APPENDIX A

WILDLIFE SURVEY AND ASSESSMENTS

Biological Assessment for Anadromous Fish Species

The following are excerpts from the Biological Assessment conducted by NMFS. Section numbering reflects the format of the original document.

1.4 Analysis Summary

The NMFS and USFWS provided a list of threatened, endangered, and proposed candidate species that may occur within the Wanapa Energy Center study area in letters dated July 23, 2003. The list included bald eagle (*Haliaeetus leucocephalus*), bull trout (*Salvelinus confluentus*), and seven anadromous fish species. This BA addresses potential impacts on the Pacific salmon and steelhead species. NMFS is responsible for endangered, threatened, and candidate anadromous fish species under NOAA Fisheries' jurisdiction in Oregon. Bull trout and the bald eagle are addressed in a separate BA for the project.

The results of the impact analysis are discussed for the anadromous fish species in Sections 4.3. Consultation on the MSA is provided in Section 4.3.5. A summary of the impact analysis is provided in **Table 1.4-1**.

Table 1.4-1
Impact Summary for Anadromous Fish Species

Species	Evolutionarily Significant Unit (ESU)	Federal Status	Summary Findings
Chinook salmon (*Oncorhynchus tshawytscha*)	Upper Columbia River spring-run	Endangered	May affect, not likely to adversely affect critical habitat for Snake River fall-run chinook and Snake River spring/summer-run chinook salmon. May affect, not likely to adversely affect the continued existence of the species.
	Snake River spring/summer-run	Threatened	
	Snake River fall-run	Threatened	
Sockeye salmon (*O. nerka*)	Snake River (Salmon River)	Endangered	May affect, not likely to adversely affect critical habitat. May affect, not likely to affect the continued existence of the species.
Steelhead (*O. mykiss*)	Middle Columbia River	Threatened	May affect, not likely to adversely affect the continued existence of the species.
	Upper Columbia River	Endangered	
	Snake River Basin	Threatened	

3.0 BASELINE CONDITIONS

3.1 Water Resources

3.1.1 Columbia River and Wanaket Wildlife Management Area

The proposed generating plant site lies directly adjacent to the south bank of the Columbia River, the region's dominant surface water feature. The project site is located on a bluff overlooking the Columbia River approximately 2 miles east of McNary Dam, which is operated by the USACE for hydroelectric power. The Umatilla River is located approximately 4 miles west of the plant site and flows into the Columbia River at the City of Umatilla. The plant site is located within a small closed subbasin that includes the Wanaket Wildlife Management Area immediately south and east. The subbasin is adjacent to the Columbia-Umatilla plateau hydrologic subbasin of the Umatilla River, which is to the south and west. **Figure 3.1-1** illustrates the surface hydrologic system that includes the Columbia and Umatilla rivers.

The Columbia River discharges an average of approximately 191,000 cfs at McNary Dam, which is located 2 miles to the west of the proposed plant site. Flow in the Columbia River and discharge at the dam vary seasonally and year-to-year. High flows usually occur from April to June and range from 350,000 cfs to 600,000 cfs. Low flows occur from August to November and range from 65,000 cfs to 85,000 cfs.

The proposed power plant site is currently undeveloped and has no defined natural drainage channels or subbasin outlets. The site is located on a bluff overlooking the Columbia River with an approximate height of 160 feet above normal river level. The area is considered semi-arid, receiving 8 to 10 inches of rainfall annually with most precipitation occurring between October and April. The site is relatively flat with thin but permeable soils – normal precipitation would percolate into the ground or evaporate. Excessive volumes of run-off would probably enter the Wanaket Wildlife Management Area and accumulate in wetland ponds. The Wanaket Wildlife Management Area contains 60 ponds or wetland habitats that range in size from approximately 0.25 to 10.5 acres (CTUIR and BPA 2001).

Terrestrial Habitat

The regional vegetation is located in the Steppe Region of northeastern Oregon. The dominant vegetation community is a shrub-steppe with big sagebrush (Franklin and Dyrness 1973). These natural communities have been highly modified by the development of irrigated and dryland agriculture wherever soils are sufficiently deep to support agricultural crops and adequate natural precipitation or irrigation water are available.

Wildlife habitat within the project study area consists primarily of a fragmented patchwork of irrigated agricultural lands, grasslands, and remnant areas of shrub-steppe. Although shrub-steppe habitat is considered an important habitat type for area wildlife, the shrub-steppe habitat within the project area has received considerable habitat fragmentation resulting from increased development and human presence within the area. The quality of this habitat has been further degraded by the encroachment of nonnative weed species to the area. Other wildlife habitats within the area include wetland and riparian habitats. Riparian woodlands within the study area occur primarily along the banks of ephemeral and perennial creeks, lakes, ponds, and drainages. Wetlands within the study area are limited to small depressional areas and areas along the edges of ephemeral and perennial water bodies.

4.0 SPECIES EVALUATIONS

4.1 Species Evaluated and Listing Status

Three Federally listed anadromous fish species (chinook salmon, sockeye salmon, and steelhead) occur in the Columbia River including the section above and below the McNary Dam. In total, these species are comprised of seven ESUs (see **Table 1.4-1** for listing by ESU). In addition, habitat along the Columbia River has been designated as critical habitat for Snake River fall-run chinook salmon, spring/summer-run chinook salmon, and Snake River sockeye salmon. The following information provides a summary of the occurrence of salmon and steelhead in the Columbia River. More specific information related to the biological requirements of each species/ESU is provided in Section 4.2.

Three chinook salmon ESUs utilize the Middle Columbia River as a migratory route for adults and juveniles: Upper Columbia River spring-run, Snake River spring/summer-run, and Snake River fall-run. Critical habitat for the Snake River fall-run and spring/summer-runs chinook salmon ESUs is located upstream of the proposed Wanapa Energy Facility. The timing of the adult spawning runs into the Columbia River drainage occurs during the spring, summer, and fall. Juvenile chinook salmon may spend from 3 months to 2 years in freshwater before they migrate downstream in the Columbia River to the Pacific Ocean.

The Snake River sockeye salmon ESU utilizes the Columbia River as a migratory route for adult spawners and juveniles. Critical habitat was designated in the Snake River drainage, which is located upstream of the proposed Wanapa Energy Facility. Juvenile sockeye salmon usually spend 1 to 2 years in freshwater and then they migrate to the Pacific Ocean. After 1 to 3 years, they return to the Columbia River for their spawning migration.

Three steelhead ESUs utilize the Middle Columbia River as a migratory route. The Middle Columbia ESU occupies the Columbia River Basin from above the Wind River in Washington and the Hood River in Oregon including the Yakima River in Washington (NMFS 2002). The Middle Columbia River also lies within critical habitat designated for the Middle Columbia steelhead ESU. All steelhead in the Columbia River Basin are summer-run, inland steelhead. Life history characteristics of most Middle Columbia steelhead rear for 2 years and spend 1 to 2 years in the ocean before they re-enter freshwater. Adults can remain in freshwater for up to a year before they spawn. Nonanadromous Columbia River redband trout can coexist with the anadromous form within this ESU (NMFS 2002). The Upper Columbia River ESU and Snake River ESU occupy habitats located upstream of the Middle Columbia River (i.e., upstream from the Yakima River for the Upper Columbia ESU and the Snake River Basin in Washington, Oregon, and Idaho for the Snake River ESU).

