



Fish Habitat Management System for Yukon Placer Mining

Economic Health Monitoring Report (2009)

Prepared by

**The Yukon Placer
Economic Health Working Group**

March 2010

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The Fish Habitat Management System for Yukon Placer Mining replaced the Yukon Placer Authorization (YPA) in 15 Yukon watersheds on April 11, 2008. Founded on principles of adaptive management and incorporating a risk-based approach to decision-making, the system is intended to balance the objectives of a sustainable Yukon placer mining industry with the conservation and protection of fish and fish habitat supporting fisheries.

Adaptive management recognizes that the effectiveness of any management system is hampered by a degree of uncertainty and lack of knowledge. It seeks to improve the system by monitoring the effects of management actions, in order to learn from the results. The Adaptive Management Framework for Yukon placer mining is complemented by traditional knowledge and water quality objectives monitoring, aquatic health monitoring and economic health monitoring programs. The results should provide new information and a rational basis for making any adjustments required to achieve the two management objectives.

The economic health monitoring program is governed by the Economic Health Monitoring Protocol, and has been designed to measure and signal whether a viable placer industry is being maintained under the fish habitat management system. The Protocol consists of two steps. In Step 1, eight indicators are evaluated to determine whether the industry's economic health is increasing or decreasing. If a downward trend is detected then Step 2 is invoked by administering a Panel Survey to a representative cross-section of placer miners. The Panel Survey is designed to determine whether an adverse trend can be attributed to the fish habitat management system, or is related to other factors (i.e. gold prices, cash costs, natural conditions etc.).

Following consultation it was agreed that as a precautionary measure the Panel Survey will be administered automatically for the first five years following implementation of the fish habitat management system.

Economic Health Monitoring – Step 1

The following table lists the viability indicators potentially correlated with the management system. The indicators are present in order of weighting. The indicators which hold the greatest potential to monitor placer industry health appear at the top of the list. The table also includes information on the potential adverse changes.

Advancement to the Panel Survey will normally proceed if there is an adverse change of more than 15% (in comparison to the previous period) in two or more of the top four indicators or when an adverse change of more than 10% is recorded in four or more of any eight indicators.

		2008	2009
	A.1 Industry-wide indicators (secondary data)	Potential adverse change in viability if the arrow goes	Potential adverse change in viability if the arrow goes
<i>Top 4</i>	record and count the number of placer mines in production	↓ ↑ +12%	↓ ↓ -33%
	gold royalty collected	↓ ↓ -18%	↓ ↓ -25%
	number of person days of employment (workers' compensation)	↓ ↑ +5%	↓ ↑ +5%
	level of non-compliance (number of "inspector's directions")	↑ ↓ nil	↑ ↓ -42%
<i>Bottom 4</i>	total claims staked in the reporting period	↓ ↑ +27%	↓ ↑ +8%
	total fuel consumption (fuel tax exempt permit data/fuel tank manifests – Using the 2008 fuel information – 2009 not available until early spring of 2010)	↓ ↓ -19%	↓ ↓ -19%
	number of claims in good standing per type of stream classification	↓ ↑ +.1%	↓ ↑ +.02%
	number of active water licenses (>40,000 cubic yards moved per year)	↓ ↑ +8	↓ ↑ +18.5%

There is a change to three of the indicators listed above: record and count the number of placer mines in production, gold royalty collected and level of non-compliance (number of "inspector's directions"). This result would normally trigger the Panel survey to be conducted as they are in the top 4 indicators, but as mentioned the Panel Survey will be conducted automatically for the first five years following implementation of the fish habitat management system.

Economic Health Monitoring – Step 2

The first wave of the panel survey was undertaken on April 3, 2009 in Whitehorse. The second wave of the panel survey was undertaken on November 25, 2009 in Whitehorse. Attendees included nine placer miners, one consultant representing the placer industry and one consultant with the Yukon Placer Secretariat. Completed panel surveys were received from all nine placer miners in attendance. Two additional surveys were later received by fax and/or mail. Thus, the population size (n) for the second panel survey was 11.

This report discusses the results of the November 25 panel survey session.

General observations

- overall, the November 25 session was very productive, panel survey participants candidly shared of their knowledge and experiences, their verbal and written input provided valuable insight into miners operating circumstances;
- the fact that the fish habitat management system has not yet been fully implemented caused some frustration/confusion – there was high interest in discussing the effects of the system but few non-abstract situations available for use as illustrations;
- the fact that gold prices were up, enabled miners to mine leaner ground, that wouldn't be mined with lower gold prices;
- many operations are transitioning to 100% recirculation with additional requirements for mechanical/classical treatment systems – due to the increased regulatory environment;
- additional sampling and action level approach caused additional protection work to ensure compliance with the standards.

