WHITE MOUNTAIN ENVIRONMENTAL CONSULTING

P.O. Box 10140 Whitehorse, Yukon Y1A 7A1
Phone / messages: (867) 393-4189
Email: fish@polarcom.com

FISH HABITAT AND FISH UTILIZATION ASSESSMENTS WITHIN THE DE-WATERED FRESH WATER SUPPLY RESERVOIR

ANVIL RANGE MINE SITE, FARO, YUKON

Interim Report, June 2005:

1.0 Introduction

The Freshwater Reservoir at the Faro Mine Site was permanently de-watered during fall and early winter of 2003 and included construction of a new channel through the old dam site. The following report documents the 2005 spring evaluation of fish habitat in the newly reformed channels and provides an assessment of fish utilization and distribution in the vicinity of the de-watered reservoir as committed to in the *Environmental Management Plan for the Breaching of the Fresh Water Supply Dam at the Faro Mine* (the EMP). This continues the monitoring program that was initiated during 2004 and satisfies the requirements of the EMP and provides for multi-seasonal evaluations to account for seasonal distribution of fish.

Assessments of fish habitat, channel stability and fish distribution were conducted on May 31, and June 2, 2005.

2.0 Study Area

Investigations into fish habitat and fish utilizations consisted of re-sampling the 2004 sample sites, this included the newly exposed channel, the newly created channel through the breach, and in the lower section of the South Fork of Rose Creek, as dictated by the EMP. As a one time investigation, the area near the Pump house Pond, including the associated ponds on the North Fork of Rose Creek was investigated.

3.0 Methods

Prior to initiating field activities a license to collect fisheries information was obtained through DFO. The investigations were conducted under the authority of License to Collect Fish No. 05-18.

The spring investigation served as a post freshet assessment to identify areas of bank instability, potential barriers to fish movement, to denote seasonal distribution of fish within the study area and to determine Arctic grayling spawning areas.

Overall evaluations of channel stability were made through visual observation from the ground and during a short helicopter aerial assessment. Photographs from the ground and from the air were taken to document the present channel configuration.

Evaluations of fish utilization within the dewatered reservoir and through the breach were conducted using two separate techniques. The first technique, conducted to determine the extent of utilization by adult and sub-adult Arctic grayling, consisted of walking the entire length of the study area making careful observations of the creek for fish. All areas of the newly exposed channel had excellent visibility. Several of the deeper areas in the newly constructed channel through the breach had limited visibility. Angling with light spinning gear was used in deeper water areas that precluded direct observation.

The second technique to record fish utilization consisted of evaluating a 100 meter long section of each of the 5 reaches within the study area with a single pass of an electro-fisher.

The Pump House Pond area and the associated ponds of the North Fork of Rose Creek were evaluated for Arctic grayling spawning utilization. The ponds were assessed using visual observation, angling and gillnets. Gillnet sets were made with 2" and 2.5" stretch measure mono filament gillnets for a maximum time of 30 minutes. Visual assessments of habitats were made.

All fish captured were identified as to species and recorded; fish captured were measured for fork length (+/- 1 mm). Artic grayling were evaluated for sexual maturity and proximity to spawning condition. A sub-sample of 2 Arctic grayling was sacrificed to verify current status of the spawn. Subsequent grayling captures were assessed for spawning condition through visual observation of the euro genital pore and with slight pressure to the abdomen to exude any remaining spawn to discern spawning condition and the sex of individual fish. All other fish captured were handled delicately to allow for live release at the site of capture.

4.0 Results

4.1 Fish Habitat

At the time of the investigations water levels had receded from the peak flows of spring freshet. Flows within the study area were moderate with very little organic material in suspension and the water was mostly clear providing excellent fish visibility. No new erosion of existing banks was observed.

4.2 Fish Utilization

During the visual inspection of the reservoir basin and the newly constructed channel in the breach a small group consisting of approximately 12 individuals, of juvenile Arctic grayling (50 -60 mm) were observed in Reach 3 of the reservoir basin.

Electro-fishing produced the following results.
Reach 1: 4 slimy sculpins (105, 95, 60 and 35 mm) and 2 Arctic grayling juveniles (95 and 125 mm).
Reach 2: 3 slimy sculpins (60, 65, and 85 mm)
Reach 3: 1 Burbot (120 mm)
Reach 4: 3 slimy sculpins (70, 75 and 72 mm) and 2 Arctic grayling juveniles (55 and 51 mm).

Reach 5: zero fish were recorded

The pump house ponds and the associated ponds on the North Fork of Rose Creek had numerous adult Arctic grayling. The grayling were evident surfacing and were easily angled in all of the ponds. A gillnet set in the pump house pond for 35 minutes captured 20 adult Arctic grayling.

The spawn was 90% complete based on evaluation of these fish. Only one of the females captured still retained more than a few eggs and 2 of the males were freely exuding milt. All other grayling had only a remnant spawn remaining. Three Arctic grayling were observed spawning beside the beaver dam in the pump house pond near the site of the gillnet set. All other grayling captured during the investigation had completed spawning within the last one or two days.

Spawning was observed in the Pump House Pond at the beaver dam and evidence of spawning activities were observed (new gravel disturbances and male guards) in the inflow to the pond where a reach approximately 65 meters long by 15 meters wide of excellent Arctic grayling spawning habitat exists. Spawning habitats also exist in the uppermost and lower most ponds of the series of ponds on the North Fork of Rose Creek, no direct evidence of these sites being used for spawning was recorded however there was extensive numbers of adult grayling present in both of these areas. The suspected spawning locations will be further investigated during lower water conditions to clearly denote the habitat conditions.