

## **5.0 STAFF'S CONCLUSIONS**

### **5.1 COMPREHENSIVE DEVELOPMENT AND RECOMMENDED ALTERNATIVE**

Sections 4(e) and 10(a)(1) of the FPA require the Commission to give equal consideration to all uses of the waterway on which a project is located. When we review a proposed project, we equally consider the environmental, recreational, fish and wildlife, and other non-developmental values of the project, as well as power and developmental values. Accordingly, any license issued shall be best adapted to a comprehensive plan for improving or developing a waterway or waterways for all beneficial public uses.

This section contains the basis for and a summary of our recommendations to the Commission for relicensing the Baker River Project. We weigh the costs and benefits of our recommended alternative against other proposed measures.

Based on our independent review and evaluation of the proposed project and the No Action Alternative, we select the proposed action as modified by staff, as the preferred alternative. We recommend this option because: (1) issuance of a new hydropower license by the Commission would allow Puget to operate the project as an economically beneficial and dependable source of electrical energy for its customers; (2) the 200.03-MW project would eliminate the need for an equivalent amount of fossil-fueled derived energy and capacity, which helps conserve these nonrenewable resources and limits atmospheric pollution; (3) the public benefits of this alternative would exceed those of the No Action Alternative; and (4) the recommended measures would protect and enhance fish, wildlife, and cultural resources and would improve recreation opportunities at the project.

Puget's Settlement Agreement contains 50 proposed license articles with various protection, mitigation, and enhancement measures that Puget requests be included in any new license issued for the project. Below, we list those measures in the Settlement Agreement that we recommend including in any license (section 5.1.1). We also discuss those additional measures outside the Settlement Agreement that we recommend (section 5.1.2); our rationale for any substantial modifications (section 5.1.3); and those measures in the Settlement Agreement that we do not recommend (section 5.1.4). In our analysis, we focus on the actual protection, mitigation, and enhancement measures contained in each proposed license article. Finally, many of Puget's proposed measures would provide funding to the Forest Service or to other entities. In general, we do not recommend Puget provide funding to third parties; instead, we recommend Puget implement individual measures.

### **5.1.1 Proposed Measures Recommended by Staff<sup>38</sup>**

We recommend including the following measures contained in the Settlement Agreement in any license issued for the project. The measures we recommend incorporate both minor and substantive changes to the proposed license articles contained in the Settlement Agreement. Substantive changes to the proposed measures are discussed in section 5.1.3.

#### **Fish Propagation (Proposed Article 101)**

- Develop a Fish Propagation Facilities Plan that includes provisions for the following: (1) constructing ancillary facilities and/or modifying the project's Sockeye Spawning Beach 4 to improve functionality and productivity by: (i) isolating the water supply to each of the existing segments, (ii) installing concrete walls between segments, (iii) improving alarm systems, and (iv) controlling sediment at the Sulphur Springs water supply intake site, including if necessary, capping the intake area to prevent sliding material from moving into the water supply;  
(2) constructing additional fish culture facilities at the project's Sulphur Springs site to provide a total of 20,000 pounds of instantaneous cultured fish capacity (exclusive of eggs and anadromous adults) and 7,000 pounds of egg incubation capacity (including egg incubation capacity that may be provided at Spawning Beach 4), including some or all of the following structures, facilities, and equipment necessary for adult holding, spawning, and egg incubation: (i) water chiller(s), (ii) fry starter(s), (iii) troughs or ponds, (iv) rearing ponds, and (v) loading facilities;  
(3) determining: (i) the capacity of Baker Lake and Lake Shannon for the production of sockeye smolts and fry, (ii) production limits of sockeye fry from monitoring and analyses of returning broodstock and subsequent smolt production, and (iii) the limits of Sockeye Spawning Beach 4 with a goal of optimizing operations to produce about 4 million fry;  
(4) operating facilities as recommended by the Sauk-Suiattle Indian Tribe, Swinomish Indian Tribal Community, Upper Skagit Tribe, and WDFW (Fish Co-managers) according to: (i) the above-stated fishery management objectives, (ii) weight, production targets, species mix, life stages and quantities up to the capacity and production limits in items (2) and (3), and (iii)

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<sup>38</sup> In many instances Puget proposes funding for measures, whereas staff recommends the measures themselves. We also note that the responsibility for approving measures called for under a Commission license lies with the Commission.

production within the limits of the space available at the project's Sulphur Springs site;

(5) decommissioning the project's Sockeye Spawning Beaches 1, 2, and 3 by: (i) retaining, to the extent feasible, Sockeye Spawning Beaches 2 and/or 3 until replacement production from the new facilities is developed, (ii) modifying Sockeye Spawning Beaches 2 and/or 3 to reduce leaks and to keep these beaches functional prior to decommissioning, (iii) acquiring all necessary permits from the Forest Service, (iv) configuring the pond component of the spawning beaches into a channel with a natural meander to optimize fish usage, (v) removing existing structures and restoring landscaping, and (vi) initiating adult salmon returns to the project with a temporary supplementation program;

(6) implementing a reservoir nutrient enhancement program to enhance sockeye salmon production;

(7) preparing a fish facilities operations manual that includes: (i) facility layout, flow distribution schematic, and flow procedures, (ii) emergency response, emergency personnel call-out, and security procedures, (iii) current management protocols and reporting procedures, and (iv) equipment and supplier lists, operation procedures, fish distribution procedures, and hygiene procedures based on recommendations by the Fish Co-managers;

(8) operating protocols including: (i) identifying staff responsible for implementing the Fish Propagation Facilities Plan, and (ii) the process by which the Fish Co-managers would be consulted for studies to optimize fish program success; and

(9) an annual report describing the operation of the fish propagation facilities pursuant to Proposed Article 102 including: (i) financial accounting, (ii) fish handling and disease management operations, and (iii) spill prevention and control countermeasures compliance.

### **Aquatics Reporting (Proposed Article 102)**

- File an annual report in accordance with the schedule in Proposed Article 102 that provides: (1) the status of implementing Proposed Articles 101, 103-106, 108-110, and 401; and (2) a summary of existing resource or other agency and tribal plans (including Endangered Species Act recovery plans and the Aquatic Conservation Strategy of the Northwest Forest Plan) and a summary of any coordination between the above proposed articles and the above resource or agency plans.

### **Upstream Fish Passage (Proposed Article 103)**

- Develop an Upstream Fish Passage Implementation Plan that includes provisions for the following: (1) trapping, sorting, holding, and hauling facilities for upstream migrating fish at the Lower Baker dam, (2) construction plans, specifications, and performance criteria; (3) operation and maintenance procedures and specifications including: (i) fish handling, (ii) hauling frequencies, (iii) attraction flow magnitudes and frequencies, (iv) species protocols, (v) trap operational flows, (vi) schedules, (vii) methods for providing annual updates, and (viii) trap reporting requirements; (4) quality assurance and control procedures; (5) operational contingencies and emergency response procedures; and (6) an annual report describing the operation of the upstream fish passage facilities pursuant to Proposed Article 102 including: (i) the number, species, and disposition of fish captured in the trap, (ii) any problems and associated remedies for operating the facilities, (iii) any proposed modifications to project facilities and/or operations, and (iv) any operational compliance deviations.

### **Fish Connectivity between Reservoirs (Proposed Article 104)**

- Develop a Fish Connectivity Investigation Study, which may include tagging, radio-tagging, or other methods to determine the type of fishway needed to pass native char and other native fish species between Lake Shannon and Baker Lake.
- Develop a Fish Connectivity Implementation Plan that includes provisions for the following: (1) constructing a fishway between Lake Shannon and Baker Lake for native char and other native fish species which may include: (i) catch and haul operations, (ii) a temporary weir and trap on Sulphur Creek or a similar facility below the Upper Baker dam, or (iii) a permanent trap and haul facility below Upper Baker dam; (2) design accommodations for other aquatic species that do not compromise the primary focus on passage for native char; (3) construction plans, specifications, and performance criteria; (4) operation and maintenance procedures and specifications including: (i) fish handling, (ii) hauling frequencies, (iii) attraction flow magnitudes and frequencies, (iv) species protocols, (v) trap operational flows, (vi) schedules, (vii) methods for providing annual updates, and (viii) trap reporting requirements; (5) quality assurance and control procedures; (6) operational contingencies and emergency response procedures; and (7) an annual report describing the operation of the fish passage facilities pursuant to Proposed Article 102 including: (i) the number, species, and disposition of fish captured in any trap, (ii) any problems and associated remedies for operating the facilities, (iii) any proposed modifications to project facilities and/or operations, and (iv) any operational compliance deviations.

### **Downstream Fish Passage (Proposed Article 105)**

- Develop a Downstream Fish Passage Implementation Plan that includes provisions for the following: (1) attraction, guidance, trapping, sorting, holding, and hauling facilities for downstream migrating fish at the Upper and Lower Baker dams; (2) construction plans, specifications, and performance criteria including: (i) a guide net, (ii) a Floating Surface Collector (FSC), (iii) a transition structure between the guide net and FSC, (iv) a transportation conduit, (v) a floating fish trap, (vi) transfer facilities, (vii) hauling vehicles, and (viii) stress-relief ponds; (3) a schedule for installing downstream fish passage facilities including: (i) Upper Baker Phase 1 - installing and operating a 500-cfs FSC (with 1,000-cfs pumping capacity) and ancillary facilities by March 2008, (ii) Lower Baker Phase 1 - installing and operating a 500-cfs FSC (with 1,000-cfs pumping capacity) and ancillary facilities by March 2012; (iii) Upper Baker Phase 2 - if the facilities under the Upper Baker Phase 1 fail to meet performance criteria in the Downstream Fish Passage Implementation Plan, then, at the direction of the Commission, expanding and operating the 500-cfs FSC to 1,000 cfs within 5 years of completing Phase 1; and (iv) Lower Baker Phase 2 - if the facilities under Lower Baker Phase 1 fail to meet the performance criteria in the Downstream Fish Passage Implementation Plan, then, at the direction of the Commission, expanding and operating the 500-cfs FSC to 1,000 cfs; (4) operation and maintenance procedures and specifications including: (i) a facility operation schedule, (ii) any special FSC operations, (iii) fish sampling, (iv) fish handling protocols, (v) holding and release protocols, (vi) transport loading rates, (vii) weekly reporting of trap counts, (viii) methods for providing annual updates, and (ix) an implementation schedule; (5) quality assurance and control procedures; (6) operational contingencies and emergency response procedures; and (7) an annual report describing the operation of the downstream fish passage facilities pursuant to Proposed Article 102 including: (i) the number, species, and disposition of fish captured in the trap, (ii) any problems and associated remedies for operating the facilities, (iii) any proposed modifications to project facilities and/or operations, and (iv) any operational compliance deviations.

### **Flow Implementation (Proposed Article 106)**

- Develop a Lower Baker Powerhouse Construction Plan that includes provisions for the following: (1) installing two new generating units each with approximately 750 cfs capacity at the Lower Baker dam, and (2) a construction schedule that has the two new generating units operational within 6 years.
- Until the two new units at the Lower Baker dam are operational, release flows at the Lower Baker dam in accordance with the Interim Protection Plan filed as

- Appendix C to the license application, and: (1) use best efforts to reduce Lower Baker maximum flows from 4,100 to 3,200 cfs between September 1 and December 31 annually; (2) use best efforts to follow ramping rates contained in Aquatics Table 1, and; (3) use best efforts to limit the rate of change of incrementally decreasing flows, limit the amount of daily amplitude change, and minimize the difference between spawning and incubation flows.
- Develop a Flow Implementation Plan that includes provisions for the following: (1) incorporating Aquatics Tables 1 and 2 and Aquatics Ramping Rate Figures A and B contained in Proposed Article 106; (2) releasing flows at Lower Baker after the two new 750-cfs turbine-generating units are operational in accordance with: (i) Aquatic Tables 1, or (ii) Aquatics Table 2 if flood regulation storage is provided at Lower Baker in accordance with Proposed Article 107; (3) developing a process and criteria for modifying the Flow Implementation Plan including Aquatics Tables 1 and 2; (4) providing downramping rates for the Skagit River at river mile 56.5 of 0, 1, or 2 inches per hour, according to the schedule provided in Tables 1 and 2, when Skagit River flows immediately upstream of the Baker River confluence are less than or equal to 26,000 cfs; (5) temporarily suspending or modifying flows and ramping rates in the Flow Implementation Plan in the event of drought conditions or other natural events outside the licensee's control or emergency situations where the project or public would be at risk; (6) reporting temporary modifications and deviations from the Flow Implementation Plan to the Commission and other entities; (7) an annual report describing implementation of the Flow Implementation Plan pursuant to Proposed Article 102; and (8) modifying project operations to protect aquatic resources if a conflict arises between the ramping rates or flow regimes in the Flow Implementation Plan and the flood regulation storage in Proposed Article 107.

