlife species, and upland wildlife  
41 species under No Action Alternative 1-Scenario 1 would differ from No Action  
42 Alternative 1-Scenario 2 (and the other alternatives) based on the level of continued



1 adaptive management support and the relative potential for conversion of forestland to  
2 other land uses.

3 Under No Action Alternative 1-Scenario 1, it is anticipated that landowner participation  
4 in the adaptive management program would cease because ESA take authorization or  
5 limits would not be provided. Further, the rate of forestland conversion would be  
6 expected to rise (See subsection 4.2.3.2, Forestland Conversion and, subsection 5.3.2,  
7 Land Ownership and Use). Future ESA listings may occur that would require additional  
8 ESA compliance.

### 9 **Alternative 2**

10 THE FOLLOWING NEW TEXT REFLECTS PUBLIC COMMENTS ON THE DEIS

11 Alternative 2 would maintain the current Washington Forest Practices Rules and would  
12 be expected to maintain continued stakeholder and funding support for adaptive  
13 management. Wildlife protection under Alternative 2 would be more predictable based  
14 on the riparian and upland strategies included in the proposed FPHCP, continued  
15 implementation of the Washington Forest Practices Rules, continued support and  
16 participation in program implementation, and continued public funding for adaptive  
17 management. Therefore, adverse cumulative effects would be expected to be lower over  
18 time under Alternative 2 as compared to No Action Alternative 1-Scenario 1, and  
19 especially compared to No Action Alternative 1-Scenario 2.

20 *Current Washington Forest Practices Rules.* Under the current Washington Forest  
21 Practices Rules, nearly twice as many acres of riparian habitat would be protected as  
22 would be protected under No Action Alternative 1-Scenario 2. In western Washington,  
23 approximately 21 percent of private, city, and county forestlands would fall within RMZs  
24 (Table 3-3 and Figure 4.2-1). In eastern Washington, the percentage would be 11 percent  
25 and would apply to all private, city, county, and State lands (Table 3-3 and Figure 4.2-2).  
26 More acres of riparian habitat would be left as no-harvest buffers than under No Action  
27 Alternative 1-Scenario 2 and the potential for increasing the amount of complex forest  
28 structure along streams would be greater than under No Action Alternative 1-Scenario 2.

29 Under the current Washington Forest Practices Rules, with ESA incidental take coverage  
30 from the Services, forested lands subject to the rules would not add to past harvesting of  
31 riparian habitat on private, State, and Federal lands. The current Washington Forest  
32 Practices Rules, along with a strong adaptive management program, add to the protection  
33 of amphibians and riparian-associated wildlife species. This protection includes an  
34 increase in riparian area, which would provide travel/dispersal corridors and connectivity  
35 to Federal and State protected lands. Forestland conversion would be expected to be  
36 somewhat less than the current rates because of the regulatory certainty that landowners  
37 would gain under this alternative.

38 Alternative 2, when compared to either No Action Alternative scenario, would be  
39 expected to improve habitat for amphibians, riparian-associated wildlife species, and  
40 upland wildlife species because of wider no-harvests and upslope protective measures  
41 included in the riparian and upland conservation strategies. When combined with



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1 Federal, State, and other local wildlife planning efforts (such as the Northwest Forest  
2 Plan, recovery plans and critical habitat designations as described in this subsection under  
3 Species-Specific Measures, and approved HCPs), Alternative 2 would have positive  
4 cumulative effects on amphibians, riparian-associated wildlife species, and upland  
5 wildlife species and their habitat.

