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South Fork Tolt River Hydroelectric Project

Environmental Impact Statement

Attachment

DOE/EIS-0184

Bonneville
POWER ADMINISTRATION

July 1992

SOUTH FORK TOLT RIVER HYDROELECTRIC PROJECT

DOE/EIS-0184

July 1992

Environmental Impact Statement Attachment

U.S. Department of Energy

Bonneville
POWER ADMINISTRATION

FINAL ENVIRONMENTAL IMPACT STATEMENT - ATTACHMENT (FERC/EIS-004)

RESPONSIBLE AGENCY: U.S. Department of Energy (DOE), Bonneville Power Administration (BPA).

TITLE OF PROPOSED PROJECT: South Fork Tolt River Hydroelectric Project FERC No. 2959

COOPERATING AGENCIES: None.

STATES INVOLVED: Washington

ABSTRACT: Seattle City Light, a Department of the City of Seattle with headquarters in Seattle, Washington, proposes to construct a hydroelectric project with an installed capacity of 15 MW on the South Fork Tolt River near the town of Carnation located in King County in the State of Washington. The South Fork Tolt River Hydroelectric Project consists of the addition of turbine generator facilities and electrical transmission lines to the existing South Fork Tolt River Reservoir, which provides a significant percentage of the water supply needs of the City of Seattle. New facilities required by the hydroelectric project include: (1) a penstock from the existing dam to the powerhouse; (2) a powerhouse containing the turbine generator and associated piping and valves; (3) a pipe from the powerhouse to the existing regulating basin; (4) a pipe from the powerhouse to the South Fork Tolt River to return excess water flow to the river; (5) an energy dissipation structure at the river to reduce return water velocity such as to not be attractive to anadromous fish; (6) electrical transmission equipment located adjacent to the powerhouse and a transmission line connecting with the existing Water Department transmission line at the water supply headworks; and (7) an electrical transmission line from the existing Water Department transmission line on Kelly Road at Harris Creek to a new Puget Sound Power and Light terminal switching station to be located near the Tolt pipeline right-of-way south of Duvall.

In 1980, the City of Seattle (City) completed a State Environmental Policy Act (SEPA) Final Environmental Impact Statement (FEIS) for construction and operation of the South Fork Tolt River Hydroelectric Project. In 1984, the Federal Energy Regulatory Commission (FERC) completed a National Environmental Policy Act (NEPA) environmental assessment and, on March 29, issued license No. 2959 to the City for the project.

As a result of concerns expressed by certain Agencies regarding long-term conditions for flows and habitat restoration and City application for a rehearing relative to instream flow conditions, FERC issued a stay order on July 5, 1984, pending further environmental review. In 1987, further environmental review was completed as part of a FERC FEIS which evaluated the cumulative and individual impacts of seven small hydroelectric projects in the Snohomish River basin. Resolution agreement between the City and the Agencies regarding instream flows and habitat restoration was reached in October of 1988 with the signing of the South Fork Tolt River Settlement Agreement. As a result, FERC lifted the stay order on July 20, 1989 and incorporated the provisions of the Settlement Agreement into the project license.

BPA is adopting portions of the FERC FEIS (FERC 1987) that relate to individual and cumulative impacts of the South Fork Tolt Project as a final EIS for its proposed action to grant a billing credit to Seattle City Light for the South Fork Tolt River Hydroelectric Project in accordance with the Council on Environmental Quality (CEQ) procedures set forth in 40 CFR 1506.3(b).

In accordance with DOE's Federal Register notice of April 24, 1992, Amendments to the DOE NEPA Guidelines and CEQ Regulations for Implementing the Procedural Provisions of NEPA, 40 CFR 1500 et seq. BPA has determined that the environmental effects of the proposed Project are substantially the same as those described in the 1987 FEIS for the Project.

The Adopted Portions of 1987 FEIS and this Attachment are being mailed to agencies, groups and individuals.

For additional information:

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SOUTH FORK TOLT RIVER
HYDROELECTRIC PROJECT
FINAL ENVIRONMENTAL IMPACT STATEMENT - ATTACHMENT

Bonneville Power Administration

July 1992

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ACRONYMS

ACOE	U.S. Army Corps of Engineers
BPA	Bonneville Power Administration
CEQ	Council on Environmental Quality
DOE	Department of Energy
EIS	Environmental Impact Statement
ESCP	Erosion and Sediment Control Plan
FEIS	Final Environmental Impact Statement
FERC	Federal Energy Regulatory Commission
KCBALD	King County Building and Land Division
MOA	Memorandum of Agreement
MSL	mean sea level
NEPA	National Environmental Policy Act
NMFS	National Marine Fisheries Service
NPPC	Northwest Power Planning Council
PSAPCA	Puget Sound Air Pollution Control Agency
RM	river mile
SAIC	Science Applications International Corporation
SCL	Seattle City Light
SEPA	State Environmental Policy Act
SSDP	Shoreline Substantial Development Permit
SWD	Seattle Water Department
TFAC	Tolt River Fisheries Advisory Committee
USFWS	U.S. Fish and Wildlife Service
WDF	Washington State Department of Fisheries
WDOE	Washington State Department of Ecology
WDW	Washington Department of Wildlife
WT	Washington Trout

BACKGROUND AND NEED FOR ACTION

The large surplus of electrical power that the Pacific Northwest region (Region) relied upon during the 1980s is gone and the Region is now in what utility planners refer to as "load/resource balance". This means that the power supplied by the existing system is approximately equal to the regional electricity needs at the present level. BPA's latest load/resource balance forecast, shown in Figure 1, projects the capability of existing resources to satisfy projected Federal system loads. The forecast indicates a potential resource deficit.

Consistent with the 1991 Northwest Conservation and Electric Power Plan and the 1980 Northwest Electric Power Planning and Conservation Act (Power Act), Bonneville Power Administration (BPA) has initiated a dynamic resource acquisition effort. BPA plans to acquire new resources through billing credits[1], all-sources competitive bidding, and contingency options.

One small renewable resource available to BPA through its billing credits program is the Seattle City Light (SCL) proposed South Fork Tolt River Hydroelectric Project. Power generated by the project would be used by SCL to accommodate a small percentage of its projected load growth. By granting a billing credit to SCL, BPA would assure the development of this resource.

The project has undergone extensive environmental reviews at both the state and Federal levels. SCL completed a State Environmental Policy Act (SEPA) Final Environmental Impact Statement (FEIS) in 1980. In 1984, the Federal Energy Regulatory Commission (FERC) completed a National Environmental Policy Act (NEPA) Environmental Assessment and, on March 29, issued license No. 2959 to SCL for a duration of 40 years beginning the first day of the month in which the license was issued. The license established interim minimum flow requirements and required SCL to consult with the Fish and Wildlife Service, National Marine Fisheries Services, Washington Department of Fisheries, Washington Department of Wildlife, and the Tulalip Tribes to determine instream flows needed to ensure the protection and enhancement of fishery and wildlife resources, and to submit the recommended flow regime to FERC for approval.

As a result of concerns expressed by the Agencies regarding long-term conditions for flows and habitat restoration and SCL application for a rehearing relative to instream flow conditions, FERC issued a stay order on July 5, 1984 pending further environmental review. In June 1987, FERC completed further environmental review of the South Fork Tolt River Hydroelectric Project as part of a FERC FEIS which evaluated the individual and cumulative impacts of seven small hydroelectric projects in the Snohomish River basin. Action on the South Fork Tolt River Project was deferred pending resolution agreement between SCL and the Agencies regarding instream flows and habitat restoration. Resolution

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[1]One method that BPA uses to acquire energy resources is billing credits. With this mechanism, authorized by the Regional Power Act, BPA provides a credit to an eligible customer (utility, industries, and others) for load reduction actions and resource developments. The billing credit policy provides for a site-specific National Environmental Policy Act (NEPA) review for each proposal after it is received.

was reached in October of 1988 with the signing of the South Fork Tolt River Settlement Agreement. As a result, FERC lifted the stay order on July 20, 1989 and incorporated the provisions of the Settlement Agreement into the project license. Attachment A provides a chronology of significant project events. Of the other six projects in the 1987 FERC FEIS, only two received a FERC license (FERC No. 6221 Black Creek and and FERC No. 6310 Barclay Creek). The other four projects either had their FERC license denied or revoked (see attachment D).

SUMMARY

The environmental analysis presented herein for the South Fork Tolt River Project neither identifies substantial changes in the proposed action relevant to environmental concerns, nor identifies significant new circumstances or information relevant to environmental concerns over and above that described in the FERC EIS. Rather, the environmental effects of BPA's proposed action to grant a Billing Credit to SCL are substantially the same as FERC's action to grant SCL a license for the project as those described in the FERC FEIS.

PROJECT DESCRIPTION

The South Fork Tolt River Hydroelectric Project consists of the addition of electrical generating facilities to the existing South Fork Tolt River Reservoir, which provides a significant percentage of the water supply needs of the City of Seattle. Equipment to be added include a turbine generator and facilities, penstock, river return piping and energy dissipation structure, switchyard, electrical transmission lines, and a new substation. The project would generate 6.55 average megawatts of firm power.

The South Fork Tolt River Hydroelectric Project is located in the Snohomish River basin near the town of Carnation located in King County in the State of Washington. Figure 2 provides a map of the project.

Existing Facilities

Dam and Reservoir - The existing South Fork Tolt Dam, located at river mile (RM) 10 of the South Fork Tolt River, is an earthfill structure 200 feet high, with a gross storage capacity of 57,900 acre-feet and surface area of 1,030 acres at the normal maximum water surface elevation of 1,765.0 feet.[2] The dam has a crest length of 980 feet and a crest elevation of 1,775.0 feet. The dam has a morning-glory-type spillway with a ring gate, sluiceways, and a multiple-level water supply intake. Water from the South Fork Tolt Reservoir flows through a pressure pipeline and is discharged to an existing regulating basin approximately 5 miles downstream. The regulating basin holds approximately 882 acre-feet at a normal water surface elevation of 766.05 feet. The regulating basin is created by two earthfill dams. The south dam is 35 feet high with a crest length of 320 feet. The west dam is 30 feet high with a crest length of 250 feet. Both dams have a crest elevation of 771.1 feet. Overflow from the regulating basin is discharged by a spillway through the west dam.

New Facilities

New facilities required by the hydroelectric project include a penstock from the existing dam to the powerhouse, a powerhouse containing the turbine generator and associated piping and valves, a pipe from the powerhouse to the

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[2]All elevations refer to mean sea level (msl), unless otherwise indicated.

existing regulating basin, a pipe from the powerhouse to the South Fork Tolt River to return excess water flow to the river, an energy dissipation structure at the river to reduce return water velocity so as not to attract anadromous fish, electrical transmission equipment located adjacent to the powerhouse and a transmission line connecting with the existing Water Department transmission line at the water supply headworks, and an electrical transmission line from the existing Water Department transmission line on Kelly Road at Harris Creek to a new Puget Power terminal switching station to be located near the Tolt pipeline right-of-way south of Duvall.

Penstock - A 4 ft. dia. steel pipe, approximately 4.7 miles long, would tap the existing 54 in. dia. stub at the dam and would be installed, over most of its length, parallel to and within the right-of-way for the existing water supply pipeline. The pipeline would extend from the 54 in. dia. stub to the powerhouse and would be buried over most of its length. Approximately 900 feet of new pipeline right-of-way and widening of approximately 300 feet of existing pipeline right-of-way would be required for routing of the penstock to the powerhouse and the discharge pipe to the regulating basin.

Powerhouse - The powerhouse, which would be located southeast of the existing regulating basin, would be an indoor structure housing a 15,030-kilowatt (kW) generator connected to a vertical shaft impulse turbine, rated at 23,000 horsepower (hp) at a net head of 930 feet. The turbine would be equipped with a 4.5-foot-diameter turbine shutoff valve. The turbine would discharge into an enclosed tailrace, where a weir and motor-operated gate system would divert Seattle's water requirements to the regulating basin and return releases directly to the river.

River Return Line and Energy Dissipation Structure - A 4 ft. dia. steel pipe would extend from the powerhouse along the base of a natural drainage channel some 870 feet to a stilling well structure, which would discharge to an energy dissipation structure located along the edge of the South Fork Tolt River.

This structure required as a result of the Settlement Agreement executed by the Tolt River Advisory Committee (see sections 3.1.1 and 3.1.2). It will require breaking ground next to the river. SCL has had an observer from King County Permitting Office view the site and a substantial development permit is required. The site does not require any other permit (p.c. SCL[3]).

Transmission Facilities - A switchyard would be located adjacent to the powerhouse and contain a 115-kV, three-phase circuit breaker; a 115-kV, three-phase, gang-operated disconnect switch; current and potential transformers for metering and protection; and buswork and a step-up transformer rated at 13.8/115-kV.

Power generated by the project would be transmitted 8.4 miles along the Tolt pipeline right-of-way via a 115-kV transmission line to the point of interconnection with the existing 115-kV Puget Power Snoqualmie Falls to Cottage Lake transmission line. The power would then be wheeled into the Seattle grid through interties located at the Talbot Hills and Bothell Substations.

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[3]Personal Communication (p.c.) notes are provided in Appendix B.

The 8.4 mile transmission line consists of four miles of existing transmission line and 4.4 miles of new transmission line. Approximately 0.4 miles of new 115-kV transmission line would be installed from the powerhouse along the access road to the existing Water Department transmission line. The existing transmission line extends four miles from the water supply headworks along the Seattle Water Department pipeline right-of-way to Kelly Road and, although currently operating at 12.5-kV, is designed to accommodate 115-kV. Four miles of new 115-kV transmission line would be installed from Kelly Road along the Seattle Water Department pipeline right-of-way to the point of interconnection with the Puget Power and Light (Puget) transmission line and existing substation located near the Seattle Water Department pipeline south of Duvall.

The new transmission line would utilize single wood or metal poles 50 to 60 feet in height. Pole spacing would be between 225 to 310 feet depending on topography or other considerations. The placement of the new transmission line will be within the existing 100' of road and two shoulders built 1.5 years ago to service the Seattle Water Department pipeline. Therefore, no new vegetation will be disturbed (p.c. SCL). This route crosses only one location of environmental concern and that is a wetlands at Stossel Creek. This wetland will not be disturbed by the new transmission line, as this area will be spanned. (p.c. SCL)

Access Facilities - Access to the existing South Fork Tolt Dam and regulating basin would be by existing roads. To gain access to the powerhouse, one 300-foot-long road would be constructed between the access road for the regulating basin and the powerhouse site.

CHECKLIST REVIEW

1.0 ENVIRONMENTAL POLICY

Subject to the discussion provided in Sections 2 through 16 of this Attachment, development of the proposed South Fork Tolt River Hydroelectric Project would be consistent with environmental policies established by NEPA (FERC 1987), SEPA (SCL 1980) and the 1980 Northwest Electric Power Planning and Conservation Act and would be consistent with resource acquisition plans and requirements of The 1991 Northwest Conservation and Electric Power Plan (NPPC 1991).

2.0 THREATENED AND ENDANGERED SPECIES AND CRITICAL HABITAT

The FERC FEIS (1987) addressed State and Federally listed threatened and endangered plant and animal species in the Snohomish River Basin (FEIS 3.1.3.6, Adopted Portions 2.3.6). Of these eight animal and four plant species, only the bald eagle and fringed pinesap were listed as being potentially impacted by the project. The lack of impact on other listed species was due either to very low probability of occurrence (grizzly bear, gray wolf, etc.) or lack of habitat (northern spotted owl, few flowered sedge, choriso bog orchid, etc.). The FERC FEIS adequately addresses the low probability of impact on these species.

2.1 Critical Habitat

The FERC FEIS (1987)stated that there was little potential habitat, i.e., old-growth forest, for spotted owls and fringed pinesap and other flora due to previous logging activity near the reservoir. (FEIS 4.2.1.1.4, Adopted Portions 3.2.4) The FEIS projected, however, a loss of 2 acres of old-growth forest along the pipeline right-of-way. Subsequent survey of the South Fork Tolt area (Pasin 1991, Thompson 1991, Attachment E) found that none of the stands requiring clearing for right-of-way were old-growth. Working from aerial photographs, Thompson (Thompson 1991) identified a few trees near the river return flow conduit which could be old-growth trees. While these trees might be valuable as cavity nesting sites, he found them to be too few in number to be used by species requiring large contiguous areas of old-growth. Subsequent site survey, in January 1992, by Science Applications International Corporation (SAIC), revealed that no old-growth trees would be impacted by construction of the river return line or the energy dissipation structure. Thus, there is sufficient evidence of no impact on old-growth forest.

Construction of the South Fork Tolt River Project is estimated to require a total contractor work area of 66.8 acres, of which 18.4 acres would involve clearing of second growth coniferous forest, some mixed forest and alder shrubs (p.c. SCL 1992). Approximately 3.0 acres would be permanently occupied by new surface project features. All other disturbed acreage would be revegetated for erosion control (22.7 acres), wildlife habitat (31.1 acres), or timber production (4.5 acres). Approximately 5.5 acres consists of existing roads within the contractor work area and would not be disturbed.

The stands of timber within and adjacent to the existing pipeline right-of-way and the proposed powerhouse are all second growth and of fairly uniform size (Pasin 1991, Attachment E). Those trees which require removal to allow installation of the new pipeline, powerhouse and transmission lines are not uniquely different from and represent only a very small percentage of the surrounding forest. Thus, construction of the project would result in very little impact to wildlife habitat, of which none would be considered to be critical habitat as defined by the U.S. Fish and Wildlife Service.