Biological Requirements

The relevant biological requirements are those that are necessary for the listed species to survive and recover to naturally-reproducing population levels, at which time protection under the ESA would no longer be necessary (NMFS 2003). The biological requirements associated to the species being evaluated in this BA include increased migration survival and improved habitat characteristics (quality and food availability) that function to support successful migration. The current status of the seven listed species is that their biological requirements are not being met (McClure et al. 2000).

4.2.1 Snake River Fall-run Chinook Salmon

The ESU for the Snake River fall-run chinook salmon includes the mainstem portion of the Snake River and all tributaries from the confluence with the Columbia River to the Hells Canyon complex. The decision to designate the various chinook salmon forms (fall and spring/summer-runs) is based on genetic analyses.

In the Columbia River Basin, adult chinook salmon that migrate upstream past Bonneville Dam from August through October are categorized as fall-run fish. After adults enter the Columbia River, they reach the mouth of the Snake River from mid-August through October (Waples et al. 1991). Spawning occurs in the lower reaches of large tributaries in October through November (NWPPC 1989). Adults return to the Snake River at ages 2 to 5, with age 4 the most common age at spawning (Chapman et al. 1991).

Fall chinook salmon use the mainstem areas or lower portions of major tributaries for spawning or rearing (Waples et al. 1991). Juvenile fall chinook salmon migrate to the sea slowly as subyearlings. Fry are usually abundant in May through June and tend to linger in the lower Columbia River during their outmigration. A considerable portion of their first year may be spent in the estuary. Overall, NOAA Fisheries estimates that the median growth rate over the base period (1980 to 2000) ranges from 0.94 to 0.86 for Snake River fall-run chinook salmon (McClure et al. 2000).

Abundance trends for the Snake River fall-run chinook salmon have shown an overall decrease since the 1940's. Irving and Bjornn (1981) estimated that the number of fall-run chinook declined from 72,000 during 1938 to 1949 to 29,000 during the 1950's. Further declines have occurred after the completion of the Hells Canyon complex of dams, which blocked access to primary production areas in the late 1950s.

As a result of hydropower development, the most productive areas of the Snake River for chinook salmon are now inaccessible from blockage or inundation (NMFS 2003). The upper reaches of the mainstem Snake River were the primary areas used by fall-run chinook salmon, with only limited spawning activity reported downstream of RM 272.

4.2.2 Snake River Spring/Summer-run Chinook Salmon

Spring/summer chinook salmon occur in several subbasins of the Snake River such as the Grande Ronde, Salmon, Tucannon, Imnaha, and tributaries. In addition to these major subbasins, three small streams (Asotin, Granite, and Sheep Creeks) that enter the Snake River between Lower Granite and Hells Canyon Dams provide relatively small areas of spawning and rearing habitat (CBFWA 1990).

In the Snake River, spring- and summer-run chinook salmon exhibit similar life history characteristics. Both are stream-type fish, with juveniles that migrate to the Pacific Ocean as yearly smolts. Depending mainly on the location within the basin (and not on run type), adults tend to return after 2 or 3 years in the ocean. Both forms spawn and rear in small, high-elevation streams (Chapman et al. 1991). However, spring-run chinook spawn earlier and at higher elevations compared to summer-run chinook. Median population growth estimates for Snake River spring/summer over the base period (1980 to 2000) range from 0.96 to 0.80 (McClure et al. 2000).

Habitat for chinook salmon has been affected by the construction and operation of irrigation dams and diversions, inundation of spawning areas by impoundments, and siltation and pollution from sewage, farming, logging, and mining. In addition, the construction of hydroelectric and water storage dams without adequate provision for adult and juvenile passage in the upper Snake River has kept from all spawning areas upstream of Hells Canyon Dam (NMFS 2003).

Upper Columbia River Spring-run Chinook Salmon

This ESU is comprised of spring-run chinook populations found in the Columbia River tributaries between the Rock Island and Chief Joseph Dams, which include the Wenatchee, Entiat, and Methow River Basins. Although fish in this ESU are genetically similar to spring chinook in adjacent ESUs (i.e., mid-Columbia and Snake), they are distinguished by ecological differences in spawning and rearing habitat preferences (NMFS 2003). For example, spring-run chinook in Upper Columbia River tributaries spawn at lower elevations (500 to 1,000 meters) compared to the Snake and John Day River systems.

The life history characteristics of the Upper Columbia River spring-run chinook salmon are similar to the Snake River spring-run fish. The spring run includes adult chinook that move upstream past the Bonneville Dam from March through May. Spawning typically occurs in the late summer or early fall (Myers et al. 1998). Median population growth estimates for Upper Columbia River spring chinook over the base period (1980 to 2000) range from 0.85 to 0.83 (McClure et al. 2000).

Salmon in this ESU must pass through nine Federal and private dams during migration runs. Access to historical spawning grounds is prevented by the Chief Joseph Dam. Degradation of remaining spawning and rearing areas has occurred due to urbanization, irrigation projects, and livestock grazing along riparian corridors (NMFS 2003).

Snake River Sockeye Salmon

The only remaining sockeye in the Snake River system are found in Redfish Lake, which is located on the Salmon River. The nonanadromous form (kokanee), which occurs in Redfish Lake and elsewhere in the Snake River basin, is included in this ESU. Historically, Snake River sockeye were abundant in several lake systems in Idaho and Oregon. However, all populations have been extirpated in the past century, except fish returning to Redfish Lake.

Sockeye runs into Redfish Lake have been affected by the Sunbeam Dam, which was constructed in 1910 approximately 20 miles downstream of the lake. The dam was partially removed in 1934 in order to restore sockeye access to the lake. Evidence is mixed as to whether the restored runs are anadromous forms, nonanadromous forms that became migratory, or fish that strayed from outside the ESU (NMFS 2003).

The life history of most sockeye salmon includes spawning in a lake system, where juveniles rear for 1 to 3 years before they migrate to the sea (Gustafson et al. 1997). The off-spring of the lake-type sockeye salmon return to the natal lake system after spending 1 to 4 years in the ocean. Sockeye salmon enter the Columbia River in May and pass the Bonneville Dam from late May through August.

Upper Columbia River Steelhead

The Upper Columbia River steelhead occupies the Columbia River basin upstream of the Yakima River and includes the Wenatchee, Entiat, Methow, and Okanogan River basins. The river valleys are deeply dissected and exhibit low gradients, except for the extreme headwater areas (Franklin and Dyrness 1973).

All Columbia River steelhead are considered summer steelhead (West Coast Steelhead Biological Review Team 1997). Steelhead in the Upper Columbia River ESU remain in freshwater for up to a year before spawning, which is characteristic of other inland steelhead ESUs (i.e., Snake and mid-Columbia River basins). Smolt age is usually dominated by 2-year old fish. Based on limited data, steelhead from the Wenatchee and Entait Rivers return to freshwater after 1 year in saltwater, while the Methow River steelhead are mainly age-2 ocean fish (Howell et al. 1985). Some of the oldest smolt ages (up to 7 years) have been reported for this ESU (NMFS 2003). The relationship between anadromous and nonanadromous forms in this ESU is unclear. Median population growth estimates for Upper Columbia River steelhead over the base period (1980 to 2000) range from 0.94 to 0.66 (McClure et al. 2000).

