

**Fish Habitat Management System
for Yukon Placer Mining**

**Economic Health Monitoring Protocol
Wave 6 Panel Survey Findings**

Submitted to:

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**Economic Health Monitoring Protocol
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Introduction

A new system for managing placer mining activity under the *Fisheries Act* has now been implemented by the Yukon Placer Secretariat. As part of the system, the Economic Health Monitoring Protocol was developed to measure and signal whether a viable placer industry is being maintained under the Fish Habitat Management System for Yukon Placer Mining. Implementation of the Economic Health Monitoring Protocol requires the use of a *panel survey* designed to determine whether changes in placer industry viability are attributable to the integrated regulatory regime. The panel survey is based on the premise that “fish can’t talk but miners can.”

Panel surveys 1 through 5 were conducted as part of an in-person gathering of panel survey members. For the first time, the sixth wave of the panel survey was undertaken without an in-person gathering. Instead, panel members had the option of completing the Wave 6 survey either by mail or through an on-line survey identical to the paper survey. Two panel surveys were completed by mail and three were completed online. Thus, the population size (n) for the Wave 6 panel survey is five. This report presents the findings of the Wave 6 panel survey.

Participants in the inaugural wave of the panel survey on April 3, 2009 provided many insights regarding how to improve the Wave 2 survey. In response to those insights, the panel survey instrument was extensively revised to improve its relevance and clarity. Please note that as a result, some of the findings of the Wave 2 through Wave 6 surveys are not directly comparable to the findings of the inaugural Wave 1 survey. Thanks are again due to panel survey participants who so articulately shared their experiences and knowledge.

Wave 6 Panel Survey Findings

To get them thinking about their placer mining season, participants were asked to describe in a line or two “how placer mining went for you this past season”. Participants’ verbatim responses included:

- *Season finished okay. Spring was 3 to 4 weeks late, gold price dropped drastically, equipment gave extra troubles, and ground was frozen extra hard. Overcame all, and managed to make a small dollar.*
- *This season was our best one to date in terms of gold recovery.*
- *Gold production was less than our goal and gold price was down significantly from the 2012 season. These two factors combined made for a tough year.*
- *A late start due to the weather slowed production but the nice fall kind of made up for it. All in all, good.*
- *I am a very small operator and because of demands on my time last season, I did not do much mining. Most of what I did was monitoring. I was on site all season and hope to do more mining in the future.*

Size of Operation

Panel survey participants were asked to indicate the size of their total operating costs [fuel, repairs, maintenance, labour, etc.] in 2013. Counts of participants' responses are outlined in the table below.

Total operating costs in 2013	Number of Respondents (5)
less than \$50,000	1
between \$50,000 and \$250,000	0
between \$250,000 and \$500,000	1
between \$500,000 and \$1 million	2
between \$1 million and \$2.5 million	0
between \$2.5 million and \$5 million	1
more than \$5 million	0

Permitting Experiences

Four out of five panel survey participants indicated they had permitted a placer operation in 2013. All but one the participants who permitted a placer operation under the new placer system in 2013 indicated that more effort was required than was their experience in the past. The additional effort was described as:

- *Perhaps 30% extra paperwork initially, but then a mess ensued when it was found out that the new system needed clarification regarding permanent and seasonal diversions. Mistakenly thought that permanent would trump all diversions.*
- *Tougher discharge standards and more details requested.*
- *Had an agent assist with the application, so I was not directly hands on, but nonetheless the requests and in-depth explanations were more than last time.*
- *People.*

The additional costs were described as:

- Time spent in discussions inspectors and the Water Board, and then complete second application totally cost me at least 50 hours of time, but 10 times greater [in terms of value] as prime time away is equal to lost revenue. The additional costs were estimated to be \$2,000.
- For the first time in 40 years of mining, we had a consultant to help us get through the permitting process. The additional costs were estimated to be \$4,000.
- The cost of the agent. The additional costs were estimated to be \$2,500.
- Had to hire someone to help do it for me. The additional costs were estimated to be about \$2,000.

