EXECUTIVE SUMMARY

In 1980, Congress passed the Pacific Northwest Electric Power Planning and Conservation Act which authorized creation of the Northwest Power and Conservation Council by the states of Washington, Oregon, Idaho, and Montana. The Act directed the Council to develop a program "to protect, mitigate and enhance fish and wildlife…in the Columbia River and its tributaries…affected by the development, operation and management of (hydroelectric projects) while assuring the Pacific Northwest an adequate, efficient, economical and reliable power supply." The Council has established four primary objectives for the Columbia River Fish and Wildlife Program.

- A Columbia River ecosystem that sustains an abundant, productive, and diverse community of fish and wildlife.
- Mitigation across the Columbia River Basin for the adverse effects to fish and wildlife caused by the development and operation of the hydrosystem.
- Sufficient populations of fish and wildlife for abundant opportunities for tribal trust and treaty rights harvest and for non-tribal harvest.
- Recovery of the fish and wildlife which are affected by the development and operation of the hydrosystem and are listed under the Endangered Species Act.

The Columbia River Basin was divided into 62 subbasins based on Columbia River tributaries. Each subbasin is developing its own plan which will establish locally defined biological objectives to meet the four primary objectives defined by the Council. Plans developed at the subbasin level will be combined into the fourteen province-level plans and will form the framework within which the Bonneville Power Administration will fund proposed fish and wildlife projects. The subbasin planning process is viewed as an on-going effort and is anticipated to occur on a three year cycle. The plans are considered "living documents" which will incorporate new information during their periodic updates.

The subbasin plans will also play a significant role in addressing the requirements of the Endangered Species Act; NOAA-Fisheries and USFWS intend to use the plans to help in recovery of ESA-listed species. In addition, the Council, Bonneville Power Administration, NOAA-Fisheries, and USFWS will use the adopted subbasin plans to help meet subbasin and province requirements under the 2000 Federal Columbia River System Biological Opinion. Other regulatory standards and planning efforts, including the Clean Water Act and various state requirements affect, and are affected by, the subbasin plans. In particular, an interactive relationship is expected to be developed between subbasin planning, watershed plans, and State of Washington salmon recovery plans.

Lower Snake Subbasin Plan

This plan concerns the Lower Snake Subbasin in southeastern Washington. The Lower Snake Subbasin encompasses 1,059,935 acres (1,656 square miles) within portions Adams, Franklin, Walla Walla, Columbia, Whitman, Garfield and Asotin Counties in the southeastern corner of

Washington State. This subbasin includes a portion of the Snake River Mainstem and a number of its tributaries, including Deadman Creek, Almota Creek, Alpowa Creek, and Penawawa Creek. Approximately 5 percent of the Snake River's total watershed is located downstream of the Clearwater River at Lewiston, Idaho, and this region is relatively arid compared to the Snake River's upstream drainage areas. As such, only a small portion of the Snake River mainstem flow is derived from tributaries located within the Lower Snake Subbasin. Vegetation in the subbasin is characterized primarily by grasslands and agricultural lands with some ponderosa pine, shrubsteppe, and wetland areas.

Agriculture is the primary land use in the subbasin, including dryland crops and small areas of irrigated cropland. Limited timber harvest also occurs. Lands adjacent to the Lower Snake River are primarily privately owned; public lands adjacent to the reservoirs are managed by the Army Corps of Engineers, and a few isolated parcels are owned by the State. The Lewiston-Clarkston area and near the mouth of the Snake River represent the only significant industrial, commercial, and residential development in the Subbasin.

The planning process in the Lower Snake subbasin involved a number of organizations, agencies, and interested parties including the Pomeroy Conservation District, Nez Perce Tribe, Washington Department of Fish and Wildlife, private landowners and others. The lead entity for the planning effort was the Pomeroy Conservation District with the Nez Perce Tribe as the co-lead. The technical components of the assessment were developed by the Washington Department of Fish and Wildlife. The planning effort was guided by the Asotin, Lower Snake, and Lower Snake Subbasin Planning Team which included representation from the lead entity, co-leads, local resource managers, conservation districts, agencies, private landowners, and other interested parties. The vision statement and guiding principles for the management plan were formulated by the Subbasin Planning Team through a collaborative and public process. The vision statement is as follows.