Middle Columbia River Steelhead

The Middle Columbia River steelhead ESU occupies the Columbia River basin above the Wind River in Washington and the Hood River in Oregon and continues upstream to include the Yakima River, Washington. Summer steelhead are widespread throughout the ESU, while winter steelhead occur in Mosier, Chenowith, Mill, and Fifteenmile Creeks in Oregon, and in the Klickitat and White Rivers in Washington. The John Day River probably represents the largest native, natural spawning steelhead stock in the region (NMFS 2003).

Most steelhead in this ESU smolt in 2 years and spend 1 to 2 years in saltwater before returning to freshwater where they remain up to a year before spawning (Howell et al. 1985). All steelhead upstream of The Dalles Dam are summer-run fish. The Klickitat River, however, produces both summer and winter steelhead. Most rivers in the region produce about equal numbers of both age-1 and 2-ocean steelhead (NMFS 2003). The Klickitat River is an exception since age-2 ocean fish dominate the summer steelhead numbers. A nonanadromous form co-occurs with the anadromous steelhead form in this ESU. The two forms may be isolated in terms of reproduction, except where barriers exist. The estimated median population growth rate for Middle Columbia River steelhead over the base period (1980 to 2000) ranges from 0.88 to 0.74 (McClure et al. 2000).

Snake River Basin Steelhead

This ESU occupies the Snake River basin of southeast Washington, northeast Oregon, and Idaho. The region is ecologically complex and supports a diversity of steelhead populations. However, the populations have been grouped due to genetic and meristic data (West Coast Steelhead Biological Review Team 1997). Spawning habitat in this ESU occurs in areas of open, low-relief streams situated at high elevations (up to 2,000 meters) (NMFS 2003).

Fish in this ESU are considered summer steelhead which enter freshwater from June through October and spawn during the following March through May period. Based on migration timing, ocean age, and adult size, Snake River steelhead are classified into two groups, A- and B-run fish. A-run steelhead (mainly age-1 ocean fish) enter freshwater during June through August. B-run steelhead (mainly age-2 ocean fish) enter freshwater during August through October. The size of B-run fish typically are 75 to 100 millimeters longer than A-run fish at the same age. Both groups usually smolt as 2- or 3-year-old fish (Hassemer 1992 as cited in NMFS 2003). As a whole, the estimated growth rate is 0.91 to 0.70 over the base period (1980 to 2000) (McClure et al. 2000).

Analysis of Effects

4.3.1 Direct Impacts

Direct effects of an action are the immediate effects of the project on species or its habitat. Direct effects result from the agency action and include the effects of interrelated and independent actions. Future federal actions that are not a direct effect of the action under consideration (and not included in the environmental baseline or treated as indirect effects) are not evaluated.

To assist in the evaluation of the effects of the Proposed Action on the seven listed ESA salmonids and their habitat, a checklist matrix (**Table 4.3-1**) was used according to guidance in NMFS (1996). Definitions for the population/environmental baseline indicators are provided in the guidance as well. The portion of the Columbia River adjacent to the proposed Wanapa Energy Center is a migration corridor for both adults and juveniles.

4.3.1.1 Construction

The Proposed Action would not result in any substrate disturbance or bottom alteration in the Columbia River. An existing intake would be used and so no new construction would be required in the river. Therefore, no benthic habitat or macroinvertebrates would be removed or reduced due to construction activities in the Columbia River. Benthic macroinvertebrates represent food sources for juvenile and adult salmonids.

Construction of the power plant, pipelines, and transmission lines would result in soil disturbance, which could result in transport of sediment during rain events. This potential transport of sediment and water could enter nearby drainages or wetlands and cause an adverse effect on surface water quality. The potential is somewhat limited due to the distance to the Columbia River (500 feet from the plant boundary and 1,600 to 2,000 feet from new roads), relative flatness of the terrain, and existing vegetation, which could slow or stop sediment movement. However, in construction areas immediately adjacent to surface water drainages or wetlands, there would be increased potential for affecting storm water quality. If trenching is used for the gas pipeline crossing of canals, none of the water bodies are used by the ESA salmonids. The construction of drainage relief culverts for transmission line road culverts would not contribute flow to water bodies used by ESA salmonids.

Construction activities utilize vehicles, equipment, chemicals and oils in conducting day-to-day project construction. The use of these components can sometimes result in leaks or spills to the ground, which could potentially cause surface water contamination. In addition, a construction site would have chemical toilets in various locations available for use by the construction crews.

Table 4.3-1
Checklist for Documenting Environmental Baseline and Effects of Proposed Action on Relevant Indicators

Diagnostics/ Pathways:	**Population and Environmental Baseline (list values or criterion and supporting documentation)**			**Effects of the Action(s)**			
Indicators	**Functioning Adequately**	**Functioning at Risk**	**Functioning at Unacceptable Risk**	**Restore[1]**	**Maintain[2]**	**Degrade[3]**	**Compliance with ACS**
Subpopulation Characteristics							
Subpopulation Size		✓			✓		
Growth and Survival		✓			✓		
Life History Diversity and Isolation		✓			✓		
Subpopulation Trend		✓			✓		
Persistence and Genetic Integrity	✓				✓		
Water Quality							
Temperature	✓				✓		
Sediment			✓		✓		
Chemical Contam./Nutrients		✓			✓		
Habitat Access							
Physical Barriers		✓					
Habitat Elements							
Substrate Embeddedness	N/A	N/A	N/A		✓		
Large Woody Debris	N/A	N/A	N/A		✓		
Pool Frequency and Quality	N/A	N/A	N/A		✓		
Large Pools	N/A	N/A	N/A		✓		
Off-channel Habitat	N/A	N/A	N/A		✓		
Refugia[4]	N/A	N/A	N/A		✓		
Channel Conditions and Dynamics							
Wetted Width/Max. Depth Ratio	N/A	N/A	N/A		✓		
Streambank Condition		✓			✓		
Floodplain Connectivity	N/A	N/A	N/A		✓		
Flow/Hydrology							
Change in Peak/Base Flows		✓			✓		
Drainage Network Increase	✓				✓		
Watershed Conditions							
Road Density and Location	✓				✓		
Disturbance History		✓			✓		
Riparian Conservation Areas		✓			✓		
Disturbance Regime		✓			✓		
Integration	✓				✓		

Watershed Name: Columbia River   Location: Above McNary Dam

[1]For the purposes of this checklist, "restore" means to change the function of an "functioning at risk" indicator to "functioning adequately," or to change the function of a "functioning at unacceptable risk" indicator to "functioning at risk" or "functioning adequately" (i.e., it does not apply to "functioning adequately" indicators). Restoration from a worse to a better condition does not negate the need to consult/confer if take will occur.

[2]For the purposes of this checklist, "maintain" means that the function of an indicator does not change (i.e., it applies to all indicators regardless of functional level).

[3]For the purposes of this checklist, "degrade" means to change the function of an indicator for the worse (i.e., it applies to all indicators regardless of functional level). In some cases, a "functioning at unacceptable risk" indicator may be further worsened, and this should be noted.

[4]Refugia = watersheds or large areas with minimal human disturbance having relatively high quality water and fish habitat, or having the potential of providing high quality water and fish habitat with the implementation of restoration efforts. These high quality water and fish habitats are well distributed and connected within the watershed or large area to provide for both biodiversity and stable populations.