2.2 Bald Eagles

The FERC FEIS addressed the impact on bald eagles, stating that the use of the Tolt River and Reservoir by bald eagles was very low (FEIS 4.2.1.1.4, Adopted Portions 3.2.4, 3.2.5). Limited information from the Washington Natural Heritage Data System data base (1982-1985) and other regional bald eagle surveys formed the basis for assessing this impact. The FEIS addressed need for mitigation, including preservation of food supply (spawning salmon) by established minimum stream flows and using electrocution protection measures for transmission lines. Other mitigation recommended by U.S. Fish and Wildlife Service in its response to the 1987 FERC FEIS, including a construction ban during the winter months, analysis of impact on perching habitat and a site-specific survey for wintering and nesting bald eagles, was not addressed.

Subsequent to the FERC FEIS, SCL conducted a site-specific wintering bald eagle survey (Attachment C). The survey was conducted from November, 1987 to March, 1988. Three aerial surveys were made from the mouth of the Tolt River

to the Tolt Reservoir, along the North Fork Tolt, Stossel and Harris Creek tributaries. Biweekly ground surveys in November and weekly surveys from December through March were conducted with potential South Tolt construction areas as key points of the survey.

The surveys found up to nine adult and subadult bald eagles present in the Tolt area. A survey of nesting activity was not done since previous aerial photo-interpretation surveys indicated a lack of potential nesting habitat.

The survey's recommended mitigation consisted of avoiding construction at Harris Creek Crossing during winter months and addressing collision safety of transmission lines at the Harris Creek crossing. The report recommended either burying the transmission lines at this location or wrapping them with special material and decreasing their height within the limits of public safety. Environmental impact from loss of roosting habitat and construction activities at the transmission line and associated structures would not be significant.

A letter from the U.S. Fish and Wildlife Service (USFWS 1988) commented on the findings of the wintering bald eagle study. The letter concurred with findings about Harris Creek and transmission lines but also recommended scheduling construction at the return structure only from March 15 through December 1. Seattle City Light confirms that project construction on the return structure will remain greater than 300 feet from the South Fork Tolt River during the December 1 to March 15 wintering period (p.c. SCL 1992).

Based on recommended mitigation described in the FERC FEIS (4.2.1.1.4, Adopted Portions 3.2.4), the wintering bald eagle study, the response letter from the U.S. Fish and Wildlife Service, and requirements for enhancement of anadromous fish addressed by paragraph 3.1.1 of the Settlement Agreement, adequate protection of bald eagles is achieved for the South Fork Tolt Project through commitment that any impact will be mitigated. The actual impact on bald eagles is substantially the same as identified in the 1987 FERC FEIS.

2.3 Fringed Pinesap and Other Flora

Surveys of mature forests (Pasin 1991, Thompson 1991, Attachment E) and the FERC FEIS (4.2.1.1.5, Adopted Portions 3.2.5) indicated no significant habitat for threatened or endangered plants exists in the construction area. SCL indicates that they intend to identify all such recommendations of the FERC FEIS, and incorporate their specific considerations into the SCL construction plans and procedures as appropriate (p.c. SCL 1992). Therefore, adequate protection of endangered or threatened flora is achieved as discussed in the FERC FEIS.

2.4 Spotted Owl

The 1987 FERC FEIS discussed the spotted owl as a Washington State-listed threatened species. The species is now federally listed as endangered. Because of the lack of old-growth forest in the Tolt River area, as discussed in Paragraph 2.1, no impact on the spotted owl (FEIS 4.2.1.1.4, Adopted Portions 3.2.4) is expected from this project.

2.5 Marbled Murrelet

The U.S. Fish and Wildlife Service states that the Marbled Murrelet (Brachyramphus marmoratus) is a possible candidate for listing as threatened or endangered (p.c. USFWS 1992). This sea bird ranges from Alaska to California and feeds mainly in coastal waterways. It breeds in coastal mountains up to 50 miles inland and prefers limbs of large conifers including old-growth remnants for nesting. It is possible that the South Fork Tolt River, located 30 miles inland, is a suitable habitat for this bird. Protocol Standards for searching the Marbled Murrelet have been developed by Washington Department of Wildlife, but the protocol has not yet been endorsed by USFWS.

Although no specific evaluation has been performed for the Marbled Murrelet at this time, the discussion of project impacts to wildlife habitat provided in Section 2.1 above identifies no reason to expect there would be a significant adverse impact to Marbled Murrelet habitat.

3.0 FISH AND WILDLIFE CONSERVATION

The FERC FEIS (3.1.2.1, 3.1.2.2, 4.2.1.1.3, 4.2.1.1.4, Adopted Portions 2.2.2, 2.2.3, 3.2.3, 3.2.4) discussed impacts to aquatic and terrestrial resources. Potential environmental impacts to anadromous fish and black-tailed deer were also addressed.

3.1 Anadromous Fish

A large slide approximately one mile downstream from the dam has had, and may continue to have, adverse impacts on aquatic resources in the river. Concern has been expressed that the slide activity may have been increased as a result of filling of the reservoir. SCL has been monitoring the slide area to determine if there is a hydraulic connection between seepage from the reservoir and the slide area. Although continued monitoring of the slide and annual reporting was established as a requirement of the project license, construction and operation of the South Fork Tolt River Hydroelectric Project would be mitigated by FEIS (2.1.1.2, Adopted Portions 1.1.2).

Populations of winter-run and summer-run steelhead trout, Coho, chinook, pink and chum salmon are present in the Tolt River system. Substantial decline in these species has occurred in the last 25 years due to effects of sedimentation from water diversion, logging activity, and local landslides, combined with effects of overfishing, poaching, and competition with hatchery fish production (FERC FEIS 3.1.2.2, Nehlson et al. 1991). The American Fisheries Society has listed the summer-run steelhead trout in the South Fork Tolt as being "at high risk of extinction" (Nehlson et al. 1991). This listing is an indication that this race may be a candidate for threatened or endangered status. As of May 1992, no petitions for listing of Tolt anadromous fish as threatened or endangered have been filed with the National Marine Fisheries Service (p.c. NMFS 1992).

3.1.1 Tolt River Fisheries Advisory Committee (TFAC)

The FERC license for construction and operation of the South Fork Tolt River Hydroelectric Project as granted in March 1984, established interim minimum stream flows and required SCL to consult with the National Marine Fisheries

service, U.S. Fish and Wildlife Service, the Tulalip Tribes, and Washington Departments of Fisheries and Wildlife to determine minimum stream flows required to ensure protection and enhancement of fishery and wildlife resources. Representatives of these agencies and Seattle City Departments of Water and Light established the Tolt River Fisheries Advisory Committee (TFAC) for this purpose. TFAC developed the South Fork Tolt Settlement Agreement which establishes instream flow requirements as discussed in Section 3.1.2 below.

3.1.2 Settlement Agreement

The South Fork Tolt Settlement Agreement was signed by the TFAC agencies in 1988. The Agencies agreed to not continue to challenge the issuance of a FERC license on the basis of fishery issues, provided that the license was conditioned on compliance with the Agreement.

Funding of all fish restoration activities by the City of Seattle was specified in the Agreement. It was agreed that flow rates and other fish restoration activities except those contingent upon the building of the hydroelectric facility would be funded and completed even if the facility were not built.

The Agreement established a minimum stream flow schedule in lieu of Article 25 of the FERC License with normal and critical flows based on a one-in-ten year frequency of occurrence. The Agreement further established stream flow schedules for utilization of a future water filtration system when draw-down of the Tolt Reservoir would be permitted with maintenance of domestic water quality. The Agreement also established guidelines for reduction in critical flow rates for drought conditions based on the Seattle Water Department Water Shortage Response Plan and mandated Seattle to adopt stricter water conservation legislation.

The Settlement Agreement established requirements for downramping rates to minimize stranding of anadromous fish, mandated that an energy dissipating structure be built at the river return line and provided for critical flow maintenance during project shutdown.

The Settlement Agreement further required pre- and post-construction monitoring of stream temperature, salmon and steelhead spawning, spawning gravel, erosion and sedimentation. The results of these studies will be used to direct enhancement activities such as improving spawning or rearing habitat. The Agreement also required enlargement of a sediment catch basin on the north slope of the dam area and development of an Erosion and Sediment Control Plan (ESCP). The ESCP is currently being developed.

Washington Trout (WT 1991, p.c. WT 1992) raised questions regarding anadromous fish barriers at the flow regimes set down in the Settlement Agreement. Their concern is that natural variation of seasonal flows at falls or chutes may allow the passage of salmonids at low flows and create barriers during high flows. Instream flows allowed by the Settlement Agreement could reduce/eliminate natural flow regime barriers such that isolation or commingling of possibly genetically distinct populations could result.

3.1.3 Erosion and Sediment Control Plan

The ESCP will define procedures for control of erosion during construction, including construction materials and methods, revegetation of areas damaged during construction, control of pipeline stream-crossings, road-use limitations, constraints during the winter rainy season, and emergency response to occurrences of major erosion. The ESCP will also address secondary environmental concerns including dust control, hazardous and non-hazardous materials handling and disposal, and machine wash-down (p.c. SCL 1992).

A letter from the Washington State Department of Fisheries to SCL (WDF 1990) requested site-specific information concerning geology and erosion control programs at South Fork Tolt stream crossings, potential slide areas, and powerhouse construction areas. WDF stated that it would probably oppose construction at the Tolt River crossing and at the energy dissipation structure at the river outside of a July 1 to September 15 period.

3.1.4 Status of ESCP and other Settlement Agreement Activities

The FERC Order Lifting Stay of the License for the Tolt Project (FERC 1989) affirmed Settlement Agreement flow rates, ramping rates, survey activities and requirements for an ESCP. The Lifting of the Stay required SCL to submit two Erosion and Sediment Control Plans prior to commencement of any erosion-producing construction activities: a Draft ESCP to the Tolt River Fisheries Commission and a Final ESCP to FERC within 90 days. The Draft ESCP is expected to be finished by mid-year 1992, pending final construction planning (p.c. SCL 1992).

The status of monitoring activities mandated by the Settlement Agreement is as follows (p.c. SCL 1992):

Status of South Fork Tolt Monitoring

Monitoring Program	Settlement Agreement Target Dates	Current Status
Water Temperature near Project Outfall	Monitoring to start following completion of project construction	Monitoring to start following completion of project construction
Sediment at Slide Near Spring 8	Monitoring to start following completion of project construction	Monitoring to start following completion of project construction
Instream Flow, Reservoir Inflow and Elevation	Monitoring to start one year after Settlement Agreement (approx 10/89)	Monitoring and semi-annual reporting since 1988
Chinook and Coho Salmon Spawning Surveys	Surveys to start prior to implementation of any gravel rehabilitation	Started formally in 1992; work done by Tulalip Tribe
Steelhead Trout Spawning Surveys	Surveys to start prior to implementation of any gravel rehabilitation	Start date March 1992; work done by Washington Department of Wildlife
Spawning Gravel Depletion Survey	Survey to start "as soon as conditions permit"	Start date February 1992; work done by Washington Department of Fisheries

3.1.5 Additional Anadromous Fish Enhancement Activity

A series of workshops involving enhancement of the anadromous fish environment in the South Fork Tolt River are currently being held. The workshops are sponsored by the Weyerhaeuser Company with participation from Washington Trout, Tulalip Tribe, Seattle Water Department, Washington Department of Wildlife, Washington Department of Fisheries, Washington Department of Ecology, Washington Department on Natural Resources, National Marine Fisheries Service, U.S. Forest Service, and SCL. The purpose of the workshop is enhancement of the South Fork Tolt environment through coordination of efforts of these agencies with emphasis on the effects of mining, farming, fish harvesting, sports fishing, and ocean management, as well as construction activities.

3.1.6 Status of Anadromous Fish Protection

Major fishery issues, including stream flows and ramping rates, erosion and sedimentation control, and spawning gravel remediation and monitoring programs have been addressed in the 1988 Settlement Agreement and amendments to Sections

25 and 27 have been incorporated in the FERC License (FERC 1989). Development of an ESCP with review and input from Agencies and Tribes and monitoring activities will continue. Issues of the Washington Department of Fisheries and Washington Trout, noted in paragraphs 3.1.2 and 3.1.3, should be addressed and included with Settlement Agreement-mandated monitoring activities. These anadromous fish enhancement activities are in accord with staff-recommended mitigation discussed in 4.2.1.1.2 and 4.2.1.1.3 of the FERC FEIS and 3.2.2 and 3.2.3 of Adopted Portions.

3.1.7 Northwest Conservation and Electric Power Plan

The South Fork Tolt Project is in compliance with the Northwest Conservation and Electric Power Plan. A stretch of 7.5 miles of the South Fork Tolt, from the river's mouth to the existing dam, is listed as protected for Fall Chinook and Coho Salmon and Steelhead Trout as of January 1992. The Tolt Project was, however, licensed prior to August 10, 1988, and is also a modification to an existing water diversion dam. Therefore, protected status does not apply to the South Fork Tolt Project. The Northwest Power Planning Council has issued a letter confirming the Tolt Project status (see Attachment F).

3.2 Black-Tailed Deer

The FERC FEIS identifies the loss of 5.2 acres of wintering range and permanent habitat of the black-tailed deer (FEIS 3.1.2.3, 4.2.1.1.4, Adopted Portions 2.2.3, 3.2.4). The FEIS states that overall impacts would be low because most project features already exist, disturbed areas would be revegetated, and there would be no blockage to animal movement. Adequate protection for black-tailed deer is provided for in the FERC FEIS.

4.0 HERITAGE CONSERVATION

No adverse impacts to cultural resources were identified in the FERC FEIS (4.2.1.1.6). Requests for concerns over impact on religious, ceremonial, and traditional culture were made to the Tribes (p.c., Tulalip 1992, p.c. Snoqualmie 1992). No new and significant concerns have been identified by the Tribes.

The FERC FEIS identifies procedures in 36 CFR 800.7 for preservation of potentially significant artifacts discovered during project construction and requests contact with the Washington State Historic Preservation Office.

5.0 STATE, AREA-WIDE, LOCAL PLAN, AND PROGRAM CONSISTENCY

The FERC FEIS identified permits or procedures associated with siting of the South Fork Tolt Project. Most of the permits have been addressed by SCL. Several additional permits (PSAPCA Air Quality, WDOE Coastal Zone Program) not indicated in the FERC FEIS are now identified by and will be completed by SCL prior to construction (p.c. SCL 1992).

South Fork Tolt Permit/License Status

Permit/License	Agency	Status	Comments
Project License	FERC	Active 3/24/84 Expires 2029	Stayed 7/5/84, Stay lifted 7/29/89
Water Quality Cert. 401	WDOE	Active 1/14/83	See Section 16.0
Change of Water Rights	WDOE	Due prior to construction	Includes review of Settlement Agreement activities-Per FERC Order on Rehearing, not a pre-requisite for FERC License
Short-Term Exemption for Water Quality	WDOE	Due prior to construction	Requires concurrent application for Hydraulic Project Approval
Air Pollution Control Section 9	PSAPCA	Compliance throughout construction	See Section 16.0
Rights-of-way on Public Lands	DNR	Due prior to construction	--
Forest Practices	DNR	Due prior to construction	--
Burning	DNR	Due prior to construction	--
Dumping	DNR	Due prior to construction	--
Hydraulic Project Approval	WDW	Due prior to construction	Co-requisite for Short-Term Water Quality Exemption
Public Water Supply Approval	WA Health Dept.	Due prior to construction	--
Sensitive Areas Ordinance Exemption	King County	Due prior to construction	Pre-requisite for Grading Permit and Shoreline Substantial Development Permit
Shoreline Substantial Development	King County	Due prior to construction	See Section 6.D

South Fork Tolt Permit/License Status

Permit/License	Agency	Status	Comments
Grading	King County	Due prior to Construction	Requires review of Sensitive Areas Ordinance Exemption and is concurrent with Shoreline Substantial Development Review
Building	King County	Due prior to Construction	--
Sewage Disposal	King County	Due prior to Construction	--
Discharge into Public Waters - Permit 404	Army Corps of Engrs.	Due prior to construction	See Section 13
Utility	WA Dept. of Trans.	Due prior to construction of transmission lines	--

Conversations with agencies (p.c. PSAPCA 1992, p.c. KCBALD 1992, p.c. SWD 1992, p.c. WDOE 1992, p.c. NMFS 1992, p.c. WDF 1992, p.c. FERC 1992, p.c. ACOE 1992) indicates no substantial difficulty is anticipated in obtaining the above listed permits or compliance with local ordinances except for the Shoreline Substantial Development Permit and those permits which require its completion, especially the Clean Water Act, Section 404 Permit to Discharge into Public Waters. SCL has developed a table for completion of the permit process, which is included in the above table. Additional information concerning specific permits follows in Sections 13, 14, and 16.

6.0 COASTAL MANAGEMENT PROGRAM CONSISTENCY

The Tolt Project will require review and permitting for compliance with the Coastal Zone Management Program. King County's Shoreline Substantial Development Permit (SSDP) is the lead document in this process. WDOE will issue its Coastal Zone Certification based on the findings of the King County SSDP (p.c. WDOE 1992).

