

**Priest Rapids Coordinating Committee Habitat Subcommittee
2007 Annual Summary**

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1.0 Introduction

This report summarizes the Priest Rapids Coordinating Committee (PRCC) Habitat Subcommittee's activities during the year 2007. This subcommittee was formed in accordance to the Biological Opinion (BiOp) Reasonable and Prudent Actions 32-34 issued for the Priest Rapids Hydroelectric Project (owned and operated by Public Utility District No. 2 of Grant County (GCPUD)) by the National Oceanic and Atmospheric Administration in 2004. The Priest Rapids Project Salmon and Steelhead Settlement Agreement of February 2006 allotted additional funding to be overseen by this subcommittee. A total of three funds were created (Resolution 7937 passed by the GCPUD Commission in March 2006) to reflect the reason for creating each of them. Table 1 shows the total amounts available as of December 31, 2007 for the three funds.

A total of four meetings and five conference calls were held by the subcommittee members during calendar year 2007 (Table 2). Appendix A contains the minutes from each of these meetings and conference calls.

A total of five projects were awarded funding in 2007. Not all of these projects were fully implemented in 2007, however. For those projects that were not completed in 2007, additional activities will occur in 2008. The four projects that were awarded funding in 2006 had activities that carried into 2007. For this reason, 2006 project descriptions are included in this report. The following are titles, awarded amounts, summary descriptions, and status reports of each of these projects.

2.0 2006 Projects

2.1 Upper Columbia River Tributaries LiDAR

Amount Awarded: \$116,719.40

Light Detection and Ranging (LiDAR) and orthoimagery information for designated reaches within three major tributary basins, (Methow, Okanogan, and Wenatchee Rivers), of the upper Columbia River in central Washington was collected. Light Detection and Ranging (LiDAR) is a laser system that is mounted to an aircraft that emits laser pulses toward the ground. The laser pulses reflect off of terrestrial surfaces that are then received by the sensor that records the time elapsed. LiDAR points can be processed to generate digital terrain models, vegetation canopy surfaces, and building surfaces. These surfaces are then used for stream channel, hydrology and floodplain analysis, forestry mapping, riparian and wetland mapping and restoration project design. Orthoimagery provides a positionally correct picture of the earth. An orthoimage is a georeferenced image prepared from an aerial photograph or other remotely sensed data from which displacements caused by sensor orientation and terrain relief has been minimized. The LiDAR digital information can be conjoined with orthoimages to produce a three-dimensional high resolution image of geographic features. These images will be used for restoration project planning and design, especially for reconnecting side channels to the mainstem river channel, as well as, habitat capacity modeling, and identification of other sites that have potential for improvement of habitat complexity and protection.

The LiDAR and orthophotos were collected during October 2006. The data underwent post-processing and QA/QC and was approved as to its acceptability. The data is to be publicly

available through the Puget Sound LiDAR Consortium website
<http://pugetsoundlidar.ess.washington.edu/>.

2.2 Fulton Dam Fish Passage Barrier Removal Project

Amount Awarded: \$76,974.04

The existing Fulton Dam on the lower Chewuch River in Okanogan County, WA, was a partial passage barrier for listed species (Spring Chinook, UCR Steelhead and Bull Trout as well as non listed Summer Chinook). The dam height of 7 feet effectively blocked fish passage at low flows. This project replaced the rock dam with a full span roughened channel structure to provide improved fish passage across the structure. The channel will average 4% slope for a distance of approximately 185 feet. Re-construction of the dam as a roughened channel provides improved passage for listed species at all flow levels while maintaining irrigation viability.

Major construction of the roughened channel was completed in 2006. Final construction, re-vegetation and monitoring efforts were completed in 2007.



Figure 1 The Fulton diversion dam site prior to construction.



Figure 2 The Fulton diversion dam site after construction in April 2007.