Note: Adapted from discussions on *Stronghold Watersheds and Unroaded Areas* in Lee, D.C., J. R. Sedell, B. E. Rieman, R. F. Thurow, J. E. Williams, and others. 1996. Chapter 4: Broadscale Assessment of Aquatic Species and Habitats. In: T. M. Quigley and S. J. Arbelbide (Eds.). *An Assessment of Ecosystem Components in the Interior Columbia Basin and Portions of the Klamath and Great Basins Volume III*. U.S. Department of Agriculture, Forest Service, and U.S. Department of Interior, Bureau of Land Management, Gen Tech Rep PNW-GTR-405.

Although highly unlikely, the chemical toilets can develop leaks, which could potentially result in contamination of surface water, especially during storm events.

The proposed project would have several programs to minimize the potential for construction activities to impact surface water quality. Under federal and state regulations, the project would be required to develop and implement a Stormwater Pollution Prevention Plan (SWPPP) for the construction phase. The SWPPP would identify all the possible activities and incidents that could contaminate storm water or surface water and would contain Best Management Practices (BMPs) that would be implemented to prevent contamination. In addition, the proposed project would be required to implement an Erosion Control Plan that would be specifically focused on procedures and practices to prevent transport of sediment. Examples of BMPs and related measures include installation of silt fences, installation of hay bales in storm water channels, installation of a storm water retention pond to collect storm water generated on the plant site, procedures for handling chemicals and oils, emergency response procedures and maintenance of spill response equipment. All construction personnel, including contractors, would be trained on these plans and would be expected to implement all appropriate measures. The construction areas would be inspected on a biweekly basis or after a storm event for implemented prevention and management measures, evidence of leaks or spills and developing erosion areas. These inspections would be documented and identified problems would be addressed immediately. By implementing these measures, no adverse water quality impacts to the Columbia River would occur. Therefore, construction would not affect the listed salmonid species or their habitat.

4.3.1.2 Diversion of Water from the Columbia River

Water for the proposed power plant would be obtained from the Port of Umatilla's regional raw water supply system under an existing municipal water right and use permit (Permit #49497). Water withdrawal for the project would be 10 to 13 million gallons per day, which represents 12 to 13 percent of the Port of Umatilla total water right. No water would be discharged into the Columbia River as part of project operation. The potential impacts of water withdrawal (up to 62 cfs) on Columbia River federally listed salmon species for the Port of Umatilla's water supply were analyzed in a Biological Assessment (CH2M Hill 1993), as part of the Army Corps of Engineers 404 permit for construction of the water intake pump station in the Columbia River near Umatilla, Oregon. NMFS provided a concurrence letter dated March 4, 1994. Since the proposed water volume for the Wanapa Project is within the Port's water volume capacity, no new water rights in the Columbia River would be required. Depletions were accounted for in previous National Environmental Policy Act and Section 7 analyses. Although the initial NOAA fish concurrence on the port's permit is based on an expectation that there would be an analysis of the cumulative effects of the 404 permitting process, analysis or effects determinations regarding 404 permitting do not apply to water rights diversions (Water Works & Sewer Board of the City of Birmingham vs. U.S. Army Corps of Engineers 1997). As indicated in the Umatilla Generating Project Environmental Impact Statement (BPA 2001), the Port of Umatilla withdrawal volume represents an extremely small portion of Columbia River base flows (less than 0.005 percent of low flow conditions).

The intake system would follow the NMFS criteria for minimizing impingement and entrainment impacts on Columbia River bull trout. The maximum approach velocity of water would be 0.4 cfs and the intake screen would consist of 0.125-inch openings. No new construction would be required for the intake area, since existing structures would be used. In addition, entrainment would not be a concern for the salmon and steelhead species, since early life stages would not be present in the Columbia River. In summary, water withdrawal from the Columbia River for this project would not result in adverse effects on the listed salmonid species or their habitat.

Indirect Effects

Indirect effects of the Proposed Action would occur later in time with reasonable certainty. Indirect effects may occur outside of the project area directly affected by the Proposed Action. Indirect effects might include other federal actions that have undergone Section 7 consultation but would result from the action under consideration. These actions must be reasonably certain to occur, or be a logical extension of the Proposed Action.

No indirect effects would be expected for the Proposed Action. The use of the existing intake ports would not result in additional lighting requirements. Therefore, the salmonid species would not be attracted to the intake area and subjected to increased predation.

Effects on Critical Habitat

NMFS designates critical habitat based on physical and biological features that are essential to the listed salmonid species. Critical habitat is currently designated in the Columbia River near the proposed Wanapa Energy Center for Snake River fall-run chinook, Snake River spring/summer-run chinook, and Snake River sockeye. Essential features of the critical habitat areas include substrate, water quality, water quantity, water temperature, water velocity, cover/shelter, food (juvenile only), riparian vegetation, space, and safe passage conditions

(50 CFR 226). Effects to critical habitat related to these features are included in the effects analysis described in Sections 4.3.1 and 4.3.2.

Cumulative Impacts

Cumulative effects are defined in 50 CFR 402.02 as "those effects of future State or private activities, not involving Federal activities, that are reasonably certain to occur within the action area of the Federal action subject to consultation". Other activities within the Umatilla River watershed have the potential to impact fish and their habitat within the Proposed Action area. Future federal actions, including the ongoing operation of hydropower facilities, hatcheries, and land management activities are being (or have been) reviewed through separate Section 7 consultations. The electrical transmission line corridor south of U.S. Highway 730 could be expanded to provide new transmission line interconnections with McNary Substation (Wallula Project). The Port of Umatilla previously consulted with the USFWS and NMFS on their intake structure for the current intake capacity, and therefore, potential cumulative water withdrawal and entrainment effects have been evaluated. As discussed in Section 4.1.3, effects of the Proposed Action would add a relatively minor incremental effect to other cumulative actions in the watershed for the listed salmonid species and their habitat.

Determination

Effect on Critical Habitat

No effect on habitat for Snake River fall-run chinook, Snake River spring/summer-run chinook, and Snake River sockeye. The Proposed Action could potentially affect water quality in construction areas due to stormwater runoff and spills. By implementing stormwater runoff, erosion control, and spill control and containment measures, effects would be minor. Stormwater runoff or spills would not be expected to reach critical habitat for the ESA salmonids. Water withdrawal for the Proposed Action was evaluated in a previous consultation for the Port of Umatilla.

Effect on the Continued Existence of the Species

No effect on listed salmonid species in the Columbia River. Although potential effects to water quality could occur as a result of soil disturbance, storm water runoff, and spills or leaks, changes are expected to be minor due to implementation of soil erosion, storm water pollution control, and spill prevention measures. Stormwater runoff or spills would not be expected to reach water bodies inhabited by ESA salmonids. Similarly, water withdrawal effects have been considered in the previous BA for the Port of Umatilla intake system. Potential entrainment/impingement effects are avoided by adherence to NMFS screen and intake velocity criteria. Therefore, the Proposed Action would not likely jeopardize the continued existence of the listed salmonid species. The individual and combined effects of all parts of the Proposed Action would not be expected to impair currently properly functioning habitats, appreciably reduce the functioning of already impaired habitats, or affect the long-term progress of impaired habitats toward proper functioning condition essential to the long-term survival and recovery at the population level.

MSA Effects Analysis

Background information on the MSA as it applies to EFH for the listed Pacific salmon species is provided in **Section 1.3**. As described in **Section 4.3** of this BA, the Proposed Action may result in short-term adverse effects on habitat features involving water quality due to construction activities. These potential effects include introduction of sediment and contaminants into local drainages due to soil disturbance, stormwater runoff, or spills or leaks. These potential effects would be minimized by implementing erosion control, stormwater runoff control, and spill control and containment measures.