6 | END OF NEW TEXT

### 7 **Alternative 3**

8 Adaptive management would not be as well supported in the future under Alternative 3  
9 compared to Alternative 2. Under Alternative 3 there would likely be decreased  
10 stakeholder support for and participation in adaptive management, as well as a potential  
11 reduction in funding because of lack of take authorization for endangered species, some  
12 threatened species, and unlisted species, and because of the indefinite term of ESA  
13 assurances. It is likely that the rate of forestland conversion would be similar to current  
14 rates or higher. ~~Therefore, the potential for adverse impacts to amphibians and other~~  
15 ~~riparian-associated wildlife would be somewhat increased compared to both No Action~~  
16 ~~Alternative 1 scenarios due to a less effective adaptive management program and~~  
17 ~~possibly by increased conversion of forestland to non-forest uses.~~ As compared to No  
18 Action Alternative 1-Scenario 1, the potential for adverse impacts to amphibians, ~~and~~  
19 ~~other riparian-associated wildlife species, and upland wildlife species~~ would be expected  
20 to decrease; this potential would decrease even further as compared to No Action  
21 Alternative 1-Scenario 2. When combined with other Federal, State, and local wildlife  
22 planning efforts, Alternative 3 would provide more positive cumulative effects on  
23 amphibians, riparian-associated wildlife species, and upland wildlife species and their  
24 habitat compared to either of the No Action Alternative scenarios. However, these  
25 positive cumulative effects from Alternative 3 would be less than Alternative 2.

26 *Existing Washington Forest Practices Rules.* Under the existing Washington Forest  
27 Practices Rules, nearly twice as many acres of riparian habitat are being protected as  
28 would be protected under No Action Alternative 1-Scenario 2 with approximately  
29 1,234,543 acres (20 percent) of protected riparian habitat in western Washington, and  
30 247,825 acres (7 percent) of protected riparian habitat in eastern Washington (Table 3-3;  
31 Figure 4.2-1). More acres of riparian habitat would be left as no-harvest buffers, and the  
32 potential exists to increase the amount of complex forest structure along streams under  
33 No Action Alternative 1-Scenario 1 (and Alternatives 2 and 3) compared to No Action  
34 Alternative 1-Scenario 2.

35 Under the current Washington Forest Practices Rules, with ESA incidental take coverage  
36 from the Services, forested lands subject to the rules would not add to past harvesting of  
37 riparian habitat on private, State, and Federal lands. The current Washington Forest  
38 Practices Rules, along with a strong adaptive management program, add to the protection  
39 of amphibians and riparian-associated wildlife species. This protection includes an  
40 increase in riparian area, which would provide travel/dispersal corridors and connectivity  
41 to Federal and State protected lands.





1 **Alternative 4**  
2 Larger no-harvest buffers under Alternative 4 would protect approximately twice the  
3 number of ~~existing riparian~~ acres in RMZs in western Washington and more than twice  
4 the number of acres in eastern Washington, than under the current Washington Forest  
5 Practices Rules of No Action Alternative 1-Scenario 1 (Figures 4.2-1 and 4.2-2). The  
6 RMZ acreage would be approximately four times greater than under No Action  
7 Alternative 1 Scenario 2 on both sides of the State (Figures 4.2-1 and 4.2-2). No-harvest  
8 would be allowed within the larger buffer areas. Therefore, under this alternative, there  
9 would be ~~little to~~ no additive negative impact to those from past timber harvests within  
10 riparian habitat on private, State, and Federal lands. Protection of habitat for amphibians,  
11 and riparian-associated wildlife species, and upland wildlife species habitat would be  
12 increased, which would also provide travel/dispersal corridors and connectivity to  
13 Federal and State protected lands. However, a more restrictive set of rules would  
14 generally not be supported by private landowners, and in turn would likely increase  
15 conversion rates and adversely affect the viability of the adaptive management programs.  
16 Increased conversions and a lack of support for adaptive management could, over time,  
17 diminish the resource benefits of a more restrictive set of rules.

18 As compared to No Action Alternative 1-Scenario 1, Alternative 4 may have similar or a  
19 slightly reduced potential for adverse cumulative effects to amphibians, ~~and other~~ riparian  
20 associated wildlife species, and upland wildlife species; this is due to the potential for  
21 increased forestland conversion in some areas to offset the aquatic habitat benefits of  
22 more restrictive protection measures. As compared to No Action Alternative 1-Scenario  
23 2, Alternative 4 would have much less potential for adverse cumulative effects; this is  
24 due to the large difference in protection measures between these alternatives.

