

Date: May 31,2001
Division: Northwest
District: Seattle

Section 206 Preliminary Restoration Plan

1. Project:
Little Baker River Restoration Project
Washington Congressional District No. 2
2. Location:
The project site is located in Skagit County, Washington, within and immediately adjacent to the town of Concrete (see attached site map, figure 1).
3. Description of Proposed Project:

Historic condition:

The Little Baker River, a historic side channel to the Baker, provided side channel spawning and rearing habitat for anadromous salmon and other fish and wildlife species prior to the 1950's. Specifically, chinook, coho, chum, sockeye, native cutthroat, mountain white fish, various sculpin species, and perhaps pink and native char, were found in this area. Wildlife species utilizing this area included black tailed deer, black bear, river otter, elk, and beaver in addition to listed species such as bald eagles, marbled murrelets, northern spotted owls, canadian lynx, grizzly bear, and grey wolves. Fluvial processes in this basin helped to create a productive ecosystem. Stream flow originating from glaciers, precipitation, and groundwater created a complex braiding system of which the little Baker was member. These channels provided complex off channel habitat and served to create the confluence delta, site of the proposed project, a deposition zone for sediment. The Little Baker meandered within the delta environment and native species found predominantly in the lower basin provided stream cover and shade. Large woody debris provided an important element of rearing, winter refuge and cover habitat.

As development of the Skagit River valley progressed, the hydrology and biological resources of the area – and that of the confluence delta-were progressively altered. Stream channel complexity was diminished as the Baker stream bed was homogenized through dredging in 1967. Sources of large woody debris diminished and near shore fish and wildlife habitat was eliminated with degrading riparian areas. Among those industries and events directly impacting the delta included a lumber mill, steamship port, log yard, construction staging area, concrete ready-mix operation, construction of highway 20 bridge, and a gravel pit. The gravel and concrete ready-mix operation were discontinued in the 90's, allowing the focus of the area to return to fish and wildlife habitat. Figure 3 shows the historical Little Baker River with complex side channel habitat – indicative of those conditions this project would restore.

Current Condition:

The Lower Baker dam, built in 1928 owned and operated by Puget Sound Energy (PSE), altered flows and precludes the passage and deposition of new gravel in downstream areas. Decades of gravel extraction of the delta has exhausted this resource. PSE's dredging of the Baker River has changed the shape and elevation of the delta. A combination of the initial dredging in 1957 and the construction of the PSE fish trap caused de-watering of the Little Baker Channel.

The lower 2500 feet of the Little Baker has intermittent stream flow from groundwater sources (250 to 500 gallons per minute). Numerous ponds exist along its alignment which may connect during high flows but are primarily landlocked during the year. No surface water from the main Baker River flows into the Little Baker River except at very high river flows.

Natural processes occurring at the Little Baker River and the confluence delta are mostly related to high flow events associated with the Skagit River and main Baker River. Inundation of the delta may occur annually or bi-annually during high flows. Large organic debris is recruited and deposited along the right bank margin of the Skagit River and the delta. Coarse sand, the largest sediment transported along the Little Baker River alignment in high flows, is scoured cyclically, exposing underlying gravel, and deposited in downstream areas. Additional flow is dissipated through flood overflow and relief channels across the lower end of the delta and along the Little Baker River alignment. The combination of flow hydrology from the main Baker and release from the dams in addition to the influence of the Skagit River and its tributaries provides a complicated condition at the Little Baker site. All restoration design must incorporate the regular flood events of the Skagit and Baker rivers as natural and beneficial processes.

Chum, coho, and possibly pink salmon utilize the lower 2500 ft of the Little Baker Channel for spawning. A pond complex, near the outlet of the Little Baker – on the right bank of the Skagit, provides habitat and refuge for juvenile coho and chinook salmon. However, this habitat is accessed only during high flow events and becomes disconnected from the main channel and lower 2500 ft during normal flows. As a result, stranding of coho juveniles is common. Additional ponds exist in the upstream end of the Little Baker River, but are mostly landlocked and provide limited fish habitat.

In addition to the fish species present, river otter, and beaver are present along the entire reach of the Little Baker. Raccoon, bear, and black tailed deer also utilize the delta area.