No additional conservation measures are proposed to protect EFH for the listed salmon species.

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Biological Assessment for Bull Trout and Bald Eagle

The following are excerpts from the updated Biological Assessment conducted by USFWS. Section numbering reflects the format of the original document.

Analysis Summary

The USFWS provided a list of threatened, endangered, and proposed candidate species that may occur within the Wanapa Energy Center study area in a letter dated July 23, 2003. The list included bald eagle (*Haliaeetus leucocephalus*), bull trout (*Salvelinus confluentus*), and seven salmon species. This BA addresses potential impacts on the bald eagle and bull trout. NMFS is responsible for endangered, threatened, and candidate Pacific salmon under NOAA Fisheries' jurisdiction in Oregon. The Pacific salmon species are addressed in a separate BA for the project.

The results of the impact analysis are discussed for the bull trout and bald eagle in Sections 4.1 and 4.2, respectively. A summary of the impact analysis is provided in **Table 1.3-1**.

Table 1.3-1
Impact Summary for Bull Trout and Bald Eagle

Species	Scientific Name	Federal Status	Summary Findings
Bull trout	*Salvelinus confluentus*	Threatened	May affect, not likely to adversely affect.
Bald eagle	*Haliaeetus leucocephalus*	Threatened	No effect to nesting birds; may affect, not likely to adversely affect individual roosting and foraging birds.

3.0 BASELINE CONDITIONS

3.1 Water Resources

3.1.1 Columbia River and Wanaket Wildlife Management Area

The proposed generating plant site lies directly adjacent to the south bank of the Columbia River, the region's dominant surface water feature. The project site is located on a bluff overlooking the Columbia River approximately 2 miles east of McNary Dam, which is operated by the USACE for hydroelectric power. The Umatilla River is located approximately 4 miles west of the plant site and flows into the Columbia River at the City of Umatilla. The plant site is located within a small closed subbasin that includes the Wanaket Wildlife Management Area immediately south and east. The subbasin is adjacent to the Columbia-Umatilla plateau hydrologic subbasin of the Umatilla River, which is to the south and west. **Figure 3.1-1** illustrates the surface hydrologic system that includes the Columbia and Umatilla rivers.

The Columbia River discharges an average of approximately 191,000 cfs at McNary Dam which is located 2 miles to the west of the proposed plant site. Flow in the Columbia River and discharge at the dam vary seasonally and year-to-year. High flows usually occur from April to June and range from 350,000 cfs to 600,000 cfs. Low flows occur from August to November and range from 65,000 cfs to 85,000 cfs.

The proposed power plant site is currently undeveloped and has no defined natural drainage channels or subbasin outlets. The site is located on a bluff overlooking the Columbia River with an approximate height of 160 feet above normal river level. The area is considered semi-arid, receiving 8 to 10 inches of rainfall annually with most precipitation occurring between October and April. The site is relatively flat with thin but permeable soils – normal precipitation would percolate into the ground or evaporate. Excessive volumes of run-off would probably enter the Wanaket Wildlife Management Area and accumulate in wetland ponds. The Wanaket Wildlife Management Area contains 60 ponds or wetland habitats that range in size from approximately 0.25 to 10.5 acres (CTUIR and BPA 2001).

3.1.2 Cold Springs Reservoir

Cold Springs Reservoir is located approximately six miles southeast of the proposed plant site and six miles northeast of Hermiston, Oregon, off State Road 207. This reservoir is operated by the

Hermiston Irrigation District (HID) and is part of the BOR's Umatilla Reclamation Project. The original Umatilla Reclamation Project was initiated by the BOR in 1905 to supply full or supplemental irrigation water to approximately 34,000 acres of agricultural land in north central Oregon. The East Division of the Umatilla Reclamation Project is the HID and consists of Cold Springs Dam and Reservoir (constructed in 1908), Feed Canal Diversion Dam and Canal and Maxwell Diversion Dam and Canal. The Feed Canal Diversion Dam is located on the Umatilla River, approximately 1.5 miles southeast of Echo, Oregon. The dam raises the water level in the riverbed to provide diversion into the 25-mile-long Feed Canal (maximum operational capability of 220 cfs per second). The Feed Canal conveys river water to the Cold Springs Reservoir.

Diversion continues throughout the winter and spring months until June when diversion and flow in the canal are ended. Water is released from the reservoir for irrigation use throughout the summer and early autumn months. The reservoir has a total active capacity of 44,600 acre-feet, a normal storage capacity of 38,000 acre-feet for irrigation, 1,530 acres of water surface, and 12 miles of shoreline. During the summer and fall months, water is discharged for irrigation use and flows through canals to agricultural areas. Irrigation drain water is collected in drain canals and ultimately returns to the Umatilla River near Hermiston.

Activities were initiated in the mid-1980s under the Umatilla Basin Project to restore instream flows in the Umatilla River for anadromous fish but maintain irrigation water for continued use. These activities included channel modifications, construction of fish ladders, fish traps and fish screens and construction of water exchange facilities to deliver irrigation replacement water from the Columbia River. The Columbia River Pumping Plant was built on the Columbia River just downstream of the Sand Station Recreation Area and the Columbia-Cold Springs Canal was constructed to convey water from Lake Wallula, which is created by McNary Dam, to Cold Springs Reservoir.

Historical water quality information for Cold Springs Reservoir was very limited. In order to obtain comprehensive and current data, the Wanapa project conducted reservoir sampling in August 2004 and May 2005. Appendix A presents a summary of the data collected and a comparison with estimated plant effluent and state water quality standards.

The plant effluent will meet all applicable chemical water quality standards. Depending on the time of year, effluent temperature may exceed reservoir temperature but the general state temperature standard should not be exceeded. Since the reservoir does not have salmonid species present, the temperature standards specific to those species are not applicable.

Terrestrial Habitat

The regional vegetation is located in the Steppe Region of northeastern Oregon. The dominant vegetation community is a shrub-steppe with big sagebrush (Franklin and Dyrness 1973). These natural communities have been highly modified by the development of irrigated and dryland agriculture wherever soils are sufficiently deep to support agricultural crops and adequate natural precipitation or irrigation water are available.

Wildlife habitat within the project study area consists primarily of a fragmented patchwork of irrigated agricultural lands, grasslands, and remnant areas of shrub-steppe. Although shrub-steppe habitat is considered an important habitat type for area wildlife, the shrub-steppe habitat within the project area has received considerable habitat fragmentation resulting from increased development and human presence within the area. The quality of this habitat has been further degraded by the encroachment of nonnative weed species to the area. Other wildlife habitats within the area include wetland and riparian habitats. Riparian woodlands within the study area occur primarily along the banks of ephemeral and perennial creeks, lakes, ponds, and drainages. Wetlands within the study area are limited to small depressional areas and areas along the edges of ephemeral and perennial water bodies.

The proposed power plant would occupy approximately 47 acres of a 195-acre site. Construction of the access road would remove approximately 4 acres. Vegetation within the power plant footprint and most of the access road consists of grassland-steppe habitat that has been burned. This shrub-steppe habitat for these project components is considered low quality due to the loss of shrub species as a result of the burn in 2001.