King County is currently revising the review process for the Shoreline Permit. The Draft SSDP process has been completed and is out for public review and comment until the end of May 1992. The Draft is expected to be more aligned with requirements in FERC licensing procedures. Specifically, limitations on building below the high water mark are expected to be relaxed. Construction of Energy Dissipator and pipeline below the high water mark may be prohibited by current SSDP limitations.

7.0 FLOODPLAINS

The proposed South Fork Tolt Project will have no significant impact on floodplains. The project penstock will be installed adjacent to and within the right-of-way of the existing water diversion pipeline. Project elements including the powerhouse are above the 100 year floodplain. Portions of the return flow conduit and energy dissipating structure are within the 100 year floodplain. Erosion and sediment control procedures mandated by the Settlement Agreement will address landslides in the construction areas. No other impact from construction at this location should impact the floodplains.

8.0 WETLANDS

The proposed South Fork Tolt Project would have no significant impact on wetlands. The new penstock would cross the South Fork Tolt River and a number of creeks and the energy dissipation structure would be located along the edge of the South Fork Tolt River. Potential environmental impacts and mitigation measures, discussed in Sections 3.1.3 and 3.1.4, are consistent with those identified in the FERC FEIS (4.2.1.1.4, Adopted Portions 3.2.4).

There are no wetlands located near the new transmission line from the powerhouse to the water supply headworks. Additionally, there would be no project activity associated with the existing transmission line. Therefore, these sections of the transmission line would have no adverse environmental impacts to wetlands. This was confirmed by SAIC field survey in January 1992.

The new transmission line between Kelly Road and the new Puget Power substation would cross Harris Creek and Stossel Creek. Stossel Creek is a designated wetland and this area will not be disturbed because SCL intends to span the wetlands (p.c. SCL).

9.0 FARMLANDS

No farmlands exist within the construction areas for this project.

10.0 RECREATIONAL RESOURCES

Since areas within the hydrographic boundary of the watershed area and water diversion areas will continue to be closed to the public, recreational resources will not be affected by the proposed Tolt Project. In developing an alternative mitigation plan for recreation, SCL consulted with the U.S. Forest Service, National Park Service, Washington State Parks and Recreation Commission, Washington Department of Wildlife, the King County Parks Division and Weyerhaeuser. The proposed mitigation recreational plan included the following items:

1. SCL will provide financial support of $220,000 for development of the 275 acre Moss Lake wetlands, located about 3 miles west of the Tolt Dam project in conjunction with King County Parks.

2. SCL will provide financial support of $110,000 for development of a trailhead and parking lot on the Middle Fork of the Snoqualmie River. The trailhead will eventually provide access to a 35 mile USFS trail system.

A Memorandum of Agreement (MOA) for mitigating recreational activities must be signed by SCL, King County Parks, and the USFS and submitted to FERC upon completion. This MOA when completed should provide adequate mitigation for impacts of recreational resources of the Tolt Project.

11.0 GLOBAL WARMING

The Tolt Project will utilize only non-fossil fuel sources in the generation of electricity and would not contribute to global warming.

12.0 PERMIT FOR STRUCTURES ON NAVIGABLE WATERS

The U.S. Army Corps of Engineers (ACOE 1991) considers that the South Fork Tolt River is non-navigable. Permits required under Section 10 of the Rivers and Harbors Act, 33 USC 403 do not apply to this project.

13.0 PERMIT FOR DISCHARGES INTO THE WATERS OF THE UNITED STATES

The permit process under Section 404 of the Clean Water Act, 33 USC, is likely to be required for the South Fork Tolt Project. The determination as to the need for a permit and the type of 404 Permit cannot be made until final project design addresses the amount of fill material expected to enter the Tolt River during construction.

Washington Department of Ecology, Shorelines and Coastal Zone Management office states that, should a 404 Permit be required, then the licensee should pay strict attention to the pre-requisite permits for the 404 Permit process (WDOE 1992). Review for the 404 Permit by the Corps of Engineers requires that the Shoreline Substantial Development Permit, the WDOE Coastal Zone Management Permit, and the 401 Clean Water Permit all be previously prepared. Ecology states that typical times to obtain Shoreline permits are 9 months to 2 years depending upon the need for public participation. Ecology also states that WDOE Coastal Zone Management Permits take only several days, since WDOE uses the county process as the basis of their decision making.

14.0 PERMIT FOR RIGHT-OF-WAY ON PUBLIC LANDS

The South Fork Tolt Project includes the use of State Forest lands at river crossings. A Lease of State Lands Permit is identified in Table 4-4 of the FERC FEIS with the Washington Department of Natural Resources as the responsible agency. Obtaining this permit is not expected to be difficult.

15.0 ENERGY CONSERVATION AT FEDERAL FACILITIES

The South Fork Tolt Project includes no Federal facilities or buildings.

16.0 POLLUTION CONTROL

SCL is aware of requirements for compliance with federal, state and local regulations and ordinances relating to procurement of goods and services from EPA listed facilities, clean air standards, water quality standards, solid waste disposal, hazardous waste handling and disposal, drinking water standards, noise abatement, pesticide control, asbestos, TSCA, CERCLA, and radon. SCL has identified current procedures to be used during the Tolt Dam construction to achieve compliance with these regulations (SCL 1992).

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PARAMETRIX, INC. 1988. Wintering Bald Eagle Study, South Fork Tolt River Hydroelectric Project (FERC No. 2959), Parametrix, Inc., 13020 Northup Way, Bellevue, WA, September 1988.

PASIN. 1991. Letter to Dave Pflug, Seattle City Light, Stan Pasin, Supervisory Forester, U. S. Forest Service, 42404 SE North Bend Way, North Bend, WA, May 10, 1991.

FIGURE 1
BPA LOAD/RESOURCE BALANCE FORECAST

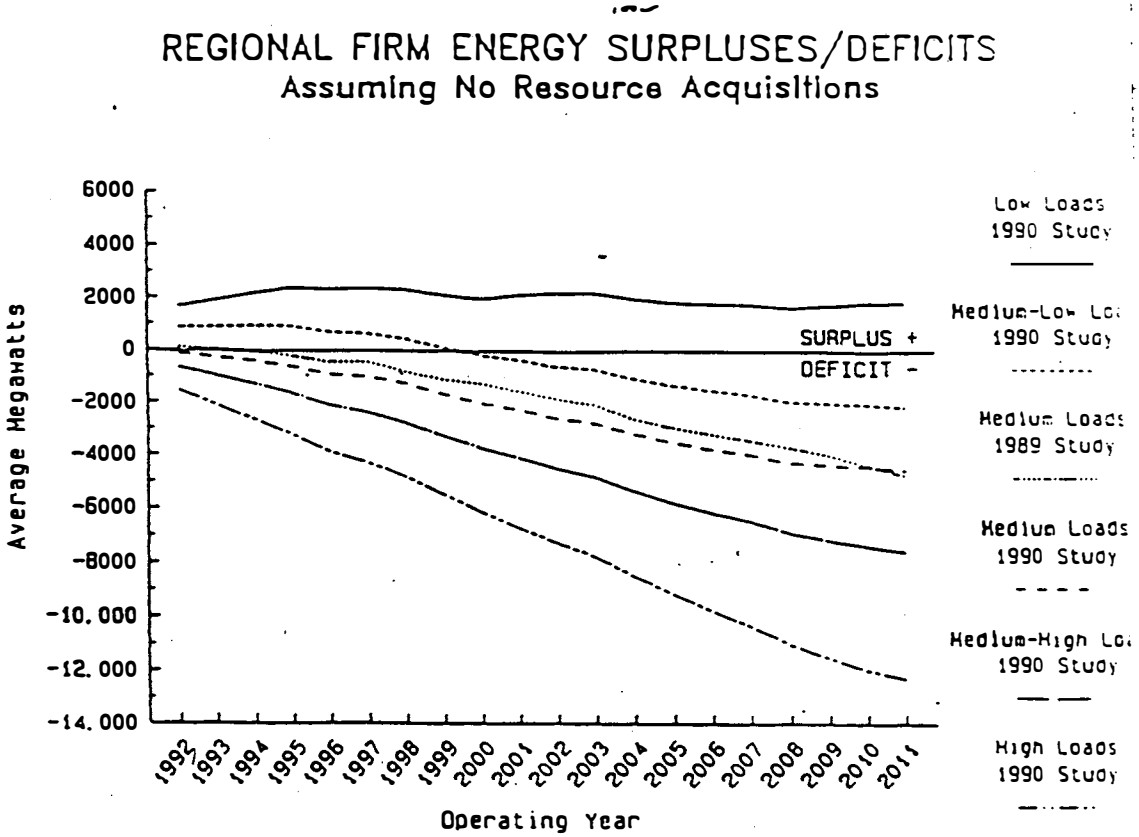

FIGURE 2

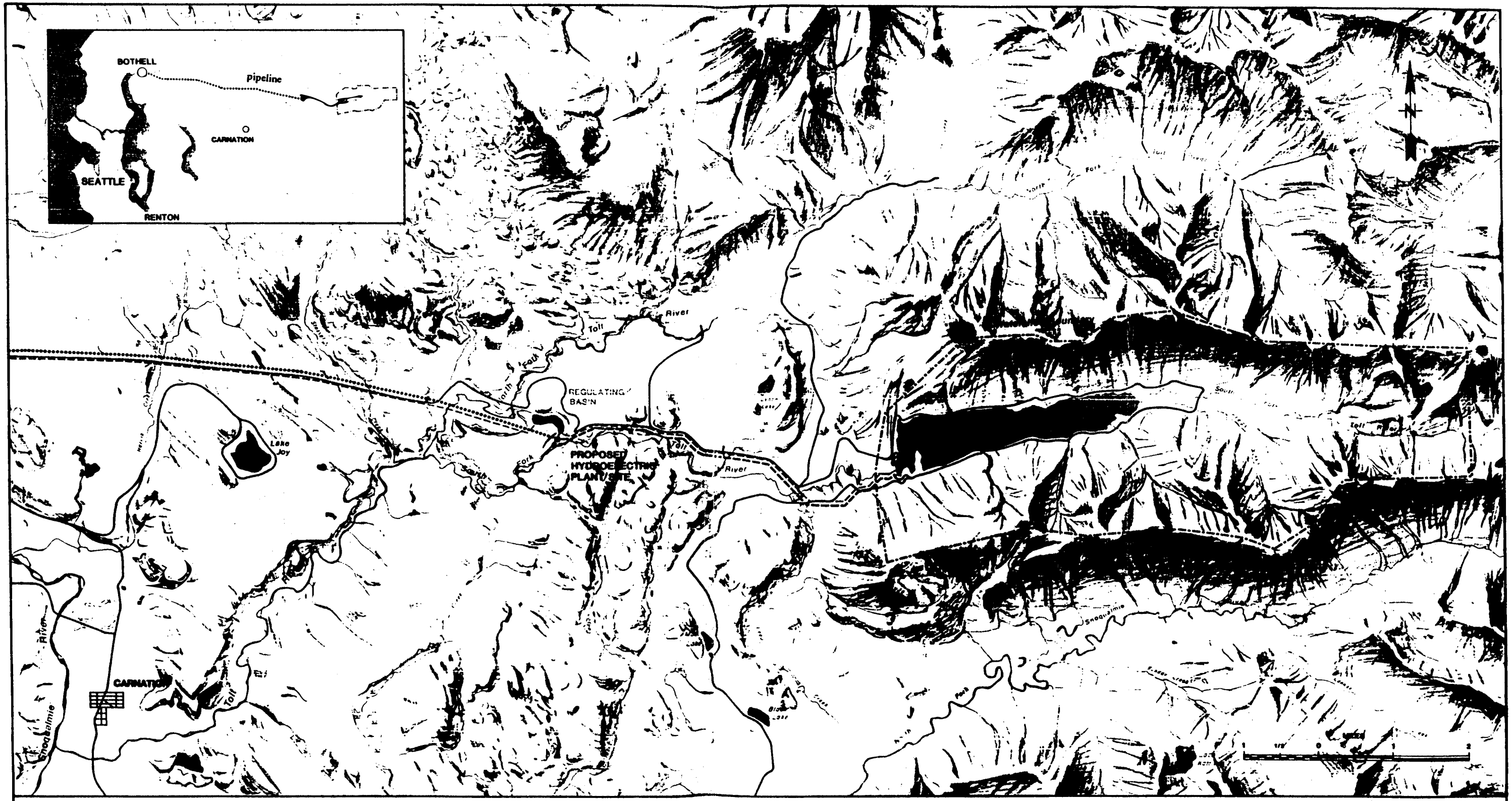

Figure 2
South Fork Tolt River Hydroelectric Project
Vicinity Map

ATTACHMENT A

ATTACHMENT A

PROJECT CHRONOLOGY

1957	The City was granted a surface water and storage permit and a reservoir permit which defined minimum flow requirements for the South Fork Tolt River.
1963	The City constructed the dam and reservoir on the South Fork Tolt River for municipal and industrial water supply.
1979	The City applied for a preliminary permit for hydropower development at the existing dam and reservoir. The Washington Department of Fisheries, Washington Department of Wildlife, the Tulalip Tribes, and the National Marine Fisheries Service intervened in the proceeding.
1980	The Federal Energy Regulatory Commission (FERC) issued a preliminary permit for the South Fork Tolt River Hydroelectric Project No. 2958.
1980	The City issued a final Environmental Impact Statement (EIS) in accordance with the requirements of the State Environmental Policy Act (SEPA).
1981	The City Council passed a resolution directing that fisheries resource studies be conducted on the Tolt River system to identify limiting factors to fish production. The resolution also required formation of a representative advisory group of Federal, State and Tribal fishery interests.
1981-1983	The University of Washington Fisheries Research Institute conducted studies of the Tolt River fisheries.
1981	The City filed a license application for the project with FERC prior to completion of the fisheries studies. The Agencies intervened.
1984	FERC completed an environmental assessment and issued a major license to the City for the project. The license contained specific instream flow conditions for which the City filed an application for a rehearing. The Agencies appealed issuance of the license.
1984	FERC issued an order staying the license to allow the City and Agencies six months to enter into negotiations to determine mutually agreeable instream flow conditions.
1984-1988	Several extensions were granted to allow continuing negotiations to reach completion.
1987	FERC issued a Final Environmental Impact Statement (FERC/EIS-004) for seven proposed hydroelectric projects in the Snohomish River Basin. The South Fork Tolt River project was included in this EIS.
1988	The City signed a Settlement Agreement with the National Marine Fisheries Service, Washington Departments of Fisheries and Wildlife, U.S. Fish and Wildlife Service, and the Tulalip Tribes, which established conditions for protecting the Tolt River fishery.
1989	FERC lifted the license stay order.

ATTACHMENT B

ATTACHMENT B

PERSONAL COMMUNICATIONS
SOUTH FORK TOLT RIVER HYDROELECTRIC PROJECT

Agency/Organization	Individual Contacted	Phone Number	Date	Comments
Washington Department of Wildlife (WDW)	Gary Engman	(206) 774-8812	1/3/92	Requested and received copy of Summer Run Assessment by Pfeiffer.
Puget Sound Air Pollution Control Authority (PSAPCA 1992)	Claude Williams		1/9/92	Requested and received PSAPCA air quality regulations.
King County Parks Department	Sharon Claussen	(206) 296-4135	1/13/92	Recreation Resources MOU not yet written. Meetings planned for February 1-15 with SCL. Expect no impact on recreational resources.
Northwest Power Planning Council (NPPC)	Jeff King	(503) 222-5161	1/13/92	Sent list of Tolt protected areas.
	Peter Paquet	(503) 222-5161	1/21/92	Status of Tolt/Northwest Conservation & Electric Power Plan. Letter confirming Tolt exemption received.
	Jeff King	(503) 222-5161	1/13/92	1991 Hydropower Plan sent and received. Comments concerned mainly with power issues (surplus, need, etc.).
Seattle Water Department	Dave Parkinson	(206) 684-5932	1/13/92	Pilot testing of Filtration Unit approximately November. Filtration effects on stream flow.
King County BALD (KCBALD 1992)	Mark Mitchell	(206) 296-6640	1/16/92	Draft changes Shoreline Substantial Development Permit - Public review March with finish by July 1992. Directors might "relax" regulation to prevent preemption by FERC.
	Anna Nelson	(206) 296-6640	1/28/92	Status of shoreline substantial development permit process.
Seattle City Light (SCL)	Ron Bates - Tolt Project Manager	(206) 684-3060	1/17/92	Riparian zone with setbacks from river - Weyerhaeuser, Turbine construction delays may give extra time for development of ESCP. ESCP due mid-1992. Procedures for machine washdown, hazmat, etc., included in ESCP. Will check PSAPCA requirements and include in ESCP.

ATTACHMENT B (cont.)