The vision for the Lower Snake Subbasin is a healthy ecosystem with abundant, productive, and diverse populations of aquatic and terrestrial species that supports the social, cultural and economic well-being of the communities within the Subbasin and the Pacific Northwest.

Together with the guiding principles, the vision statement provided guidance regarding the assumptions and trade-offs inherent in natural resource planning.

This subbasin plan focuses on the tributaries that are a portion of this subbasin. These plan elements have not been developed by the subbasin planners for the mainstem section of the subbasin. Planning strategies to address mainstem issues are considered beyond the scope of this subbasin plan, and will be addressed through other forums, e.g. mainstem amendment process.

Aquatic Focal Species and Species of Interest

To guide the assessment and management plan, one focal species, steelhead, was selected for aquatic and terrestrial habitats within the Lower Snake Subbasin. This species was chosen based on the following considerations:

- Selection of species with life histories representative of the Lower Snake Subbasin
- ESA status
- Cultural importance of the species
- Level of information available about species' life histories allowing an effective assessment

In addition, white sturgeon was designated as an aquatic "species of interest" for this planning effort. This species is of cultural and ecological significance to stakeholders, but not enough information was available to its selection as focal species.

Terrestrial Focal Species and Priority Habitats

Focal terrestrial species are white-headed woodpecker, flammulated owl, Rocky Mountain elk, yellow warbler, American beaver, great blue heron, grasshopper sparrow, sharp-tailed grouse, sage sparrow, sage thrasher, Brewer's sparrow and mule deer. The criteria for selection of these species are:

- Primary association with focal habitats for breeding.
- Specialist species that are obligate or highly associated with key habitat elements or conditions important in functioning ecosystems.
- Declining population trends or reduction in historic breeding range.
- Special management concerns or conservation status (threatened, endangered, species of concern, indicator species).
- Professional knowledge of species of local interest.

Within the Lower Snake Subbasin, four priority habitats were selected for detailed analyses: ponderosa pine, eastside interior grasslands, interior riparian wetlands, and shrub-steppe. These were selected based upon determination of key habitat needs by local resource managers, the ability of these habitats to track ecosystem health, and cultural factors.

Within this subbasin plan, the role of aquatic focal species differed from the role of terrestrial focal species. The aquatic focal species was used to inform decisions regarding the relative level of enhancement effort required to achieve an ecological response. Due to data limitations, terrestrial focal species did not inform the majority of the management plan, but instead will be

used to guide monitoring the functionality of priority habitats. Terrestrial priority habitats were used to guide development of the management plan for terrestrial habitats and species.

Aquatic Habitat Assessment

Assessment of aquatic habitats for steelhead within the Lower Snake subbasin tributaries was accomplished with the Ecosystem Diagnostic and Treatment (EDT) model. The EDT model analyzes aquatic habitat quality, quantity, and diversity relative to the needs of a focal species. The purpose of the analysis is to identify stream reaches that can provide the greatest biological benefit based upon potential improvement in habitat conditions. This is accomplished by comparing historic aquatic habitat conditions in the watershed to those currently existing relative to life history needs of the focal species. The result of the analysis is identification of stream reaches that have high potential restoration and protection values. These values allow prioritization of corrective actions to gain the greatest benefit with the lowest risk for the focal species.

For summer steelhead, the EDT analysis identified areas that currently have high production and should be protected (High Protection Value) and areas with the greatest potential for restoring life stages critical to increasing production (High Restoration Value). These initial EDT results were then reviewed in light of the following four considerations: 1) results of related assessment and planning documents (Limiting Factors Analysis, Lower Snake Subbasin Summary, etc.); 2) the necessary trade-offs between the biological benefits provided by enhancement potential of one geographic area versus another to achieve geographic prioritization; and 4) physical and socioeconomic limitations. This type of review was necessary given the data gaps currently present in the EDT model and the fact that EDT is an ecologically-based model that does not incorporate factors such as limited access to wilderness areas. Through this review, the initial EDT results were modified in a limited number of instances to develop a group of priority restoration geographic areas and a group of priority protection geographic areas. These geographic areas include the stream reaches themselves and the upland areas that drain to these reaches. Due to limited information present for Alpowa and Penawawa Creeks, Almota and Deadman Creeks, respectively, were used as reference reaches.