Purpose of Project:

The primary objective of this project is to restore the Little Baker River channel to provide habitat for salmon that allows for spawning, early rearing, and smolt production in a natural setting. Of special focus is spawning, rearing, and winter refuge habitat for Puget Sound summer fall chinook and coho salmon. Habitat restoration will also provide areas for all freshwater life stages of chum and pink salmon as well as steelhead trout. A secondary goal is to provide/enhance buffer habitat for other wildlife species including river otter, beaver,

black tailed deer, bear, and those listed, bald eagles, marbled murrelets, northern spotted owls, Canadian Lynx, grizzly bear, and grey wolves.

Proposed Project:

The proposed project would restore approximately 1 mile of prime fish spawning and rearing and wildlife habitat in the historic Little Baker River Channel (see figure 2). It would consist of constructing a water supply structure and perched channel to deliver flow to two excavated channels. The design would allow continuous flow in the restored channel at low and normal flow conditions. We would incorporate water velocities, gravel substrate placement, and cover to promote spawning of salmon and steelhead. Several ponds would be excavated and connected to the channel to provide adult holding and juvenile rearing areas (figure 2). One large gravel wash pond, remnant of previous gravel mining operations, would be restored and connected to the pond network for acclimation of sockeye smolts. Disturbance of the existing tree cover and vegetation would be minimized during construction. All disturbed areas, both existing and those resulting from project construction, would be revegetated with native plants to provide cover for fish and wildlife. We would focus on wetland and/or native tree species within the middle project area (see figure 3), such as elderberry, oregon ash, willow, red alder, cottonwood and maple and such shrub species as salmonberry, and snowberry. Recreation features such as education displays and trails to provide viewing and accessibility to spawning and rearing habitat are proposed.

Expected outputs and how these will be measured:

This project will benefit Puget Sound chinook, a listed species, and will help mitigate the loss of the Baker River chinook, which have been eliminated for many years. This project will increase the quantity of fish and wildlife habitat and habitat diversity. The project will increase levels of species diversity, such as the expansion or introduction of many species of benthic organisms such as mollusks and aquatic insects, as a result of restoration of complex habitat, including slow moving water. (Studies have demonstrated that zooplankton abundance is much higher in backwaters than in the main channel (Vranovsky. 1974: Bothar. 1981)). Not only will the reestablishment of the Little Baker provide a greater number and diversity of prey organisms, it will provide habitat for all fresh water life stages of all Pacific salmon species.

Two specific parameters that will be measured are habitat complexity and species diversity:

Habitat complexity: An interspersed of highly productive and varied habitat types as is proposed for this project will allow for greater species diversity than is currently available. More of the life history needs, such as reproduction, feeding and rearing, of this diverse population will be provided within the project site and eliminate the need to disperse to other habitats. Also, lower predation and expenditure of energy is anticipated. Some examples of outputs that could be measured are stream width, depth, water velocity, cover, pools and riffles, and temperature. As the Little Baker River does not exist at present the before project conditions will be easy to enumerate.

Species Diversity: This project adopts a multi-species approach. That is, by excluding exotics and invasive species from the project area, benefits will be provided (food, refuge or reproduction) to a variety of organisms. Sampling of the fish and benthos will be conducted for several years after construction to measure these outputs. Examples of sampling techniques that could be employed are electrofishing, snorkeling and Surber sampling.

Project Benefits:

This project would create (restore) approximately 5,500 feet in length of restored stream channel and approximately 220,000 square feet of potential salmonid rearing and possible spawning habitat (avg. 40ft stream width). Additionally, it will provide/restore access to approximately 25,000 square feet of pond habitat. The Puget Sound chinook, and the Puget Sound bull trout which are listed species along with many other species such as coho, sockeye, chum, pink salmon and steelhead will directly benefit from this project. Restoration of the Little Baker River will provide critical rearing habitat in one of the few areas available for these listed species.

Importance of proposed outputs:

The reestablishment of the Little Baker River will provide increasingly rare side channel habitat. As development in the Skagit River valley progressed the river was increasingly confined to one large channel to reduce flooding of the various developments. Channelization (bank confinement) dramatically reduced side channel habitat utilized for spawning, early rearing, and smolt production. Reestablishing the Little Baker River offers a unique opportunity to provide additional critical side channel and buffer habitat for fish and wildlife species. Specifically, it will provide habitat for the Puget Sound chinook and the Puget Sound bull trout, both of which are threatened species. In addition, the Puget Sound coho a Candidate species, along with many other fish species such as sockeye, pink, chum salmon, steelhead, cutthroat trout, and steelhead will benefit from this project. Regionally important wildlife species, including black tailed deer, black bear, river otter, elk, and beaver will directly benefit from expansion of the wildlife corridor. In addition, listed species such as bald eagles, marbled murrelets, northern spotted owls, Canadian Lynx, grizzly bear, and grey wolves have been spotted in the area, all of which could potentially benefit from this project.