PERSONAL COMMUNICATIONS
SOUTH FORK TOLT RIVER HYDROELECTRIC PROJECT

Agency/Organization	Individual Contacted	Phone Number	Date	Comments
	Dave Pflug	(206) 386-4574	1/23/92	Status of Tolt monitoring studies. Status of anadromous fish activities.
	Dave Pflug	(206) 386-4574	2/7/92	Information on transmission lines and substation, commitment regarding FERC FEIS recommendations, and permit acquisition to support start of construction by July 20, 1993.
Washington Department of Ecology (WDOE) [Shorelines Program]	Bonnie Shorin	(206) 296-9015	1/17/92	Corps of Engineers has history of denying 404 Permit unless Shoreline Permit and 401 Water Quality Permit completed. Pressures from development in area causing people to adhere strictly to environmental process. Expect minimum 9 months now to get Shoreline Permit.
	Rod Salcrison	(206) 459-6166	1/21/92	No new information. Recommended conversation with people who have already been contacted.
Alder Fork Consulting	Jim Lichatowich	(206) 683-0748	1/22/92	No Endangered Species petitions filed as of this date for anadromous fish, but fishing clubs asking information about process.
National Marine Fisheries Service (NMFS), Portland	Merritt Tuttle	(503) 230-5400	1/22/92	No Endangered Species petitions filed - better flow program should improve anadromous fish recovery - Washington Trout showed some interest in Endangered Species process.
Seattle	Jon Linvog	(206) 526-6120		They thought the old growth material in the EIS was inaccurate. Otherwise thought the Settlement Agreement settled all issues. Stated they would be involved in final design of energy dissipating unit.
Washington, D.C.	Patricia Montonio	(301) 713-2322	1/22/92	No Endangered Species petitions filed as of this date for anadromous fish.
Weyerhaeuser	Jeff Light	(206) 924-6705	1/15/92	Knew of information stating that the summer steelhead is a candidate for listing as an Endangered Species. Report stating that this sent and received.

ATTACHMENT B (cont.)

PERSONAL COMMUNICATIONS
SOUTH FORK TOLT RIVER HYDROELECTRIC PROJECT

Agency/Organization	Individual Contacted	Phone Number	Date	Comments
Washington Natural Heritage Program	Sandy Norwood	(206) 753-2449	1/17/92	Possess information on High Quality Native Plant Communities. Discussion of plants in mile and quartermile sections. Cost is $30/hr for data retrieval of information.
King County Department of Planning and Community Development	Julie Shibuya	(206) 296-6613		Unable to contact.
Washington Energy Office	Kevin Kozak	(206) 956-2149	1/13/92	Sections of the Washington State Hydropower Plan concerned with the South Fork Tolt River were sent and received. This is the extent of their work.
Washington Trout (WT)	Kurt Beardslee	(206) 788-1167	1/23/92	They have done three years of snorkel counts and have data on one year of thermographic studies. Report being written. Received copy of report. Concerned with flow barriers, especially during high flow times. Sent comments made on filtration system which are concerned with flow barriers.
Washington Trout	Kurt Beardslee	(206) 788-1167	1/24/92	Discussed flow barriers and memo from Washington Trout. Potential for separating ESUs.
Washington Department of Fisheries (WDF)	Mark Hunter	(206) 586-2146	1/8/92	They were only interested in seeing the Sediment Control Plan. Also would like to see a spawning survey done. Otherwise, no new information, ready to see project proceed.
Snoqualmie Tribe	Ron Lauzon	(206) 885-7464	1/30/92	Request for any new information about cultural resources in Tolt area. Will fax letter previously sent to FERC.
Tulalip Tribes of Washington	Dave Somers Kurt Nelson	(206) 653-0220	1/8/92	Only new information they had was some spawner surveys. Report currently being written, out at end of month.
Tulalip Tribes of Washington	Kathy Fendt	(206) 653-4585	1/27/92	Request for any new information about cultural resources in Tolt area. Will call back.
EPA	Larry Brockman	(206) 553-1750	1/17/92	No concerns.
FERC	Peter Lickman	(202) 219-2656	1/28/92	Status of FERC license.

ATTACHMENT B (cont.)

PERSONAL COMMUNICATIONS
SOUTH FORK TOLT RIVER HYDROELECTRIC PROJECT

Agency/Organization	Individual Contacted	Phone Number	Date	Comments
U.S. Forest Service	Sam Nagel	(206) 744-3440	1/28/92	Surveys for endangered species out of the jurisdiction of USFS in the Tolt Area. Possible endangered listing for marbled murrelet and unidentified salamander.
U.S. Fish and Wildlife Service (USFWS)	Lynn Childers/Will Ging	(206) 753-9440	1/28/92	Information on spotted owl protocol survey received.
	Kim Williams	(206) 753-9440	1/28/92	Possible listing of marbled murrelet protocol for surveying for endangered species.
Army Corps of Engineers	Arlie Winther	(206) 764-3495	1/27/92	Requirements for processing 404 permit.

ATTACHMENT C

WINTERING BALD EAGLE STUDY

SOUTH FORK TOLT RIVER HYDROELECTRIC PROJECT (FERC NO. 2959)
NOVEMBER 1987-MARCH 1988

FINAL REPORT

Prepared for

SEATTLE CITY LIGHT
Environmental Affairs Division
1015 Third Avenue
Seattle, WA 98104

Prepared by

PARAMETRIX, INC.
13020 Northup Way
Bellevue, WA 98005

September 1988

55-1656-29

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Jim Michaels of the U.S. Fish and Wildlife Service Endangered Species Program visited the study area with us and provided helpful ideas on study design and mitigation. Both he and Jim Watson, Threatened and Endangered Species Biologist with the Washington Department of Wildlife, reviewed our technical report.

We also thank the following persons for assistance during ground and aerial surveys: Rocky Spencer, Jim Watson, and Bob Lantiegne of the Washington Department of Wildlife; Keith Kurko, Terry Marceron, Holly Cocolli, Debbie Dole, and David Pflug of Seattle City Light Environmental Affairs Division; Paul Olson and Jim Erckmann of the Seattle Water Department; and Paul Smith of Westside Presbyterian Church.

Tim Flint and Chuck Baranski of the Washington Department of Fisheries provided data on salmon spawning in the Tolt River system. Sonny Paz of the U.S. Forest Service North Bend Ranger District contributed information on wintering eagles in the Skykomish River drainage. Paul George of the Seattle Water Department recorded eagle sightings in the vicinity of the Tolt River regulating basin. We gratefully acknowledge these and other people who contributed to this study.

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SUMMARY

INTRODUCTION

The wintering bald eagle population on the Tolt River and Harris Creek, King County, Washington, was studied from November 1987 through March 1988. The purpose of the study was to assess potential impacts on bald eagles resulting from construction and operation of the proposed South Fork Tolt River Hydroelectric Project (FERC No. 2959), and to recommend mitigation where needed to protect wintering eagles. The City of Seattle completed the study as a condition of project licensing.

Coordination with the U.S. Fish and Wildlife Service, Endangered Species Program, identified construction of the following project features as potentially affecting bald eagles and their habitat.

1) A proposed powerhouse and electric transmission line near the existing South Fork Tolt River regulating basin.

2) A proposed flow return structure between the powerhouse and the South Fork Tolt River.

3) A proposed transmission line crossing Harris Creek.

Other project features were considered unlikely to affect bald eagles. These included the construction of 5 miles of buried water pipeline on the existing right-of-way between the South Fork Tolt reservoir and the proposed powerhouse, and 4 miles of transmission line west of Harris Creek.

METHODS

Bald eagles were studied using a combination of ground surveys and aerial surveys. Ground surveys focused on sites that had potential bald eagle habitat, and would be directly affected by the project. Aerial surveys covered major creeks and rivers in the project vicinity known to contain spawning salmon, a key food of wintering bald eagles in the Pacific Northwest.

Bald eagle perch trees were characterized, and salmon presence was monitored in a small stream to examine the habitat use and food supply of wintering bald eagles. Project impacts and mitigation were assessed from the results of field work, literature research, and agency consultations.

RESULTS AND DISCUSSION

EAGLE BIOLOGY

Aerial and ground surveys showed that bald eagles were present in the study area from late November through March. Their arrival coincided with the usual arrival of spawning coho salmon, which appear to be the main food of bald eagles wintering in the study area.

A peak count of 29 eagles was recorded in early February, and their numbers remained quite high through early March. The late winter influx of eagles into the Tolt River system probably stemmed from birds moving in after food supplies were depleted elsewhere.

The ratio of subadult eagles in the population was quite low, suggesting that salmon carrion was relatively scarce. This is supported by Department of Fisheries index counts which showed a poor coho return into the Tolt River system. Eagle populations in the study area during other winters are unknown, but probably vary with local and regional salmon abundance and availability.

Most of the bald eagles wintering in the study area were concentrated along the mainstem Tolt River. A smaller, but significant, percentage of eagles used the North Fork Tolt River. Relatively few eagles were observed on the South Fork Tolt River, Stossel Creek, and Harris Creek, although 1-2 eagles used the latter area consistently.

Black cottonwood was the primary perch tree species used by eagles on the mainstem Tolt River and Harris Creek. Dead-topped conifers were more heavily utilized on the North Fork and South Fork of the Tolt. Measurements of several perch trees used by bald eagles confirmed their preference for tall, large-diameter trees, affording good visibility of nearby rivers and creeks. Eagles perched on stout, lateral branches in the upper third of the trees.

We made one observation of a roosting bald eagle. The best potential roosting habitat is along the mainstem Tolt River, between the mouth of Stossel Creek and the end of the Tolt River Road. The North and South Forks of the Tolt River may also provide some roosting habitat, as suggested by observations of single eagles flying up these streams at dusk.

PROJECT IMPACTS AND MITIGATION

Of the sites directly affected by the project, Harris Creek was used most often by bald eagles. One or two adult eagles occupied the creek area from mid-December through mid-February. Eagles frequently perched near and flew over the right-of-way, and appeared to feed in the creek. Special construction practices are recommended at this location to minimize impacts on wintering bald eagles.

Eagles were occasionally seen perched near the proposed flow return structure on the South Fork Tolt River. Eagles are unlikely to use this part of the river for feeding, due to the lack of salmon and the confined nature of the stream channel. The U.S. Fish and Wildlife Service recommends that construction at this location be scheduled outside the wintering period to avoid disturbing the eagles.

We did not see any bald eagles perching or roosting in the vicinity of the proposed powerhouse or transmission line near the regulating basin, although eagles were occasionally observed flying over the area. Tree sizes are generally inadequate to support eagles, and the site is approximately 1 mile

from the nearest potential feeding areas. Construction of the powerhouse, transmission line, and associated structures at this location would not remove any significant bald eagle habitat.

A potential benefit of the project to bald eagles is that it could result in a slight improvement in food supplies (anadromous fish runs) when a new flow regime is established on the South Fork Tolt River. Resolution of fisheries issues with the tribes and resource agencies will satisfy a licensing requirement to minimize impacts on the food supply of wintering bald eagles.

INTRODUCTION

The City of Seattle is completing negotiations for the proposed South Fork Tolt River Hydroelectric Project (FERC No. 2959). Concurrently, the Federal Energy Regulatory Commission (FERC) has been examining cumulative impacts of 7 hydroelectric projects in the Snohomish River Basin. The South Fork Tolt project was included in this analysis. FERC issued a Draft Environmental Impact Statement on the projects in June 1986. Issues of concern included potential impacts on bald eagles, a federally-listed threatened species in Washington State.

In March 1987 the U.S. Fish and Wildlife Service (FWS) submitted its biological opinion to FERC in response to the Draft EIS. FWS identified the following potential contributions of the South Fork Tolt project toward the harassment or harm of bald eagles.

1) Disturbance from construction activities during winter months.

2) Loss of food supply by direct impacts on anadromous fish.

3) Loss of perching and roosting habitat.

To minimize the impact on bald eagles, FWS established the following measures to be undertaken as project features.

1) A ban on all construction activities from November 1 through March 31.

2) Elimination of construction and operation impacts on anadromous fish to the satisfaction of the State and Federal resource agencies.

3) Site-specific habitat surveys for wintering and nesting bald eagles.

In August 1987, FERC asked the City to comment on these requirements. The City met with and visited the site with FWS, resulting in a clarification of the biological opinion. The following amendments were made to the licensing requirements pertaining to bald eagles.

The November 1-March 31 construction ban was lifted for the pipeline route because construction would occur in the existing pipeline right-of-way, and would be far enough away from river that the activity would not affect bald eagles. FWS continued to be concerned about the impacts of construction in the vicinity of the powerhouse and flow return sites, and along two proposed sections of transmission line. The City agreed to conduct site-specific wintering bald eagle surveys to determine whether construction restrictions should be applied to these areas.

The requirement to conduct bald eagle nesting surveys was also dropped. A site visit and aerial photointerpretation revealed a lack of potential

nesting habitat at proposed construction sites. Conversations with biologists from the Weyerhaeuser Co. and Washington Department of Wildlife also indicated that bald eagle nesting had not been observed in the Tolt River system. FWS agreed that the requirement to resolve anadromous fisheries issues with the agencies was being adequately addressed through negotiations with the Tolt River Fisheries Advisory Committee.

A scope of work for the bald eagle study was prepared following the meetings with FWS. The goals of the study were to:

1) Document bald eagle use of areas that would be affected by construction and operation of the project.

2) Estimate the importance of these sites in relation to the stream drainages as a whole.

3) Recommend ways to minimize impacts of the project on wintering bald eagles.

PROJECT DESCRIPTION

The City of Seattle applied for a license to build and operate the South Fork Tolt River Hydroelectric Project in 1981. The project would use water from the existing water supply reservoir on the South Fork Tolt River to generate electricity. Principal features are as follows (Figures 1 and 2).

1) A new 66-inch-diameter buried pipeline (parallel to and replacing the water supply pipeline) from the reservoir on the South Fork Tolt River to a powerhouse in the vicinity of an existing regulating basin.

2) A powerhouse containing one 15-megawatt (MW) generating unit.

3) A 90-inch-diameter pipe from the powerhouse to an outlet on the regulating basin.

4) A 66-inch-diameter flow return pipe from the powerhouse to an energy dissipating structure on the South Fork Tolt River.

5) Approximately 300 ft of access road.

6) A 0.4-mile section of 115 kilovolt (KV) transmission line from the powerhouse to an existing transmission line at the water treatment center.

7) Approximately 4 miles of transmission line along the water supply pipeline right-of-way from Kelly Road, crossing Harris Creek, to an existing transmission line owned by Puget Sound Power and Light Co.