2.3 Omak Creek Culvert Replacements

Amount Awarded: \$70,970.65

Omak Creek is one of the few tributaries in the Okanogan River Basin that currently support summer steelhead. Since 1997, actions have been taken which have resulted in unimpeded access to the lower 5 miles of Omak Creek, to include the installation of three in-stream structures at the base of Mission Falls (September 2005) to further extend the range of summer steelhead an additional 17 miles. In addition, range management infrastructure, such as fences, spring developments, hardened rock crossing and rock watering points, have been constructed to improve ranching practices and protect riparian areas of Omak Creek and connected tributaries. The results have been encouraging, most notably, an eight-fold increase in canopy closure which has begun to reduce elevated water temperatures in the lowermost reaches of Omak Creek.

However, the greatest impact to steelhead production in Omak Creek is the proportion of fine sediment in the streambed. In an effort to diminish the amount of fine sediment delivered to defined waterways within this watershed, over 50 miles of road have been decommissioned (road bed ripped to a depth of 18", construction of water bars and culverts removed) and 3 undersized culverts have been replaced in the past 5 years. In an ongoing effort to reduce the amount of fine sediment delivered to Omak Creek, this project replaced two 6' diameter culverts at RM 15 and RM 17. The result of this project prevents an estimated 100 cubic yards of road fill being deposited in downstream reaches and consequently continues to increase the quality of spawning habitat and instream productivity.

The culverts were installed during November and December 2006.



Figure 3 Culvert at RM 15, looking downstream, at approximately 150 cfs, prior to replacement.



Figure 4 Culvert at RM 15 during installation.



Figure 5 Culvert at RM 15 after installation.

2.4 Skookumchuck Land Purchase

Amount Awarded: \$400,000.00

Last year, the Trust for Public Land (TPL) and Washington Department of Fish and Wildlife (WDFW) purchased 5,100 acres in the Skookumchuck Creek (a tributary to the Columbia River near Vantage, WA) watershed for \$1.8 million. The proposed purchase would secure all land in the lower Skookumchuck Cr. watershed in public ownership except the small private ranch owned by the Cruz family, who intend to manage their lands for their ecological values. TPL and WDFW continue to seek funds for the purchase of all remaining lands in the upper watershed as well and recently scored first among all projects competing for WWRP (Washington Wildlife and Recreation Program) funds. In total, this project will encompass 17,500 acres at a cost of \$7.1 million of a combined funds from the State of Washington (through WWRP), Energy Facility Site Evaluation Council, TPL, and GCPUD funds. GCPUD funds would amount to less than 6% of the total purchase price (a total of \$400,000). The lands would subsequently be owned and managed by the WDFW for the purpose of shrub steppe protection and enhancement. Very limited cattle grazing would be allowed on the upper portions of the property, but the lower reaches of Skookumchuck Cr. will be rested at least for the next several years. It is expected that this change in management will hasten recovery of riparian vegetation and improve base flows in the creek, which will be beneficial to the *Oncorhynchus mykiss* population that uses the creek. The purchase will also afford the opportunity to monitor biological responses of the fish population to the changes in management.

This land purchase was finalized by WDFW in Spring 2007. An inauguration ceremony was held in December 2007.