### **Flood Regulation (Proposed Article 107)**

- Operate the Upper Baker development to provide 16,000 acre-feet of flood regulation storage between October 15 and March 1 annually and an additional 58,000 acre-feet of flood regulation storage between September 1 and April 15 annually (total 74,000 acre-feet) as directed by the U.S. Army Corps of Engineers, provided the licensee is compensated for providing any flood regulation storage above 16,000 acre-feet.
- Operate the Lower Baker development to provide up to 29,000 acre-feet of flood regulation storage between October 1 and March 1 annually, as directed by the U.S. Army Corps of Engineers, provided the licensee is compensated for this storage.
- Review project operations and develop any procedures to address imminent flood events, which may include lowering project reservoirs below flood

- regulation storage levels, and file a report for Commission approval with: (i) any proposed changes to project operations and (ii) an analysis of how any proposed changes affect the safety and adequacy of project structures.
- Notify the Commission’s Division of Dam Safety and Engineering, Portland Regional Engineer, when the Corps assumes operational control of the project for flood regulation purposes and when the Corps returns operational control to the licensee.

### **Gravel Augmentation (Proposed Article 108)**

- Develop a Gravel Management Plan that includes provisions for the following: (1) describing existing and proposed gravel augmentation measures intended to improve the geomorphic function of the Lower Baker River alluvial fan and Skagit River downstream of the Baker River confluence; (2) addressing location and contribution of gravel and cobble-sized material in the affected reach, condition and substrate attrition rates, and substrate sizes in relation to the biological needs of salmonids and other aquatic organisms; (3) establishing procedures for evaluating and monitoring Skagit River conditions, including tracking long-term trends in the substrate profile degradation, to determine when to provide gravel augmentation up to an annual limit of 12,500 tons; (4) establishing implementation guidelines and triggers for gravel augmentation; and (5) an annual report describing implementation of the Baker River Gravel Management Plan pursuant to Proposed Article 102.

### **Large Woody Debris (Proposed Article 109)**

- Develop a Large Woody Debris (LWD) Management Plan that includes provisions for the following: (1) collecting LWD, defined as wood with a diameter of at least 1 foot and a length of at least 8 feet, from project reservoirs; (2) stockpiling LWD on lands within the project boundary; (3) a 20-year target for collecting and stockpiling: (i) 2,960 pieces of LWD with a diameter of 1 to 2 feet, (ii) 540 pieces of LWD with a diameter of 2 to 3 feet, and (iii) 160 pieces of LWD with a diameter greater than 3 feet; (4) annual LWD targets designed to meet the above 20-year target; (5) reassessing the above 20-year and annual targets after the first 20 years based on actual LWD collection and stockpiling; and (6) an annual report describing implementation of the LWD Management Plan pursuant to Proposed Article 102.

### **Shoreline Erosion (Proposed Article 110)**

- Develop a Shoreline Erosion Control Plan that includes provisions for the following: (1) site specific plans to prevent and control erosion along both project reservoirs; (2) criteria for selecting and prioritizing sites giving first priority to recreation sites, heritage/cultural sites, and aesthetic resources and

giving second priority to sites rated as severe or high in relicensing Study A14a filed April 22, 2005; (3) survey protocols including procedures to measure geology, vegetation, and erosion rates; (4) treatment methods, standards, and goals including treatment using vegetation and/or bioengineering, anchored logs, riprap vestment, rock and crib walls, perched beaches, and drift sills; (5) monitoring to assess treatment effectiveness and to identify new sites needing treatment; and (6) an annual report describing implementation of the Shoreline Erosion Control Plan pursuant to Proposed Article 102.

### **Programmatic Agreement (Proposed Article 201)**

- Implement the “Programmatic Agreement Between the Federal Energy Regulatory Commission and the Washington State Historic Preservation Officer for Managing Historic Properties that May be Affected by a License Issuing to Puget Sound Energy for the Continued Operation of the Baker River Hydroelectric Project in Skagit and Whatcom Counties, Washington - FERC Project No. P-2150,” including, but not limited to the Historic Properties Management Plan for the project.

### **Aesthetics Management (Proposed Article 302)**

- Develop an Aesthetics Management Plan that includes provisions for the following: (1) painting the pump station (off-peak pump discharge facility) in neutral earth-tone colors and planting native vegetation to screen this facility from the West Pass dike boat launch area; (2) planting native vegetation to screen the yards, buildings, and fence of the Upper Baker operations and maintenance yards from the Kulshan campground and Forest Service road 1106; (3) painting the existing crane at the Lower Baker dam a neutral earth-tone color during the next normal painting cycle and during subsequent painting cycles; and (4) landscaping in the area near the visitor’s center and associated parking area at the Lower Baker River operations complex center.

### **Lower Baker Developed Recreation (Proposed Article 305)**

- Develop a Lower Baker Recreation Plan that includes provisions for the following: (1) at the existing recreation site replace the gravel boat launch with a concrete boat launch; develop parking and day use facilities; and install portable toilets; (2) cost estimates and schematic drawings of the facilities; (3) an implementation schedule; (4) a discussion of how the needs of the disabled are considered in the design of the facilities; (5) a copy of the “Agreement Between Puget Sound Energy and Skagit County”, filed May 10, 2005, for the Lake Shannon boat ramp; and (6) a discussion of how the agreement will continue or be renewed, or if necessary, how the agreement will address

pertinent land rights, easements, or other options for continued public access at the site.

### **Upper Baker Visitor Information Services (Proposed Articles 306 and 307)**

- Develop an Interpretation and Education Plan for the Baker River Project that includes provisions for the following: (1) constructing and operating a Visitor Information Station (VIS) at Baker Lake on lands within the project boundary; (2) staffing the VIS from Memorial Day through Labor Day; (3) information about the project, including recreational opportunities; (4) how the needs of the disabled are considered in the design of the VIS; and (5) operation and maintenance costs.

### **Dispersed Recreation Management (Proposed Article 308)**

- Develop a Dispersed Recreation Management Plan that includes provisions for the following: (1) hardening of agreed-upon three to six dispersed recreation sites identified in Table 3-1 of the Dispersed Site Inventory Study (Study R-12) dated February 2004; (2) the location of any dispersed recreation sites on non-project lands relative to the project boundary and the location and acreage of any federal lands involved; (3) a proposal to modify any project facilities and boundaries; (4) vault toilet(s); (5) periodic monitoring and site clean-up at project-related dispersed recreation sites that would address adverse effects on environmental resources and improve the aesthetic resources of the area; and (6) identification of dispersed recreation sites that should be closed due to adverse effects on environmental resources, low recreational use, or other criteria established by Puget and the appropriate entities.

### **Lower Baker Trails (Proposed Articles 311 & 315)**

- Develop a Lower Baker Trail Plan that includes provisions for the following: (1) constructing up to two miles of trails in the Baker River Project vicinity focusing on the Lower Baker development; (2) site selection; (3) cost estimates; (4) the entity or entities that would be responsible for constructing and maintaining the Lower Baker Trails; (5) how the needs of the disabled are considered in the design of the trails; (6) the location of any proposed trails on non-project lands relative to the project boundary and the location and acreage of any federal lands involved; and (7) a proposal to modify any project facilities and boundaries.

### **Access to Baker Lake (Proposed Article 317)**

- Provide public access to the east side of Baker Lake on existing Forest Service road FR 1106, except as may be restricted by short-term public safety or Baker River Project security requirements.

### **Water Quality (Proposed Article 401)**

- Develop a Water Quality Monitoring Plan that includes provisions for the following: (1) monitoring project waters for State of Washington water quality standards at the project for the term of the license in accordance with a specified monitoring schedule; (2) based on monitoring results, assessing consistency with State of Washington water quality standards and any proposed measures to enhance water quality; and (3) an annual report describing implementation of the Water Quality Monitoring Plan pursuant to Proposed Article 102.
- Develop a Water Quality Protection Plan that includes provisions for the following: (1) controlling pollutants from project construction, operation, or emergencies including, but not limited to: (i) access roads, (ii) boat ramps, (iii) transmission corridors, (iv) structures, (v) portable toilets, (vi) hatcheries and fish collection, handling, and transportation facilities, and (vii) staging areas for all activities related to project operation, maintenance, and repair; (2) stormwater pollution and prevention measures that: (i) specify Best Management Practices (BMPs) and other control measures to prevent contaminants from entering surface and ground waters, (ii) address pollution control measures for project activities that could lead to the discharge of stormwater or other contaminated water from upland areas, (iii) specify the management of chemicals, hazardous materials and petroleum (spill prevention and containment measures), including refueling procedures, the measures to take in the event of a spill, and reporting and training requirements, and (iv) specify water quality monitoring protocols and notification requirements; (3) in-water work protection measures that: (i) specify BMPs and other control measures for the licensee's work within surface waters, including application of herbicides, pesticides, fungicides, disinfectants, and lake fertilization, and (ii) address water quality monitoring provisions for all in-water work; (4) an annual report describing implementation of the Water Quality Protection Plan pursuant to Proposed Article 102; and (5) maintaining minimum reservoir levels of 389 feet in Lake Shannon and 685 feet in Baker Lake to minimize the resuspension of sediments as a result of project operations.

### **Deciduous Forest Habitat (Proposed Article 502)**

- Develop a Deciduous Forest Habitat Plan that includes provisions for the following: (1) enhancing and/or acquiring deciduous forest habitat containing at least 40 percent deciduous tree composition as mitigation for deciduous forest habitat affected by new project construction; (2) criteria and procedures for site selection, acquisition and management; (3) identifying the number of acres to be enhanced and/or acquired; (4) any specific enhancement and

management actions to be taken on any lands acquired; (5) the location of any proposed acquired parcels of non-project lands relative to the project boundary and the location and acreage of any federal lands involved; and (6) a proposal to modify any project facilities and boundaries.

#### **Elk Habitat (Proposed Article 503)**

- Develop an Elk Habitat Plan that includes provisions for the following: (1) acquiring about 300 acres of elk foraging habitat with a total elk forage equivalency value of at least 1,437 units calculated by multiplying the number of acres of each habitat type enhanced and/or acquired by the corresponding elk forage equivalency score shown in the elk habitat table contained in Proposed Article 503; (2) a discussion of the feasibility of creating cultivated pastures or making other elk foraging habitat improvements on project lands or acquiring this habitat and making improvements on non-project lands as close to the project as possible; (3) criteria and procedures for site selection, acquisition and management; (4) any specific enhancement and management actions to be taken on any lands acquired; (5) the location of any proposed acquired parcels of non-project lands relative to the project boundary and the location and acreage of any federal lands involved; and (6) a proposal to modify any project facilities and boundaries.