For Consideration in Wave 3:

- consider how to account for advanced planning and stripping work undertaken ahead in prior years;
- consider how to address opportunity costs that effects miners being discouraged to explore and begin operations in new areas/watersheds;
- how to account for changes in operating costs (i.e. new or changing permitting costs, wear and tear costs)

Wave 2 Synopsis:

A synopsis of the Wave 2 panel survey findings are presented below. Given the small number of operators who have so far been affected by changes to the new regulatory regime for placer mining, the results are not representative but are presented here for illustrative purposes.

Part I: Incremental Costs of New Mine Site Management Practices

1.1 Change in Level of Effort Required to Comply with Enhanced Mitigative Measures Under New Placer Regime?

1.1	Count
no	5
yes	5

Comment synopsis: increased effort required to complete license applications with the DFO component (to some extent due to learning curve required), additional costs no higher than 5% of overall operating costs, generally lower than 1% of operating costs new requirements for field data may be costly (Miner's find it hard to get an accurate cost for this).

1.2 Changes in Level of Effort Required for “up-front” Construction of Final Restoration Channels?

1.2	Count
no	8
yes	3

Comment synopsis: three respondents reported increased costs for “up front” construction of final restoration channels [additional machine hours required].

1.3 Change in the Level of Water Sampling Activity?

1.3	Count
no	6
yes	5

Comment synopsis: while there is no requirement to do more sampling, sampling efforts were increased where thought prudent; dollar costs are negligible, its the opportunity cost that has/will have an effect.

1.4 Change in the Level of Effort Required to Maintain or Improve Settling Ponds?

1.4	Count
no	8
yes	2

Comment synopsis: Two respondents reported moving to a recirculation system and some respondents reported moving to out-of-stream settling and/or improving existing settling facilities, cost to build out-of stream settling facilities one respondent estimated at 15% of overall operating costs; opportunity costs (lost production time) included in one estimate; pond enlargement, more frequent bailouts, additional cost estimated at less than 5% of overall costs.

Part II: Attribution of Changes in Placer Industry Viability

2.1 Attribution of Changes in the Number of Placer Mines

Based on your own placer mining experiences in the last year, what do you think the top five factors were that could have contributed to a change in the total number of placer mining operations in your area....

Comment synopsis: top five factors identified: gold price, fuel costs, operating costs, permitting and mine site management (access, new areas and borrowing costs)

2.2 Attribution of Changes in the Volume of Yukon Placer Gold Production

Last year, did your gold production at your mine....

2.2	Count
increase	4
decrease	4
no change	3

Comment synopsis: top five factors identified: gold price, fuel price, regulatory requirements, operating costs (labour, borrowing, and weather), and equipment costs.

2.3 Attribution of Changes in the Number of Days of Employment in the Yukon Placer Industry

Last year, did your labour requirements....

2.2	Count
increase	4
decrease	0
no change	6

Comment synopsis: changes in labour factors were generally due to operational changes, not necessarily linked to new placer regime.

2.4 Attribution of Changes in the Number of Placer Claims Staked

What do you think are the reasons for the change in the number of placer claims staked over the past year?

Comment synopsis: number of placer claims staked not a good indicator of industry viability as gold price increases draw speculators into industry.

2.5 Attribution of Changes in the Volume of Fuel Consumed

Thinking about your own placer operation over the last full season, did your fuel consumption.....

2.5	Count
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increase	8
decrease	0
no change?	3

Comment synopsis: where changes in fuel consumption were noted, was reported to be the result of operational requirements or change in ground being mined, not necessarily linked to new regulatory regime.

2.6 Attribution of Expanding into new areas for Placer Mines

Has the new Fish Habitat Management System for Yukon Placer Mining discouraged you from expending into new areas?

2.6	Count
Yes	6
No	5
no response	0

Comment synopsis: Those who responded no, indicated a willingness to work with the system; those who responded yes, indicated that the permitting is cumbersome, too much uncertainty and reluctant or no interest to look at new areas.

Part III: Additional Comments

When asked if there were additional comments about how the new Fish Habitat Management System affected their placer mining operation this past season. Participants responded as follows:

- Most operators are transitioning to 100% recirculation with additional requirements for mechanical/classical treatment systems. All due to the increased regulatory environment;
- More time is spent on maintaining the capacity of settling ponds;
- When mining in areas of the creek which do not have pre-existing tailings to use for the construction of settling facilities, the costs are much higher.