In the Lower Snake Subbasin, all areas with the highest restoration value were the same areas that had the highest protection value. Thus, priority reaches are discussed as priority restoration/protection geographic areas. These areas were identified as follows: Almota Creek, Deadman Creek, Alpowa Creek, and Penawawa Creek. Within these priority areas, the most negatively impacted life stages were identified for steelhead and the key environmental factors that contribute to losses in focal species performance, i.e. limiting factors, were also identified. Key limiting factors for steelhead included the following: sediment, large woody debris, key habitat (pools), riparian function, stream confinement, summer water temperature, bedscour and flow.

Terrestrial Habitat Assessment

The terrestrial assessment occurred at two levels: Southeast Washington Ecoregion and subbasin level. Several key databases, i.e. Ecosystem Conservation Assessment (ECA), the Interactive Biodiversity Information System (IBIS), and the GAP analyses, containing information on historic and current conditions were used in the assessment. The ECA data identified areas that would provide ecological value if protected and are under various levels of development pressure. The IBIS database provided habitat descriptions and historic and current habitat maps. GAP data classifies terrestrial habitats by protection status based primarily on the presence or absence of a wildlife habitat and species management program for specific land parcels. The classification ranges from 1 (highest protection) to 4 (little or unknown amount of protection).

The nature and extent of the focal habitats were described as well as their protection status and threats to the habitat type. From historic to current times, there has been an estimated 85 percent decrease in riparian wetland habitat, 56 percent decrease in interior grassland habitat, and an 80 percent decrease in shrubsteppe habitat. However, ponderosa pine habitat has increased by 106 percent in the subbasin. Little information was available regarding the functionality of remaining habitats. Most ponderosa pine forest and eastside grassland habitats in the subbasin are afforded "low" protection status, while most interior wetlands receive no protection. In total, 1 percent of the subbasin is considered to be in high protection status, 1 percent is in medium protection status, 6 percent in low protection status, and 92 percent has no protection status or is area for which this information was not available.

Inventory

Complementing the aquatic and terrestrial assessments, information on programmatic and project-specific implementation activities within the subbasin is provided. A wide variety of agencies and entities are involved in habitat protection and enhancement efforts within the Lower Snake Subbasin, including the Columbia Conservation District, Nez Perce Tribe, Confederated Tribes of the Umatilla Indian Reservation, U.S. Fish and Wildlife Service (USFWS), NOAA-Fisheries, Washington Department of Fish and Wildlife (WDFW), Washington Department of Ecology, cities, counties, and others. Key aquatic and terrestrial programs include the following:

- USDA Programs (e.g. Conservation Reserve Enhancement Program, Conservation Reserve Program)
- Harvest regulations (tribal and sport fishing)
- Priority Habitats and Species Program (WDFW)

Project-specific information was only available for aquatic habitats. Since 1996, projects implemented within the subbasin focused on several key project types:

Practice	Number	Units
2 pass seeding	2,809	Acres
Direct Seed	2,002	Acres
Fencing	12,697	Feet
Grasses and Legumes in Rotation	113	acres
No-till seeding	8,552	acres
Pasture and Hayland planting	15	acres
Sediment Basins	54,270	cyds
Strip Cropping	1,073	acres
Subsoiling	3,878	acres
Terraces	80,734	feet
Grassed Waterways	23,866	feet

Management Plan

The management plan consists of three components: working hypotheses, biological objectives, and strategies. Working hypotheses are statements about the identified limiting factors for aquatic species and terrestrial habitats. The hypotheses are intended to be testable, allowing future research to evaluate their accuracy. Biological objectives are measurable objectives for selected habitat components based upon what could reasonably be achieved over the 10 to 15 year planning horizon. Quantitative biological objectives were identified where supporting data was available. Where such data was not present, qualitative biological objectives based on desired trends were proposed. Strategies identify the types of actions that can be implemented to achieve the biological objectives.