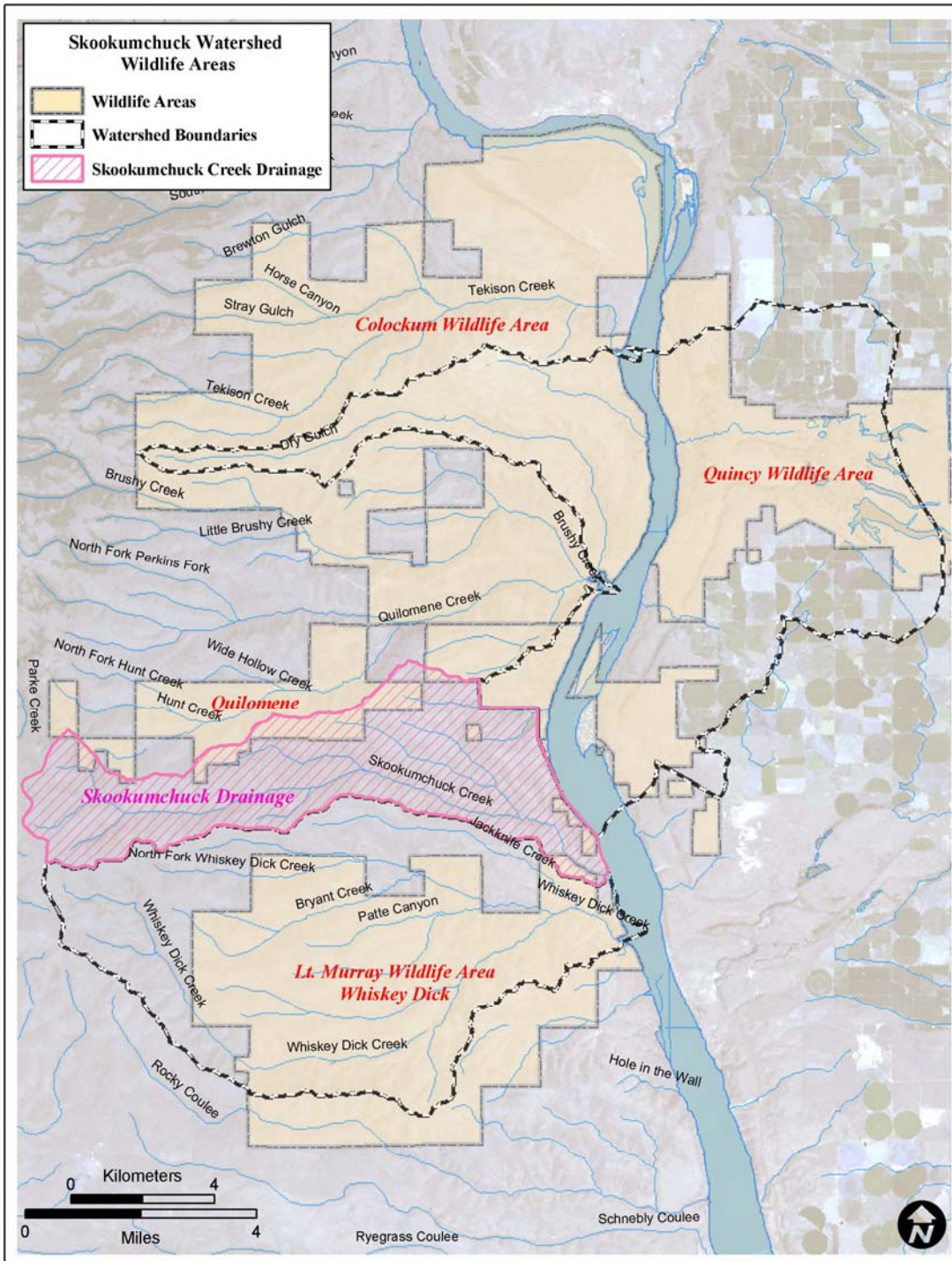


Figure 6 A map of the Skookumchuck watershed boundary.

3.0 2007 Projects

3.1 Nason Creek Godwin Parcels Land Purchase

Amount Awarded: \$457,968.73

The purchase of these two land parcels, (completed in 2007), preserves 62.7 acres of prime riparian habitat along lower Nason Creek. In 2005, 17 spring Chinook and 10 steelhead redds were counted in the stream reach bordered by these parcels making it an important location to protect from the ever increasing threat of residential development in this area. The property is valuable in that it consists of riparian lands containing mature cottonwoods, aspen, cedar, and Douglas fir floodplain forest. The entire properties lie within the designated floodplain. There is documented spawning activity in Nason Creek within the property boundaries. Remnant side channels exist within the property boundaries; potentially offering opportunities for reconnecting them in the future. The Washington Department of Fish and Wildlife is interested in permanent ownership and long-term management of these properties.