#### **Wetland Habitat (Proposed Article 504)**

- Develop a Wetland Habitat Plan that includes provisions for the following: (1) enhancing and/or acquiring wetlands to benefit wetland-dependent species including native amphibians; (2) a discussion of the feasibility of enhancing wetlands adjacent to Baker Lake or Lake Shannon on project lands or acquiring this habitat and making improvements on non-project lands as close to the project as possible; (3) the number of acres to be enhanced and/or acquired; (4) criteria and procedures for site selection, acquisition and management; (5) any specific enhancement and management actions to be taken on any lands acquired; (6) the location of any proposed acquired parcels of non-project lands relative to the project boundary and the location and acreage of any federal lands involved; and (7) a proposal to modify any project facilities and boundaries.

#### **Osprey Nest Structures (Proposed Article 506)**

- Provide and maintain a minimum of 10 artificial nesting structures at Lake Shannon consisting of nine existing structures and at least one new structure installed at the site of a former natural snag nest or artificial nesting structure with the goal of producing seven breeding pairs of osprey at Lake Shannon.

- Select and modify 10 mature trees at Lake Shannon to promote their eventual use as osprey nesting structures. Trees may be modified by topping, killing, or other appropriate techniques based on site-specific evaluations.
- Monitor osprey nesting and productivity annually between April 1 and August 31 at Lake Shannon and Baker Lake and inspect and maintain the 10 artificial nesting structures every two years to ensure continued availability for osprey.
- File a monitoring report with the Commission by June 1 of the year following each two-year inspection and maintenance cycle. The report should describe inspection results, maintenance performed, and nesting activity at both artificial nesting structures and modified trees at Lake Shannon and Baker Lake during the preceding two years and should determine whether additional artificial nesting structures or modifications to the placement and design of existing artificial nesting structures are needed to achieve the goal of seven breeding pairs of osprey at Lake Shannon.

#### **Floating Loon Nest Platforms (Proposed Article 507)**

- Install and maintain three floating nesting platforms for common loons on Lake Shannon and/or Baker Lake with the goal of establishing common loon nesting on project reservoirs.
- Log booms, boundary buoys or other appropriate devices should be placed around nesting platforms, as needed, to restrict public access. Nesting platforms and any devices to restrict public access should be installed April 1 to July 31 annually.
- Monitor all nesting platforms twice a month April 1 to July 31 annually to determine nesting activity, nesting attempts, nest productivity and the effectiveness of public access restrictions and file a report with the Commission by June 1 each year summarizing monitoring data and platform maintenance activities.
- Install three additional nesting platforms (total six) on Lake Shannon and/or Baker Lake if loons successfully nest on platforms. If loons do not successfully nest on platforms within 15 years, the nesting platform program should be discontinued.

#### **Noxious Weeds (Proposed Article 508)**

- Develop a Noxious Weed Control Plan that includes provisions for the following: (1) controlling noxious weeds on project lands pursuant to applicable state and federal regulations; (2) site-specific and species-specific management and monitoring programs for project lands based on the guidelines and treatment options identified in Appendix A-1 of the Settlement Agreement; (3) controlling noxious weeds on lands surveyed and identified in

study T-6 (figures 1 and 2) and including these lands in the project boundary; (4) controlling noxious weeds, with priority on controlling reed canarygrass, at wetlands identified as WB 17, 20, 21, 25, 28, 29, and 30 in studies T-2 and T-5 (figure 5), and including these lands in the project boundary; and (5) controlling noxious weeds on any lands acquired and added to the project boundary in the future as directed by the Commission.

### **Special Status Plants (Proposed Article 509)**

- Develop a Special Status Plants Plan that includes provisions for the following: (1) managing special status plants on project lands surveyed and identified in study T-16 (figures 1 and 2) and Appendix A-2 of the Settlement Agreement that are: (i) listed as endangered, threatened or proposed for listing under the Endangered Species Act, (ii) listed as endangered, threatened or sensitive by the State of Washington, and (iii) listed by the Forest Service on the Pacific Northwest Regional Forester's sensitive species list; (2) site-specific and species-specific management and monitoring programs for project lands based on the guidelines identified in Appendix A-3 of the Settlement Agreement; and (3) managing special status plants on any lands acquired and added to the project boundary in the future as directed by the Commission.

### ***Carex flava* (Proposed Article 510)**

- Develop a *Carex flava* (yellow sedge) Management Plan that includes provisions for the following: (1) surveying and mapping *Carex flava* populations at Baker Lake; (2) managing and protecting identified *Carex flava* populations on project lands especially in areas where reed canarygrass on project lands exists; (3) strategies to control reed canarygrass near *Carex flava* populations; and (4) site-specific management and monitoring programs based on the guidelines identified in Appendix A-4 of the Settlement Agreement including a planting program if *Carex flava* populations decline.

### **Decaying and Legacy Wood (Proposed Article 511)**

- Develop a Decaying and Legacy Wood (old growth) Management Plan that includes provisions for the following: (1) managing snags, logs and residual live trees on project lands for snag and log dependent species including cavity excavators; (2) retaining existing snags, logs and residual live trees or promoting the development of these features when necessary; (3) specific management objectives; (4) providing artificial structures where natural snags, logs and residual live trees are not present and are not expected to develop during the term of any license; and (5) managing snags, logs and residual live trees on any lands acquired and added to the project boundary in the future as directed by the Commission.

### **Bald Eagle Night Roosts (Proposed Article 512)**

- Conduct two surveys 15 years apart to identify the location of any bald eagle night roosts on project lands or in the immediate vicinity of the project and file the survey results and any proposals to protect identified roosting areas with the Commission.

### **Bald Eagle Management (Proposed Article 513)**

- Develop a Bald Eagle Management Plan that includes provisions for the following: (1) managing bald eagle nest and night roosts on project lands to protect bald eagles; (2) periodic surveys of project lands to identify new nests or night roosts which should be added to the plan; and (3) surveys of any lands acquired and added to the project boundary in the future as directed by the Commission.

### **Habitat Evaluation Procedures (Proposed Article 514)**

- Develop a Habitat Evaluation Procedures Plan that includes provisions for the following: (1) monitoring the effectiveness of implementing Proposed Articles 502-504, 506, 507, and 513 through periodic assessments of habitat quantity and quality using the U.S. Fish and Wildlife Service's Habitat Evaluation Procedures or other appropriate methodology; (2) monitoring should determine the current conditions of any lands acquired and assess the effectiveness of any enhancement and management actions taken on those lands; and (3) a schedule for specific monitoring actions, monitoring criteria, and the format for monitoring reports.

### **Late Seral Forest (Proposed Article 515)**

- Develop a Late Seral Forest Enhancement Plan that includes provisions for the following: (1) thinning trees on 321 acres of second-growth forest to accelerate late-seral forest growth and increase nesting success and/or survival of spotted owls and marbled murrelets; (2) a discussion of the feasibility of thinning trees on project lands or making these improvements on non-project lands as close to the project as possible; and (3) criteria and procedures for site selection.

### **Baker River Coordinating Committee (Proposed Article 601)**

- Develop a Technical Committee Plan that includes provisions for the following: (1) creating a Terrestrial Resources Implementation Group, a Recreation Resources Group, an Aquatics Resources Group, and a Cultural Resources Advisory Group - each responsible for providing technical comments and recommendations on the licensee's implementation of the terms

and conditions in the license; (2) creating a Baker River Coordinating Committee responsible for providing policy level comments and recommendations on the licensee's implementation of the terms and conditions in any license issued for the project and for resolving disputes within the above four technical committees; (3) procedures for designating representatives, setting agendas, providing notices, holding meetings, recording decisions, and setting schedules for the above committees; (4) resolving disputes; and (5) providing annual reports.

### **5.1.2 Additional Measures Recommended by Staff**

We recommend including the following additional measures not contained in the Settlement Agreement in any license issued for the project.

#### **Flow Continuation Valve Evaluation**

NMFS and WDFW recommend Puget provide a flow continuation valve at the Lower Baker development to ensure compliance with new downramping rates, amplitude, and minimum flows contained in the Settlement Agreement. Flow continuation would require a valve or valves designed to provide flows from 5,600 cfs (the maximum generation with the new units installed) to 1,000 cfs (the lowest minimum flow). Any valve(s) would also have to be capable of meeting ramping rates contained in proposed Article 106 that specifies downramping rates as low as one inch per hour.

As discussed in section 3.3.2.2, partial flow continuation would be provided at the Lower Baker development through the use of the two new 750-cfs turbine-generator units in the proposed new auxiliary powerhouse. As designed, the two new units would add redundancy at Lower Baker enabling Puget to maintain minimum flows despite the loss of any one unit or the loss of the two new 750-cfs units.

Despite this added redundancy, it's quite likely that over the term of any new license, circumstances would periodically force more than one unit off-line thus preventing Puget from meeting the new minimum flow and ramping rates proposed in the Settlement Agreement. As discussed in section 3.3.2.2, there have been 29 instances of unscheduled outages at the Lower Baker development from 1998 to 2002. A flow continuation valve(s) would greatly enhance Puget's ability to guarantee meeting their minimum flow and ramping rate requirements during times of outages.

We reviewed Puget's Exhibit F drawings of the proposed new auxiliary powerhouse that would be built on the site of the abandoned powerhouse at the Lower Baker development. Puget's preliminary plans are to add two new 750-cfs turbine-generator units on two of the four existing but abandoned 8-foot diameter penstocks that are located at the site. We considered the scenario of adding regulating valves on the two

remaining penstocks that would not be tapped for use by the new units. Such valves could provide the needed 5,600 to 1,000 cfs range of flows in accordance with the most restrictive ramping rate of one inch per hour contained in Proposed Article 106. We estimate the cost of these valves and ancillary equipment to be \$101,000 annually.

Puget has signed the Settlement Agreement which sets forth new minimum flows and ramping rates to improve conditions in the Lower Baker River and Skagit River for fish, including the threatened Chinook salmon. These proposed flows and ramping rates, and the two new 750-cfs turbine-generator units in the new auxiliary powerhouse, are substantial investments with an estimated annual cost of \$2,423,200. Other staff-recommended fishery enhancement measures including fish propagation (Proposed Article 101), upstream fish passage (Proposed Article 103), and downstream fish passage (Proposed Article 105) would have an additional total estimated annual cost of \$5,085,900. Based on current information, it appears that future outages may prevent these investments from being fully realized, and could lead to desiccation or freezing of some salmonid eggs and pre-emergent alevins. However, we are uncertain about how often these future outages may actually occur and lead to a loss of minimum flows below the project once the new units are installed.

Further, there is a high annual cost (\$101,000) associated with construction of flow continuation facilities; therefore, we recommend that Puget first conduct an analysis of the benefits and need for these facilities.

We recommend Puget consult with NMFS, FWS, WDFW and the tribes and provide an analysis to determine the actual benefits of flow continuation at Lower Baker dam. The analysis should include: (1) the expected frequency of not being able to meet the minimum flows and ramping rates below the Lower Baker dam during project outages without installing flow continuation facilities, (2) the potential change in water surface elevations in the Baker and Skagit Rivers during project outages without installing flow continuation facilities, (3) the potential environmental impacts associated with items 1 and 2, and (4) an estimate of the improved project compliance capability associated with installing flow continuation facilities at the Lower Baker dam.

We recommend that the Commission reserve the right to require Puget to install such equipment based on this analysis.

### **Inspection, Reports and Notification**

NMFS and WDFW recommend Puget schedule annual operation inspections for agencies and tribes to ensure that fish protection measures are functioning as expected. NMFS and WDFW also recommend Puget permit the agencies and tribes to inspect the project at any reasonable time before, during or after construction to evaluate activities that may affect fish and wildlife protection, mitigation, and enhancement measures. Both

agencies recommend Puget maintain and make available a record of project operations including the daily amount of diversion, spill and fluctuation for all flows. In addition, NMFS recommends Puget document all unusual occurrences such as load rejections; powerhouse mechanical problems; turbine, intake and fish screen failures; and sedimentation events. NMFS says such events should be brought to the agencies' attention immediately.

Determining compliance with the terms and conditions in a license is the Commission's responsibility; therefore, we do not recommend that Puget demonstrate operational compliance to entities other than the Commission. The Commission already conducts periodic safety and environmental compliance inspections as part of the administration of issued licenses.