### 25 **5.3.5 Social and Economic Environment and Archeological, Historical,** 26 **and Cultural Resources**

#### 27 **5.3.5.1 Archeological, Historical, and Cultural Resources**

28 The archeological, historical, and cultural resources of Washington’s forestlands are  
29 under steady pressure from resource extraction, development, recreation, and other  
30 modern human activities. These resources have experienced long-term cumulative losses  
31 as a result of these types of activities. Because they are widespread and unidentified for  
32 purposes of this analysis, the effects of these activities on the archeological, historical,  
33 and cultural resources of Washington’s forestlands cannot be taken into consideration in  
34 any systematic manner. It is, however, possible to divide lands into two broad groups,  
35 private and non-private, with the non-private lands further divisible into two parts,  
36 Federal/tribal and State-managed lands. Parameters for analysis focus on protection  
37 measures for these resources.

38 Private forestlands are subject to the constraints of the Washington Forest Practices Rules  
39 and other regulations (RCW Chapters 27.44 and 27.52) associated with the protection of  
40 archeological, historical, and cultural resources. The effects of each alternative on these  
41 resources have been addressed in subsection 4.13 (Archeological, Historical, and Cultural  
42 Resources). In that subsection, alternatives are compared according to the levels of



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1 protection that would be provided under each alternative and the anticipated effect of  
2 each alternative on anadromous fish.

3 Non-private forestlands are also managed under a set of laws, regulations, and policies  
4 pertaining to archeological, historical, and cultural resources; the effects of which are  
5 generally understood. Non-private forestlands fall into two groups: those under Federal  
6 and tribal management and those managed by the Washington DNR.

7 Federal and tribal lands are under the jurisdiction of the NHPA, the American Indian  
8 Religious Freedom Act, Archaeological Resource Protection Act, Native American  
9 Graves Protection and Repatriation Act, and Executive Order 13007. NHPA Section 106  
10 requires Federal agencies to take into account the effects of Federal undertakings on  
11 cultural resources, which includes archaeological and historical properties, along with  
12 traditional cultural properties. The latter includes traditional sites, as defined herein, and  
13 areas where traditional resources are gathered. As defined in the U.S. Department of  
14 Interior regulations, “undertaking” means a project, activity, or program funded in whole  
15 or in part under the direct or indirect jurisdiction of a Federal agency, including those  
16 carried out by or on behalf of a Federal agency; those carried out with Federal financial  
17 assistance; or those requiring a Federal permit, license, or approval. The Services will  
18 comply with Section 106 of the NHPA for the action analyzed in this FEIS by making a  
19 determination whether or not the proposed Federal action is an undertaking, as previously  
20 defined, considering the nature of Federal involvement, such as the degree of Federal  
21 agency control or discretion, the type of Federal involvement or link to the action, and  
22 whether or not the action could move forward without the Federal action. The Federal  
23 review will focus on the proposed action of issuing a permit or approval for activities  
24 conducted according to requirements of the Washington Forest Practices Rules.

25 The American Indian Religious Freedom Act and Executive Order 13007 require  
26 agencies to take into account the effects of their actions on religious practices and sacred  
27 lands, respectively. The Native American Graves Protection and Repatriation Act  
28 protects Native American skeletal remains, associated funerary objects, sacred objects,  
29 and objects of cultural patrimony on Federal lands, while the Archaeological Resource  
30 Protection Act protects and controls access to archaeological and some historical  
31 resources. Federal and tribal agencies maintain staffs that are charged with complying  
32 with these statutes, so it is reasonable to assume that the cumulative effects of forest  
33 management on lands under Federal and tribal jurisdiction, as well as private lands with a  
34 project, activity, or program under the direct or indirect jurisdiction of a Federal agency,  
35 would not be substantial.