Construction of the gas, discharge water, and intake water pipelines would result in temporary disturbance to vegetation and wildlife habitat. Vegetation would be removed within a 100-foot width for the gas and discharge pipelines, and a 50-foot-width for the water intake pipeline. The estimated disturbance to vegetation types in acres is listed in **Table 3.2-1**. The majority of the disturbance would occur in irrigated cropland. Approximately 22 acres of grassland-steppe and shrub-steppe habitat would be disturbed during pipeline construction. Most of this disturbance area is grassland-steppe, with smaller patches of shrub-steppe. As described for the plant site, the majority of the area classified as shrub-steppe and grassland was severely burned by a recent wildfire and the current vegetation consists of exotic annual and perennial weed species. After construction is completed, the disturbed areas would be reclaimed using a seed mix recommended by the Natural Resource Conservation District in Pendleton for native grasses or the CTUIR

Wanaket Wildlife Management Area staff. The estimated recovery period for grasses would be one growing season. Shrubs would require 25 to 50 years to naturally recolonize the affected areas.

Table 3.2-1
Proposed Action Construction Disturbance (Acres) to Vegetation and Wildlife Habitat for the Gas/Water Discharge and Water Intake Pipelines

Vegetation/Wildlife Habitat	Gas/Water Discharge Pipelines	Water Intake Pipeline	Access Road
Grassland and shrub-steppe	21.7	1.7	8.5
Irrigated cropland	75.7	0	0
Wetland	<0.1	0	0
Rural residential	21.9	0	0
Industrial	0	1.7	0
Highway/railroad	1.1	0	0
Total	120.4	3.4	8.5

Construction of the transmission line would remove vegetation at the power pole sites and cause temporary surface compaction from vehicle and equipment use. The types of vegetation and wildlife habitat in the transmission ROW are listed in **Table 3.2-2**. The majority of the affected habitat would consist of grassland and shrub-steppe and irrigated cropland. The grassland shrub-steppe communities are low quality because of a recent fire and dominance by weedy species. Vegetation would recover from surface compaction within the first growing season. Permanent vegetation removal would occur at tower sites. Each site would require a temporary work area of 0.25 acre and a permanent area of 0.05 acre. In total, tower construction would result in temporary disturbance to 6.3 acres and permanent removal of 1.3 acres for the towers. No permanent disturbance would occur in wetland habitat. Short-term disturbance to cover and foraging areas for wildlife would occur as a result of transmission line construction.

Table 3.2-2
Proposed Action Construction Disturbance (Acres) to Vegetation and Wildlife Habitat for the Transmission Line ROW

Vegetation/Wildlife Habitat	Acres
Grassland and shrub-steppe	40.9
Irrigated pasture	34.8
Wetland	2.5
Rural residential	0.2
Industrial	21.7
Highway	0.9
Total	101.0

4.0 SPECIES EVALUATIONS

4.1 Bull Trout

4.1.1 Potential Occurrence in Project Area

For listing purposes the range of bull trout was broken into distinctive population segments. The USFWS listed the bull trout within the Columbia River basin as threatened under the ESA on June 10, 1998. Subsequent to this listing, the USFWS listed this species as threatened within the coterminous United States on November 1, 1999.

The following information describes the occurrence of bull trout within the project area. Bull trout occur in the Columbia River drainage. It is not present in Cold Springs Reservoir. The Columbia River near the McNary Dam is located within the Columbia River Distinct Populations Segment (DPS) for bull trout. The Columbia River Basin Bull Trout DPS includes all naturally spawning populations in the Columbia River Basin within the U.S. and its tributaries, excluding bull trout found in the Jabridge River in Nevada. In 2002, a draft recovery plan was prepared for this species in the Columbia River (USFWS 2002). The section of the Columbia River above and below the McNary Dam is part of the Umatilla-Walla Walla Recovery Unit, which is one of 22 units designated for bull trout in the Columbia River Basin. Within the Umatilla-Walla Walla Unit, critical habitat has been designated for the Umatilla and Walla Walla River basins (USFWS 2004). The closest stream to the project study area is the mainstem portion of the Umatilla River. The Columbia River is not part of the critical habitat designation.

Use of the Columbia River mainstem by Umatilla and Walla Walla bull trout is unknown (USFWS 2002). Access to the Columbia River from both the Umatilla and Walla Walla Rivers is limited to those times of the year (usually November through May) when flows and temperature are more suitable for bull trout. When the Columbia River is accessible, adults and subadults use the Columbia River for foraging and overwintering.

The Umatilla River enters the Columbia River just below the McNary Dam at rivermile (RM) 264. The recovery plan identified one local bull trout population, the upper Umatilla Complex, that includes the North and South Fork Umatilla Rivers (USFWS 2002). The mainstem portion of the Umatilla River is considered adult migration and overwintering habitat and seasonal subadult rearing habitat. It is likely that bull trout use the Umatilla River as a migration corridor as a connection with the Columbia River. Construction of the Three Miles Dam in 1914 created a migratory barrier for migratory bull trout in the Umatilla River basin.

The Walla Walla River basin drains into the Columbia River above the McNary Dam. Historically, bull trout used the mainstem Walla Walla River as a migratory route to the Columbia River. The majority of the current distribution in this basin is contained in the headwater reaches on the Umatilla National Forest in Oregon and Washington. Passage barriers and unsuitable habitat have isolated remaining bull trout populations within the basin. The mainstem Walla Walla River from the forks to the confluence with the Columbia River is considered year round subadult rearing and adult overwintering habitat (USFWS 2002). Migration habitat is provided from Cemetery Bridge in Milltown-Freewater downstream to the mouth.

4.1.2 Habitat and Life History

Two distinct life-history forms, migratory and resident, occur throughout the areas inhabited by bull trout. Migratory forms rear in natal tributaries before moving to larger rivers (called fluvial form) or lakes (adfluvial form) or the ocean to mature (anadromous). Migratory bull trout may use a wide range of habitats including 2nd to 6th order streams with variation by season and life stage (USFWS 1998a). Seasonal movements may range up to 300 kilometers (187 miles) as migratory fish move from spawning and rearing areas to overwintering habitat in downstream reaches of large basins. The resident form may be restricted to headwater streams throughout its life.

Habitat in the Columbia River (above and below McNary Dam) provides overwintering and foraging habitat for adults and subadults, while the Umatilla River provides adult overwintering and seasonal rearing for juvenile bull trout. Both rivers serve as a migration corrridor for adults. Specific characteristics for these types of habitats are not known for this section of the Columbia River and Umatilla River. In general, habitat components that appear to influence bull trout distribution and abundance include water temperature, cover, channel form and stability, valley form, spawning and rearing substrates, and migratory corridors (USFWS 1998b). Bull trout usually are associated with the coldest stream reaches within basins (USFWS 1998a). All life stages are associated with complex forms of cover such as large woody debris, undercut banks, boulders, and pools. Adults can reside in reservoirs, lakes, and large rivers such as the Columbia. Radio-tagging surveys in the Columbia River in the Rock Island and Rocky Reach Reservoirs showed considerable variation in depths and velocities used by tagged bull trout (BioAnalysts 2002). Average depths ranged from approximately 5 to 8 meters with slow to relatively high velocities. Migrant bull trout tended to occupy deeper water than resident fish.