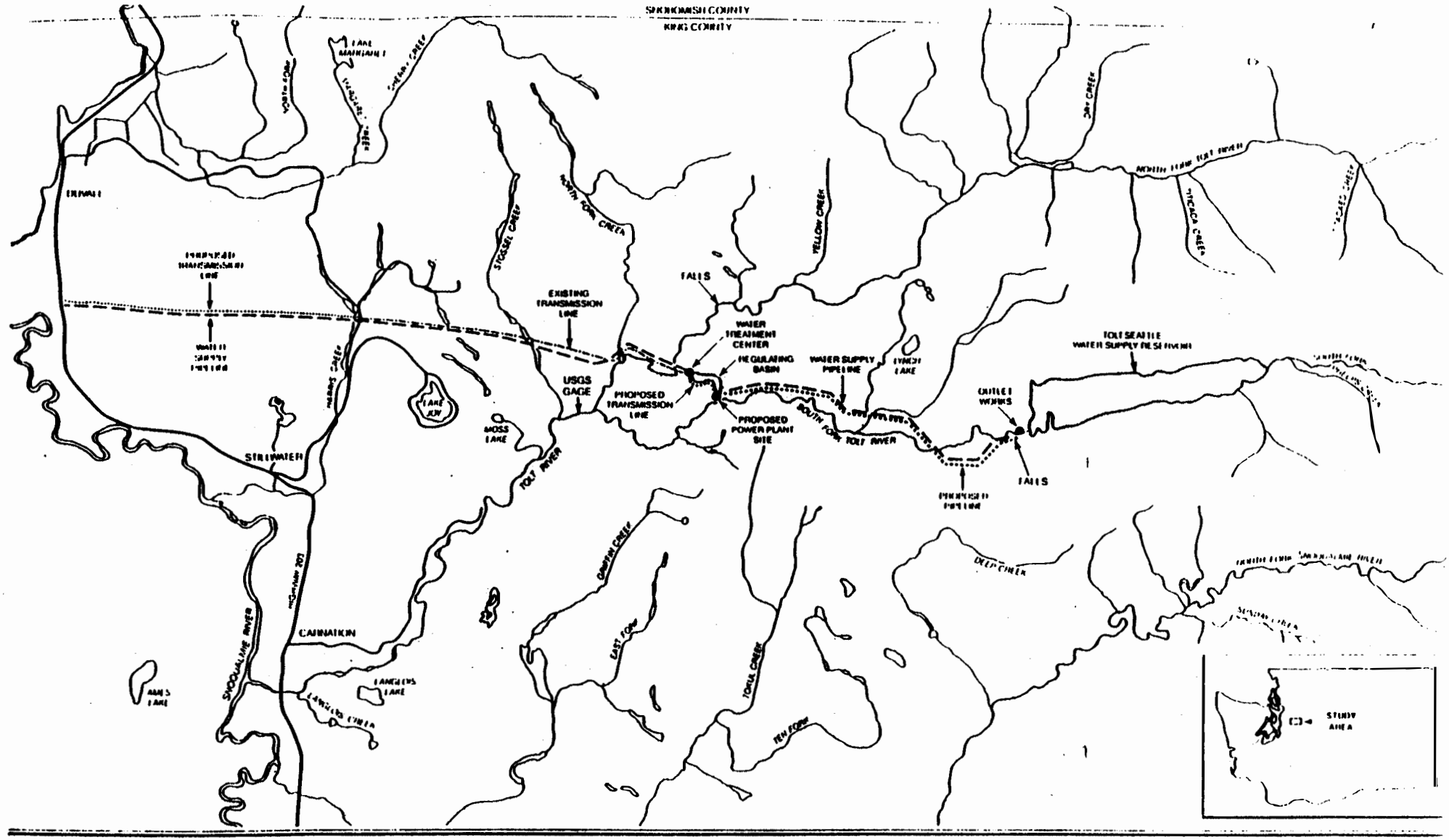

Figure 1.
South Fork Tolt River
Hydroelectric Project Vicinity Map

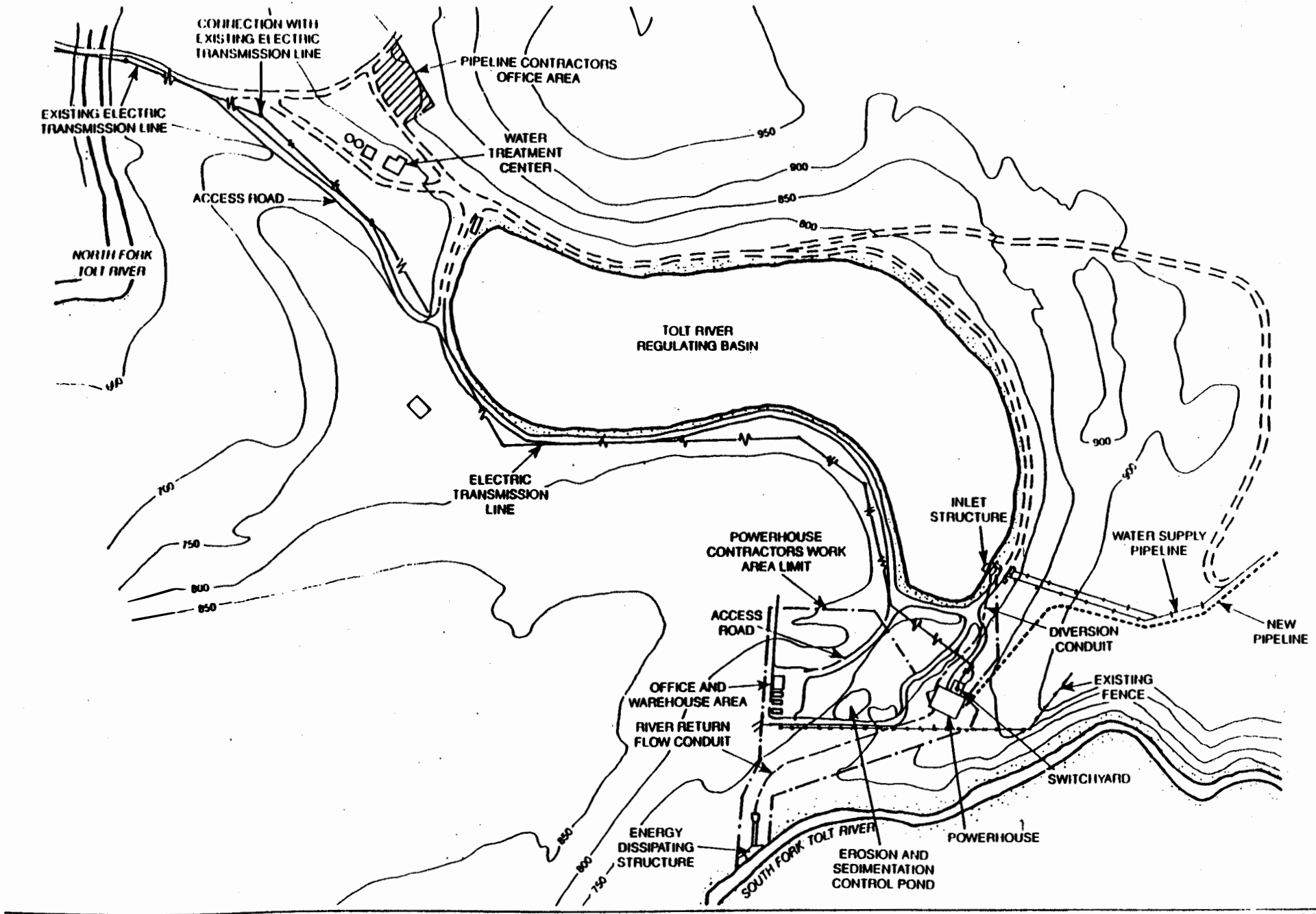

Figure 2.
South Fork Tolt River Hydroelectric Project Powerhouse Facilities Map

Project construction would require clearing approximately 23 acres of land. Roughly half this area is second-growth forest, primarily Douglas-fir and red alder. The rest of the area is disturbed and sparsely vegetated. Less than 1 acre of riparian broadleaf forest would be removed for the flow return structure.

The project would operate as a baseload, run-of-river facility, producing an average of 6.1 MW of energy. The powerhouse would use flows presently diverted for the water supply, as well as any available excess flows. (Excess flows are above those needed for the water supply and the maintenance of minimum stream flows in the 5-mile section of river between the dam and powerhouse). Excess flows would be returned to the river via an energy dissipating structure designed to prevent the attraction and delay of migrating fish.

FERC granted the City a major license for the project in 1984. The license was appealed by the State and Federal fisheries agencies, and the Tulalip Indian Tribes, on the grounds that it contained inadequate measures to protect, mitigate, and enhance anadromous fishery resources. FERC then ordered a stay of the license, allowing the City and petitioners to negotiate a mutually acceptable long-term program for instream flows and habitat restoration. Negotiations and studies are still underway, in cooperation with the member tribes and agencies of the Tolt River Fisheries Advisory Committee. Resolution of fisheries issues will satisfy a licensing requirement to minimize impacts on the food supply of wintering bald eagles.

STUDY AREA

The bald eagle study area is located in King County, Washington, northeast of Carnation and southeast of Duvall. It includes portions of the Tolt River and Harris Creek drainages (Figure 1). Second-growth coniferous forest is the dominant vegetation, with commercial timber harvesting and water supply the primary land uses. Low density housing and agriculture occur along the lower reach of the Tolt River and Harris Creek. Vehicle access to the upper Tolt watershed is restricted by locked gates to protect water quality. Most of this area therefore receives little public use.

The Tolt River drains the west slope of the Cascades, entering the Snoqualmie River near the town of Carnation. The mainstem Tolt is approximately 9 miles long, with the North and South Forks approximately 17 miles each. Stossel Creek, which enters the Tolt at river mile (RM) 8.3, is a major tributary. Mean annual flow of the Tolt River is 599 cfs, measured at the USGS gage near RM 8.8 (unpublished data, U.S. Geological Survey, Tacoma, WA). Elevations in the Tolt watershed range from 60 ft at the confluence with the Snoqualmie River to over 5,900 ft at Mt. Index.

The Tolt River system contains populations of anadromous fish, including significant numbers of coho salmon and steelhead trout. Coho spawn in the tributaries, side channels, upper mainstem, and lower sections of the North and South Forks of the Tolt. Stossel Creek contains the largest coho run in

the Tolt River system (personal communication, Tim Flint, Washington Department of Fisheries).

Small numbers of chinook, chum, and pink salmon also spawn in the Tolt River (Williams et al. 1975). Chinook have been reported primarily in the lower 2 miles of the mainstem Tolt, although foot surveys have shown a few chinook spawning in the lower sections of the North and South Forks (personal communication, David Hays, BEAK Consultants Inc.; personal communication, Keith Kurko, Seattle City Light). Pink and chum salmon spawning is restricted to the lower 4 miles of the mainstem Tolt River (Williams et al. 1975).

The Tolt River system is managed principally for steelhead, with annual spawning escapements averaging about 400 fish (Stober et al. 1983). Salmon are managed for wild stocks, although hatchery fry have been planted in some tributaries. No estimates of salmon spawning escapements have been made (personal communication, Chuck Baranski, Washington Department of Fisheries).

Anadromous fish passage is blocked by falls on the South Fork Tolt River at RM 8.2, and on the North Fork Tolt at RM 12.3 (Figure 1). Fish passage is further restricted on the South Fork Tolt by a series of cascades within a narrow canyon beginning at RM 2.5. This is the proposed site of the powerhouse flow return structure. Spawning steelhead pass through the canyon, but salmon apparently do not (personal communication, Keith Kurko, Seattle City Light).

Harris Creek drains into the Snoqualmie River about 3 miles north of the Tolt River. The creek originates from groundwater drainages in several large wetlands, one of which is adjacent to the proposed transmission line crossing. The Harris Creek system contains about 9 miles of stream, including tributaries. Coho salmon spawn throughout Harris Creek, with chum spawning in the lower 1.5 miles (Williams et al. 1975).

METHODS

FIELD WORK

Bald eagle surveys were carried out from November 11, 1987 through March 31, 1988. Surveys concentrated on major creeks and rivers in the project area known to contain spawning salmon, a key food of wintering bald eagles in the Pacific Northwest (Stalmaster 1987). We used a combination of ground surveys and aerial surveys to get an accurate picture of bald eagle use.

GROUND SURVEYS

Ground surveys were made biweekly during November, and weekly (except when aerial surveys were done) from December through March. Surveys focused on sites that had potential bald eagle habitat, and would be directly affected by the project.

Key ground survey locations (Figure 3) were:

1) The proposed powerhouse site and transmission line next to the regulating basin.

2) The proposed flow return site between the powerhouse and the South Fork Tolt River.

3) The proposed transmission line crossing of Harris Creek.

We also surveyed several locations along the mainstem Tolt River, North and South Forks of the Tolt River, and Stossel Creek to get an overview of bald eagle use (Figure 3). These areas were not directly affected by the project, and were surveyed as often as time permitted.

Ground surveys generally began at about 0900 hrs and lasted until dusk. We usually started at one end of the survey route, and worked upstream or downstream. The direction of the survey was reversed in alternate weeks to observe any site-specific differences in the timing of eagle use. Surveys lasted 45-60 minutes at key locations, 15-30 minutes at viewpoints, and 5-10 minutes at other locations.

At each site we recorded the age class, location, and behavior of any bald eagles observed. Eagles were classified as adults (all white head and tail) or subadults (brown plumage, with or without white mottling). Juveniles (less than 1 year old) were grouped with subadults (1-3 years old), due to the limited ability to distinguish plumage patterns of young birds in the field.

Fourteen perch trees used by eagles were characterized. Trees were selected for study based on their general accessibility, with emphasis on trees close to project features. Species, diameter (dbh), height, perch height, condition, and distance to the nearest creek or river were recorded. Heights were estimated using a clinometer and 100-ft tape. Diameters of several trees at the proposed powerhouse site were also measured and compared with those of perch trees.

Salmon presence was monitored in a small stream near the mouth of Stossel Creek. Incidental sightings of anadromous fish were also recorded on the mainstem and South Fork Tolt River. These observations were used to supplement existing data on anadromous fish in the Tolt River system, and to examine the local food supply of wintering bald eagles.

AERIAL SURVEYS

We conducted 3 aerial surveys of bald eagles. Surveys were done on January 6, February 2, and March 2, 1988, using a helicopter (Aero-Copters Inc.), pilot, and 3 observers. The survey route began at the mouth of the Tolt River, and proceeded upstream to the South Fork Tolt Reservoir (Figure 1). We then flew across to the North Fork Tolt River and surveyed downstream to the mainstem Tolt. The last leg of the survey was up Stossel Creek and down Harris Creek to the Snoqualmie River. Aerial surveys were done in mid-

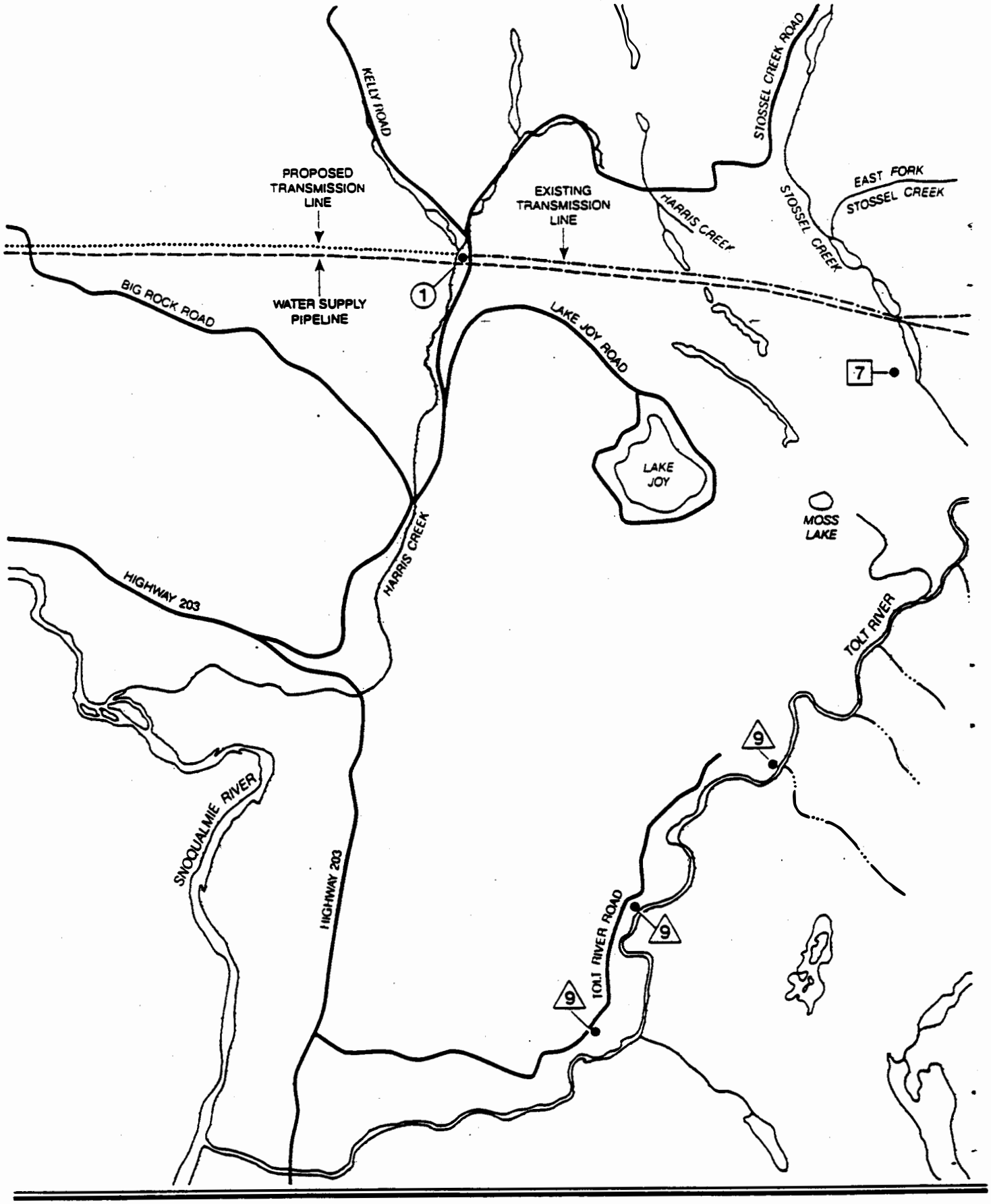

Figure 3.
Wintering Bald Eagle Study Ground Survey Locations

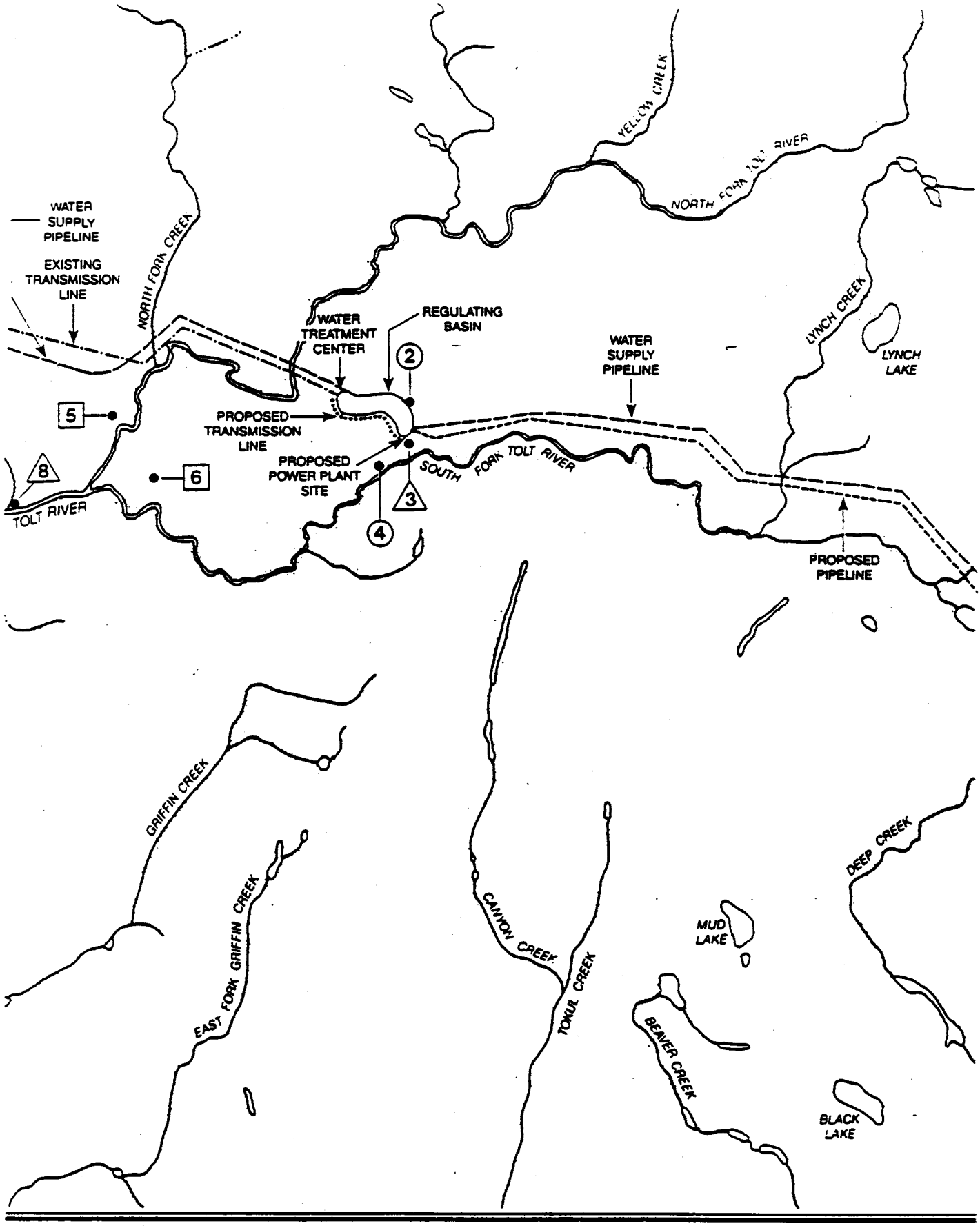

Figure 3. (Continued) Wintering Bald Eagle Stud Ground Survey Locations

morning, between 0930 and 1100 hrs, when eagle feeding activity is normally at its peak (Stalmaster 1987). Surveys lasted 65-80 minutes, and covered approximately 36 river miles.