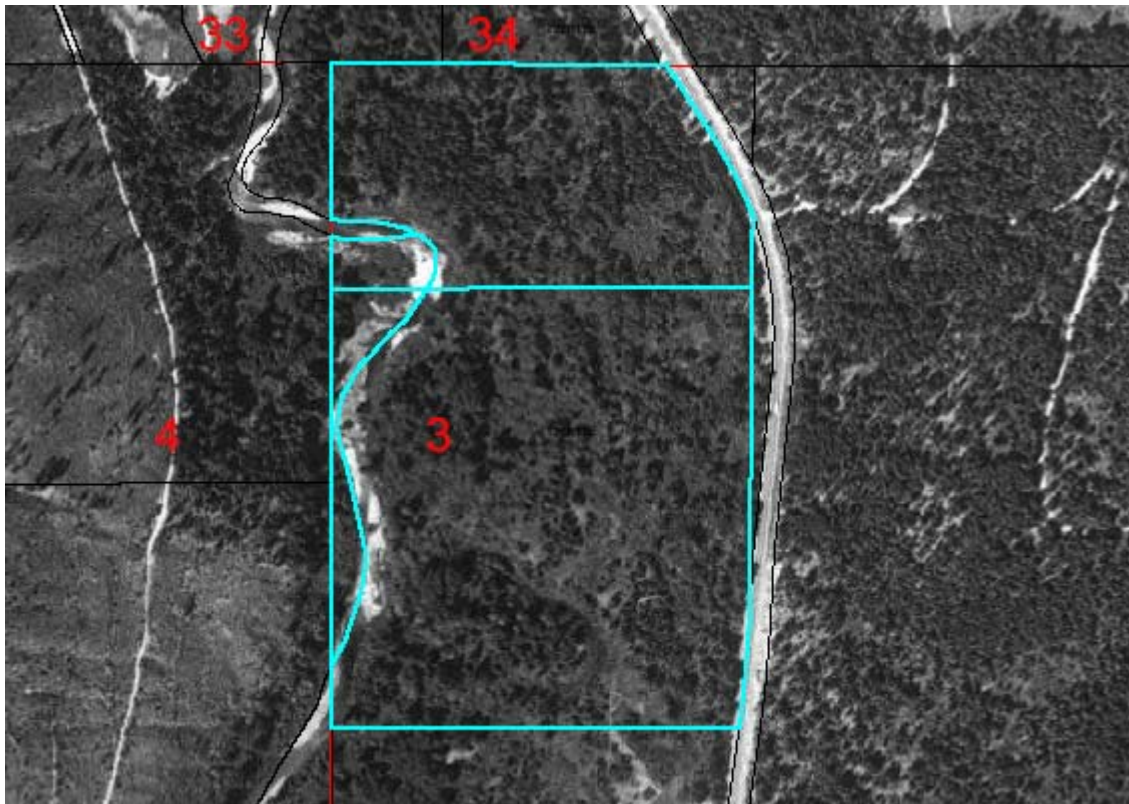


Figure 7 An aerial photo map of the Nason Creek Godwin parcels' boundaries.

3.2 Wenatchee River (Monitor) Irrigation Diversion Improvements

Amount Awarded: \$35,000.00

The project is located at River Mile 7.2 on the Wenatchee River near the community of Monitor. The existing diversion channel utilizes a natural pool and riffle in the river to divert water into an artificial side channel, which conveys the water to a pump station. During Fall 2007, the side

channel was improved to provide fish habitat and eliminate the need for the annual pushup dam in the main river. The natural, existing island was added to the construction of a permanent rock wing dam berm. The new berm was vegetated and fish habitat features (woody debris) was added to the improved side channel side of the embankment. In addition, an updated fish screen was installed at the pumping station.

3.3 LiDAR Data Evaluation

Amount Awarded: \$80,000.00

Protection, restoration, and enhancement activities for anadromous salmonid habitat include reconnecting side channels, building in-stream structures to create pool-riffle reaches (which also reconnects off-channel habitat), and creating acclimation channels for salmon hatcheries to allow fry to adapt to natural conditions (such as learning not to top-feed) prior to entering the natural system. Many of the geomorphic features, such as channels that have been abandoned by channel migration, avulsion, main channel incision, or other processes, are subtle, and can be problematic and time consuming to identify using traditional field mapping and surveying. To minimize field time, GIS analysis of high-accuracy, high-resolution elevation data has been demonstrated to be an effective way to identify and map these subtle geomorphic features.