Future Condition:

Without a restoration project, the Baker River will continue to have substantially limited value for fish and wildlife habitat. Given the historic loss of side channel habitat in the Skagit River basin, and the resulting declines in chinook production, continuation of the current system could severely limit any hopes of future chinook recovery and overall salmonid production in the Skagit basin.

Relationship of proposed project to other projects and plans:

The proposed restoration project is on the Skagit Watershed Council's project priority list. This project is also consistent with the many Upper Baker Dam FERC licensing issues that are being addressed.

Alternatives: In addition to the preferred alternative, listed here as number 3, we will consider no action and a more limited action plan.

1. The No Action Alternative

No Action would allow the continued degradation of habitat value in the project area.

2. The 2nd Alternative

This alternative would restore some flow into portions of the remnant Little Baker River. This includes some excavation and re-connection of the Baker River into an excavated Little Baker channel. Water would be supplied through a perched channel constructed adjacent to the Baker River, below the PSE weir. A channel would be constructed, parallel to the alignment of the Baker River downstream to a point beyond the Highway 20 Bridge. It would turn inland, connecting some isolated ponds, before exiting on the Skagit River. This alternative would restore a portion of the habitat that existed at the historic Little Baker River site. However, due to the lowered Baker River bed elevation and the delivery elevation of the restored water, this alternative would not restore the site to its full potential and only partially accomplish restoration goals.

3. The 3rd Alternative, the Preferred Alternative:

This alternative includes elements of the 2nd alternative but with a water supply system at a higher point of diversion to increase slope and provide the restoration of chinook salmon spawning habitat.

Water would be conducted from a pool located adjacent to the pool above the PSE weir with the use of a control structure and overflow weir gate. A downward opening gate would conduct water into the control structure and upwell into a stilling pool. From the stilling pool, water would flow into a perched channel, adjacent to the Baker River. From here the water would flow under Highway 20 bridge and split into two channels, a large channel and a slower velocity channel. The low velocity channel would connect several ponds, affording refuge and rearing habitat. The channels would unite after the pond complex and flow towards the outlet on the Skagit River. At this point there are two alternative outlet designs, one would split the flow again approximately 1400 ft from their confluence— creating two outlets into the Skagit, and the other would maintain one outlet. The outlet (s) of the restored channel would be located approximately 5500 feet in length from the water supply. These and other design issues would be addressed in feasibility. Following construction completion, the site would be planted with native vegetation species and some educational displays and trails would be constructed. Trails would direct visitation to specific reconstructed habitat areas, including the ponds, spawning channel, high velocity/low velocity areas, etc, where educational displays would illustrate the various habitat needs and life stages of different salmon species.

This alternative most fully reaches the restoration potential of the site. Specifically, the perched channel combines the objectives of water supply and additional rearing and spawning habitat. The large channel provides spawning and rearing habitat for steelhead and Chinook, whereas the smaller channel provides habitat for chum, pink, and coho. The pond complex will provide refuge and rearing habitat for all fish species present and an

acclimation pond for sockeye smolts, transported downstream from the PSE projects on the Baker River. Also, it creates additional opportunity for the local sponsor to develop public education features focusing on the diverse habitat needs for salmon.

LERRD:

The Non-Federal Sponsor (NFS) for this project is the Town of Concrete. The project footprint covers approximately 90 acres affecting 14 individual parcels, which according to county tax records are owned by 7 separate parties. In addition, the project footprint also affects the Washington State Department of Transportation (DOT) right-of-way for SR-20, and the abandoned railroad right-of-way located directly north of SR-20 (ownership status of the railroad right-of-way has not yet been determined).

Project area lands are predominately undeveloped wetlands that are prone to frequent flooding. The Washington Department of Natural Resources (DNR) has classified some of the project area as First Class Shorelands, which are defined by statute to be shorelands adjacent to state waterways located within 2 miles of a municipality. According to Washington state law, RCW 79.94.150 and RCW 79.94.160, shorelands may be sold in fee to any municipal corporation of the state when said land is to be used solely for municipal or state purposes. According to DNR, salmon habitat restoration would be considered a state purpose.

