The Forty Mile River Watershed

The Forty Mile River, a tributary to the Yukon River, drains an area of approximately 16,600 square kilometres and has an overall channel length of approximately 97 km. The drainage basin is located 96 km north west of Dawson.

In 2009, CS&I did not collect any water samples in the Forty Mile River basin. However, as part of the aquatic health monitoring protocol, samples were taken at 5 different locations in the watershed on July 27th, 2009.

The Forty Mile Watershed Placer Authorization

On April 11, 2008, pursuant to Section 35(2) of the Federal *Fisheries Act*; The Minister of Fisheries and Oceans Canada revoked the conditions of the Yukon Placer Authorization (issued June 1993) and all subsequent amendments pertaining to placer mining works or undertakings and sediment discharge standards in the Forty Mile River watershed.

The Minister then authorized the "*harmful alteration, disruption or destruction of fish habitat*" resulting from placer mining works or undertakings and the discharge of sediment at concentrations specified in the new authorization, which are uncontaminated by deleterious substances, within certain streams or portions of streams in the Forty Mile River watershed. The areas of allowable discharge are identified on the *Yukon Placer Fish Habitat Suitability Map for the Forty Mile River watershed* (Schedule 1) and the sediment discharge standards for mine discharge (allowable sediment discharge concentrations) detailed in the *Sediment Discharge Standards for Placer Mine Effluent – Forty Mile River watershed* (Schedule 2).

Under these new authorizations, it was decided to incorporate a 3 year phase-in schedule for the sediment discharge standards that would apply to each Placer mining operation in the Yukon. This phase-in period would allow both the government mining inspectors and the Yukon Placer Secretariat enough time to ensure that each operator fully understood their requirements to comply with the new authorizations and to operate within the framework of the new management system for Placer mining in the Yukon. The 3 year phase-in schedule contains the following requirements:

> In 2008 – Licensed placer miners would be informed about the operating practices required to comply with the new system for managing placer mining activity under the *Fisheries Act*. Inspectors and the Yukon Placer Secretariat would ensure that each operator is aware of the specific changes required at his or her site.
>
> In 2009 – All licensed placer miners must be oriented to the Design Target and Action Level detailed within the authorization pertaining to the watershed they are operating in and, must comply with a Sediment Discharge Standard for Mine discharge of no greater than 2.5 ml/L, or the standard stipulated in their existing water use license, whichever is more stringent.

> And in 2010 – All operations must be oriented to operate within the Design Target and Action Level, and must not exceed the Compliance Level stipulated in the table of ***Sediment Discharge Standards for Placer Mine Effluent*** (Schedule 2) for the habitat suitability classification and the watershed in which the mine is located.

It should be noted, that with the exception of a few water use licenses issued after April 11, 2008 for the Forty Mile River watershed, the new fish habitat management system did not result in reduced sediment discharge standards or stricter site management practices for 2009 in this basin. In most cases, the existing water use licenses for operations in the watershed were already set at or below the maximum allowable standard of 2.5 ml/l consequently, the water quality objectives monitoring results for 2009 are an assessment of the *status quo*, as opposed to the beneficial influence of the new rules for Yukon placer mining.

Highly sensitive habitat received a high degree of protection under the YPA, and that is maintained in the new system. The degree of disturbance of all mined tributaries in each watershed is recognized under the new rules by the Previous Development designation. The Water Quality Objectives and related discharge standards that are set are designed to mitigate the potentially negative downstream effects of placer mining.

High suitability habitats (Areas of Special Consideration) are defined as watercourses that contain ecologically or culturally important fisheries or aquatic resources. Watercourses assigned this designation may include habitats for rare or locally significant species or areas which directly support subsistence, traditional, commercial or sport fisheries. Areas of Special Consideration (ASC) may be established for either anadromous or nonanadromous species of fish.

In **all cases**, any placer mining activities that are likely to result in the harmful alteration, disruption or destruction of High (ASC) suitability habitats require a site-specific review, and if the activity is deemed to be acceptable, a site-specific authorization issued by Fisheries and Oceans Canada. In order to further protect these ASCs, a full compensation and fish habitat restoration plan must be submitted to Fisheries and Oceans Canada with any proposal to conduct works in or around High (ASC) suitability habitats.

In moderately sensitive habitat where mining has occurred for decades, the *Previous Development* designation results in application of a less stringent discharge standard, recognizing that the habitat features predicted by the classification model likely do not exist.

Site Codes and Global Position of Water Quality Sampling Locations in the Forty Mile River Watershed

SITE CODE	LOCATION	LAT_Y	LONG_X
40M 01	Forty Mile River mouth	64.42394	-140.55965
40M 02	Forty Mile Creek u/s Clinton Creek	64.36924	-140.73253
40M 03	Forty Mile River u/s Marten Creek	64.35772	-140.79825
40M 04	Forty Mile River Above All Mining (AAM)	64.32178	-140.93283
40M CLI 01	Clinton Creek mouth	64.40357	-140.59813
40M MAR 01	Marten Creek mouth	64.35361	-140.81006

Water Quality Objective monitoring, Yukon River North Watershed – Summary

The water quality in the basin, met the objectives set under the *Fish Habitat Management System* at the 5 sites sampled as part of the 2009 Aquatic Health monitoring program. All of the samples collected had a Total Suspended Solids concentration of less than 2 mg/L, well below the WQO of 25 mg/L set for the area.

The Fish Habitat Management System - Forty Mile River Watershed (Category B)
Sample Results that Exceed Water Quality Objectives for 2009

Sampling Station	40M 01	40M CLI 01	40M 02	40M 03	40M 04	Other	Other	Other	Other	Other
Location Description	Mouth	Mouth	u/s 40M CLI 01	u/s 40M MAR 01	AAM					
Sample Type										
Lat Y	64.42394	64.40357	64.36924	64.35772	64.32178					
Long X	-140.55965	-140.59813	-140.73253	-140.79825	-140.93283					
Habitat Classification	Area of special consideration	Area of special consideration	Area of special consideration	Area of special consideration	Area of special consideration					
Water Quality Objective (mg/L)	**100**	**100**	**100**	**100**	**100**					
Date of Sampling										
	No samples were taken in the Forty Mile River Watershed during the 2009 season									
Total Seasonal Average TSS (mg/L) by site										
Number of days sampled										

Legend **Not continuously monitored**

Water Samples that are: Above / Below the Water Quality Objective