The LiDAR elevation data for 271 river miles of floodplain for the Okanogan, Methow, Wenatchee, and Entiat Rivers and selected tributaries was collected in October 2006 (see above description of this project). While there are a number of applications the PRCCHSC plans for these data, this proposal addresses only the identification of inactive side channels, because these are where projects will be designed to reconnect side channels, install in-stream structures to create pools, and locate suitable areas for hatchery-born juvenile salmonids to acclimate after leaving the hatchery but before entering the main channel. In the Okanogan basin, 60 river miles are targeted for side-channel reconnection analysis, and 11 river miles for in-stream structure analysis. In the Methow basin, 10 river miles are targeted for restoration projects, almost 200 river miles for acclimation facilities, and 71 river miles for in-stream structure studies. In the Wenatchee basin, 33 river miles will be studied for acclimation facilities, and in the Entiat basin, 29 river miles will be studied for in-stream structure projects. Many of these reaches will be studied for multiple types of potential projects. Mapping activities for Nason Creek (Figure 8), Icicle River, Peshastin Creek and a portion of the Wenatchee River were partially completed in 2007.

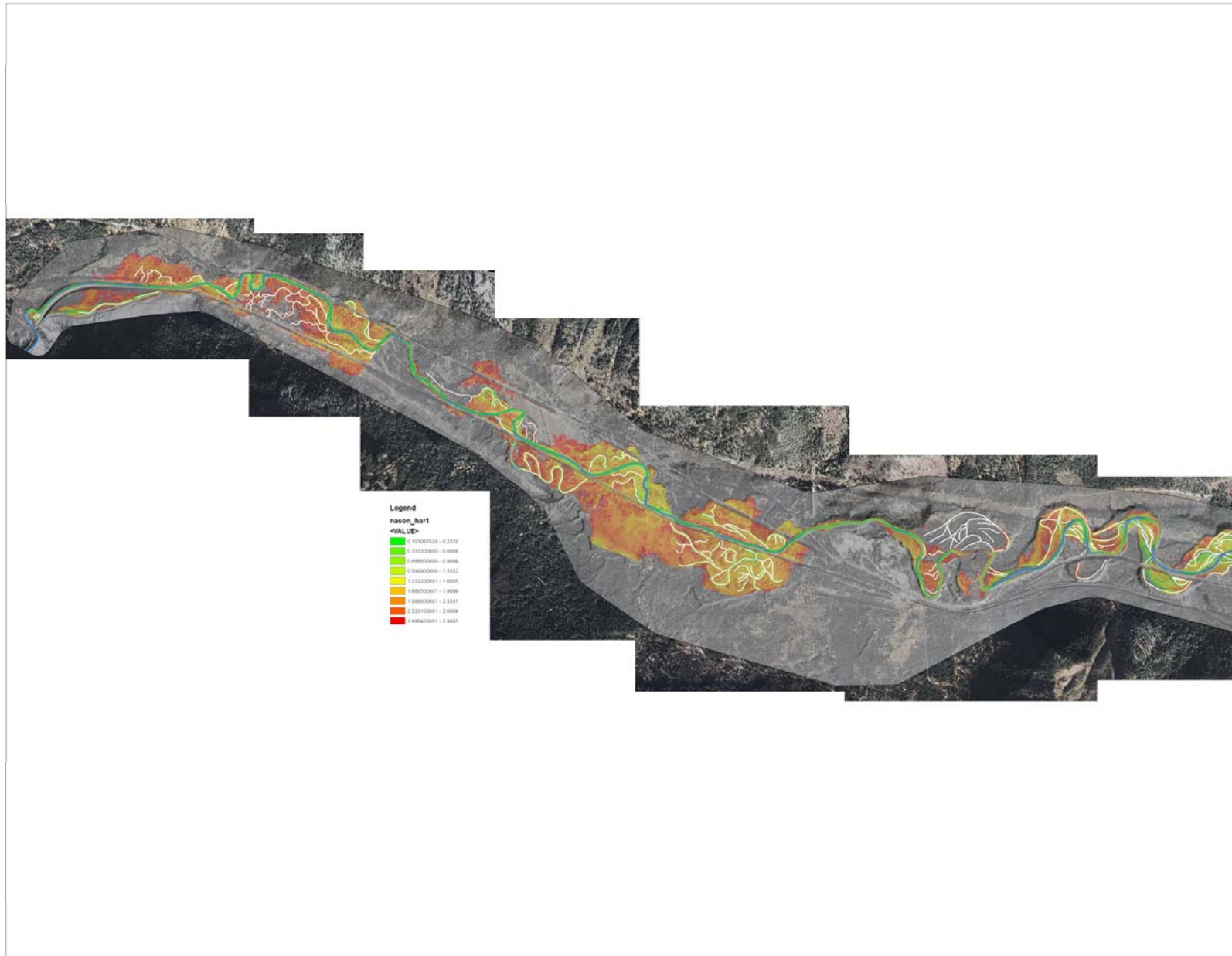


Figure 8 A map of disconnected and inactive side channels and elevation height above water surface in upper Nason Creek.

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3.4 Upper Twisp River Hardesty Land Purchase

Amount Awarded: \$438,635.20

This 17 acre private parcel of land is surrounded by United States Forest Service property, and is located at RM 12 of the Twisp River, a tributary of the Methow River. The property has been identified as the middle of a 2 mile long reach where natural river processes are largely intact and represents valuable habitat for spring Chinook and steelhead, as well as, bull trout. This property contains high-quality riparian habitat, and