Water Quality Sampling

Two out of five panel survey participants found it necessary to take additional water quality samples in order to comply with the new placer system:

- 40 more water quality samples were taken because now we need to be compliant/aware of "action" limits.
- Three additional water quality samples.

Settling Ponds

Three out of five panel survey respondents reported that greater effort was required to maintain or improve settling ponds. Level of effort and estimated average cost per machine hour were reported as:

- 40 machine hours.
- 24 machine hours at an average cost per machine hour of \$200.
- Not sure what you mean by "more" but because I was mostly monitoring, likely more than 70% of my cost was maintaining and improving settling ponds. Estimated average cost per machine hour is \$100.

Diversion Channels

One respondent indicated that greater effort was required to construct new or improved diversion channels in order to be compliant with the new system. Associated levels of effort included:

- 20 machine hours

No respondents indicated they had made a more rapid transition from using temporary diversion channels to using final restoration channels in 2013.

Zero Discharge Approach (100% Recirculation)

One respondent noted that their mine has always been an out-of-stream 100% recirculation system where the only discharge is dewatering flows that are typically clear. The additional costs incurred would be the cost of dewatering the area and the servicing of those pumps, total cost estimated to be \$30,000 to \$40,000.

Three out of five respondents indicated that they had considered moving to a 100% recirculation system but are unable to do so because of the physical characteristics of their placer claim (e.g., steep valley walls, significant groundwater flows, valley gradient).

Other Operating Activities to Ensure Conformity

One panel survey respondent reported having to undertake other additional operating activities in order to conform with more restrictive sediment discharge standards. Additional activities included:

- *Abandon [old ponds] and construct new ponds prematurely.* Overall operating costs were estimated to have increased by 3%.

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Opportunity Costs

Previous panel survey participants indicated that opportunity costs (e.g., time spent on designing new pond systems, time taken away from sluicing to do additional sampling, etc.) associated with the new placer system are significant. When asked to describe their opportunity costs and estimate the number of additional hours, participants said:

- *Failed to sell a distant proven placer property because of the harsh re-designation of the property under the new system. If we ever do so in the future (lucky to do) it would be at a reduced cost. Additional hours were estimated at 30 hours.*
- *We have not experienced dramatic changes or extra costs associated with the new placer system, as we already operate in a manner that is compliant.*
- *We spent approximately 24 hours improving our settling ponds. Our total hours sluicing were approximately 300. Therefore, a relatively high percentage of time is spent on settling pond maintenance/construction.*
- *Year 4 of this project and things are running smoothly. No extra hours were estimated as everything works together.*
- *Over 70% of my time at the mine was spent working on ponds. Because I was monitoring ever day a LOT of time and effort had to be spent on ponds because I am working in a narrow part of valley. They have to be built up or dug out. Additional hours were estimated at two hours per day.*

Number of Placer Mines

The number of placer mines in operation in the Yukon changes from year to year. Panel survey participants were asked, based on their own placer mining experiences in the last year, what they thought the top five factors were that could have contributed to a change in the total number of placer mines in operation in the Yukon in 2013. Their responses are outlined below:

Most important factor	No. of responses (4 total)
price of gold (\$US or \$CDN)	2
labour costs	1
quantity and quality of the gold resource	1
Second-most important factor	No. of responses (4 total)
price of gold (\$US or \$CDN)	1
fuel costs	1
quantity and quality of the gold resource	2
Third-most important factor	No. of responses (4 total)
equipment costs	2
labour costs	1
quantity and quality of the gold resource	1
Fourth-most important factor	No. of responses (3 total)
permitting costs	2
fuel costs	1
equipment costs	1

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Fifth-most important factor	No. of responses (4 total)
borrowing costs	1
equipment costs	1
natural conditions (snow pack, water flows, fires, etc.)	1
minesite access	1

Gold Production

Panel survey participants were asked, based on their own placer mining experiences in the last year, what they think were the top five factors that contributed to the change in gold production at their placer operation.