36 Archeological, historical, and cultural resources on Forest Trust lands under Washington  
37 DNR’s trustee obligations are protected under Forest Resource Plan Policy #24 and the  
38 existing State Trust Lands HCP (Washington DNR 1992a; Washington DNR 1997d).  
39 Titled “Identifying Historic Sites,” Forest Resource Plan Policy #24 declares that  
40 Washington DNR will establish a program to identify and inventory historic and  
41 archaeological sites and protect them at a level that, at a minimum, meets regulatory  
42 requirements (Washington DNR 1992a). This policy is generally interpreted to mean that



1 Washington DNR will follow procedures equivalent to those required under Section 106  
2 of the NHPA. The existing State Trust Lands HCP must follow RCW Chapter 27.44 and  
3 Chapter 27.53 to assure that archaeological sites and Indian graves are protected from  
4 disturbance (Washington DNR 1997d). It identifies Washington DNR's Total Resource  
5 Application Cross-Reference System as an important tool for ensuring that department  
6 activities do not damage such sites. In addition, Washington DNR enters into  
7 Memoranda of Agreements with tribes to ensure access to and protection of traditional  
8 sites and resources. Although small numbers of sites may still be missed, and biotic  
9 resources may be affected by forest management activities, these effects are expected to  
10 be slight.

11 Because of these constraints, few cultural resource sites are expected to be adversely  
12 affected. Consequently, the cumulative effects of the alternatives that are considered in  
13 this FEIS would be equivalent to the direct and indirect effects, which are discussed in  
14 Chapter 4 (Environmental Consequences).

15 In general, the more RMZ area set-aside as no-harvest areas, the more potential  
16 protection afforded to archeological, historical, and cultural resources. The functionality  
17 of the adaptive management program is not expected to affect the protection of  
18 archeological, historical, and cultural resources to any substantial degree. However, the  
19 rate of forestland conversion could affect these resources; increases in the rate of  
20 forestland conversion could offset some of the protection afforded by larger no-harvest  
21 RMZs. Given this, No Action Alternative 1-Scenario 2 is expected to provide the least  
22 amount of protection due to the least amount of RMZ buffer area. No Action Alternative  
23 1-Scenario 1 and Alternative 3 would provide more protection than No Action  
24 Alternative 1-Scenario 2 due to more RMZ buffer area provided under these alternatives.  
25 Alternative 2, while providing the same amount of RMZ buffer area as No Action  
26 Alternative 1-Scenario 1, offers long-term regulatory certainty, which may increase  
27 landowner willingness to voluntarily provide more protection than would be required by  
28 regulation. Alternative 4 could provide the most protection due to the largest RMZ  
29 buffer area, but some of this protection could be offset due to increased forestland  
30 conversion.

### 31 **5.3.5.2 Social and Economic Environment**

32 The following subsections discuss the potential cumulative effects of the proposed action  
33 on the economic and social environment. This discussion addresses the potential  
34 combined effects of the proposed action along with other past, present, and reasonably  
35 foreseeable future activities. Parameters for analysis include employment trends in  
36 various employment sectors.

#### 37 **Employment and the Economy**

38 Total employment in Washington increased by 688,915 jobs, or 24 percent, between  
39 1990 and 2000 (Washington Employment Security Department 2003). Covered  
40 employment projections developed in 2003 anticipate continued total employment  
41 growth with an average annual growth rate of 1.6 percent between 2002 and 2012.  
42 Covered employment in wood products manufacturing is also projected to grow, although



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1 at a slower annual rate than total employment, increasing by 1.0 percent from 2002 to  
2 2007 and 0.9 percent from 2007 to 2012. Logging employment is projected to remain  
3 constant from 2002 to 2007 (0.0 percent annual growth rate) and to decline between 2007  
4 and 2012 (-0.6 percent annual growth rate). Covered employment in paper  
5 manufacturing is expected to increase slightly between 2002 and 2007 (0.2 percent  
6 annual growth rate) and remain constant from 2007 to 2012 (0.0 percent annual growth  
7 rate). Projections are not available for the commercial fishing sector (Washington  
8 Employment Security Department 2003).