included one residence that was built very close to the shoreline of the Twisp River. The property was at risk of degradation because the residence is prone to flooding. Emergency flood control measures could have involved destruction of valuable log jams which disrupts natural riparian processes and causes loss of important refuge for juvenile rearing. To avoid this, the property was purchased, the existing residence and human debris were removed, and re-vegetation activities occurred in 2007.



Figure 9 The Twisp River Hardesty property shoreline prior to purchase and debris removal.



Figure 10 The Twisp River Hardesty property after purchase and debris removal.

3.5 Antoine Creek Culvert Replacement

Amount Awarded: \$ 56,970.00

Antoine Creek is a perennial tributary in the Okanogan River Basin that supports summer steelhead. The removal of one undersized (36" diameter) round culvert and replacement with one bottomless-box culvert occurred in December 2007. The bottomless box culvert has the capacity to pass the 100-year flood event. This capacity will reduce the risk of this road crossing from washing out and delivering large volumes of sediment downstream to established spawning habitat for summer steelhead.



Figure 11 The undersized culvert at RM 0.35 of Antoine Creek, looking downstream, at approximately 30 cfs during spring freshet in 2006.



Figure 12 Antoine Creek culvert upon replacement.

Table 1 The total values of the three habitat accounts with amounts awarded for each project deducted as of end of calendar year 2007.

Habitat Accounts					Green: Denotes invoice received and payment pending		Balance after	
Account	Fund	Fund Total	As of	Pending Charges	Available Balance	Outstanding Commitments	commitments	
No Net Impact Fund Habitat	96420601H	\$2,539,095.00	(12/31/2007)	\$ -	\$2,539,095.00	\$ 3,781,055.00	(\$1,241,960.00)	
Supplemental Fund	96421602H	\$942,297.00	(12/31/2007)	\$ -	\$942,297.00	\$ 4,714.80	\$937,582.20	
Habitat Fund (BiOp)	96421603H	\$358,257.00	(12/31/2007)	\$ 136,940.66	\$221,316.34	\$ 35,000.00	\$ 49,375.68	