Bull trout in the Umatilla-Walla Walla Recovery Unit exhibit both fluvial and resident life histories (USFWS 2002). Both forms spawn in headwater tributaries from late August through November. After spawning is completed, fluvial bull trout return to overwintering areas in the mainstem of both river systems until the following spring when the upstream migration begins, presumably in response to increasing water temperatures. In the summer and fall periods, bull trout inhabit lower order tributaries or the upper mainstem portions of the Umatilla and Walla Walla Rivers.

4.1.3 Impact Evaluation

4.1.3.1 Direct Impacts

Direct effects of an action are the immediate effects of the project on species or its habitat. Direct effects result from the agency action and include the effects of interrelated and independent actions. Future federal actions that are not a direct effect of the action under consideration (and not included in the environmental baseline or treated as indirect effects) are not evaluated.

To assist in the evaluation of the effects of the Proposed Action on bull trout and its habitat, a checklist matrix was used according to guidance in USFWS (1998a). Definitions for the population/environmental baseline indicators are provided in the guidance as well.

Construction

Construction of the power plant, pipelines, and transmission lines would result in soil disturbance, which could result in transport of sediment during rain events. This potential transport of sediment and water could enter nearby drainages or wetlands and cause an adverse effect on surface water quality. The potential is somewhat limited due to the relative flatness of the terrain and existing vegetation, which could slow or stop sediment movement. However, in construction areas immediately adjacent to surface water drainages or wetlands, there would be increased potential for affecting storm water quality.

Construction activities utilize vehicles, equipment, chemicals and oils in conducting day-to-day project construction. The use of these components can sometimes result in leaks or spills to the ground, which could potentially cause surface water contamination. In addition, a construction site would have chemical toilets in various locations available for use by the construction crews.

Although highly unlikely, the chemical toilets can develop leaks, which could potentially result in contamination of surface water, especially during storm events.

The proposed project would have several programs to minimize the potential for construction activities to impact surface water quality. Under federal and state regulations, the project would be required to develop and implement a Stormwater Pollution Prevention Plan (SWPPP) for the construction phase. The SWPPP would identify all the possible activities and incidents that could contaminate storm water or surface water and would contain Best Management Practices (BMPs) that would be implemented to prevent contamination. In addition, the proposed project would be required to implement an Erosion Control Plan that would be specifically focused on procedures and practices to prevent transport of sediment. Examples of BMPs and related measures include installation of silt fences, installation of hay bales in storm water channels, installation of a storm water retention pond to collect storm water generated on the plant site, procedures for handling chemicals and oils, emergency response procedures and maintenance of spill response equipment. All construction personnel, including contractors, would be trained on these plans and would be expected to implement all appropriate measures. The construction areas would be inspected on a biweekly basis or after a storm event for implemented prevention and management measures, evidence of leaks or spills and developing erosion areas. These inspections would be documented and identified problems would be addressed immediately. By implementing these measures, no adverse water quality impacts to the Columbia or Umatilla Rivers would occur. Therefore, construction would not affect bull trout or their habitat.

Water discharge into Cold Springs Reservoir would have no effect on bull trout.

Diversion of Water from the Columbia River

Water for the proposed power plant would be obtained from the Port of Umatilla's regional raw water supply system under an existing municipal water right and use permit (Permit #49497). Water withdrawal for the project would be 10 to 13 million gallons per day, which represents 12 to 13 percent of the Port of Umatilla total water right. No water would be discharged into the Columbia River as part of project operation. The potential impacts of water withdrawal (up to 62 cfs) on Columbia River federally listed salmon species for the Port of Umatilla's water supply were analyzed in a Biological Assessment (CH2M Hill 1993). Since the proposed water volume for the Wanapa Project is within the Port's water volume capacity, no new water rights in the Columbia River would be required. Depletions were accounted for in previous NEPA and Section 7 analyses. As indicated in the Umatilla Generating Project EIS (BPA 2001), the Port of Umatilla withdrawal volume represents an extremely small portion of Columbia River base flows (less than 0.005 percent of low flow conditions).

The intake system would follow the NMFS criteria for minimizing impingement and entrainment impacts on Columbia River bull trout. The maximum approach velocity of water would be 0.4 cfs and the intake screen would consist of 0.125-inch openings. No new construction would be required for the intake area, since existing structures would be used. In addition, entrainment would not be a concern for bull trout in the Columbia River, since early life stages would not be present. In summary, water withdrawal from the Columbia River for this project would not likely adversely affect bull trout.

4.1.3.2 Indirect Effects

Indirect effects of the Proposed Action would occur later in time with reasonable certainty. Indirect effects may occur outside of the project area directly affected by the Proposed Action. Indirect effects might include other federal actions that have undergone Section 7 consultation but would result from the action under consideration. These actions must be reasonably certain to occur, or be a logical extension of the Proposed Action.

No indirect effects would be expected for the Proposed Action. The use of the existing intake ports would not result in additional lighting requirements. Therefore, bull trout would not be attracted to the intake area and subjected to increased predation.

4.1.3.3 Cumulative Impacts

Cumulative effects are defined in 50 CFR 402.02 as “those effects of future State or private activities, not involving Federal activities, that are reasonably certain to occur within the action area of the Federal action subject to consultation”. Other activities within the Umatilla River watershed have the potential to impact fish and their habitat within the Proposed Action area. Future federal actions, including the ongoing operation of hydropower facilities, hatcheries, and land management activities are being (or have been) reviewed through separate Section 7 consultations. The electrical transmission line corridor south of U.S. Highway 730 could be expanded to provide new transmission line interconnections with McNary Substation (Wallula Project). The Port of Umatilla previously consulted with the USFWS and NMFS on their intake structure for the current intake capacity, and therefore, potential cumulative water withdrawal and entrainment effects have been evaluated. As discussed in Section 4.1.3, effects of the Proposed

Action would add a relatively minor incremental effect to other cumulative actions in the watershed for bull trout and their habitat.

4.1.3.4 Determination

Effect on Critical Habitat

The Proposed Action would not result in effects on designated critical habitat in the Umatilla River and its headwater tributaries.

Effect on the Continued Existence of the Species

May affect, not likely to adversely affect bull trout in the Columbia and Umatilla Rivers. Although potential effects to water quality could occur as a result of soil disturbance, storm water runoff, and spills or leaks, changes are expected to be minor due to implementation of soil erosion, storm water pollution control, and spill prevention measures. Similarly, water withdrawal effects have been considered in the previous Biological Assessment for the Port of Umatilla intake system. Potential entrainment/impingement effects are avoided by adherence to NMFS screen and intake velocity criteria. Therefore, the Proposed Action would not likely jeopardize the continued existence of bull trout. The individual and combined effects of all parts of the Proposed Action would not be expected to impair currently properly functioning habitats, appreciably reduce the functioning of already impaired habitats, or affect the long-term progress of impaired habitats toward proper functioning condition essential to the long-term survival and recovery at the population level.

Bald Eagle

4.2.1 Potential Occurrence in Project Area

The bald eagle (*Haliaeetus leucocephalus*) was downlisted to Federally threatened on July 12, 1995. This species was proposed to be delisted in 1999 (64 FR 47755); this listing decision is currently pending. The bald eagle also is protected under the Bald Eagle Protection Act and the Migratory Bird Treaty Act. No designated critical habitat has been identified for the study area.

The closest known bald eagle nest site to the project area is a false nest structure in a cottonwood tree that occurs along the Umatilla River near Stanfield, Umatilla County. This structure was built and tended by immature nonbreeding eagles over the last 5 years: no mature eagles have attempted to use this site for nesting. Relative to the project area, this nest structure occurs greater than 7 miles from the proposed power plant site and occurs greater than 4 miles from the proposed water and gas pipeline ROW.