However, providing the agencies and tribes with copies of operational records upon request and allowing access to the project in the performance of their official duties would help ensure that the agencies and tribes remain informed about the construction and operation of fish protection measures at the project. Agencies and tribes could then provide Puget with timely feedback which should help Puget implement fish protection measures contained in any license issued for the project. We estimate that there would be minimal additional costs for the above recommended measures, because we anticipate that many of these measures would be contained in Puget's proposed fish protection plans under the Settlement Agreement, including Puget's: (1) Fish Propagation Facilities Plan (Proposed Article 101); (2) Upstream Fish Passage Implementation Plan (Proposed Article 103); (3) Fish Connectivity Implementation Plan (Proposed Article 104); (4) Downstream Fish Passage Implementation Plan (Proposed Article 105); and (5) Flow Implementation Plan (Proposed Article 106). We find that the benefits of providing access, reports and notifying the agencies, as recommended by NMFS and WDFW, justify the minimal additional costs and would be in the public interest.

### **5.1.3 Modifications Recommended by Staff**

Staff-recommended modifications to those measures in the Settlement Agreement we recommend (section 5.1.1) are discussed below:

#### **Flood Regulation**

Proposed Article 107 addresses flood control at the project and requires Puget, in part, to review project operations and develop any procedures to address imminent flood events. Puget must file a report with any new procedures for Commission approval.

Should Puget's above review result in new procedures to address imminent flood events, Puget should include in its report to the Commission, an analysis of how these

new procedures would affect the safety and adequacy of project structures. Such an analysis would be needed before the Commission could act on Puget's report.

### **Large Woody Debris**

Proposed Article 109 would require Puget to develop a Large Woody Debris (LWD) Management Plan for collecting and stockpiling LWD intercepted by the project. LWD could be stockpiled on lands anywhere within the Baker River basin and would be made available for others to use in various fishery and aquatic enhancement projects in the Baker and Skagit River basins.

We recommend this measure except for the provision that would allow Puget to stockpile LWD on lands anywhere within the Baker River basin. We recommend Puget stockpile LWD on lands within the project boundary, because suitable project lands exist for this purpose.

### **Aesthetic Management**

Proposed Article 302 would require Puget to develop an Aesthetic Management Plan for painting certain project facilities in neutral, earth-tone colors and for planting vegetation and landscaping around various project features. The article also requires Puget to provide funds to the Forest Service for vegetation management at Forest Service campgrounds, including Panorama Point, Horseshoe Cove, Shannon Creek, Bayview, and Maple Grove, and funds for two to four yet to be identified Forest Service developed sites and/or viewpoints that average less than 0.25-acre in size.

We recommend this measure except for the provision that requires Puget to provide funds to the Forest Service for vegetation management at Forest Service campgrounds and other Forest Service facilities. We find that these sites are not project facilities and would not fill any demonstrated project need. According to notes of a stakeholders meeting conducted on June 28, 2004, there is an uncertainty regarding how much money would be allocated for project and non-project facilities. To further support our finding, Proposed Article 302 states the funds provided to the Forest Service would be used to implement actions for non-project facilities and cites the above-mentioned campgrounds and the other Forest Service sites. We, therefore, do not recommend the Forest Service funding component of the measure.

At an estimated cost of \$43,200 annually, we find the benefits of an Aesthetic Management Plan would justify the cost, and therefore, recommend that Puget develop and implement an Aesthetic Management Plan for the project.

### **Lower Baker Developed Recreation**

Proposed Article 305 would require Puget to prepare a Lower Baker Developed Recreation Plan, including acquisition of land for a Lake Shannon access site. The action

would entail identifying an additional access area suitable for the construction of a concrete boat launch, parking area, and day-use area, that has an existing access road. Puget would be allowed to construct this facility at an alternative, off-site location should Puget be unable to acquire a suitable and cost-effective access site on Lake Shannon.

Although a gravel boat launch exists at Lake Shannon and provides access to 0.1-mile of shoreline, public road access to the site is limited due to land ownership.

Since the Settlement Agreement and Proposed Articles were filed November 30, 2004, an agreement between Puget and Skagit County to continue to operate the Lake Shannon boat ramp was reached. In a May 10, 2005, filing, Puget notes that Skagit County proposes, under a separate agreement with Glacier Northwest, Inc. (Glacier), to maintain the road and provide flaggers to aid with the safety of vehicles using the road for public access. Puget owns 10 percent of the site, whereas the remaining 90 percent of the site and the access gravel road to the site are on land owned by Glacier. The agreement between Glacier and Skagit County affords the opportunity to provide public access to the existing Lake Shannon boat ramp. Given that the Lake Shannon boat ramp is a project-related facility in the lower Baker River basin, we recommend that Puget develop and implement a Lower Baker Developed Recreation Plan, which would provide for continued maintenance of this site.

At an estimated cost of \$67,300 annually, we recommend that Puget develop and implement a Lower Baker Developed Recreation Plan for the project.

### **Upper Baker Visitor Information Services**

Proposed Article 306 would require Puget to provide funds to the Forest Service for: (1) constructing and operating an Upper Baker Visitor Information Station (VIS) with parking, information kiosks, and sanitation facilities at Baker Lake, (2) Forest Service staff for visitor information services at Baker Lake from Memorial Day through Labor Day, and (3) Forest Service staff at its VIS in Sedro-Woolley, Washington from Memorial Day through Labor Day.

Proposed Article 307 would require Puget to provide funds to the Forest Service for the planning, staffing, and production of materials to provide interpretive services in the project area, with an emphasis on Baker Lake. These funds would also be used by the Forest Service to prepare a comprehensive Interpretation and Education Plan to facilitate the above interpretive services.

As discussed in this DEIS, a need exists for interpretive services at the Baker River Project, which could be met through an Interpretation and Education Plan. Rather than Puget providing funds to the Forest Service as stipulated by Proposed Articles 306 and 307, we recommend Puget prepare an Interpretation and Education Plan for the

project and be responsible for its implementation. The plan should include provisions for the following: (1) constructing and operating the VIS at Baker Lake on lands within the project boundary; (2) staffing the VIS from Memorial Day through Labor Day; (3) information about the project, including recreational opportunities; (4) how the needs of the disabled are considered in the design of the VIS; and (5) operation and maintenance costs. The plan could be developed in concert with the cultural resources interpretive component of the HPMP.

Forest Service staffing at its VIS in Sedro-Woolley, Washington is unrelated to the project. We do not find a nexus between this VIS and the project because the VIS is located approximately 30 miles to the west of the project; thus, it would not fill any demonstrated project need. We do not consider Proposed Article 307 (provisions to provide funds to the Forest Service) in our comprehensive development determination for the project.

However, we do recommend, at an estimated cost of \$20,900 annually, that Puget develop and implement an Interpretation and Education Plan for the Baker River Project.

### **Lower Baker Trails**

Proposed Article 311 would require Puget to develop a Lower Baker Trail Plan and construct up to two miles of trails in the vicinity of the Town of Concrete. Proposed Article 315 would require Puget to maintain these trails once constructed.

We recommend the above measures be combined into one plan that addresses both the construction and maintenance of the trails. Trails could expand upon existing or proposed project recreation facilities, including our recommended recreation site on Lake Shannon, to the extent possible. The potential trail route should take into consideration potential effects on sensitive habitats, such as grizzly bear habitat, wetlands, ancient forests and areas with species of special concern. We note that if measures on non-project lands are found to be necessary for the project purposes, then those lands must be included in the project boundary.

At an estimated cost of \$7,500 annually, we recommend Puget develop and implement a Lower Baker Trail Plan.

### **Dispersed Recreation Management**

Proposed Article 308 would require Puget to provide funds to the Forest Service to develop and implement a Dispersed Recreation Management Plan. The plan would provide for hardening three to six high priority sites identified in exhibit R-2 of the Dispersed Site Inventory Study (Study R-12).

The Dispersed Site Inventory Study indicates there are 10 dispersed sites in the vicinity of Lake Shannon and 203 dispersed sites near Baker Lake. Study results indicate that: (1) overall the occupancy rates for dispersed sites at Baker Lake did not exceed 20 percent of the total capacity in any season; for Lake Shannon, typically less than 10 percent; (2) there is evidence of vegetation loss, soil erosion, litter, and waste associated with the dispersed sites; and (3) there is inconsistent maintenance of the sites.

While we recognize dispersed recreation is an opportunity afforded by the Mt. Baker-Snoqualmie National Forest, including in the project vicinity, demand for dispersed recreation is projected to slightly increase; thus, there is a need to manage dispersed recreation. Rather than Puget providing funds to the Forest Service, we recommend that Puget develop and implement a Dispersed Recreation Management Plan for three to six dispersed sites that would include hardening of the sites. Given the nexus between the project and recreational use at the dispersed recreation sites, Puget's potential ability to manage three to six dispersed sites would compliment the Forest Service's efforts to provide dispersed sites on Forest Service land in the project vicinity and subsequently protect environmental resources. The three to six dispersed sites to be improved and maintained should be brought into the Baker River Project boundary and made project facilities. In addition, as part of a Dispersed Recreation Management Plan, Puget and the appropriate parties should also identify any dispersed site(s) in the project boundary to be permanently closed due to low recreation use, adverse effects on environmental resources, or other criteria. These actions would ensure availability and maintenance of sites where they are likely to be utilized and have the least impact on environmental resources.

At an estimated cost of \$39,000 annually, we recommend Puget develop and implement a Dispersed Recreation Management Plan.

### **Forest Service Road Maintenance**

Proposed Article 316 would require Puget to provide funds to the Forest Service for routine maintenance of portions of up to 25 miles of Forest Service roads in the project vicinity. The Forest Service roads include FR 11 (Baker Lake Highway); FR 1106 (Depression Lake); FR 1107 (Anderson Road); FR 1118 (Horseshoe Cove and Bayview); FR 1122 (Lower Sandy Creek); FR 1136 (Lower Boulder Creek); FR 1137 (Panorama Point); FR 1142 (Baker Lake Resort); FR 1150 (Shannon Creek campground); and FR 1168 (Baker River Trailhead North).

Proposed Article 316 would also require Puget to provide funds to the Forest Service for paving FR 1106.

Proposed Article 317 would require Puget to continue to provide public access to the east side of Baker Lake using FR 1106 across Upper Baker dam, except as may be restricted by short-term public safety or project security requirements.

The Forest Service has not identified what project facilities are served by the above-mentioned roads; but, it has identified the actions to be funded for non-project facilities. Based on existing information, we do not find a nexus between the Baker River Project and any funded action required under Proposed Article 316. We find the roads, except for FR 1106, would serve non-project facilities, and therefore, we do not recommend including this measure in any license issued for the project.

In the license application (Puget Sound Energy, 2005), a reference is made that the Forest Service intends to permanently or seasonally close many spur roads off FR 11 near the northwest portion of Baker Lake to protect wildlife (such as, elk, mountain goat, and grizzly bear) or to convert road segments to recreation trails.

As discussed in this DEIS, the approximate 1-mile-long FR 1106 is located within the existing Baker River Project boundary and is used to service the project's Kulshan Campground and West Pass Dike recreation facility. Upgrading and maintaining this road as identified under Proposed Article 316 would provide for continued and improved public access to Baker Lake. We find FR 1106 necessary to support recreation at, and provide access to, the project. Therefore, Puget should provide project-related road upgrades and maintenance on FR 1106 as a component of an Aesthetic Management Plan, which would address the need for maintenance at project access roads.

### **Water Quality**

Proposed Article 401 would require Puget to comply with the terms and conditions of any WQC and with certain water quality criteria for temperature, dissolved oxygen, total dissolved gas, and turbidity. However, Proposed Article 401 does not specify actual water quality criteria for temperature, dissolved oxygen, and total dissolved gas. Instead, it states that the "natural condition" for temperature and dissolved oxygen would be developed within 5 years of any license and that a site-specific standard may be needed for total dissolved gas. Further, it indicates that the above criteria are general and preliminary in that they would be modified by any future WQC.