Land values have been estimated under the assumption that conveyance of a fee estate is both legally permissible and generally required by the Corps for environmental restoration projects. Therefore, the value for lands within the project footprint are estimated to be \$40,500. The actual fair market value of lands necessary for the project will be determined during the feasibility phase when a gross appraisal will be completed for the proposed project alternative. A wetlands delineation will also be conducted during feasibility, the results of which will provide additional information for making a final determination of project land values. A 35% contingency amount has been proposed to allow for the relative uncertainty of land values and the probability of protracted negotiations with DNR and DOT regarding acquisition of necessary real estate interests within the project area.

On site disposal and construction staging will be utilized; therefore, no temporary off-site easements will be required for this project. Access to the site will be via public roads located under the SR-20 bridge and southwest of the project area.

NFS will need to acquire and certify all LER available before advertising for construction.

The estimated value for the LER is as follows:

90 acres fee (includes NSF Acquisition & Cost Incidentals)	\$ 130,000
Contingency (35%)	\$ <u>46,000</u>

	Total	\$ 176,000
Federal Review and Assistance Costs		\$ 20,000
Contingency		\$ 7,000
Total		\$ 27,000

4. Consistency Statement: Not applicable for a Section 206 project

5. Views of Sponsor:

The town of Concrete is the Non-Federal Sponsor for this project. The towns' letter of intent dated November 8, 2000 is attached as enclosure 1. The town will make available all of the lands required for project implementation. The town has received a copy of the PRP and is in agreement with it and aware of the estimated project cost. The town intends to sign the PCA at the appropriate time, will cost share the project, and is willing and able to assume responsibility for project O&M.

6. Views of State, Federal and Regional Agencies:

The proposed restoration project has a very high level of support from both the public and local agencies. It offers an excellent opportunity to achieve the primary goal of environmental restoration while enjoying the benefits of community education and enhancement. Support for this project have been expressed by the Skagit System Cooperative (providing fisheries services for the Swinomish Tribal Community, the 'Upper Skagit Tribe, and the Sauk-Suiattle Tribe), Skagit Fisheries Enhancement Group, Washington State Department of Transportation (WDOT), Concrete Chamber of Commerce, Washington State Department of Fish and Wildlife (WDFW) and Washington Department of Natural Resources (WDNR). Supporting letters accompanying this report are from WDFW, Concrete Chamber of Commerce, WDOT, and Skagit System Cooperative.

7. Environmental Compliance Requirements:

The project will be compliant with all applicable regulatory requirements. An Environmental Assessment, 404 (b)(1) analysis, Coastal Zone consistency, Cultural Resource Assessment, and Biological Assessment (BA) will be needed to complete the project. The majority of coordination and permits will be completed during the Planning and Design phase. All environmental compliance will be completed prior to commitment of construction funds. The project sponsor will perform the following environmental coordination: 1) Clear and Grade Permit (County); 2) [Section 106] (CTED-OAHP); 3) Hydraulics Project Approval (WDFW); 4) SEPA; and 5) Shoreline Permit (County).

8. Costs and Benefits:

Costs: The estimated project implementation cost is \$2,244,000. The estimated non-Federal share is \$803,000, and the estimated Federal share is \$1,441,000.

OMRR&R: The non-Federal sponsor will be responsible for OMRR&R, currently estimated at \$2,000 per year.

Benefits:

This project would create (restore) approximately 5,500 feet in length of restored stream channel and approximately 220,000 square feet of potential salmonid rearing and possible spawning habitat (avg. 40ft stream width). Additionally, it will provide/restore access to approximately 25,000 square feet of pond habitat.