9 Projections are also not available for the recreation sector because it is not measured as a  
10 separate industrial category, and data are not specifically gathered for this sector.  
11 Employment is, however, projected to increase in the leisure and hospitality sector, with  
12 annual increases of 1.7 percent and 1.3 percent from 2002 to 2007 and 2007 to 2012,  
13 respectively. The leisure and hospitality sector includes the arts, entertainment, and  
14 recreation sector and the accommodation and food services sector, which are often used  
15 as general measures of recreation activities (Washington Employment Security  
16 Department 2003).

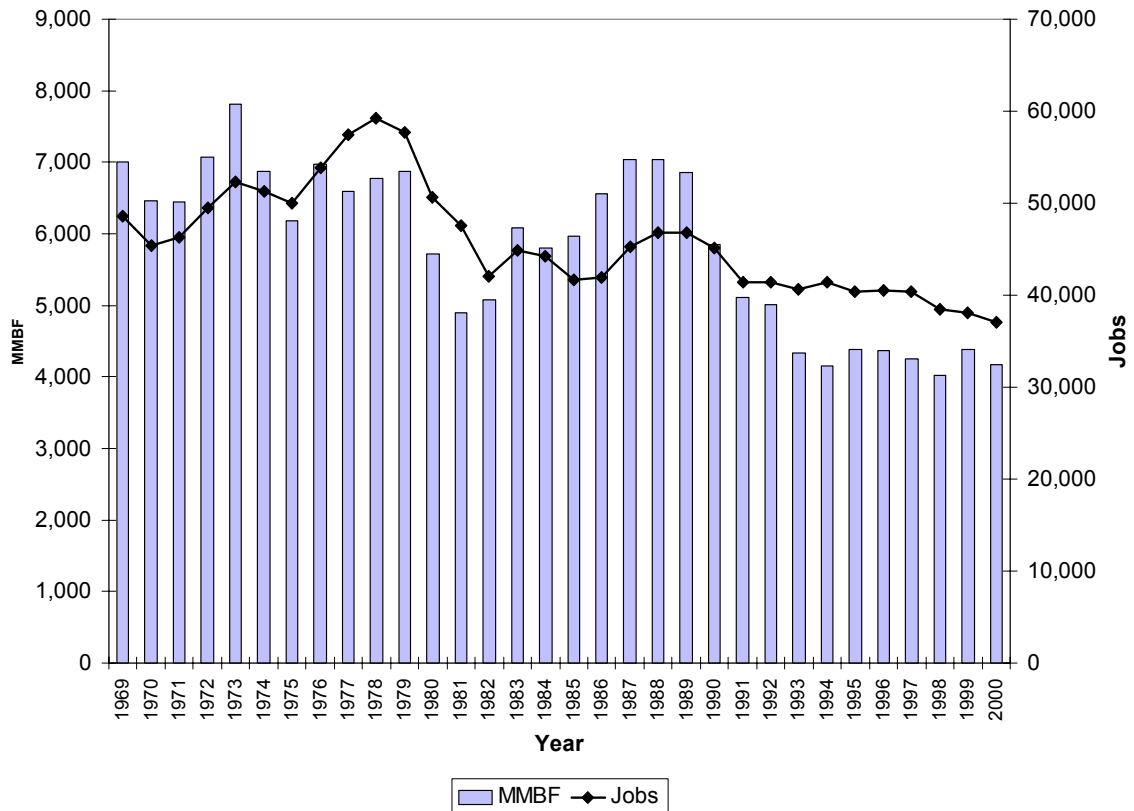
### 17 **Lumber and Wood Products**

18 Annual full- and part-time employment in the lumber and wood products sector is shown  
19 for 1969 through 2000 in Figure 5-2. Lumber and wood products employment fluctuated  
20 substantially over this period, with peaks in the late 1970s prior to the economic  
21 recession of the early 1980s and an overall declining trend from 1990 onward. Harvest  
22 from all ownerships declined from 5,849 million board feet in 1990 to 4,176 million  
23 board feet in 2000, a decrease of approximately 29 percent. Harvests from National  
24 Forest System lands decreased by 736 million board feet, or 90 percent over this period.  
25 Private lands accounted for 84 percent of total harvest in 2000, with State harvest  
26 accounting for 13 percent (Washington DNR 2001). Overall, harvests declined on  
27 private and State lands in 2001 and 2002 (Washington DNR 2004b, 2004d).