Because the above water quality criteria have not been defined, are general and preliminary, and would be modified by any WQC issued for the project, we do not include these criteria in our recommended measures for water quality.

### **Deciduous Forest Habitat**

Fluctuating water levels in the project's reservoirs contribute to ongoing shoreline erosion which affects deciduous forest habitat adjacent to project shorelines. In addition,

about 1 acre of deciduous forest habitat would be cleared to build the new auxiliary powerhouse at the Lower Baker development. Further, several staff-recommended fishery enhancement measures also have the potential to result in disturbance and/or clearing of deciduous forest, including fish propagation facilities, downstream fish passage facilities at both the Upper and Lower Baker developments, and fishway connectivity facilities between Lake Shannon and Baker Lake. In total, these fishery measures are expected to disturb about 19 acres of which a small portion would likely be deciduous forest habitat.

Proposed Article 502 would require Puget to acquire and manage deciduous forest habitat having 40 percent or greater deciduous tree composition for the purpose of increasing, protecting and enhancing habitat for deciduous forest dwelling species, including neotropical birds. This measure was included to mitigate the above mentioned impacts and, in large part, to mitigate for deciduous forest habitat lost by original project construction. Puget does not identify where it would acquire proposed parcels of lands nor does it identify the management actions that would be taken on these lands once acquired, or how many acres would be acquired. Implementing this measure, as appropriate, would cost an estimated \$25,900 annually.

Deciduous forest habitat is in short supply in the Baker River basin and surrounding areas. Deciduous forest stands along riparian zones can provide locally unique wildlife habitat when certain structural features are present. Locally unique features can include variation and patchiness of understory vegetation, snags and downed logs, seasonal canopy cover, and stream shading.

We recommend Puget mitigate for those lands affected by the construction of new project facilities. However, we do not recommend that mitigation be provided for deciduous forest habitat lost by original project construction. The baseline for relicensing a project is the existing environment, not the environment as it existed before the project was built. Further, it is not necessary for Puget to mitigate for that deciduous forest habitat affected by shoreline erosion because our recommended Shoreline Erosion Control Plan addresses these impacts.

We recommend Puget develop a Deciduous Forest Habitat Plan that identifies that deciduous forest affected by the construction of new project facilities and mitigates for this loss by either enhancing existing deciduous forest on project lands or acquiring and managing this habitat on non-project lands as close to the project as possible. This plan should identify the number of acres to be enhanced or acquired, any management action to be taken on these lands, and the location of any proposed acquired parcels of non-project lands relative to project boundaries. Any non-project lands should be included in the project boundary. We estimate the annualized cost for preparing and implementing this plan to be \$4,900, which is \$21,000 less than Puget's proposal.

## **Elk Habitat**

Proposed Article 503 would require Puget to acquire about 300 acres of elk foraging habitat in the Baker River basin or other areas of Washington State occupied by the Nooksack Elk Herd. Puget proposes this measure to mitigate for project-related recreation disturbance to elk and elk foraging habitat on project lands and lands adjacent to Baker Lake and Lake Shannon. Implementing this measure would cost an estimated \$287,900 annually.

In its studies, Puget identified elk winter foraging habitat, rated from good to poor, on project and adjacent non-project lands to the west of Baker Lake and Lake Shannon. Located on these lands, particularly adjacent to Baker Lake, are various project and non-project recreation facilities that are regularly used by recreationists, especially during the summer. Recreational use at these project and non-project recreational facilities disturbs elk in the vicinity of the project, displacing elk from foraging habitat. Moreover, new construction would require clearing some vegetation at the project which may currently provide habitat for elk.

Elk using project and adjacent non-project lands in the Baker River basin are part of the Nooksack Elk Herd which provides important recreational, aesthetic, and spiritual values to the residents of northwestern Washington. The Nooksack Elk Herd is the smallest herd in Washington and has decreased in size over the past 15 years.

We recommend Puget provide elk foraging habitat consistent with Proposed Article 503 with some modifications. Puget should first assess the feasibility of creating cultivated pastures or making other elk foraging habitat improvement on project lands, and secondarily consider acquiring foraging habitat and making improvements on non-project lands as close to the project as possible. According to Puget's Elk Habitat Mapping Study (T-21), ample land rated as poor or marginal elk foraging habitat exists between the western shore of the project's reservoirs and the Baker Lake highway. We recognize that much of this habitat would still be subject to project and non-project recreation disturbance but may be nevertheless suitable for elk foraging depending on the accuracy of Puget's disturbance buffers contained in this study. Other habitat enhancement opportunities also exist between the Baker Lake highway and Mount Baker which are still relatively close to the project. We do not recommend Puget enhance habitat or acquire lands in accordance with the geographic preferences stated in Proposed Article 503 because it appears opportunities exist closer to the project to accomplish this measure.

We recommend Puget develop an Elk Habitat Plan with the above modifications. This plan should identify the number of acres to be enhanced or acquired and managed, any management action to be taken on these lands, and the location of any proposed

acquired parcels of non-project lands relative to project boundaries. Any non-project lands should be included in the project boundary.

### **Wetland Habitat**

Proposed Article 504 would require Puget to acquire wetlands and to conserve wetland-dependent species including native amphibians. Puget proposes this measure to mitigate the effects of fluctuating water levels on wetlands adjacent to Baker Lake and Lake Shannon and the effects to amphibians that use these habitats. Implementing this measure would cost an estimated \$29,900 annually.

We recommend Puget enhance or acquire wetlands consistent with Proposed Article 504 with some modifications. Puget should first assess the feasibility of enhancing wetlands adjacent to Baker Lake or Lake Shannon or otherwise within current project boundaries. Other habitat enhancement and acquisition opportunities may exist in the Baker River basin or just downstream adjacent to the Skagit River, close to the project. We do not recommend Puget enhance habitat or acquire lands in accordance with the geographic preferences referenced in this measure because it appears opportunities exist closer to the project to accomplish this measure. Also, Puget has not identified how many acres of wetlands would be acquired or what management actions would be taken on those lands, once acquired. We recommend Puget prepare a Wetland Habitat Plan that provides this information and identifies where it would enhance or acquire proposed parcels of land. Any non-project lands should be included in the project boundary.

### **Floating Loon Nest Platforms**

Fluctuating water levels prevent common loons from successfully nesting adjacent to Baker Lake and Lake Shannon. Proposed Article 507 would require Puget to install floating nest platforms on project reservoirs as mitigation for these effects. Implementing this measure would cost an estimated \$5,000 annually.

We recommend Puget install floating nest platforms for common loons substantially in conformance with Proposed Article 507. However, this proposed article would allow Puget to provide funds to an unspecified third party for one common loon nesting platform on a non-project reservoir in lieu of one nesting platform on Baker Lake or Lake Shannon. We do not recommend installing a nesting platform on a non-project reservoir because opportunities exist on project reservoirs for these platforms.

### **Noxious Weeds, Special Status Plants and *Carex flava***

Proposed Articles 508, 509, and 510 would require Puget to control noxious weeds, manage special status plants, and manage *Carex flava* (yellow sedge), respectively, on lands adjacent to Baker Lake and Lake Shannon. Project lands that would be managed pursuant to the above three articles are identified in Puget's

relicensing studies and in Appendix A-2 in the license application. Implementing these measures would cost an estimated \$55,200 annually.

We recommend that Puget manage the above species but note that some of the identified lands to be managed extend beyond project boundaries. We recommend Puget include in the project boundary any lands it would manage for noxious weeds, special status plants, and *Carex flava* adjacent to Baker Lake and Lake Shannon. In addition, Appendix A-4 referenced in Proposed Article 510 refers to an off-site seed and/or plant collection program to reestablish *Carex flava* populations if necessary. We recommend any such program, if needed, be established on-site and within project boundaries. Finally, we recommend Puget develop a separate plan for each of the above proposed measures.

### **Late Seral Forest**

Proposed Article 515 would require Puget to provide funding to the Forest Service for its actual cost in thinning trees on 321 acres of second-growth forest on Forest Service lands within the Baker River basin. Current project operation has minor effects on existing late seral forest habitats through the influence of fluctuating reservoir water levels. Erosion occurs along portions of the reservoir shorelines under current conditions and can result in disturbance and loss of shoreline vegetation. In addition, Puget says the habitat edge created along the interface of reservoir shorelines and late seral forest may increase the risk of predation for mature and old-growth dependent species such as marbled murrelet and northern spotted owl by hawks, owls and corvids. Implementing this measure would cost an estimated \$4,900 annually.

Although Puget's studies indicate that shoreline erosion is occurring along 15.3 miles of Baker Lake and 20.5 miles of Lake Shannon, no information exists to indicate that this erosion is reducing the amount of late seral forest habitat adjacent to project reservoirs. In addition, the edge effects created by project reservoirs have been in place since the project's original construction.

Nevertheless, we recommend the above measure because of staff-recommended new construction at the project. New construction would require clearing some vegetation at the Sulphur Creek site and at other locations for various fishery enhancements measures. Further, loud noise associated with heavy equipment and pile drivers could disturb both species which may nest adjacent to these sites. Even though the above effects would be minor and temporary, both the marbled murrelet and northern spotted owl are federally listed threatened species and the proposed measure would enhance habitat for these species and promote their recovery.

We recommend Puget prepare a Late Seral Habitat Enhancement Plan to thin trees on 321 acres of second-growth forest to enhance habitat for marbled murrelets and

northern spotted owls. Puget should be responsible for ensuring that this work is completed, not just responsible for providing funds to the Forest Service. Puget may contract with the Forest Service or any other third party to perform this work. We recommend Puget first assess thinning trees on lands within the project boundary. If suitable lands do not exist, we recommend Puget thin trees on lands as close to the project as possible. Our recommended Late Seral Forest Enhancement Plan should identify the location of any proposed parcels of non-project lands for enhancement, relative to project boundaries. We do not, however, recommend these lands be included in the project boundary because this measure would be a one-time action that would provide long-term benefits to both species.

#### **5.1.4 Proposed Measures Not Recommended by Staff**

We do not recommend the following proposed measures in the Settlement Agreement because they do not exhibit sufficient nexus to project resources or effects, would not result in benefits to non-power resources that would be worth their cost or would not contribute to the best comprehensive use of the basin.

#### **Recreation Management Report**

Proposed Article 301 would require Puget to consult with the Recreation Resources Group and file a report with the Commission each year that would contain, in summary: (1) the implementation status of Proposed Articles 302-315; (2) a compilation of the plans required by Proposed Articles 302-305, 311 and 318; (3) an updated Appendix A-5 showing any revisions to proposed funding; and (4) a summary of expenditures, earned interest, disbursements, adjustments for inflation, and other accounting information.

As discussed herein, we do not recommend the measures in the following Proposed Articles: 303-304, 309-310, 312-314, 316 and 318. For the remaining articles (302, 305-308, 311, and 315) that would be covered by Proposed Article 301, we recommend an individual plan for each article. Consequently, Proposed Article 301 is unnecessary.

#### **Baker Lake Resort Redevelopment**

Proposed Article 303 would require Puget to prepare a plan to redevelop the Baker Lake Resort into a campground with 30 to 50 campsites. Puget would also be required to provide funds to the Forest Service for redeveloping the resort. Implementing this measure would cost an estimated \$45,000 annually.

Although Puget acquired a Forest Service special use permit in 1998 to operate the Baker Lake Resort, Puget states the resort has high annual operation and maintenance costs resulting in the facility operating at a loss. Puget does not intend to operate the

resort beyond the expiration of the current special use permit in 2008. It is our understanding that upon completion of redeveloping the resort, the Forest Service intends to operate and maintain the facility with funding from Puget.