2008 Funds to be deposited 02/15/2008

Account	PID	Vendor/Contractor	Project	Total Project Approval	Invoice Date	Invoice Total	Amount Paid	Sub-Totals for each project	
Habitat Fund	60300001H	Pacific Appraisal Assoc.	Godwin Property Appraisal	\$ 2,800.00	9/11/2006	\$2,800.00	\$2,800.00		
Habitat Supplemental	60200001H	Pacific Appraisal Assoc. Godwin	Valuation Update Godwin Purchase Authority	\$ 454,000.00	6/14/2007 8/15/2007	\$609.00 454,559.73	\$609.00 454,559.73	\$457,968.73 final	
Habitat Fund	60300002H	Methow Salmon Recovery Foundation	Fulton Diversion	\$ 80,000.00	11/21/2006 5/8/2007	\$56,000.00 \$20,974.04	\$56,000.00 \$20,974.04	\$76,974.04 final	
Habitat Fund	60300003H	Colville Confederated Tribes	Omak Creek Culvert Replacement	\$ 70,970.66	11/19/2007 11/19/2007	\$22,566.56 \$48,404.10	\$ - \$ -	Documentation received. Routing for signatures & payment	
Habitat Fund	60300004H	WDFW	Skookumchuck Land Acquisition	\$ 400,000.00	5/17/2007	\$400,000.00	\$ 400,000.00	\$400,000.00 final	
Habitat Fund	60300005H	Kitsap County	LiDAR/Orthoimagery	\$ 124,000.00	11/21/2006 11/21/2006 11/21/2006 12/4/2006	\$16,943.30 \$3,044.80 \$23,026.00 \$3,675.00	\$16,943.30 \$3,044.80 \$23,026.00 \$3,675.00		

					2/6/2007	\$16,119.00	\$16,119.00	
					2/13/2007	\$16,943.30	\$16,943.30	
					2/21/2007	\$18,421.00	\$18,421.00	
					4/24/2007	\$5,510.00	\$5,510.00	
					5/16/2007	\$8,470.00	\$8,470.00	
					6/6/2007	\$3,045.00	\$3,045.00	
					6/6/2007	\$1,522.00	\$1,522.00	\$116,719.40 final
Habitat Fund	60300006H	Cascadia Conservation District	Monitor Irrigation Diversion Project Suppl.	\$ 35,000.00	(Funding Agreement signed)		\$ -	
Habitat Fund	60300007H	USGS cost share agreement	LiDAR Data Evaluation	\$ 30,000.00	10/31/2007	\$15,000.00 \$15,000.00	\$ 15,000.00	Held until work product received.
Habitat Fund	TBD	Kahler Glen	Kahler Glen Property Purchase Authority	\$ -	(Offer of \$75k not accepted by owner)		\$ -	
Habitat Supplemental	60200002H	Hardesty	Hardesty Property (Twisp R.) Purchase w/ Methow Conservancy	\$ 443,350.00	8/14/2007	425,865.04	425,865.04	Estimated taxes for 2008-09 could not be paid until "actuals" known - invoice reduced
						16,944.89	\$ 12,770.16	
NNI Fund	601...TBD		McIntyre Dam Project	\$ 1,770,055.00	Approved - Funding Agreement Pending		\$ -	
NNI Fund	601...TBD		Predator Fish RFP	\$ 1,600,000.00	Estimated		\$ -	
Habitat Fund	60300008H	UCR Fisheries Enhancement Group	Antoine Creek Culvert Replacement	\$ 56,970.00	1/6/2008	\$50,970.00		Routing for signatures
NNI Fund (Possible Split)	601...	Okanagan Nation (?) thru COBTWG	Okanagan River Restoration Initiative (ORRI Project)	\$ 411,000.00	(Under Consideration - included in NNI totals)			
			YTD TOTALS			Total Paid 2006	\$105,489.10	
			Approved by PRCC/HSC	\$ 5,478,145.66		Total Paid 2007	\$1,399,808.27	\$1,051,662.17

Table 2 PRCC Habitat Subcommittee meeting and conference call (M or C) dates for 2007.

Month	Date(s)	M/C
January	11	M
March	14	C
April	16	C
May	9	C
June	6	M
August	3	C
October	12	M
November	16	M
December	14	C

Appendix A
PRCC Habitat Subcommittee minutes for 2007 meetings and conference calls.