28 As compared to No Action Alternative 1-Scenario 2, potential reductions in acres  
29 available for harvest under No Action Alternative 1-Scenario 1 (and Alternatives 2 and 3)  
30 could contribute to the downward trend in timber harvest shown in Figure 5-2. This is  
31 especially true under Alternative 4. This could, in turn, contribute to the downward trend  
32 in timber-related employment. Employment levels in both the lumber and wood products  
33 and pulp and paper sectors are, however, as noted above, expected to remain relatively  
34 stable over the next few years. These projections are based on a number of factors that  
35 affect the economic performance of the forest products sector in Washington State.



1 **Figure 5-2.** Timber Harvest and Lumber and Wood Products Employment,  
 2 1969 to 2000.



3 MMBF = million board feet  
 4 Source: Bureau of Economic Analysis 2004; Washington DNR 2004d.

5 These factors include the overall health of the United States economy, demand from  
 6 Asia, and competition from Canadian and European softwood lumber exporters.

7 Lumber prices declined nationally and in Washington State in 2002. Comparatively low  
 8 prices despite a strong United States housing market and high duties on Canadian imports  
 9 indicate an excess supply of softwood lumber products. The ongoing weak Asian export  
 10 market coupled with continued low-priced Canadian imports suggests that lumber prices  
 11 will likely remain fairly constant in the near future. Domestic and international pulp and  
 12 paper markets were weak during 2002, with pulpwood and chip prices also unlikely to  
 13 increase in the near future (Blatner et al. 2003). As compared to No Action Alternative  
 14 1-Scenario 2, potential reductions in timber supply under No Action Alternative 1-  
 15 Scenario 1 (and Alternatives 2 and 3) are likely to contribute to these broader trends in  
 16 the forest products industry, but timber supply is just one of a number of factors that  
 17 affect the industry and potential future employment and income. This is especially true  
 18 under Alternative 4.





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### 1 **Recreation and Commercial Fishing**

2 While it is not possible to quantify the cumulative effects of the proposed alternatives on  
3 salmonid populations and recreation and commercial fishing employment, it is possible to  
4 assess the potential direction of the effects and to provide a general comparison between  
5 alternatives. Potential cumulative effects to aquatic habitat and fish are discussed in  
6 subsection 5.3.3 (Aquatic Resources). The combination of programs and plans described  
7 in that subsection reflect a substantial widespread effort to put listed species on a positive  
8 trend toward recovery and to provide substantial protection for other aquatic and riparian-  
9 associated species.

10 The potential for adverse habitat impacts associated with No Action Alternative 1-  
11 Scenario 2, suggest that salmonid populations would likely decline over the long term  
12 under this alternative. Viewed from a cumulative perspective, this alternative is unlikely  
13 to meet the level of protection needed for the Washington Forest Practices Rules to play a  
14 role in the overall recovery process. No Action Alternative 1-Scenario 1, in contrast,  
15 provides protection that complements other activities in the region. Alternative 2 would  
16 likely result in long-term improvements as compared to both No Action Alternative 1  
17 scenarios; substantially so compared to Scenario 2. Alternative 3 would result in a slight  
18 improvement over No Action Alternative 1-Scenario 1 and more so over No Action  
19 Alternative 1-Scenario 2.

20 Alternative 4 may have more certainty of achieving adequate protection to resources in  
21 the short term and would result in the highest likelihood of long-term improvements in  
22 habitat and salmonid numbers. However, over time, increased forestland conversion  
23 rates could diminish some of these resource benefits. Effects on existing salmonid  
24 populations would likely affect the availability of salmonids for recreational and  
25 commercial harvest, which would, in turn, affect recreation- and commercial fishing-  
26 related employment and income.