Huckell/Weinman Associates (2004) note approximately half of all local recreation sites, boat launches, and camp sites are located within the project study area.<sup>39</sup> According to the study, projected occupancy rates for Baker Lake Resort indicate the current supply of RV and campsites is sufficient to accommodate the expected demand over the next 20 years. The study concludes that for at least the next 10 years, the campsites at the resort represent surplus camping capacity in the Baker Lake area. We note that this surplus camping capacity may be the reason that the Forest Service proposes to decrease the existing 90 campsites at the resort to a range of 30 to 50 campsites under Proposed Article 303. Although the study indicates the existing 11 cabins are heavily utilized during the peak recreation season (July and August), under Proposed Article 303 these cabins would be removed.

Study results (Huckell/Weinman Associates, 2004) indicate that while future capacity shortfalls are expected among the existing Forest Service facilities, the facilities that are currently operated by Puget could be available to accommodate future demand. We find that redevelopment of Baker Lake Resort would not fill any demonstrated project need. Further, sufficient recreation is provided at the project through the other measures recommended by the staff. Therefore, we do not recommend including these measures in any license issued for the project.

### **Baker Reservoir Recreation Water Safety**

Proposed Article 304 would require Puget to: (1) develop a Water Safety Plan; (2) provide funds to the Forest Service to install 8 to 12 bulletin boards at locations to be listed in the plan; (3) provide displays and tear-sheet maps at specified and non-specified sites; (4) install log booms and buoys to define swim areas at Horseshoe Cove and Baker Lake Resort and possibly other sites; and (5) provide funds to the Forest Service for implementing the plan. We estimate implementing this measure would cost \$19,200 annually.

As required under the Commission's regulations, Puget has developed and implements a public safety plan for the Baker River Project. Any additional public safety measures that Puget would propose to install on project lands and waters would require Puget to consult with the Commission and modify its existing public safety plan accordingly. We find the measures contained under Proposed Article 304 are not project-related and therefore, Puget should not be responsible for providing funds to the Forest

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<sup>39</sup> The project study area is defined as all lands within the project boundary and adjacent lands within an approximate 0.5-mile radius.

Service for such measures. Therefore, we do not recommend including these measures in any license issued for the project.

### **Bayview Campground Rehabilitation**

Proposed Article 309 would require Puget to provide funds to the Forest Service for rehabilitating and reconstructing the Forest Service 28-unit Bayview Campground. Implementing this measure would cost an estimated \$71,300 annually.

Proposed Article 602 (Required Funding) has a component entitled Recreation Adaptive Management (RAM) Fund that would provide funds to address increased development of Bayview Campground, the redeveloped Baker Lake Resort, and other Forest Service developed campgrounds. The RAM Fund would provide for enhancements at non-project facilities and “unusual trail and trailhead maintenance costs associated with natural events not under the control of the licensee.” See our discussion of the RAM Fund and other funds herein.

The Forest Service constructed Bayview Campground and continues to operate and maintain it. As noted in Puget’s license application (Puget Sound Energy, 2005; Huckell/Weinman Associates, Inc., 2004), Bayview Campground, located near Baker Lake, is not well known and as a result, receives occasional use. In order to quantify “occasional use,” we reviewed a recreation visitor survey study (R13) (Huckell/Weinman Associates, Inc., 2004); however, we were unable to find any survey results applicable to Bayview Campground. Regardless, we find that sufficient recreation is provided at the project through the other measures recommended by the staff and therefore, Bayview Campground would not fill any demonstrated project need. Therefore, we do not recommend including this measure in any license issued for the project.

### **Upper Baker Trail and Trailhead Construction**

Proposed Article 310 would require Puget to provide funds to the Forest Service for developing up to 6 miles of new trails in the project vicinity.

Under Proposed Article 314 (Upper Baker Trail and Trailhead Maintenance Funding) Puget would be required to provide funds to the Forest Service for operation and maintenance and facility replacement at the following Forest Service trails and trailheads: (1) the Baker River Trail; (2) Baker Lake Trail; and (3) Baker Lake North and South Trailheads. Implementing this measure would cost an estimated \$37,100 annually.

We note, in particular, that the approximate 1.6-mile-long Baker River Trail does not provide access to project lands and waters, but rather traverses land northward into the National Park Service’s North Cascades National Park. The Forest Service (1990) does not appear to identify either the Baker Lake Trail or the Baker Lake North and South Trailheads in its system trail inventory. Nevertheless, information from the license

application (Puget Energy, 2005) indicates that both the trail and trailheads provide access to Maple Grove Campground and dispersed recreation sites. As previously noted, Maple Grove Campground is not a project facility.

We find that the above-mentioned trails would not fill any demonstrated project need. In addition, sufficient recreation is provided at the project through other measures recommended by the staff. Therefore, we do not recommend including these measures in any license issued for the project.

### **Developed Recreation Monitoring**

Proposed Article 312 would require Puget to: (1) develop an Upper Baker Developed Recreation Monitoring and Funding Plan; (2) monitor site use and occupancy levels at Horseshoe Cove, Panorama Point, Bayview, Shannon Creek, and Baker Lake Resort; and (3) expand capacity when the combined occupancy exceeds 60 percent of available sites. Data from monitoring the facilities in (2) would be provided to the Forest Service annually. Proposed Article 312 also requires Puget to provide funds to the Forest Service after consultation with the Forest Service in the event additional recreation sites are needed. Implementing this measure would cost an estimated \$21,300 annually.

As previously discussed, the aforementioned sites are not project-related facilities. Under the Commission's regulations at section 8.11, Puget would be required to monitor recreation use of the Baker River Project to determine whether existing recreation facilities are meeting recreation needs. Monitoring studies include the collection of annual recreation use data and every 6 years during the term of a license, a licensee files a report with the Commission on the monitoring results. Monitoring of recreation use is conducted at a licensee's recreation facilities located at the project.

Puget should not be responsible for monitoring recreation use at non-project facilities. Therefore, we do not recommend including this measure in any license issued for the project.

### **Upper Baker Developed Recreation Maintenance**

Proposed Article 313 would require Puget to: (1) provide funds to the Forest Service to operate and maintain Shannon Creek, Panorama Point, Bayview, Horseshoe Cove, Maple Grove, Baker Lake Resort, and any future recreation sites developed under Proposed Articles 303, 309, and 312; and (2) enter into a reimbursable maintenance agreement with the Forest Service concerning funding. The agreement, according to the proposed article, would set forth how Puget funds and receives credit for maintenance expenditures at Forest Service developed campgrounds. Implementing this measure would cost an estimated \$57,300 annually.

As previously discussed the aforementioned sites are not project-related facilities and would not fill any demonstrated project need. Sufficient recreation is provided at the project through other measures recommended by the staff. Therefore, we do not recommend including this measure in any license issued for the project.

### **Law Enforcement**

Proposed Article 318 would require Puget to coordinate and fund the development of a Law Enforcement Plan for law enforcement personnel with jurisdiction in the project area and the river basin. The intent of the plan is to address law enforcement presence and public contact, emergency communications and response procedures, public safety and security, and protection measures for facilities and resources within the project area and the river basin. Implementing this measure would cost an estimated \$100,000 annually.

While enforcement of the requirements of any license would be Puget's responsibility, enforcement of local laws within the project area and the river basin is not a matter of Commission jurisdiction but is the responsibility of local law enforcement agencies. Therefore, we do not recommend including this measure in any license issued for the project.

### **Terrestrial Resources Management**

Proposed Article 501 would require Puget to develop a Terrestrial Resource Management Plan that would include the substantive planning and implementation requirements contained in Proposed Articles 502-504 and 506-514; provisions for monitoring and filing annual reports with the Commission; provisions for periodically reviewing the plan and; a summary of expenditures, earned interest, disbursements, adjustments for inflation, and other accounting information.

This proposed measure does not contain substantive requirements but instead would consolidate the planning and implementation requirements of most other proposed terrestrial measures into one plan.

We recommend each proposed terrestrial resource measure have its own plan with its own substantive requirements, monitoring and reporting provisions. We agree it may be advantageous to consolidate terrestrial resource reports into one annual filing for administrative purposes, but we do not recommend consolidating substantive requirements from multiple license articles into one plan. Consequently, we do not recommend including this measure in any license issued for the project.

### **Aquatic Riparian Habitat Protection, Restoration and Enhancement**

Proposed Article 505 would require Puget to develop an Aquatic Riparian Habitat Protection, Restoration and Enhancement Plan to acquire, protect and enhance low-

elevation bottomland ecosystems in the Skagit River basin focusing on habitat for anadromous salmonids, other aquatic species and riparian-dependent birds and amphibians. Implementing this plan would cost an estimated \$369,600 annually.

Puget proposes this measure for multiple reasons, including: (1) to protect and enhance low-elevation bottomland ecosystems including backwater sloughs and other off-channel habitats supporting juvenile Chinook rearing; (2) to protect, mitigate any damage to, and enhance Skagit River riparian habitats that may be affected by modifications of project releases under the Proposed Action; (3) to enhance conditions in the project area and to substantially exceed any negative effects of fluctuating water levels on within-reservoir amphibian breeding habitats; (4) to acquire and enhance substantial acreage of bottomland habitats, including riparian forest; (5) to offset some of the unavoidable effects of the Proposed Action on bull trout habitat in the middle Skagit River; (6) to benefit the Oregon spotted frog if present, or reintroduced, to the Skagit River basin; (7) to acquire a substantial amount of habitat, including low elevation riparian forest habitat, used by bald eagles for perching and foraging; and (8) to provide habitat for bald eagle foraging and perching.

Our analysis indicates that fluctuating water levels in Baker Lake and Lake Shannon affect shoreline wetlands and wetland-dependent amphibians. In addition, fluctuating flows from the Lower Baker powerhouse affect anadromous salmonids in the Baker and Skagit Rivers. The impacts in the Skagit River decrease with distance downstream of the Baker River confluence (RM 56.5), and the interactive effects of both the Skagit River and Baker River Projects are largely attenuated near Mt. Vernon at RM 15.7. The measures in Proposed Article 505 are to be implemented within the low-elevation habitats of the Skagit River basin, which includes the Baker River and middle Skagit River basins – areas most affected by the Baker River.

The plan does not include enough detail to allow staff to assess the potential benefits of the specific measures that would be implemented by the plan, or the nexus of these measures to project impacts. We also note the high cost of the proposed Aquatic Riparian Habitat Protection, Restoration and Enhancement Plan (\$369,600 annually). Moreover, we already recommend other enhancements for Chinook salmon, bull trout, amphibians and bald eagles in our recommended measures for upstream and downstream fish passage; increased minimum flows and ramping rates; fish passage between Baker Lake and Lake Shannon; more stable water levels in these two reservoirs; wetland enhancements; and bald eagle management as discussed. For these reasons, we are not recommending implementation of Proposed Article 505.

### **Mountain Goats**

Mountain goats are an important native game species in Washington, a WDFW priority species, and a Forest Service management indicator species. Mountain goat

populations in the area around Mt. Baker have declined gradually over the past several decades. A shortage of usable summer habitat has been proposed as a factor contributing to this situation. Summer foraging habitat is composed of alpine shrubs and grasses; this habitat is believed to have decreased in area over the past 100 years due to encroachment by closed-canopy mountain hemlock forest. Goats may be restricted from using remaining suitable habitat by the presence of high-country recreationists.

According to Puget, existing project-induced recreation may account for a portion of the recreational use impact believed to be affecting mountain goats on their summer range in the Baker River basin and adjacent areas. Ongoing operation of the project is expected to continue to indirectly contribute somewhat to backcountry recreational activity at levels similar to current levels.

Proposed Article 516 would require Puget to provide funding to the Forest Service for its actual costs in making habitat improvements on 194 acres of mountain hemlock forest on Forest Service lands in or adjacent to the Baker River basin. This measure was included in the Settlement Agreement to mitigate for apparent backcountry hikers which may originate from the project. Implementing this measure would cost an estimated \$4,300 annually.

