

## 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.

### **Tucannon Subbasin Plan**

This plan concerns the Tucannon Subbasin in southeastern Washington. The Tucannon Subbasin encompasses 503 square miles in Garfield and Columbia counties drained by the Tucannon River and its tributaries. Pataha Creek is the Tucannon’s major tributary. The Tucannon arises in the Blue Mountains and enters the Snake River at River Mile 62.2 near the mouth of the Palouse River. The area has an average annual rainfall of 23 inches which includes

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winter snowfall. Melting snow from the Blue Mountains provides much of the annual runoff to the streams and rivers in the subbasin; the water level in many streams diminishes greatly during the summer months. Vegetation in the subbasin is characterized by grasslands and agricultural lands at lower elevations and evergreen forests at higher elevations.

Major land uses in the subbasin are related to agriculture; cropland, forest, rangeland, pasture, and hay production account for more than 90 percent of the land within the watershed. Approximately 75 percent of the Tucannon subbasin is in private ownership; most of this land is in the lower portion of the watershed.

The planning process in the Tucannon subbasin involved a number of organizations, agencies, and interested parties including the Columbia Conservation District, Nez Perce Tribe, Confederated Tribes of the Umatilla Indian Reservation, Washington Department of Fish and Wildlife, private landowners and others. The lead entity for the planning effort was the Columbia Conservation District with the Nez Perce Tribe and Confederated Tribes of the Umatilla Indian Reservation as the co-leads. 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 Tucannon 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 Tucannon 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.

### **Aquatic Focal Species and Species of Interest**

To guide the assessment and management plan, focal species were selected for aquatic and terrestrial habitats within the Tucannon Subbasin. Aquatic focal species are steelhead/rainbow trout, spring Chinook and fall Chinook salmon, and bull trout. These species were chosen based on the following considerations:

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

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In addition, Pacific lamprey, coho salmon, freshwater mussels, and mountain whitefish were designated as aquatic “species of interest” for this planning effort. These species are of cultural and ecological significance to stakeholders, but not enough information was available to warrant their 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, 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 Tucannon 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. Aquatic focal species were 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 and salmon within the Tucannon subbasin was accomplished with the Ecosystem Diagnostic and Treatment (EDT) model. Bull trout were not assessed using EDT as its methodology does not yet include information pertinent to that species.

EDT is a system for analyzing 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

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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 Tucannon River summer steelhead and spring/fall Chinook salmon, 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, Tucannon Subbasin Summary, Tucannon Model Watershed Plan, etc.); 2) the necessary trade-offs between the biological benefits provided by enhancement potential of one geographic area versus another to achieve geographic prioritization; 3) balancing the needs of all aquatic focal species; 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.

The areas with the highest restoration value in the Tucannon Subbasin are: Tucannon River from Pataha-Marengo, Tucannon River from Marengo-Tumalum, Tucannon River from Tumalum-Hatchery, Tucannon River from Hatchery-Little Tucannon, and Mountain Tucannon. Within these priority areas, the most negatively impacted life stages were identified for steelhead and spring Chinook. In each of these areas, the key environmental factors that contribute to losses in focal species performance, i.e. limiting factors, were also identified. Key limiting factors for steelhead and spring/fall Chinook included the following: sediment, large woody debris, key habitat (pools), riparian function, stream confinement, summer water temperature, and flow. Decreasing the effect of these limiting factors through habitat enhancement is expected to benefit bull trout as well as steelhead, spring Chinook, and fall Chinook.

Priority protection geographic areas for aquatic focal species include the five areas identified for restoration plus Panjab Creek, Cummings Creek, the lower Tucannon River, and the Tucannon River headwaters. Protecting current habitat conditions in these geographic areas is expected to achieve no loss of function, and to allow for natural attenuation of limiting factors over time to benefit aquatic habitat.

### 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

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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. Shrub-steppe habitats, though common on the Columbia Plateau, do not occur in the Tucannon Subbasin, nor is it considered to have occurred here historically. From historic to current times, there has been an estimated 43 percent decrease in riparian wetland habitat, 40 percent decrease in interior grassland habitat, and a 69 percent decrease in ponderosa pine habitat within 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, 4 percent of the subbasin is considered to be in high protection status (primarily the Wenaha-Tucannon Wilderness Area), 3 percent is in medium protection status, 24 percent in low protection status, and 69 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 Tucannon 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)
- Total Maximum Daily Load water quality enhancement program
- Hatchery programs
- Harvest regulations (tribal and sport fishing)
- Blue Mountains Elk Management Plan (WDFW)
- Priority Habitats and Species Program (WDFW)

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

- upland issues (10%)
- riparian restoration (36%)
- instream (42%)
- Conservation Reserve Program/Conservation Reserve Enhancement Program (12%)

### 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. Although local stakeholders desired to achieve the greatest coordination possible among various planning efforts, the draft Bull Trout Recovery Plan being developed by the U.S. Fish and Wildlife Service was not directly incorporated because it is still in draft form. However, the draft strategies it contains were considered and incorporated in general form during development of aquatic management strategies in the subbasin plan. The subbasin intends to consider incorporation of selected Bull Trout Recovery Plan strategies into the subbasin plan once the recovery plan is finalized.

For each priority restoration 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 Pataha-Marengo area, Working Hypothesis 4 states that an increase in riparian function and a decrease in stream confinement will increase the survival of steelhead, spring Chinook, and bull trout in various life stages. Biological objectives in this geographic area are as follows:

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- Sediment – achieve less than 20% mean embeddedness
- Large Woody Debris – at least 2 pieces per channel width should be present
- Pools – 15% or more of the stream surface area should be pools
- Riparian Function – the riparian function should be at least 75% of maximum
- Confinement – no more than 25% of the stream bank length should be confined
- Summer Maximum Water Temperature – the water temperature should exceed 75°F on fewer than 4 days per year
- Instream Flow – flow should be increased where possible

Strategies were identified specific to each biological objective and include limiting firewood cutting in riparian areas, upholding existing land use regulations, implementing conservation easements, and decommissioning/paving roads near the river. These and similar strategies were applicable across all priority restoration geographic areas. Achieving the biological objectives in the priority restoration areas is considered a priority within the subbasin.

Aquatic strategies were also developed for two additional categories: 1) priority protection areas and 2) imminent threats. Priority protection geographic areas are those areas that EDT analysis or empirical data suggest would have the most negative impacts on the focal species if they were allowed to degrade further. Because all priority restoration areas are also considered priority protection areas, these strategies would apply to both types of geographic areas. Priority protection area strategies include but are not limited to implementation of riparian buffers, upland enhancement, alternative water development, conservation easements, expanding participation in the Conservation Reserve Program and similar efforts, and water conservation.

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. Implementing the identified strategies in priority protection areas and addressing imminent threats throughout the subbasin are also considered priorities 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 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

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- 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 restoration biological objectives only, protection biological objectives only, versus achieving all of the proposed biological objectives.
- Preliminary numeric fish population goals from other planning efforts (Biological objectives in this plan are habitat-based. Objectives with specific fish population numbers were not established in this subbasin plan).
- 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.