Relative to the project area, more than 30 wintering bald eagles are observed on the Wanaket Wildlife Area annually. The primary attraction to the wildlife area is the relatively high concentrations of waterfowl that utilize the areas' wetland ponds. Bald eagles are also known to winter at Hat Rock State Park and Cold Springs National Wildlife Refuge (Allen 2003; Quaempts 2003). Hat Rock State Park occurs more than 2 miles east of the proposed power plant site and greater than 2 mile from the proposed water and gas pipeline ROW. The Cold Springs National Wildlife Refuge occurs approximately 4 miles southeast of the proposed power plant site. However, the proposed water and gas pipeline ROW would come within approximately 0.5 mile of the refuge boundary. From 1991 to 2003, mid-winter surveys at Cold Springs National Wildlife Refuge recorded approximately 3 eagles per year on average (Allen 2003).

4.2.2 Habitat and Life History

Bald eagle nests are typically found in mature, heterogeneous stands of multi-storied trees that have sturdy branches at sufficient height for nest support and protection (Grubb 1976; Anderson and Bruce 1980). Optimum nest sites are typically found in proximity to open water, which provides an adequate food source (Marshall et al. 1996); however, they also may use uplands and arid valleys (Edwards 1969). In Oregon, breeding habitat is associated with large water bodies that support adequate fish populations and suitable trees for nesting. Nest trees typically consist of large ponderosa pine (*Pinus ponderosa*), mixed Douglas-fir (*Pseudotsuga menziesii*), and sitka spruce (*Picea sitchensis*)/western hemlock (*Tsuga heterophylla*) forest types (Marshall et al. 1996).

Winter habitats generally include areas of open water, adequate food sources, and sufficient diurnal perches and night roosts (Grubb and Kennedy 1982). Wintering bald eagles often congregate in large numbers at communal roosts; however, roosts located in less populated areas may be used by individuals or small groups (Grubb and Kennedy 1982). Eagles are attracted to large bodies of water, but they also may occur in arid valleys (Edwards 1969). In Oregon, wintering habitat occur wherever there is an adequate food supply, mainly in the form of carrion, or trapped, crippled, or dying fish, birds, or mammals. Roosting sites, which can be 20 or more miles from feeding sites, are often in stands of mature conifers, but can also occur in large deciduous trees on basin floors (Marshall et al. 1996).

4.2.3 Impact Evaluation

4.2.3.1 Direct Impacts

As stated above only one bald eagle nest site has been documented within the project region. This nest is a false nest structure that occurs along the Umatilla River near Stanfield, Umatilla County, and is located approximately 7 miles from the proposed power plant site and powerline structures, and approximately 4 miles from the proposed water and gas pipeline ROW. Based on the distance of the nest structure from the proposed surface disturbance activities (i.e., power plant, water and gas pipeline, and powerline) and the lack of nesting attempts by adult eagles at this site, no impacts to breeding eagles would occur as a result of project construction and operation.

Occurrence by bald eagles within the project area would be limited to migrating and wintering eagles. Primary winter use within the project area would include the Wanaket Wildlife Area, Hat Rock State Park, and Cold Springs National Wildlife Refuge. Although wintering eagles has been recorded within the project region on an annual basis, no established roost sites or communal roosts have been identified within two miles of the project study area. Consequently, no impacts to established roost sites or communal roosts would be anticipated from the construction and operation of the proposed action. Potential impacts to individual eagles that may occur within the project area would be limited to indirect effects from increased noise levels and human presence.

Potential impacts to foraging bald eagles would result in the incremental long-term loss of approximately 2.6 acres of wetland habitat and 71 acres of grassland/shrub-steppe habitat from the construction of the water and gas pipeline, electrical powerlines, and ancillary facilities (i.e., access roads and water intake pipeline). Impacts also would result in the incremental long-term loss of approximately 47 acres of grassland/shrub-steppe habitat from construction and operation of the power plant facility. However, based on the amount of potentially suitable foraging habitat in the project region, impacts to foraging bald eagles would be low.

As part of the proposed project, a new 4.4-mile, 500-kV electrical powerline segment would incrementally increase the collision potential for foraging bald eagles, particularly on the Wanaket Wildlife Area where most foraging activity within the project area has been documented. In order to minimize the collision potential for foraging eagles on the Wanaket Wildlife Area, standard designs, as outlined in Mitigating Bird Collision With Power Lines (APLIC 1994), will be incorporated into the design of the electrical powerlines, in coordination with the CTUIR. Relative to potential electrocution hazard, powerline configurations less than 1kV or greater than 69 kV typically do not present an electrocution hazard, based on conductor placement and orientation (APLIC 1996). Consequently, no electrocution impacts would be anticipated for bald eagles from the operation of the proposed 500-kV power line.

4.2.3.2 Indirect Impacts

Because participants in the Wanapa Energy Center have requested to deliver water to the Cold Springs Reservoir, a federal irrigation project administered by the BOR, the BOR must decide whether to accept this water in conjunction with existing uses and rights pertaining to this reservoir. The USFWS administers the Cold Springs Reservoir National Wildlife Refuge, which includes the reservoir surface area and adjacent lands. The ongoing management for waterfowl, fisheries, and threatened and endangered species will be considered in the BOR decision.

The discharge of cooling water would contribute approximately 2.8 cfs (average) or 3.7 cfs (maximum) to Cold Springs Reservoir via the Feed Canal. The addition of water to the reservoir would be a beneficial impact to fish and wildlife such as waterfowl and shorebirds. This would represent a beneficial impact to bald eagle, since fish and waterfowl are potential food sources.

Cooling water discharge would not adversely affect water quality in Cold Springs Reservoir and alter food sources for bald eagle. Based on analyses of Columbia River water and estimation of effluent quality, plant effluent would meet Oregon water quality standards. The NPDES permit, to be issued by Oregon DEQ, would include specific requirements for monitoring the plant effluent and mass/concentration limits for particular parameters. These limits would be imposed for any parameter that might prevent the attainment of a water quality standard applicable to the reservoir. Results of monitoring would be reported to the Oregon DEQ on a monthly basis. Since the plant effluent would be strictly monitored for potential impacts under the NPDES permit, no significant adverse effect on surface water quality would occur.

4.2.3.3 Cumulative Impacts

The Proposed Action would remove approximately 2.6 acres of wetland habitat and 71 acres of grassland/shrub-steppe habitat out of approximately 3,000 acres on the basalt outcrops that extend eastward along the banks of the Columbia River. Based on the boundaries of the Wanaket Wildlife Area and the Port of Umatilla, it is unlikely that future industrial development would remove additional shrub steppe habitat in this area. Expansion of electrical transmission lines into the

McNary Station could contribute additional collision hazards for bald eagle. However, by implement collision reduction measures, additional risks would likely be minor.

4.2.3.4 Determination

Effect on Critical Habitat

No effect.

Effect on the Continued Existence of the Species

No effect to nesting bald eagles, based on the lack of known nest sites within the project area. No effect to established winter roosts or communal roost sites within 2 miles of the project area. May affect, not likely to adversely affect individual roosting and foraging bald eagles within the project area as a result of increased noise and human presence during the construction and operation phases of the project, and from the incremental long-term loss of potentially suitable foraging habitat for this species.

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