Speed and altitude of the helicopter varied with terrain and eagle presence. Sixty to seventy knots was the maximum airspeed, and we often flew considerably slower. When we sighted an eagle we generally sloved the helicopter and detoured around the bird, circling or hovering at a safe distance until we could map its location. A distance of 100-200m was generally adequate to avoid flushing a perched eagle. By moving past the bird we minimized the chance that it would fly ahead of us, subjecting it to repeated counting and disturbance. We also recorded the eagle's age class, activity, and perch tree species.

We coordinated our aerial surveys for Seattle City Light with 3 additional helicopter surveys completed by BEAK Consultants Inc. for the Seattle Water Department. Surveys were repeated at 2-4 week intervals to obtain the maximum amount of information on wintering bald eagle populations. Both study groups surveyed the same route on the mainstem and forks of the Tolt River, but the Water Department surveys did not include Stossel and Harris Creeks. Aerial survey results were combined for the 2 studies.

ASSESSMENT OF IMPACTS AND MITIGATION

Potential impacts of the project on bald eagles were analyzed from the results of field work, literature research, and consultations with agency and other wildlife biologists. Literature research focused on the behavior, habitat use, and response to disturbance of wintering bald eagles on the Nooksack, Skagit, and Skykomish rivers. We also examined project plans, aerial photography, and data on anadromous fish use of the Tolt River and Harris Creek. Mitigation was recommended where needed to reduce impacts on wintering bald eagles.

RESULTS

WINTERING PERIOD AND POPULATION

The first reported sighting of bald eagles during the study period was on November 22, when a Department of Wildlife employee saw 2 eagles perched near the confluence of the North and South Forks of the Tolt River (personal communication, Rocky Spencer, Washington Department of Wildlife). On November 25, an adult eagle was observed feeding on a coho salmon carcass in the same area (personal communication, David Hays, BEAK Consultants Inc).

Eagles were first sighted by the authors during ground surveys on December 9. Numbers of eagles seen from the ground showed a noticeable peak in mid-December, followed by a larger peak in early February (Table 1 and Figure 4). The maximum number of eagles seen from the ground was 9. The eagle population appeared to drop sharply around the middle of February, and eagles were last seen during ground surveys on February 24.

Table 1. Numbers of adult and subadult bald eagles observed during ground surveys, Winter 1987-88.

LOCATION	AGE CLASS	NOV 11	NOV 25	DEC 2	DEC 9	DEC 16	DEC 23	DEC 30	JAN 13	JAN 20	JAN 27	FEB 10	FEB 17	FEB 24	MAR 10	MAR 16	MAR 23	MAR 31	TOTAL
Harris Creek Crossing	adult	0	0	0	0	1	0	0	1	1	2	1	0	0	0	0	0	0	6
	subadult	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Regulating Basin	adult	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	subadult	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
Powerhouse Site	adult	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	subadult	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Flow Return/South Fork Gage	adult	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	2
	subadult	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	unknown					1													1
North Fork Overlook	adult	0	0	0	1	0	0	2	3	0	1	0	0	-	-	0	0	0	7
	subadult	0	0	0	0	0	0	0	0	1	1	0	0	-	-	0	0	0	2
South Fork Overlook	adult	-	-	-	-	2	-	0	-	1	0	-	0	-	-	0	-	0	3
	subadult	-	-	-	-	1	-	0	-	1	0	-	0	-	-	0	-	0	2
Stossel Creek Overlook	adult	0	0	0	1	0	0	0	0	2	0	0	-	0	-	0	0	0	3
	subadult	0	0	0	0	1	0	0	0	0	0	0	-	0	-	0	0	0	1
Upper Mainstem Tolt	adult	-	-	-	-	-	-	-	0	0	-	0	-	1	-	0	0	0	1
	subadult	-	-	-	-	-	-	-	0	0	-	0	-	0	-	0	0	0	0
Lower Mainstem Tolt	adult	-	-	-	-	-	-	-	-	-	-	4	2	0	-	0	-	-	6
	subadult	-	-	-	-	-	-	-	-	-	-	4	0	0	-	0	-	-	4
SURVEY TOTALS	adult	0	0	0	2	4	0	2	5	4	3	5	2	1	0	0	0	0	28
	subadult	0	0	0	0	2	1	0	0	2	1	4	0	0	0	0	0	0	10
	unknown					1													1
	total	0	0	0	2	7	1	2	5	6	4	9	2	1	0	0	0	0	39

(-) indicates site not surveyed.

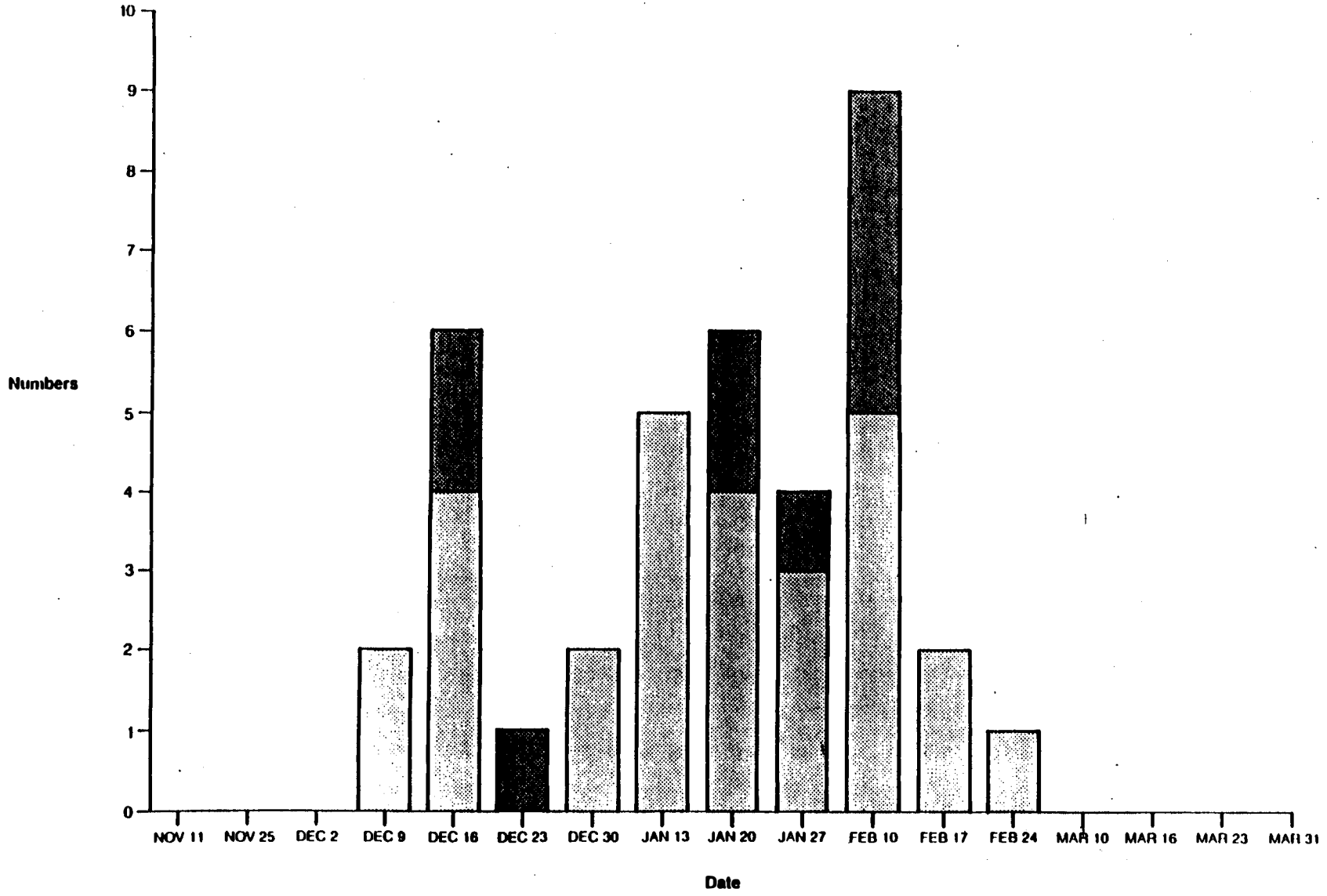

Figure 4.
Numbers of Bald Eagles Observed During Ground Surveys

Six aerial surveys were made between December 21 and March 28 (Table 2 and Figure 5). Numbers of eagles increased from 3 in late December, to a peak of 29 birds in early February. Sixteen eagles were still present at the beginning of March, but numbers had dropped to 2 by the end of March.

Subadult eagles made up 28 percent of eagle sightings for both ground surveys and aerial surveys (Tables 1 and 2). This ratio was affected by the relatively late arrival and early departure of younger birds (Figures 4 and 5).

FOOD SOURCES

The arrival of bald eagles in the study area during late November was within the range of the usual arrival time of adult coho salmon in the Tolt River system. Spawner surveys on the North Fork Tolt River suggested that the 1988 coho run peaked in early January (personal communication, David Hays, BEAK Consultants Inc.). This was borne out by our observations at the mouth of Stossel Creek. Many live fish were seen on January 7 and 16, with a noticeable decline by January 20. Fish carcasses were most numerous through February 10.

The size of the coho run appears to have been well below average, based on Department of Fisheries index counts on Langlois Creek, near the mouth of the Tolt River (unpublished data, Washington Department of Fisheries, Olympia, WA). Low flows apparently prevented coho from entering the upper reaches of Stossel Creek, as Department of Fisheries index counts on the East Fork of the creek recorded no fish. A partial barrier at RM 0.4 blocks fish passage during low water (personal communication, Tim Flint, Washington Department of Fisheries).

DISTRIBUTION AND DENSITY

AERIAL SURVEYS

Aerial surveys showed that nearly 80 percent of bald eagle use took place on the mainstem Tolt River (Table 2 and Figure 6). Eagles were especially concentrated near the mouth of Stossel Creek, and in the 2 river miles immediately downstream. The North Fork Tolt River, between RM 10.0 and 10.8, received about 10 percent of bald eagle use. Only 3 eagles (4 percent) were seen on the South Fork Tolt River, 2 of which were upstream of the proposed powerhouse site.

The maximum elevation of any bald eagle observation was 1100 ft, with 94 percent of observations below 600 ft elevation. A peak density of 2.6 eagles per river mile was recorded on the mainstem Tolt River during the aerial survey on February 2.

GROUND SURVEYS

Ground surveys recorded bald eagles at all locations except the proposed powerhouse site (Table 1). We saw a greater percentage of eagles on the North and South Forks of the Tolt River than during the aerial surveys. This

Table 2. Numbers of adult and subadult bald eagles observed during aerial surveys, Winter 1987-88.

LOCATION	AGE CLASS	DEC 21[1]	JAN 6	JAN 19[1]	FEB 2	MAR 2	MAR 28[1]	TOTAL
Mainstem Tolt River	adult	3	4	5	16	11	1	40
	subadult	0	5	4	7	1	0	17
South Fork Tolt River	adult	0	0	1	1	1	0	3
	subadult	0	0	0	0	0	0	0
North Fork Tolt River	adult	0	0	1	2	1	1	5
	subadult	0	0	2	0	0	0	2
Stossel Creek	adult	-	0	-	1	0	-	1
	subadult	-	0	-	0	1	-	1
Harris Creek	adult	-	0	-	2	1	-	3
	subadult	-	0	-	0	0	-	0
SURVEY TOTALS	adult	3	4	7	22	14	2	52
	subadult	0	5	6	7	2	0	20
	total	3	9	13	29	16	2	72

(1) Aerial survey conducted by BEAK Consultants Inc. for Seattle Water Department, North Fork Tolt River Preliminar Studies. Stossel Creek and Harris Creek not surveyed.