For terrestrial species and habitats, the limited information available precluded development of biological objectives and strategies for individual focal species. Instead, terrestrial strategies focus on enhancement of priority habitat types, under the general assumption that improvements to terrestrial habitats will benefit terrestrial species. Both protection and enhancement strategies were developed.

Aquatic strategies focus on methods to achieve improvements in aquatic habitat. Both restoration and protection strategies were developed. Restoration strategies focus on enhancing the current habitat conditions while protection strategies focus on maintenance of current conditions.

For each priority restoration/protection geographic area within the subbasin, working hypotheses were developed for each limiting factor, causes of negative impacts were listed, biological objectives were delineated, and strategies were proposed. For example, in the lower Almota Creek area, Working Hypothesis 4 states that an increase in riparian function and a decrease in

stream confinement will increase the survival of steelhead, in selected life stages. Biological objectives in this geographic area are as follows:

- Sediment – achieve less than 50% mean embeddedness
- Large Woody Debris – at least 1 piece should be present per 3 channel widths
- Pools – 8% or more of the stream surface area should be pools
- Riparian Function – the riparian function should be at least 50% of maximum
- Confinement – no objective established due to infrastructure limitations
- Summer Maximum Water Temperature – no objective established because temperature was not identified as a limiting factor in this geographic area
- Bedscour – bedscour should be limited to 15 cm or less
- Instream Flow – an upward trend in flow should be achieved

Strategies were identified specific to each biological objective and include enhancing riparian buffers, implementing conservation easements, developing off-stream livestock watering facilities and public outreach. These and similar strategies were applicable across all priority geographic areas. Achieving the biological objectives in the restoration/protection geographic areas is considered a priority within the subbasin.

Aquatic strategies were also developed for imminent threats. Imminent threats are those factors likely to cause immediate mortality to the aquatic focal species and include the following three categories: fish passage obstructions, inadequate fish screens, and stream reaches that are dewatered due directly to man-caused activities. Addressing imminent threats throughout the subbasin is also considered a priority within this subbasin plan.

Working hypotheses for terrestrial habitats are based on factors that affect (limit) focal habitats. Hypotheses were defined for riparian/riverine wetlands, ponderosa pine habitats, and interior grasslands. Factors affecting the habitats were identified and biological objectives reflecting habitat protection as well as enhancement and maintenance of habitat function were formulated. Terrestrial habitat biological objectives are focused on protecting and enhancing functionality in areas that are have a high or medium protection status, and private lands that meet one or more of the following conditions:

- Directly contribute to the restoration of aquatic focal species
- Have high ecological function
- Are adjacent to public lands
- Contain rare or unique plant communities
- Support threatened or endangered species/habitats

- Provide connectivity between high quality habitat areas
- Have high potential for re-establishment of functional habitats

Terrestrial strategies are based on a flexible approach which takes into account a variety of conservation "tools" such as leases and easements and cooperative projects/programs. The efficacy of focusing future protection efforts on large blocks of public and adjacent lands is recognized.

The specific strategies are focused entirely on improvements in functional habitat. Strategies for achieving the biological objectives include upholding existing land use and environmental regulations, , completing a more detailed assessment of the focal species, providing outreach opportunities, and identifying functional habitat areas.

Agriculture is considered a "cover type of interest" due to its predominance in the subbasin and its potential to both positively and negatively impact terrestrial wildlife. Proposed enhancement efforts in this area focus on limiting elk and deer damage on private agricultural lands.

Additional components of the management plan include the following:

- Comparison of the relative ecological benefit of achieving the biological objectives.
- Research, monitoring, and evaluation priorities for aquatic and terrestrial species and habitats.

Integration of the aquatic and terrestrial strategies and integration of the subbasin strategies with those of the Endangered Species Act and the Clean Water Act are addressed in the plan. These aspects are expected to develop further as the plan is implemented and related efforts such as the Snake River Salmon Recovery Plan are developed. This plan will evolve over time through use of an adaptive management strategy that will allow funding to consistently be applied to those projects that can achieve the greatest benefits.