

**Yukon River Panel Project RE-35-01  
Beaver Mitigation Swift River**

**Teslin Tlingit Council  
White Mountain Consulting**

**Paul Sparling**

**November 14, 2002**

## **Abstract**

Initially, the main objective of this project was to evaluate Chinook salmon spawning and rearing in Swift River and mitigate any beaver caused effects to the spawning migration and dispersion. This was to include the removal of beaver caused barriers to the upstream migration. The secondary component of the original objective was to collect information on juvenile salmon utilization.

Because the beaver dam originally identified for removal released on its own, a portion of the project funds remained. After consulting with the technical authority and the Yukon Salmon Committee these funds were combined with surplus funds from the Deadman Creek R&E project. The resulting new fund has been used for two, separate, but related projects. The first project was an aerial photography project that covered Swift River, Deadman Creek and the Upper Teslin River. The second project, was an assessment of winter utilization by juvenile Chinook salmon in Deadman Creek.

## Swift River Investigations, 2001

An initial evaluation of Swift River was conducted by fixed wing air on May 17, 2001. At the time of this flight the Swift River was running clear and low, ice cover persisted on Sewift lake. One active beaver dam was observed at UTM 604839 1334822. This location is 200-300 meters upstream of the beaver dam identified in 1998, which was in active and breached.

On August 20<sup>th</sup>, a crew from Teslin went to Swift River to remove existing beaver dam obstructions to adult Chinook salmon migrations and to evaluate juvenile Chinook utilization. The crew consisted of Gord Smith, Mike Gergel, George Sidney and Paul Sparling. A base camp was constructed at the confluence of the Swift and Teslin Rivers.

The crew hiked in to the site of the beaver dam on August 20 but found only the 2 breached beaver dams. George and Paul left camp. On August 21<sup>st</sup> Gord and Mike hiked back in and found the upper beaver dam, and that the dam had recently released.

Between August 22<sup>nd</sup> and 23<sup>rd</sup> a series of G-type minnow traps were set. A series of 8 minnow traps were set throughout the lower 1.2 km of the River, traps were set for approximately 24 hours each. Catches of Chinook juveniles ranged from 14 to 49 individuals per trap with an average catch of 2/24 hours (Table 1). Several Burbots and Slimy Scuplins were also captured. All fish captured were counted and then released back to the water of origin. At the same time adult salmon were counted in the river by walking the lower reaches. Several adult salmon were observed in the lower reach but always as single fish, and no large spawning aggregations were noted in the lower 2 kms of the river.

On August 24 George and Paul returned in a Jet Ranger helicopter. The Swift River was flown up from the Teslin River. More than 60 Chinook adults were observed in the mix water area of the Swift River at the confluence with the Teslin River. Several single individual were observed in the rivers lower reaches and 2 larger aggregations of 20 and 14 Chinook adults were observed well above the beaver activity area and just below the wetland associated with Swift Lake. A total of 51 Chinook adults and single carcass were observed within Swift River in additions to the 60= adults observed in the mix water area.

Table 1. Summary of minnow trap catches made I Swift River (tributary to Teslin River) during August of 2001.

<b>Date</b>	<b>Time Set</b>	<b>Time Lift</b>	<b>Hous Set</b>	<b>Catch</b>	<b>Location</b>
Aug 22 -23	12:15 PM	12:05 PM	24	17 ch, 2bb, 1ss	100m u/s Teslin River
Aug 22 -23	12:25 PM	12:15 PM	24	14 ch	250m u/s Teslin River
Aug 22 -23	12:40 PM	12:30 PM	24	14 ch	350m u/s Teslin River
Aug 22 -23	13:05 PM	12:45 PM	24	22 ch	450m u/s Teslin River
Aug 22 -23	13:15 PM	13:00 PM	24	16 ch	600m u/s Teslin River
Aug 22 -23	13:30 PM	13:15 PM	24	19 ch	750m u/s Teslin River
Aug 22 -23	13:45 PM	13:35 PM	24	49 ch, 1 bb	900m u/s Teslin River
Aug 22 -23	14:15 PM	14:30 PM	24	32 ch, 1 bb	1200m u/s Teslin River

\*Abbreviations used in Table 1. ch = juvenile Chinook salmon, ss = slimy sculpin, bb = burbot, u/s = up stream.