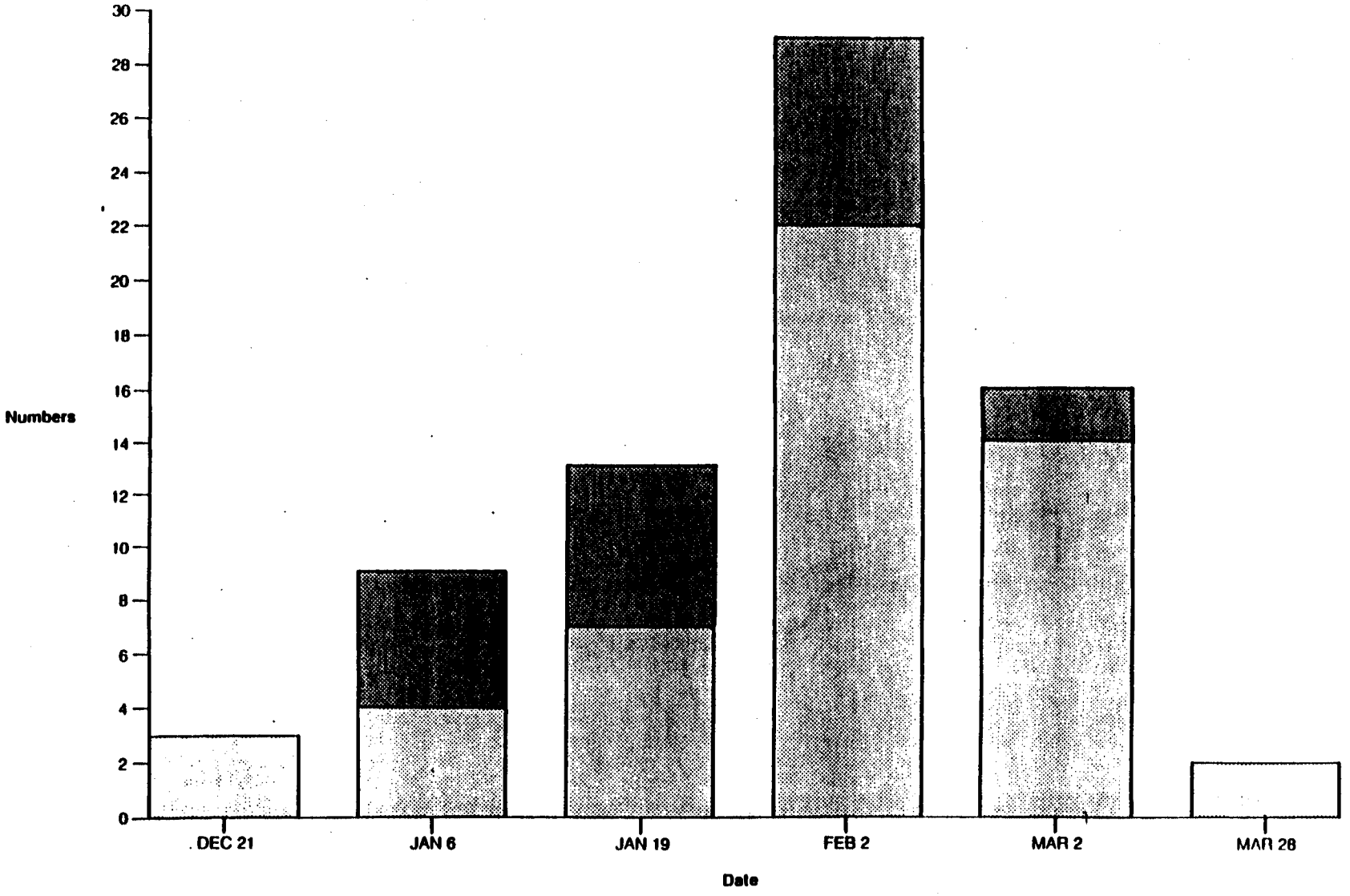

Figure 5.
Numbers of Bald Eagles Observed During

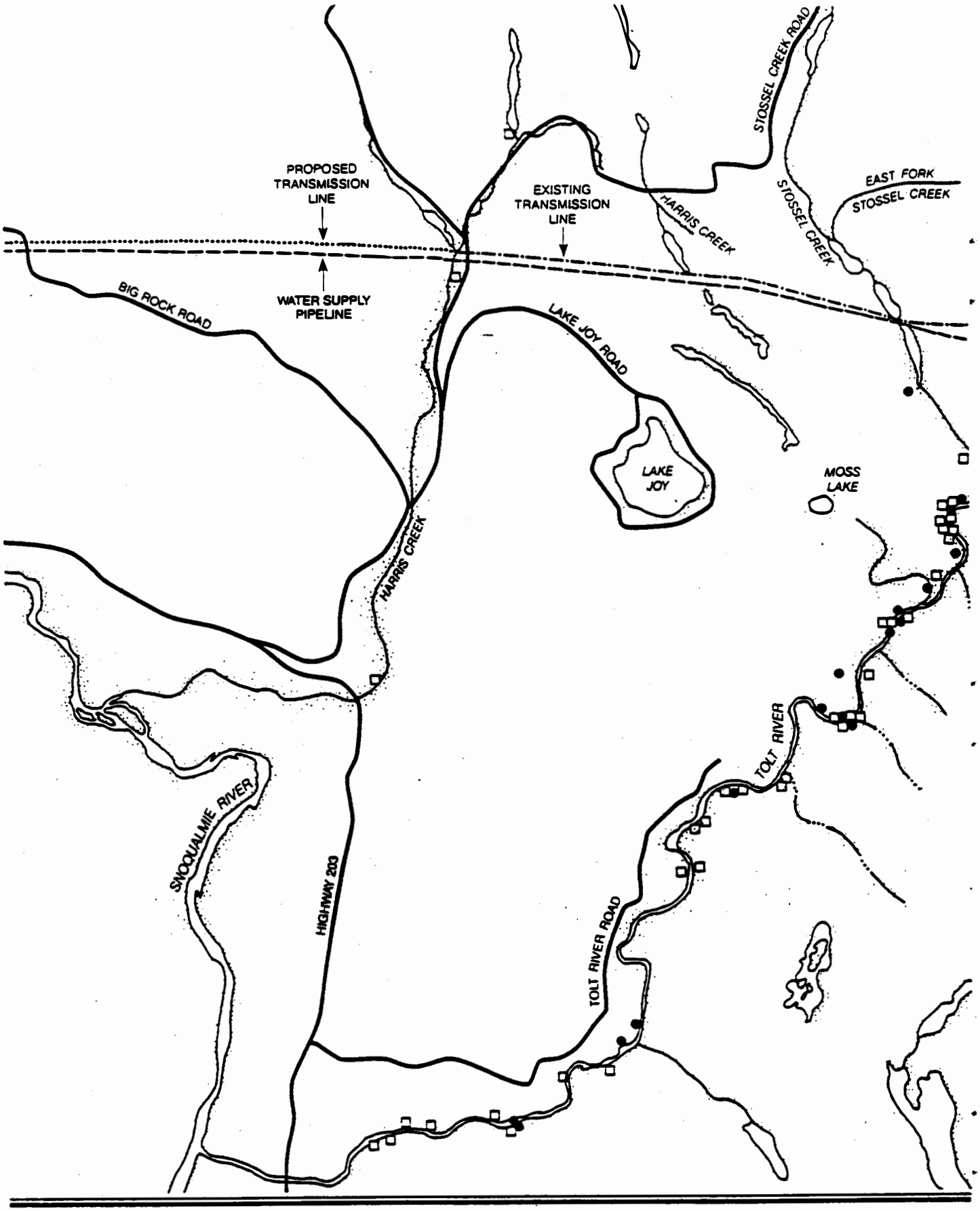

Figure 6.
Wintering Bald Eagle Study
Combined Results of Aerial Surveys

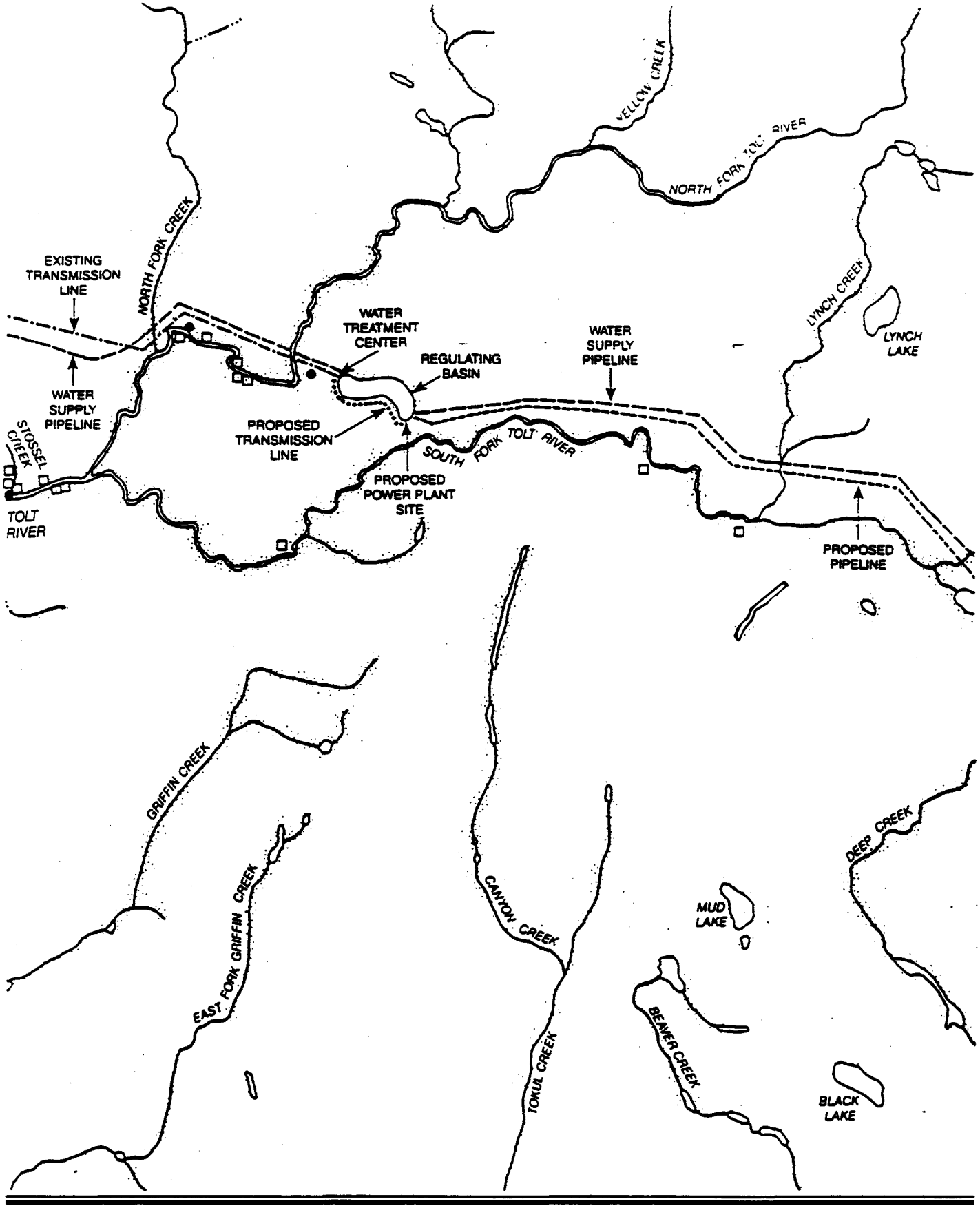

Figure 6. (Continued)
Wintering Bald Eagle Study
Combined Results of Aerial Surveys

was largely due to the focus of ground surveys in these areas and lack of access to most of the mainstem Tolt.

Of the sites that would be directly affected by the project, Harris Creek was used most often by bald eagles. From mid-December through mid-February, 1-2 adult eagles occupied the creek area. Favored perches were on both sides of the pipeline and transmission line right-of-way, 100-650 ft from the proposed construction site. Eagles were observed flying across the right-of-way, and once we saw an eagle fly down from its perch into a wetland adjacent to the creek. Although we could not see the bird, we believe that it was feeding.

Eagles were seen 3 times near the proposed flow return structure on the South Fork Tolt River. The south bank of the river, across from the project site, is very steep and dominated by old-growth conifer forest. One particularly large dead-topped Douglas-fir was used as a perch tree by bald eagles. The tree is approximately 250 ft downstream from the site of the proposed energy dissipating structure. We also observed an eagle flying upstream at this location, just before dark.

Employees at the water treatment center reported bald eagles flying over the regulating basin area on 3 occasions. We also observed an eagle flying over the area during one of the ground surveys. Eagles appeared to be travelling between the North and South Forks of the Tolt River. Several ducks were present on the regulating basin, but eagles were never seen hunting them. We did not see any bald eagles perching in the vicinity of the proposed powerhouse or transmission line near the regulating basin.

BEHAVIOR AND HABITAT USE

Eagle activity and perch tree use during aerial surveys is summarized in Table 3. Approximately 3/4 of the birds were either perched in trees, or standing on the ground, in or next to the river. We suspect that most of the birds that were flying were frightened from the ground or tree perches by the helicopter. Interestingly, a much higher percentage of subadult birds (57 percent) was seen flying than adult birds (18 percent). This difference is significant at the 1 percent level ($G=7.217 > X^2$; $df=1$).

Black cottonwood was the primary perch tree species used by eagles during the aerial surveys (Table 3). Other broadleaf trees and conifers were used to a lesser extent. We did not determine the availability of different species of trees, but our impression is that black cottonwood is the dominant tree species, both in frequency and height, along the mainstem Tolt River. Douglas-fir and other conifers become dominant on the North and South Forks of the Tolt.

Measurements of several perch trees used by bald eagles are shown in Table 4. All the trees, with the exception of the alders, are locally dominant in terms of height and diameter. The Douglas-firs along the North and South Forks of the Tolt River, and the cottonwoods along the mainstem Tolt are particularly impressive. Perch trees are within 650 ft of water (most are within 100 ft), and each affords a good view of nearby rivers or creeks. All the conifers have dead or broken tops (one is completely dead), and the

Table 3. Activity and perch tree use by bald eagles observed during aerial surveys.

Activity/Perch Type	Date of Survey 1/6	2/2	3/2	Total
Perched				
Black Cottonwood	4	13	10	27
Red Alder		1		1
Big-Leaf Maple			1	1
Unidentified Broadleaf	1	1		2
Western Redcedar		3		3
Western Hemlock		1	1	2
Dead Conifer		1		1
Unrecorded Perch		1		1
On Gravel Bar/River	1	1		2
Flying	3	7	4	14
Totals	9	29	16	54

Table 4. Statistics for selected bald eagle perch trees.

Species	Location	Diameter (dbh)	Total Height	Perch Height	Distance to Water
Black Cottonwood	Harris Creek	31	97	85	185
Black Cottonwood	Harris Creek	34	105	89, 74	53
Black Cottonwood	Mainstem Tolt River	39	135	125	0
Black Cottonwood	Mainstem Tolt River	50	150	---	25
Black Cottonwood	Mainstem Tolt River	36	145	---	21
Red Alder	Harris Creek	16	80	56	14
Red Alder	Harris Creek	20	87	70	36
Douglas-Fir (Dead)	Harris Creek	27	112	90	17
Douglas-Fir	S.F. Tolt River	64	226	220	70
Douglas-Fir	S.F. Tolt River	76	220	205	53
Douglas-Fir	N.F. Tolt River	65	196	157	650
Douglas-Fir	N.F. Tolt River	59	189	132	600
Western Redcedar	S.F. Tolt River	83	154	133	102
Sitka Spruce	Stossel Creek	58	119	119	21

Tree diameters measured in inches; all other measurements in ft.

cottonwoods have open crowns, allowing good visibility and easy access. Eagles were perched on stout, lateral branches, in the upper third of the trees.

One observation of an eagle roost was made during the study. On January 7, a single subadult eagle entered and remained in a dead-topped Douglas-fir at about 1600 hrs. The roost tree was surrounded by conifer forest on an east-facing slope next to the mainstem Tolt River. This is just downstream from the mouth of Stossel Creek, in the same area where eagles were most frequently observed during the aerial surveys. Twice we observed single bald eagles flying up the North and South Forks of the Tolt River at dusk, suggesting that some birds roosted in these areas.

DISCUSSION

WINTERING PERIOD AND POPULATION

Aerial and ground surveys showed that bald eagles in the Tolt River system reached peak numbers during the first two weeks of February. This is later than typically observed on the Nooksack River (Stalmaster 1987), but within the range of population peaks occurring on the Skagit (Servheen 1975, Hunt and Johnson 1981). Radiotelemetry studies have shown that eagles wintering in western Washington are highly mobile, and are adept at exploiting widely-spaced food concentrations (Hunt and Johnson 1981). The late winter influx of eagles on the Tolt River probably stemmed from birds moving in after food supplies were depleted elsewhere.

One likely source of eagles entering the study area is the Skykomish River, 15-20 miles northeast of the Tolt River. Winter surveys in the upper Skykomish system showed a rapid decline in eagles around the end of January (Paz 1988). This decline coincided with the large increase in eagle numbers on the Tolt River.

It is also possible that many of the eagles were breeding birds moving northward through Washington to nesting territories in British Columbia and Alaska. The high proportion of adults in late winter supports this hypothesis (personal communication, Jim Watson, Washington Department of Wildlife). The departure of most of the eagles in the study area by the end of March was consistent with the behavior of eagles on the Nooksack and Skagit Rivers (Servheen 1975, Hunt and Johnson 1981, Stalmaster 1987).

We recorded a maximum population of 29 bald eagles in the study area during early February. The ratio of subadult eagles (28 percent) was somewhat less than ratios found on other rivers in the Pacific Northwest (Stalmaster 1987). Subadult proportions tend to be greater where food is more plentiful (Stalmaster 1976), suggesting that salmon carrion may have been relatively scarce during the study.

FOOD SOURCES

We believe that coho salmon are the main food source of bald eagles wintering in the study area. Coho are far more abundant than other salmon species in the Tolt River system, and the arrival time of eagles during late November coincided with the usual arrival of adult coho. This differs from many other Northwest rivers, where coho salmon play a secondary role to chum salmon in the eagles' winter diet (Stalmaster et al. 1979, Hunt and Johnson 1981, Stalmaster 1987). Coho are also widely distributed in Harris Creek, and probably supply most of the winter food of eagles there.

Bald eagles usually do not take live salmon, but scavenge the carcasses after they wash up onto shore or into shallow water (Servheen 1975, Stalmaster 1987). Eagles may also utilize steelhead, although not to a great extent since few of the fish die immediately after spawning. Live steelhead are seldom taken (Servheen 1975). Small groups of waterfowl (mostly mallards) occupy the wetlands on Harris Creek, and may be an alternate food source of eagles wintering in that area.

DISTRIBUTION AND DENSITY

Aerial surveys showed that a large majority of the bald eagles wintering in the study area during 1987-88 were concentrated along the mainstem Tolt River. A smaller, but significant, percentage of eagles used the North Fork Tolt River, with relatively few eagles on the South Fork Tolt, Stossel Creek, and Harris Creek.

The concentration of bald eagles along the mainstem and North Fork Tolt River undoubtedly related to the presence of salmon carcasses. The availability of carcasses in these areas is enhanced for eagles by a number of factors, including the presence of good spawning habitat, wide stream reaches, slow-moving water, and large perch trees. The distribution and availability of salmon carcasses is also influenced by annual and weekly changes in flow conditions and the size and timing of fish runs. We expect corresponding changes in the distribution of eagles, within limits of habitat.

An example of the annual variation in salmon and eagle distribution is upper Stossel Creek, where we saw very few eagles during the study. Drought conditions blocked salmon access to most of the creek, contributing to the lack of eagle use. During the preceding winter there was a very strong run of coho, and as many as 12 eagles were consistently seen along the upper part of Stossel Creek (unpublished data, Washington Department of Fisheries, Olympia, WA; personal communication, Bob Lantiegne, Washington Department of Wildlife; personal communication, George Meier, Kirkland, WA).

Peak density of eagles recorded during the study was 2.6 birds per river mile on the mainstem Tolt River. Stalmaster et al. (1979) observed peak densities of 7 eagles per river mile along a section of the Nooksack River. Eagle populations in the study area during other years are unknown, but undoubtedly vary with local and regional salmon abundance and availability.

BEHAVIOR AND HABITAT USE

Approximately 70 percent of the bald eagles observed during aerial surveys were perched in trees along waterways. Twenty-six percent were flying, and 4 percent were standing in or next to the river. The prevalence of eagles perched in trees is not surprising, given that wintering eagles spend about 30 percent of their 24-hour day loafing on perches, and another 68 percent roosting in trees at night. This leaves only 2 percent of the day for flying, foraging, and feeding (Stalmaster 1987).

Our impression is that eagles were using tree perches not only for loafing, but for hunting. Several of the perched eagles observed during the aerial surveys appeared to be watching the river intently, possibly waiting for salmon carcasses to drift near shore. During a ground survey at Harris Creek we saw an eagle fly down from its perch into an adjacent marsh, where it remained for approximately 20 minutes. Although we couldn't see the bird, we suspect that it was feeding.

Most of the eagles that we saw flying during the aerial surveys were probably frightened by the helicopter. Subadults appeared to fly more often than adult birds. There are several possible explanations for this difference. One is that adult eagles may be more habituated to aerial disturbances. This idea is somewhat contradicted by several studies showing that adult eagles are far more easily disturbed by human activities on the ground than are subadult birds (Stalmaster and Newman 1978, Knight and Knight 1984, Knight and Knight 1986).