9. Schedule:

Submit PRP	6 June, 2001
Initiate and Complete Feasibility	15 July 2001-June 2002
Initiate and Complete P&S	June 2002 – June 2003
Initiate Construction	July 2003
Complete Construction	December 2003

10. Supplemental Information:

Monitoring:

We will monitor the reestablished Little Baker River for both physical and biological success. We will conduct weekly snorkeling surveys from May 1 through August to assess juvenile salmonid diversity and sample benthic macroinvertebrates from late September through October to assess overall stream health. Study design, scope, and protocol will be determined in the reconnaissance phase. To monitor physical success we will record regular discharge measurements at the channel inlet and outlet staff gages, and groundwater contributions using peizometers. Monitoring will ensure correct water levels are maintained within the constructed channel to meet the specific habitat requirements of each fish species. Together, physical and biological monitoring will help determine the overall success of the project, i.e. if physical requirements are met for each habitat type, is this channel producing the desired biological goals. Monitoring is estimated to cost \$13,729 (\$10,729 biological and \$3,000 physical). This is .67% of the total implementation cost.

In-kind Services:

Approximately \$100,000 of the local cost share will be provided in-kind services in the form of planting crews, project management, and supplying materials including plants, gravel, and LWD.

11. Financial Data:

a.	Total	Non-Federal	Federal	Federal Funding Needs			
				FY 2001	FY 2002	FY 2003	FY 2004
Feasibility	\$260,000	\$91,000	\$169,000	\$30,000	\$139,000		
P&S	\$217,000	\$76,000	\$141,000		\$50,000	\$91,000	
Construction	\$1,767,000	\$636,000	\$1,131,000			\$900,000	\$541,000
Total	\$2,244,000	\$803,000	\$1,441,000				

b. Non-Federal Requirements:

LERRD	\$176,000
Cash	\$527,000
Work –in-kind	\$100,000
Annual OMRR&R	\$2,000

c. Fully funded cost estimate: \$2,244,000

12. Federal Allocations to Date: None

Project Location

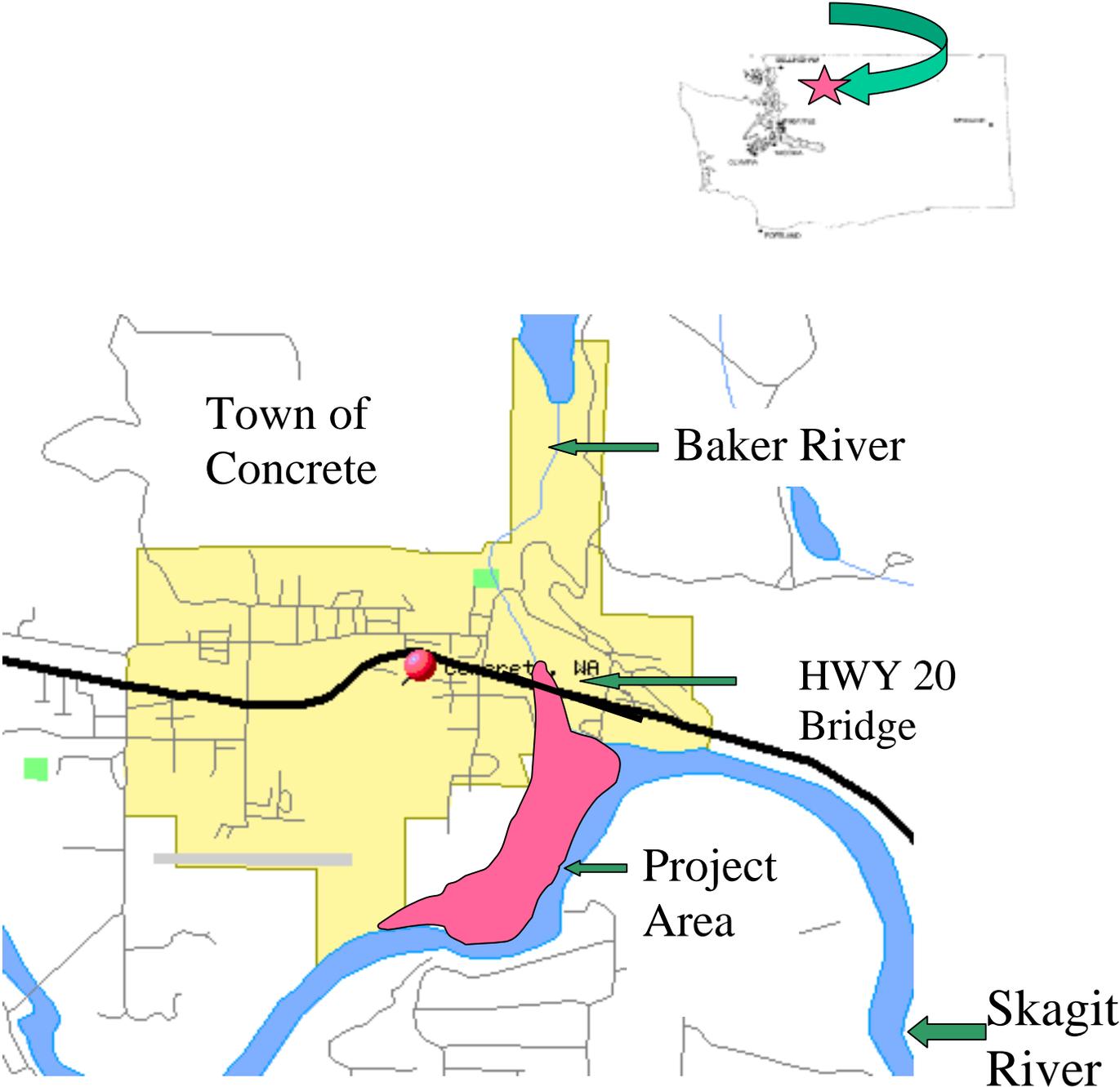


Figure 1 N ↑

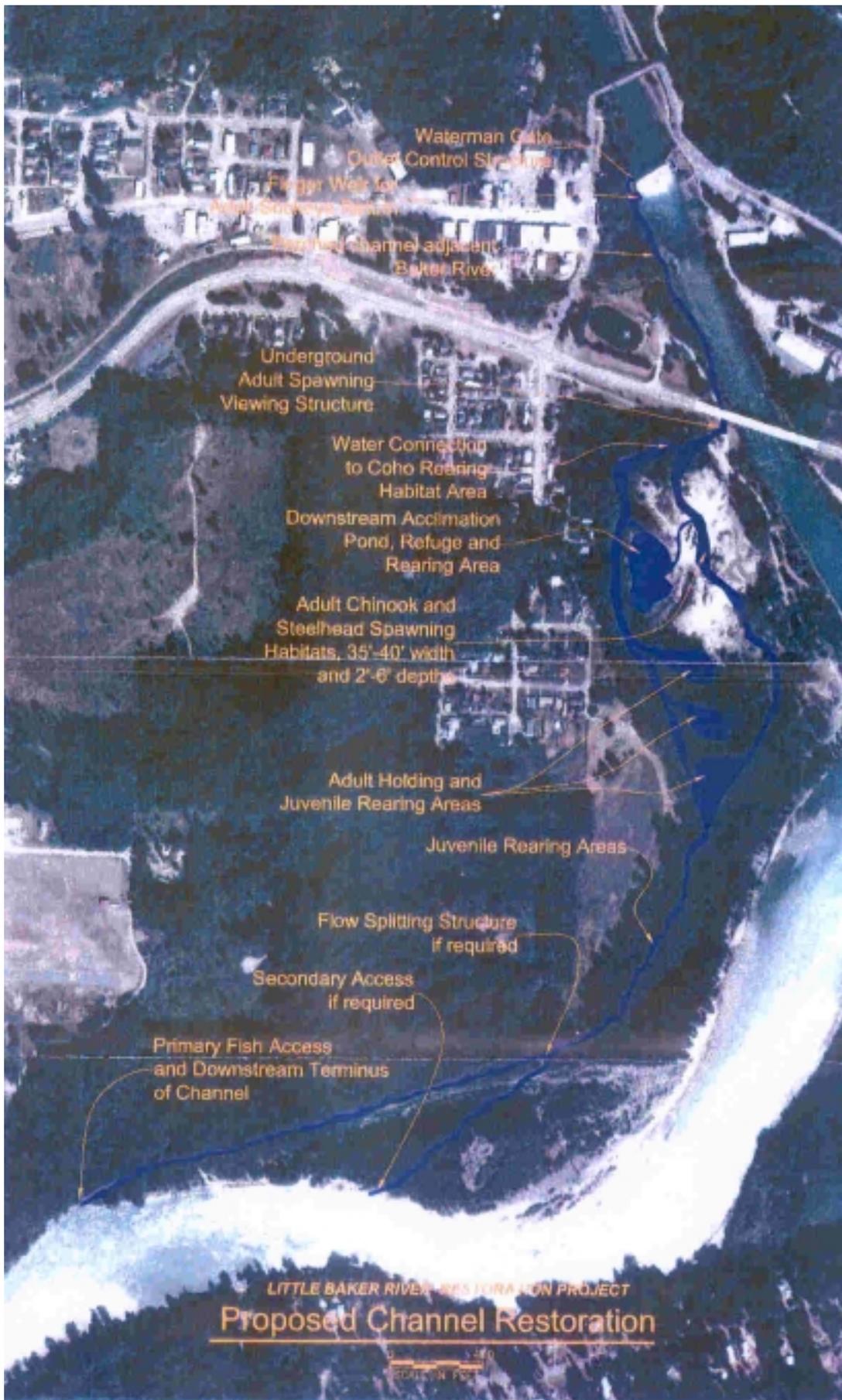


Figure 2

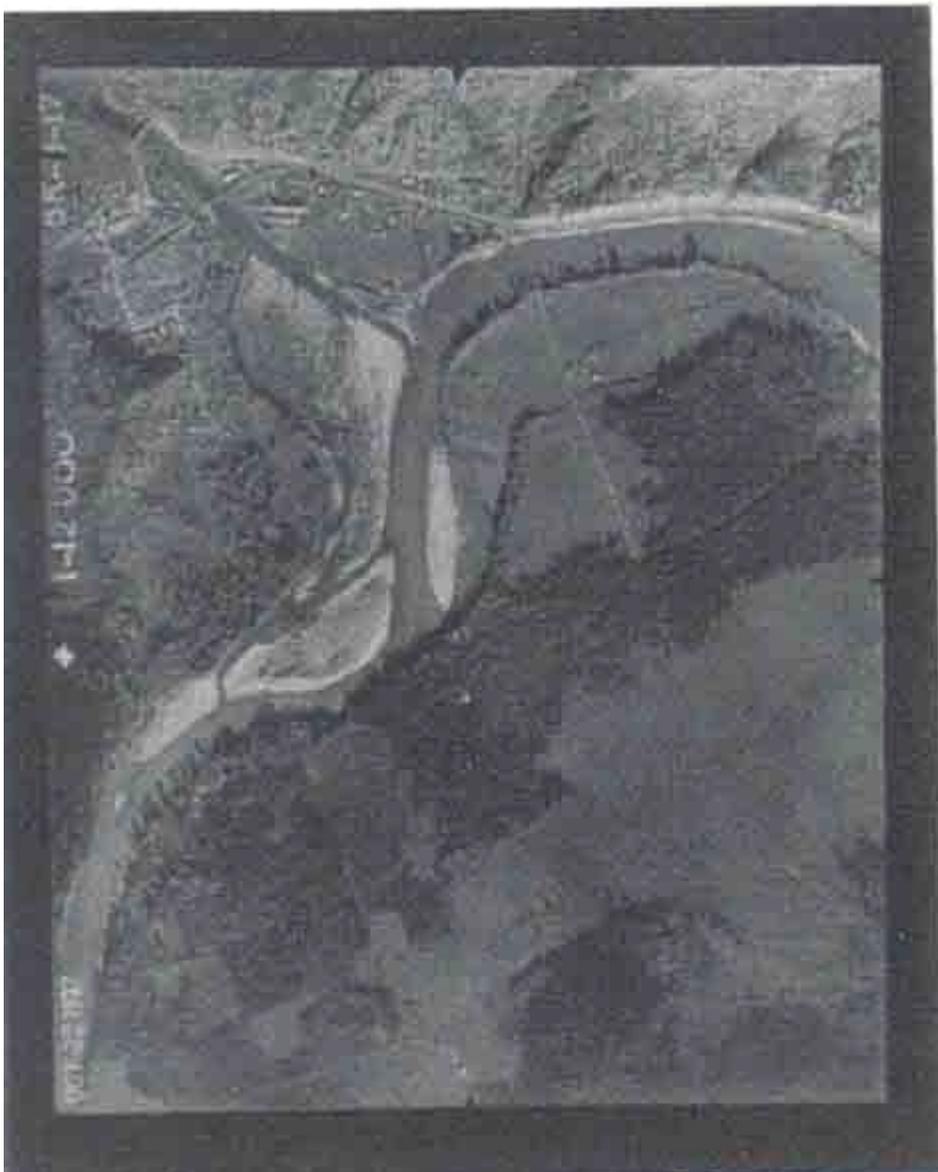


Figure 3