### **Ariel Photography of Swift River, Dead man Creek and Teslin River, 2001**

Tutchone Air (Whitehorse) took a set of Air photos of the Swift River, Deadman Creek and the upper reach of the Teslin River (from Swift River to Teslin Lake). The photos were taken to provide a historical context and a record of the currently existing channel morphology. The photos will also be useful in mapping spawning locations of Chinook salmon.

The photos were received as negative copies. These negatives have been scanned with high-resolution equipment to a digital format and stored on CD-ROM. The photos were transferred to digital format by AAA Computer Services. Copies of the CD's remain with Teslin Tlingit Council GIS department.

## Deadman Creek Winter Utilization Investigations

Investigation into winter habitat utilization by juvenile Chinook salmon on Dead man Creek was initiated on Jan 23<sup>rd</sup>, 24<sup>th</sup> 2002. Follow up work has been conducted on February 26<sup>th</sup>, 27<sup>th</sup> and on March 4<sup>th</sup> and 6<sup>th</sup>.

The main technique used to assess juvenile utilization has been Gee Type minnow traps. Thick over flow ice (up to 1.5m in depth) made finding suitable sites for trap setting difficult. Suitable locations were prepared using a 10" gas powered ice auger. Two holes were drilled beside each other and the small wedge of ice between was chiseled out or, areas of thin ice were opened back with a chisel and shovel. Trap sites were chosen to cover a variety of habitat types and flow regimes. Four of the minnow trap sites have been reused and flow conditions and depth have altered slightly between sampling periods at these sites.

The in situ water chemistry has been successfully measured twice. Air temperature at the time of sampling has an effect on what sampling can be done. Attempts at water sampling at -20 degrees Celsius gave very questionable results, successful readings were obtained on February 27<sup>th</sup> and March 4<sup>th</sup>. On both of these occasions the DO was 10.7 mg/litre @ 78% saturation, conductivity was 181 and the pH was 7.2. The water temperature was near 0 degrees Celsius.

The main area for minnow trapping has been the area immediately upstream of the Alaska Highway crossing up to the old large logjam. Results of minnow trapping have varied. Chinook juveniles have been predominantly captured in areas with velocities just greater than 0. One hole with a gentle flow in January captured 16 jcs (juvenile Chinook salmon), the same hole with no flow in March captured only single jcs. No jcs were captured in areas near open water leads or in any areas with flow >0.3m/sec. In January, 4 of 6 traps set captured jcs, with catches of 1, 2, 2, and 16. In February 2 of 3 traps set captured jcs, with catches of 7 and 3. In March, 4 of 6 traps captured jcs, with catches of 9, 1, 1, and 1. Also in March 2 traps were set upstream 8 km near the old gravel pit, neither of these traps captured jcs. Caddis fly larvae have been common in the traps.

On March 6<sup>th</sup> the Teslin Elementary School class came out to Deadman Creek to assist with picking a set of minnow traps, The event was successful but cold. Interest was keen at the first few traps with lots of good questions and the children did see juvenile salmon.

Also on March 6<sup>th</sup>, Kate Madigan of DFO came out to Deadman Creek with an underwater camera. Unfortunately the children were not there at the time. Juvenile Chinook salmon were observed and recorded with the camera in an area of very low flow with significant amounts of woody debris with many branches. The salmon were interested in the camera, swimming right up to it and into it. Also observed with the camera was active slimy sculpin.

For future investigations K. Madigan has agreed to accompany us and S. Moodie will also join the team to mark juvenile fry for later identification. This will be done using dye that lasts a limited amount of time and does not impinge on the fish.