Backcountry hiking and recreation activities which occur in high-elevation areas away from the project are not project effects. All existing project recreation facilities are in the immediate vicinity of Baker Lake and Lake Shannon. All staff-recommended trails would also be in the lower elevations of the Baker River valley and not in elevations that would affect mountain goats. Therefore, we do not recommend this measure in any license issued for the project.

### **Grizzly Bears**

Proposed Article 517 would require Puget to provide funding to the Forest Service for its actual costs to implement a road closure program on Forest Service lands within the North Cascade Grizzly Bear Recovery Area. Puget proposes this measure to mitigate project-related recreation disturbance to available grizzly bear spring foraging habitat on project lands adjacent to Baker Lake and Lake Shannon. Implementing this measure would cost an estimated \$6,900 annually.

In its studies, Puget identified potential grizzly bear spring foraging habitat including deciduous forest and lacustrine intermittent wetland habitats on project lands including lands occupied by project and non-project recreation facilities. Despite the availability of this habitat, grizzly bears do not appear to use project lands. The most recent grizzly sightings in the project vicinity include an observation of one adult and one young in the Baker River headwaters in 1991, over 10 miles from the project area, and a

grizzly bear track recorded in 1989 near Watson Peak, about 4.5 miles east of the Upper Baker dam.

Since grizzly bears apparently do not use project lands, we do not see a nexus between project effects and this species. Further, in this instance, we cannot require Puget to implement this measure (in lieu of providing funding to the Forest Service) because only the Forest Service can implement a road closure program on Forest Service lands as specified in the proposed article. Therefore, we do not recommend including this measure in any license issued for the project.

### **Contingency Funds**

Puget proposes to establish the TERF, RAM, HERC and CREF funds under Proposed Article 602 primarily to mitigate unforeseen impacts not otherwise addressed in other proposed license articles. Funds may also be used to implement “alternative strategies” for resource protection, mitigation, and enhancement identified via adaptive management.

Each of the above funds would be used for actions to enhance, conserve, acquire and/or restore habitat for either terrestrial or aquatic species, cultural or recreation resources. Puget provides a few examples of how the above funds may be used, but does not provide specific measures to be implemented using the funds.

There is uncertainty as to whether the TERF, RAM, HERC and CREF funds would be needed or how the funds would be used; therefore, we are not able to evaluate the merits of specific measures or the nexus with project effects and we do not recommend including this measure in any license issued for the project. We are already recommending a comprehensive set of measures designed to protect, mitigate and enhance environmental resources at the project. Should unanticipated impacts occur in the future, the Commission could reopen the license for the purpose of considering additional measures.

### **Adaptive Management**

Proposed Article 603 would require Puget to use adaptive management in its implementation of all other proposed articles in the Settlement Agreement. Puget would be required to use “alternative strategies” when developing objectives, criteria and when using funds and would be required to use a “plan amendment process” when changed circumstances warrant.

The provisions in this article are too vague to be enforceable; they lack specificity regarding the implementation of individual measures. Consequently, we do not recommend including this measure in any license issued for the project.

## 5.2 FISH AND WILDLIFE AGENCY RECOMMENDATIONS

Under provisions of the FPA, each hydroelectric license issued by the Commission shall include conditions based on recommendations provided by federal and state fish and wildlife agencies for the protection, mitigation, and enhancement of fish and wildlife resources affected by the project.

Section 10(j) of the FPA states that whenever the Commission believes that any fish and wildlife agency recommendation is inconsistent with the purposes and the requirements of the FPA or other applicable law, the Commission and the agency shall attempt to resolve any such inconsistency, giving due weight to the recommendations, expertise, and statutory responsibilities of such agency.

On March 16, 2005, NMFS filed Section 10(j) recommendations for the project. FWS<sup>40</sup> and WDFW filed section 10(j) recommendations on March 21, 2005. We have preliminarily determined that one recommendation that is within the scope of section 10(j) may be inconsistent with the purposes and requirements of the FPA.

FWS and WDFW recommend Puget develop an Aquatic Riparian Habitat Protection, Restoration and Enhancement Plan (Proposed Article 505). This measure would require Puget to acquire, protect, and enhance low-elevation bottomland ecosystems in the Skagit River basin focusing on habitat for anadromous salmonids, other aquatic species, and riparian-dependent birds and amphibians. However, as discussed in section 5.1.4 of the draft EIS, the plan does not include enough detail to allow staff to assess the potential benefits of the specific measures that would be implemented by the plan, or the nexus of these measures to project impacts. We also note the high cost of the proposed Aquatic Riparian Habitat Protection, Restoration and Enhancement Plan (\$369,600 annually). Therefore, we do not recommend this measure. We do recommend, however, improved upstream and downstream fish passage facilities (Proposed Articles 103 and 105); new minimum flows and ramping rates (Proposed Article 106); gravel and large woody debris augmentation (Proposed Articles 108 and 109); a shoreline erosion control plan (Proposed Article 110); a wetland habitat plan (Proposed Article 504); and a bald eagle management plan (Proposed Article 513), which would provide enhancement to similar resources targeted by the Aquatic Riparian Habitat Protection, Restoration and Enhancement Plan. Based on this information, we find that this recommendation may be inconsistent with the comprehensive planning standard of section 10(a) and the equal consideration provision of section 4(e) of the FPA.

Additionally, we do not recommend six measures that are outside the scope of section 10(j). Developing a Law Enforcement Plan (Proposed Article 318), adaptive management (Proposed Article 603), funding for mountain goats (Proposed Article 516),

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<sup>40</sup> Interior filed these recommendations on behalf of FWS.

funding for a grizzly bear road closure program (Proposed Article 517), and funding for the TERF, RAM, HERC, and CREF funds (Proposed Article 602), are not specific measures to protect fish and wildlife. Finally, the proposed Terrestrial Resource Management Plan, as described in Proposed Article 501, does not contain any substantive fish and wildlife measures but instead is an administrative plan that does not contain specific measures to protect fish and wildlife.

By letters filed March 21, 2005, the Sauk-Suiattle Indian Tribe and the Swinomish Indian Tribal Community made two recommendations pursuant to sections 10(j) and 10(a) of the FPA. The tribes recommend: (1) adopting the Settlement Agreement without material modification, and (2) issuance of a license before the current license expires on April 30, 2006. We consider the tribes' recommendations under section 10(a) but not under section 10(j), because the tribes are not fish and wildlife agencies within the meaning of 18 CFR §4.30(b)(9)(i) of our regulations.

Table 5-1 summarizes federal and state recommendations, our conclusions on whether or not the recommendations are within the scope of section 10(j), and whether or not we adopt the recommendations. Recommendations we consider to be outside the scope of Section 10(j) have been considered under Section 10(a) of the FPA and are addressed in the appropriate resource sections.

Table 5-1. Fish and wildlife agency recommendations. (Source: Staff)

<b>Proposed Article</b>	<b>Recommendation</b>	<b>Agency</b>	<b>Within the scope of 10(j)?</b>	<b>Total Levelized Annual Cost (2006\$)</b>	<b>Recommend adopting?</b>
101	Develop a Fish Propagation Facilities Plan	NMFS, FWS, WDFW	Yes	974,000	Yes
102	Annual Report for Aquatic Measures	FWS, WDFW	No, not a specific measure to protect fish and wildlife.	13,400	Yes

<b>Proposed Article</b>	<b>Recommendation</b>	<b>Agency</b>	<b>Within the scope of 10(j)?</b>	<b>Total Levelized Annual Cost (2006\$)</b>	<b>Recommend adopting?</b>
103	Develop an Upstream Fish Passage Implementation Plan	FWS, WDFW	Yes	623,300	Yes
104	Develop a Fish Connectivity Plan	WDFW	Yes	105,500	Yes
105	Develop a Downstream Fish Passage Implementation Plan	FWS, WDFW	Yes	3,488,600	Yes
106	Develop a Flow Implementation Plan	NMFS, FWS, WDFW	Yes	2,423,200	Yes
107	Flood Storage Operation	WDFW	No, not a specific measure to protect fish and wildlife.	None	Yes
108	Develop a Gravel Management Plan	NMFS, FWS, WDFW	Yes	11,000	Yes
109	Develop a Large Woody Debris Management Plan	NMFS, FWS, WDFW	Yes	23,500	Yes

<b>Proposed Article</b>	<b>Recommendation</b>	<b>Agency</b>	<b>Within the scope of 10(j)?</b>	<b>Total Levelized Annual Cost (2006\$)</b>	<b>Recommend adopting?</b>
110	Develop a Shoreline Erosion Control Plan	FWS, WDFW	Yes	28,600	Yes
305	Develop a Lower Baker Developed Recreation Plan	WDFW	No, not a specific measure to protect fish and wildlife.	67,300	Yes
318	Develop a Law Enforcement Plan	WDFW	No, not a specific measure to protect fish and wildlife.	100,000	No
401	Water Quality Monitoring and Protection Plan	NMFS, FWS, WDFW	Yes	36,500	Yes
501	Develop a Terrestrial Resource Management Plan	FWS, WDFW	No, not a specific measure to protect fish and wildlife.	6,700	No
502	Acquire and Manage Deciduous Forest Habitat	FWS, WDFW	Yes	25,900	Yes
503	Acquire Elk Foraging Habitat	FWS, WDFW	Yes	287,900	Yes

<b>Proposed Article</b>	<b>Recommendation</b>	<b>Agency</b>	<b>Within the scope of 10(j)?</b>	<b>Total Levelized Annual Cost (2006\$)</b>	<b>Recommend adopting?</b>
504	Acquire Wetland Habitat	FWS, WDFW	Yes	29,900	Yes
505	Develop an Aquatic Riparian Habitat Protection, Restoration and Enhancement Plan	FWS, WDFW	Yes	369,600	No
506	Osprey Nest Structures	FWS, WDFW	Yes	2,100	Yes
507	Loon Floating Nest Platforms	FWS, WDFW	Yes	5,000	Yes
508	Manage Noxious Weeds	FWS, WDFW	Yes	22,700	Yes
509	Manage Special Status Plants	FWS	No, not a specific measure to protect fish and wildlife.	17,500	Yes
511	Manage Decaying and Legacy Wood	FWS, WDFW	Yes	13,400	Yes
512	Bald Eagle Night Roost Surveys	FWS, WDFW	Yes	2,300	Yes
513	Develop a Bald Eagle Management Plan	FWS, WDFW	Yes	700	Yes

<b>Proposed Article</b>	<b>Recommendation</b>	<b>Agency</b>	<b>Within the scope of 10(j)?</b>	<b>Total Levelized Annual Cost (2006\$)</b>	<b>Recommend adopting?</b>
514	Use Habitat Evaluation Procedures	FWS, WDFW	Yes	8,600	Yes
515	Funding for Late Seral Forest Growth	WDFW	No, funding is not a specific measure to protect fish and wildlife.	4,900	Yes
516	Funding for Mountain Goat Habitat	WDFW	No, funding is not a specific measure to protect fish and wildlife.	4,300	No
517	Funding for Grizzly Bear Road Management	WDFW	No, funding is not a specific measure to protect fish and wildlife.	6,900	No

<b>Proposed Article</b>	<b>Recommendation</b>	<b>Agency</b>	<b>Within the scope of 10(j)?</b>	<b>Total Levelized Annual Cost (2006\$)</b>	<b>Recommend adopting?</b>
601	Baker River Coordinating Committee	NMFS, FWS, WDFW	No, not a specific measure to protect fish and wildlife.	50,000	Yes
602	Funding for TERF, RAM, HERC, and CREF funds	FWS, WDFW	No, funding is not a specific measure to protect fish and wildlife.	96,100	No
603	Adaptive Management	FWS, WDFW	No, not a specific measure to protect fish and wildlife.	3,500	No
N/A	Flow Continuation Valve	NMFS, WDFW	Yes	101,000	Yes
N/A	Inspections, Records and Notification	NMFS, WDFW	No, not a specific measure to protect fish and wildlife.	None	Yes

### **5.3 CONSISTENCY WITH COMPREHENSIVE PLANS**

Section 10(a)(2) of the FPA, 16 U.S.C. section 803(a)(2)(A), requires the Commission to consider the extent to which a project is consistent with federal or state comprehensive plans for improving, developing, or conserving a waterway or waterways affected by a project. Under section 10(a)(2)(A) of the FPA, federal and state agencies filed 75 comprehensive plans that address various resources in Washington. We determined that 24 comprehensive plans are relevant to the Baker River Project (table 5-1). We found no inconsistencies.