Another hypothesis is that since subadult eagles are less conspicuous than adults, they are more likely to be seen when flying than when perched. This would result in some subadult birds being overlooked, particularly on aerial surveys where the ability to search for eagles is quite limited. The fact that we saw the same percentage of subadult eagles during ground surveys and aerial surveys weakens this argument.

A third possibility is that many of the subadult eagles were standing or feeding on the ground during the aerial surveys, where they were less secure and more likely to fly in response to the helicopter. Knight and Knight (1984) reported that eagles on the ground are less tolerant of disturbances than eagles perched in trees. More field work would be needed to verify this or other possible reasons for the different responses of adult and subadult eagles during aerial surveys.

Black cottonwood was the primary perch tree species used by eagles during the aerial surveys. Stalmaster and Newman (1979) found that cottonwood was heavily utilized by eagles wintering on the Nooksack River, although snags and big-leaf maple were even more strongly preferred. Wintering eagles usually select daytime perches near clearings or river channels that are close to salmon spawning areas. Tall trees with strong lateral branches high in the crown are preferred (Stalmaster and Newman 1979, Stalmaster et al. 1985). Measurements of several perch trees used by bald eagles in our study confirmed the general preference for tall, large-diameter trees, with good visibility and access to rivers and creeks.

We do not know whether most of the bald eagles in the Tolt River system roost singly or communally, but there appears to be plenty of good roosting habitat along much of the river. The area on the mainstem Tolt, from the mouth of Stossel Creek, downstream about 2 miles to the end of the Tolt River Road, appears to have the best potential for roosting. This area is isolated from development, has a variety of large trees, and supported the largest concentration of wintering eagles during the study. We observed one eagle roosting in this area. The North and South Forks of the Tolt River may also provide some roosting habitat, as suggested by observations of single eagles flying upstream in these areas at dusk.

EFFECTS OF THE PROJECT AND RECOMMENDED MITIGATION

Bald eagles used 2 of the 4 study sites that would be directly affected by the proposed hydroelectric project. Probable impacts and recommended mitigation measures are discussed below.

HARRIS CREEK CROSSING

Harris Creek was occupied by 1-2 adult eagles from the middle of December through mid-February. Eagles used perch trees on both sides of the pipeline right-of-way, within clear view of the proposed transmission line crossing. Eagles were observed flying across the right-of-way, and apparently fed in the creek and wetlands adjacent to the site. We would expect more eagles to use the area, perhaps over a longer time period, during years of strong coho returns.

Given the attraction of the Harris Creek site to eagles, it is likely that construction activity during winter would disturb the birds, causing them to avoid the immediate vicinity of construction. Human disturbance can stress eagles, increasing their energy losses and reducing their chances of surviving through the winter (Stalmaster 1983). Wintering eagles spend only about 2 percent of the day actively foraging and flying. The rest of the time is spent in a quiet state, allowing them to conserve precious energy (Stalmaster 1987). Although eagles can habituate to routine human behavior, they are relatively intolerant of unfamiliar activities, particularly those which are highly visible (Stalmaster and Newman 1978).

If winter construction could be completed within a few days, the impact on eagles would probably be minor. It would be preferable, however, to schedule the work outside the wintering period (approximately December 1-March 15).

Construction of aerial transmission lines across Harris Creek poses some risk that eagles would collide with the lines during periods of poor light or fog. We recommend alternative construction methods that would reduce or eliminate this risk. One solution would be to bury the transmission line between Kelly Road and the base of the slope on the west side of Harris Creek. A less costly method would be to wrap the transmission lines with a special material designed to increase their visibility to raptors (U.S. Fish and Wildlife Service, Appendix A). If the latter method is chosen, we recommend that the

height of the transmission lines be minimized within the limits of public safety.

SOUTH FORK TOLT RIVER FLOW RETURN STRUCTURE

Bald eagles occasionally perched in a large Douglas-fir tree near the site of the proposed flow return structure on the South Fork Tolt River. Eagles were observed in the tree twice during 17 hours of surveys, suggesting that the tree was used infrequently. On both occasions, the birds left the perch within a short time of landing, and were apparently frightened by our presence. The perch tree is across the river and approximately 250 ft downstream from the site of the proposed flow return structure. The height of the perch is about 300 ft above river level, with a clear view of the proposed construction site.

Bald eagles are unlikely to use this part of the river for feeding, due to the scarcity of salmon and the confined nature of the stream channel. Eagles typically forage in more open areas that give them a sense of security and room for unobstructed flight (Stalmaster et al. 1985). The nearest potential feeding areas on the South Fork Tolt River appear to be about 1 mile downstream and 1.5 miles upstream of the proposed flow return site.

Based on the response of eagles during the study, we feel that they would avoid the perch tree during periods of construction activity. Since the tree is not used heavily, this temporary disturbance should not harm the local eagle population. Nevertheless, as a precaution the U.S. Fish and Wildlife Service recommends that construction at this location be scheduled outside the wintering period to avoid disturbing the eagles (Appendix A). We expect that operation of the flow return system would have no effect whatever on bald eagle use of the area.

POWERHOUSE SITE AND TRANSMISSION LINE

We did not see any bald eagles perching or roosting in the vicinity of the proposed powerhouse or transmission line near the regulating basin. Forest habitat at the site consists of pole-stage to mature conifer and broadleaf stands. Much of the area was logged within the last 45 years. Diameters of several conifers at the powerhouse site range from 14 to 24 inches, well below the sizes of most conifers used as bald eagle perches in the study area. Trees along the proposed transmission line corridor are even smaller.

As the trees mature they may attain a size and structure more suited to bald eagle use. However, given that suitable habitat continues to exist near feeding areas on the Tolt River, it is unlikely that eagles would use the area near the regulating basin more than occasionally. We conclude that construction of the powerhouse, transmission line, and associated structures would not remove any significant bald eagle habitat.

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CONSULTATIONS

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Wharton, Pat. Biological Technician, U.S. Forest Service, Mt. Baker-Snoqualmie National Forest, Mt. Baker Ranger District. Sedro Woolley, WA.

APPENDIX A

U.S. FISH AND WILDLIFE SERVICE RESPONSE LETTER

United States Department of the Interior

FISH AND WILDLIFE SERVICE

Ecological Services
2625 Parkmont Lane SW, Bldg B
Olympia, Washington 98502
206/753-9440 FTS 434-9440

September 13, 1988

Mr. Dave Pflug
Environmental Affairs Division
Seattle City Light
1015 Third Avenue
Seattle, Washington 98104

FWS Reference: 1-3-88-I-208

Dear Mr. Pflug:

This is in response to your letter dated July 12, 1988, and received in this office on July 13, requesting comments on the agency draft, *Winter Bald Eagle Study for the Proposed South Fork Tolt River Hydroelectric Project (FERC No. 2959)* in King County, Washington. Your consultant did an excellent job gathering and presenting information on bald eagle use of the project area.

Based on the information in the report, construction and/or operation of two project features present potential conflicts with bald eagles. We believe problems would be avoided if the following recommendations were implemented.

The Harris Creek transmission crossing site received consistent use by wintering eagles (December 1 through March 15). We agree with the consultant that construction of this line within the vicinity of Harris Creek should only occur outside the major wintering period from March 15 though December 1.

The placement of overhead transmission lines on Harris Creek could impact bald eagles because of the possibility of eagles striking the wires. The fact that Harris Creek, in the vicinity of the crossing, is an area used by foraging eagles increases the chance of this occurring. The preferred alternative to an aerial crossing would be to bury the lines in the vicinity of Harris Creek. A less preferred alternative would be to wrap the lines with a product such as "Spiral Damper" to make them more visible. This product can be manufactured in high visibility colors and, more importantly, individually wrapping the lines would increase their apparent diameter, rendering them more visible to birds in flight.

The South Fork Tolt River return structure is the other project feature that would be placed in an area used by bald eagles. Although the study indicated that use of this area by eagles is low, construction occurring during the eagle winter period could disturb and displace eagles. Our recommendation is to schedule construction on the return structure outside the

eagle winter period from March 15 through December 1. Since the use of this area by eagles was low, other options might be available if scheduling restrictions are not possible.

As you are aware, the Federal Energy Regulatory Commission has specific responsibilities to protect and enhance listed species under the Endangered Species Act of 1973, as amended. In order to comply with the Act, the Commission consults with this Service and endeavors to eliminate impacts to listed species. Conservation measures recommended by this Service for eliminating impacts to listed species are often implemented by the Commission as conditions to licensing. We are available to work with you on an informal basis to resolve endangered species issues prior to Commission involvement. Please contact Jim Michaels of my staff at the above phone/letterhead if you would like to have further discussion on this project or if you have any questions.

Thank you for the opportunity to review and comment on your draft study.

Sincerely,

Lynn P. Childers

Lynn P. Childers
Acting Field Supervisor

c: WDW (Nongame)
WNHP
Sweeney

ATTACHMENT D

Proposed hydroelectric projects located within the Snohomish River Basin			
Name of Project	**FERC No.**	**Applicant/Licensee**	**Status**
South Fork Tolt River	2959	Seattle City Light	licensed: stay lifted - July 1989
Storm Ridge	5305	Western Power, Inc.	license denied - July 1988
Excelsior Mountain	5338	Western Power, Inc.	license rejected - January 1986
Olney Creek Falls	5853	Western Hydro Electric	license denied - July 1988
Tokul Creek	6220	Weyerhauser Co.	license revoked - July 1988
Black Creek	6221	Weyerhauser Co.	license granted - July 1988
Barclay Creek	6310	SDS Hydropower	license granted - October 1990
		(formerly Gull Industries)	
Existing projects located within the Snohomish River Basin			
Name of Project	**FERC No.**	**Licensee**	**Status**
Snoqualmie Falls	2493	Puget Sound Power & Light	on line - 1898
Henry M. Jackson	2157	Snohomish PUD	on line - June 1984
(formerly Sultan River)			
Twins Falls	4885	Twin Falls Hydro Association	on line - January 1990
Weeks Falls	7563	South Fork II Association	on line - May 1987

ATTACHMENT E

United States
Department of
Agriculture

...ger District

42404 SE North Bend Way
North Bend WA 98045
206/888-1421

Reply To: 2770(2470)

Date: May 10, 1991

Mr. Dave Pflug
Environmental Affairs Division
Seattle City Light
1015 Third Avenue
Seattle, Wa. 98104

Dear Dave:

On May 10, 1991 I accompanied Jane Wentworth, Paul Olson, Ron Bates and you on a tour of the proposed S.Fork Tolt River Hydro project. We began at the point where the new pipe line will leave the existing concrete encasement near the foot of the Tolt dam and followed along the location of the new pipeline to the site of the proposed powerhouse and then down to where the energy dissipator enters into the S. Fork Tolt River. We also looked at the proposed temporary field office site west of the proposed powerhouse. Along the way I measured diameters and ages of trees that generally represented larger and older trees in the stands.

In my professional judgement, none of the stands that will require clearing meet the definition of old-growth as defined in the Pacific NW Research Station's research note #PNW-447. I based this decision on the following items using the criteria listed for Douglas-fir/western hemlock sites:

The old growth definition requires "two or more species with a wide range of ages and tree sizes." The stands have two or more species (predominately western hemlock and Douglas-fir with some minor amounts of western redcedar and red alder) but ages are fairly uniform within each stand, usually varying less than 30 or 40 years between the oldest and younger tree in each stand. Sizes also are fairly uniform, ranging from 13" to 26" in dbh (diameter breast height) in one stand to 13" and under in another younger stand, and about 16-20" in still another stand.

The old-growth definition also requires "at least 8 Douglas-fir trees/acre greater than 32" in dbh or greater than 200 years old". Within the clearing limits I observed no Douglas-fir larger than 26" dbh and all trees were less than about 80 years old. It appears to me that the older stands originated following extensive harvest of the old growth which occured during the railroad logging era.

The definition also requires a "deep, multilayered canopy". The canopies that I observed are shallow, even layered canopies. Most trees are less than 100 feet in total height.

The definition also requires "at least 15 tons/acre of downed logs including 4 pieces /acre at least 24" in dbh and >50 feet long." At the powerhouse site I saw some large old growth stumps (probably cut about 60 years ago) and two downed logs which meet the size requirement, but generally the stands are missing any sign of downed logs of the required size.

To briefly summarize my professional qualifications; I have a Bachelor of Science Degree in Forestry from the University of Washington and have completed 2/3 of the course requirements towards a Master of Science Degree in Forest Ecology at the University of Washington through the Silviculture Institute's graduate student program. I have 34 years work experience with the USDA Forest Service, most of which has been in the field of timber management. I have been a Pacific Northwest Region certified silviculturist since 1980, shortly after the certification program began. I am currently employed as a supervisory forester/district silviculturist at the North Bend Ranger Station.

I enjoyed meeting all of you and enjoyed the opportunity to see the project area. I was pleased to see the concern for the environment that you all seem to share. I wish you the best in carrying out the project.

Stan Pasin

Stan Pasin
Supervisory Forester/R6 Certified Silviculturist

MEMORANDUM

WASHINGTON STATE
DEPARTMENT OF NATURAL RESOURCES
SOUTH PUGET SOUND REGION
PO BOX 68; ENUMCLAW, WA 98022

TO: Paul H. Wilson
Environmental Affairs Division
Seattle City Light
1015 Third Avenue
Seattle, WA 98104-1198

FROM: Rex Thompson, Resource Protection Forester

SUBJECT: South Fork Tolt Project - (FERC No. 2959)

DATE: April 22, 1991

As you requested, I completed a review of your project as it relates to the occurrence of old growth timber within the project area. I did this review based on a reconnaissance of aerial photos. The following is the results of the review:

o The term "old growth timber" can have many definitions. For the purpose of this review, old growth will be defined as trees older than 100 years. It appears that no trees older than 100 years exist within the project area with the possible exception of the "river return flow conduit" area. This area may contain a few old growth trees. While these type of trees may remain valuable for cavity nesting wildlife, the limited numbers of these trees would tend to restrict use of this area by those wildlife species which require large contiguous areas of old growth as habitat.

o If a more in-depth analysis of this issue is required for your purposes, I recommend that you contact the Washington Department of Wildlife for assistance in determining the relative value of old growth trees which may be within the project area.

If you have any further questions, please feel free to contact me through our Enumclaw office at 825-1631.

ATTACHMENT F

NORTHWEST POWER PLANNING COUNCIL

851 S.W. SIXTH AVENUE, SUITE 1100
PORTLAND, OREGON 97204
Phone: 503-222-5161
Toll Free: 1-800-222-3355
FAX: 503-795-3370

February 7, 1992

Mr. Ed Benson
Science Applications International
1845 Terminal Drive
Richland, Washington 99352

RE: FERC Project # 02959-33 (South Fork Tolt River)

Dear Mr. Benson:

You have requested information on your project's consistency with the protected areas aspect of the Northwest Power Planning Council's Columbia Basin Fish and Wildlife Program and Power Plan. Based on staff review of the information you have provided, it appears that the above referenced project was licensed in 1984, before the adoption of the Council's protected areas rule. Because this project was licensed prior to the rule, it is not subject to the Council's protected area rule.

If you have any questions concerning this matter, please call me at (503) 222-5161.

Sincerely,

Peter J. Paquet, Ph.D.
Senior Biological Associate

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ATTACHMENT G

SOUTH FORK TOLT PROJECT
AGENCY CONSULTATION AND PUBLIC INVOLVEMENT

February 4, 13, 19 and March 11, 1980	Public Meetings - Carnation	Public questions, comments on SEPA process.
August 6, 1980	Agency & Public Distribution	SEPA Draft EIS published. Sent to over 100 agencies, organizations and individuals.
August 26, 1980	Public Meeting - Carnation	Public comments on SEPA Draft EIS.
December 1980	Agency Comments	Issued SEPA Final EIS Comments and replies on Draft EIS incorporated. 26 letters received from agencies, individuals, and private organizations.
May 1, 1981	Agency Meeting - Seattle	Project meeting to discuss ramping rate and dissipating structure design. Attendees: WDF, WDG, WDOE, USFWS, NMFS, Seattle Water Dept (SWD), Steelheaders
June 29, 1981	Agency Meeting - Seattle	Discussed Exhibit E of license application. Discussed Reservoir/Project temperature, ramping rate, and dissipating structure. Attendees: WDF, USFWS, NMFS, SWD, Tulalip Tribes
October 1981		FERC license application filed. Includes comments from 10 agencies and tribes.
February 15, 1983	Public Hearing - Seattle	Shoreline Substantial Development Permit (King County) hearing. Discussed Tolt River Fisheries and Instream Flow Analysis.
Oct 1984- Oct 1988	Agency Consultations	TFAC (Tolt Fishery Advisory Committee) meetings generally took place on a monthly basis. After March 1984 license stayed by FERC in July 84, conducted negotiations with agencies and tribes to reach agreement on flow regime and study program.

		TFAC members: SCL, SWD, WDF, WDG (later WDW), USFWS, NMFS, Tulalip Tribes, WDOE
October 27, 1988		Settlement Agreement between SCL, SWD, agencies and tribes submitted to FERC.
January 1989 to present	Agency Consultations	Periodic TFAC meetings to discuss gravel studies, spawning surveys, etc.
December 1991	Public Notice	Notice of application for change in Water Right published twice in Seattle Times. No comments received by WDOE.