Table 5-1. Comprehensive Plans relevant to the Baker River Project.

<b>Comprehensive Plan</b>	<b>Agency</b>
General management plan: North Cascades National Park, Ross Lake National Recreation Area, and Lake Chelan National Recreation Area. June 29, 1988.	National Park Service, Sedro Woolley, Washington
The fifth northwest electric power and conservation plan. Council Document 2005-07.	Northwest Power and Conservation Council, Portland, Oregon.
Protected areas amendments and response to comments. Council Document 88-22.	Northwest Power and Conservation Council, Portland, Oregon
Eighth amendment to the fishery management plan for commercial and recreational salmon fisheries off the coasts of Washington, Oregon, and California commencing in 1978. January 1978.	Pacific Fishery Management Council, Portland, Oregon
Statute establishing the State scenic river system, Chapter 79.72 RCW. 1977.	State of Washington, Olympia, Washington
Skagit County shoreline management master program. June 29, 1976.	Skagit County Planning Department, Mount Vernon, Washington
Standards and guidelines for management of habitat for late-successional and old-growth forest related species within the range of the northern spotted owl. April 1994.	U.S. Bureau of Land Management. U.S. Forest Service, Washington, DC.
Mt. Baker-Snoqualmie National Forest land and management plan. June 1990.	U.S. Forest Service, Seattle, Washington.
North American waterfowl management plan. May 1986.	U.S. Fish and Wildlife Service. Canadian Wildlife Service
Fisheries USA: The recreational fisheries policy of the U.S. Fish and Wildlife Service. Undated	U.S. Fish and Wildlife Service, Washington, DC

<b>Comprehensive Plan</b>	<b>Agency</b>
Resource protection planning process (RP3) study unit transportation. August-September 1986.	Washington State Department of Community Development. Office of Archaeology & Historic Preservation, Olympia, Washington
Application of shoreline management to hydroelectric developments. September 1986.	Washington State Department of Ecology, Olympia, Washington
State wetlands integration strategy. December 1994.	Washington State Department of Ecology, Olympia, Washington
Hydroelectric project assessment guidelines. 1987.	Washington State Department of Fisheries, Olympia, Washington
Strategies for Washington's wildlife: 1987-1993. May 1987.	Washington State Department of Game, Olympia, Washington
State of Washington natural heritage plan. 1987.	Washington State Department of Natural Resources, Olympia, Washington
Final habitat conservation plan. September 1997.	Washington State Department of Natural Resources, Olympia, Washington
Washington State hydropower development/resource protection plan. December 1992.	Washington State Energy Office, Olympia, Washington
An assessment of outdoor recreation in Washington State: A State Comprehensive Outdoor Recreation Planning (SCORP) Document 2002-2007. October 2002.	Washington State Interagency Committee for Outdoor Recreation, Olympia, Washington
Voices of Washington: Public opinion on outdoor recreation and habitat issues. November 1995.	Washington State Interagency Committee for Outdoor Recreation, Olympia, Washington
State of Washington outdoor recreation and habitat: Assessment and policy plan 1995-2001. November 1995.	Washington State Interagency Committee for Outdoor Recreation, Tumwater, Washington
Washington State trails plan: policy and action document. June 1991.	Washington State Interagency Committee for Outdoor Recreation, Tumwater, Washington
Washington State scenic river assessment. September	Washington State Parks & Recreation

<b>Comprehensive Plan</b>	<b>Agency</b>
1988.	Commission, Olympia, Washington
Scenic rivers program-report. January 1988.	Washington State Parks & Recreation Commission, Olympia, Washington

## **5.4 RELATIONSHIP OF LICENSE PROCESS TO LAWS AND POLICIES**

### **5.4.1 Water Quality Certification**

Pursuant to section 401 of the Clean Water Act and Commission regulations, Puget is required to file as part of its license application a copy of any WQC provided by the State of Washington or proof that such a certificate has been applied for or the requirements waived. On March 8, 2005, Puget submitted an application for a WQC to Ecology as required by section 401 of the Clean Water Act. Puget then withdrew and refilled its WQC application with Ecology by letter dated March 7, 2006. Ecology has one year to issue either a WQC, a waiver or deny Puget's WQC application.

### **5.4.2 Coastal Zone Consistency Certification**

Section 307(c)(3) of the Coastal Zone Management Act 16 U.S.C. § 1456 (c)(3)(A), requires all federally licensed and permitted activities to be consistent with approved state coastal zone management programs. If a project is located within a coastal zone boundary or if a project affects a resource located in the boundaries of the designated coastal zone, an applicant must certify that the project is consistent with the state's coastal zone management program.

On April 5, 2005, Puget submitted a request for coastal zone consistency determination to Ecology which has 6 months or until October 5, 2005, to act upon Puget's request. However, by letters dated October 4, 2005, and February 2, 2006, Puget and Ecology mutually agreed, pursuant to 15 C.F.R. § 930.60 (a)(3), to extend Ecology's time to act on Puget's request until June 2, 2006.

### **5.4.3 Endangered Species Act**

Section 7 of the ESA requires federal agencies to ensure that their actions are not likely to jeopardize the continued existence of endangered or threatened species or cause the destruction or adverse modification of the critical habitat of such species. Our analyses of project effects on these species are presented in section 3.3.6.2, Threatened and Endangered Species, and our final recommendations are presented in section 5.1, Comprehensive Development and Recommended Alternative.

The following fish and wildlife species are federally listed under the ESA and are known to exist in the project area: Puget Sound Chinook salmon ESU (*Oncorhynchus tshawytscha*), Coastal/Puget Sound bull trout DPS (*Salvelinus confluentus*), bald eagle (*Haliaeetus leucocephalus*), marbled murrelet (*Brachyramphus marmoratus*), northern spotted owl (*Strix occidentalis*), gray wolf (*Canis lupus*), and grizzly bear (*Ursus arctos*). No federally listed plant species are known to occur in the project area.

The Puget Sound Chinook salmon ESU is known to occur in the Baker and Skagit River basins and is listed as threatened under the ESA. The majority of Chinook salmon returning to the project are part of the Skagit River population. A limited numbers of spring Chinook salmon returning to the Lower Baker fish trap have been introduced on an experimental basis into the upstream Baker watershed. The Proposed Action would improve habitat conditions for Chinook salmon downstream of the project. Improved fish passage, handling, and transport facilities, and reduced duration of exposure of the reservoir inundation zone would improve the potential for increasing the number of Chinook salmon produced in the upper watershed. It is likely that some incidental take of Chinook salmon would occur due to operation and construction at the project. Therefore, the Proposed Action may affect and is likely to adversely affect Puget Sound Chinook salmon and designated critical habitat for this species.

The Coastal/Puget Sound bull trout DPS is found in the project area and is listed as threatened under the ESA. Bull trout found in project reservoirs and tributaries are considered part of the Lower Skagit River subpopulation, which is the only one considered “strong” by the FWS in the Puget Sound analysis area. The Proposed Action would improve migration conditions for adult and subadult bull trout in the Skagit River downstream of the project. Improved fish passage, handling, and transport facilities, and reduced duration of exposure of the reservoir inundation zone would improve conditions for bull trout upstream of the Lower Baker Development. It is likely that some incidental take of bull trout would occur due to operation and new construction at the project. Therefore, the Proposed Action may affect and is likely to adversely affect Coastal/Puget Sound bull trout and designated critical habitat for this species.

We conclude that construction of the new powerhouse could temporarily displace bald eagles. However, the Proposed Action would result in reduced levels of fish stranding and redd dewatering, which would help contribute to greater fish production and provide salmonid food resources for bald eagles. The Proposed Action may affect, but is not likely to adversely affect bald eagles.

Minor clearing of vegetation during project construction activities and increased noise levels associated with heavy equipment use could potentially cause short-term disturbances to marbled murrelets and northern spotted owls. Overall, the Proposed Action may affect, but is not likely to adversely affect marbled murrelets and northern spotted owls.

The occurrence of gray wolves and grizzly bears in the Baker River basin is very infrequent. The project could influence the distribution of deer and elk which are primary prey for the gray wolf and could result in increased human activity which could affect foraging habitat for grizzly bears. The Proposed Action may affect, but is not likely to adversely affect gray wolves and grizzly bears.

#### **5.4.4 Essential Fish Habitat**

Section 305(b)(2) of the Magnuson-Stevens Fishery Conservation and Management Act requires federal agencies to consult with the Secretary of Commerce regarding all actions or proposed actions that are authorized, funded, or undertaken by the agency that may adversely affect EFH.

The Pacific Fisheries Management Council (PFMC) has designated EFH for three species of Pacific salmon: Chinook, coho and Puget Sound pink salmon. Essential Fish Habitat for coho and Chinook salmon includes all those streams, ponds, lakes, wetlands, and other waterbodies currently or historically accessible to coho and Chinook salmon in Oregon, Washington, Idaho, and California, except upstream of impassable barriers identified by the PFMC. EFH for pink salmon includes all currently or historically accessible waters in the Puget Sound region.

Currently, the Baker River Project adversely affects Chinook, coho, and pink salmon EFH, specifically by modifying flow in the downstream Skagit River. However, staff-recommended measures for the project would improve conditions for Chinook, coho, and pink salmon EFH. As discussed in section 3.0, we recommend the following enhancement measures that would also enhance Chinook, coho, and pink salmon EFH: (1) continuing and expanding fish propagation and enhancements (Proposed Article 101); (2) improving upstream fish passage (Proposed Article 103); (3) improving downstream fish passage (Proposed Article 105); (4) improving flows below Lower Baker dam (Proposed Article 106); (5) augmenting gravel in the Baker and Skagit Rivers (Proposed Article 108); and (6) transporting LWD from project reservoirs to stockpile areas for future habitat enhancement projects (Proposed Article 109).

In summary, we conclude that relicensing the project would continue to adversely affect Chinook, coho, and pink salmon EFH, but that the above staff-recommended measures would reduce these effects compared to current conditions.

#### **5.4.5 National Historic Preservation Act**

The NHPA (16 U.S.C. 470 et seq.) (as amended) requires federal agencies to manage cultural resources under their jurisdiction and authorizes the Secretary of the Interior to maintain a National Register. The law also provides for the creation of SHPOs

to facilitate the implementation of federal cultural resource policy at the state level, and for the responsible federal agency (i.e., agency official) to consult with Native American tribes who attach religious or cultural importance to cultural resources under their jurisdiction. Section 106 of the NHPA requires federal agencies to take into account the effect of any proposed undertaking on properties listed in, or eligible for listing in the National Register. If the agency official determines that the undertaking may have adverse effects on properties listed in or eligible for listing in the National Register, the agency official must afford an opportunity for the Advisory Council to comment on the undertaking. The relicensing of the Baker River Project is considered an undertaking, and the Commission acts as the agency official.

Puget, under the authority of the Commission, has conducted Section 106 consultation with the OAHP, Forest Service, Swinomish Indian Tribal Community, Upper Skagit Indian Tribe, and Sauk-Suiattle Indian Tribe, and other interested parties since 2000. This consultation included scheduled collaborative cultural resource workgroup meetings, as well as individual meetings conducted by the applicant. Commission staff will be continuing Section 106 consultations. Under the Proposed Action, Puget would implement its HPMP which would provide specific guidance to applicant personnel about the treatment of historic, archaeological, and traditional cultural resources during the term of any new license. Puget would also train field and supervisory staff in appropriate procedures to follow in the event of unanticipated discoveries of cultural resource material.