For survey respondents who reported an increase in production:

Most important factor	No. of responses (1)
quantity and quality of the gold resource	1
Second-most important factor	No. of responses (1)
equipment costs	1
Third-most important factor	No. of responses (1)
larger crew	1
Fourth-most important factor	No. of responses (1)
ability to mine is a systematic manner	1
Fifth-most important factor	No. of responses (1)
acquisition of another mine	1

For survey respondents who reported a decrease in production:

Most important factor	No. of responses (4)
quantity and quality of the gold resource	2
natural conditions	1
other business demands	1
Second-most important factor	No. of responses (4)
quantity and quality of the gold resource	2
gold price	1
natural conditions	1
Third-most important factor	No. of responses (4)
natural conditions	1
ability to mine is a systematic manner	1
fuel costs	1
new mine location	1
Fourth-most important factor	No. of responses (4)
equipment costs	3
ability to mine is a systematic manner	1
Fifth-most important factor	No. of responses (4)
labour costs	3
borrowing costs	1

Labour Requirements

Two respondents reported an increase in labour requirements at their most productive placer operation in 2013. Three respondents reported that their labour requirements were about the same. Reasons for the increase in labour requirements included:

- *Relocation of mining and developing new mining methods, building of roads, minor infrastructure equals more labour.*
- *Increased size of our operation and acquired another mine.*

Claim Staking

As reported by Yukon Energy, Mines and Resources, the total number of placer claims staked in the Yukon increased by 26% between the 2012 and 2013 mining seasons. Primary reasons given by panel survey respondents for the increase in staking included:

- *Persons excited about the "gold shows" on TV (real miners are running out of ground). Staking should have gone down because of diminished reserves (not many good creeks and lower gold prices).*
- *People believe the long-term prospects of increasing gold prices.*
- *Most historic ground has been staked, as miners need to keep mining they need to stake more ground. It is also possible that most of this increase is a result of staking by people who are speculating that they may go mining and may not be actually mining.*
- *Price of gold being high.*
- *Price of gold.*

Fuel Consumption

Two respondents indicated that their fuel requirements stayed about the same, two reported an increase in fuel consumption and one respondent reported a decrease in fuel consumption.

Primary reasons for the increase in fuel consumption noted by panel survey respondents included:

- *Quality of the ground being mined (2 respondents).*
- *Fuel efficiency of earth moving equipment (1 respondent).*
- *Relocation of mining operations (1 respondent).*

When asked if the change in fuel consumption was attributable to the new placer system, respondents indicated "yes", for the following reasons:

- *Yes, more construction involved in proper (extra proper) drains, ponds, slope considerations.*
- *The 24 equipment hours spent on settling ponds would obviously require substantial amount of fuel.*
- *No, if anything I spend more on fuel working to meet the new placer system, most machine hours were spent on the ponds.*

Expansion into New Areas

When asked if the new Fish Habitat Management System for Yukon Placer Mining discouraged them from expanding into new areas, three out of five respondents said 'yes'.

Comments from respondents who said 'yes' included:

- *Many creeks (or portions) been "upgraded" to meet more stringent requirements for water quality. Some creeks now have unrealistic suspended standards and "cultural/societal" designations. For example _____ Creek, where leave strips are required.*
- *The costs and risks associated with trying to prove up ground in new areas may result in us having to let go of these claims before we get any conclusive information.*
- *I have been mining for over 30 years and the expense and paper work it would take to go prospecting and meet all the new rules is more than I am willing to do.*

Quality of the Gold Resource

A key factor that influences the health of the placer industry, but which is very difficult to measure, is the extent to which all of the "good placer ground" has already been mined out.

Participants were asked to consider their own placer operation over the past year and to identify the extent to which the quality of the placer gold resource on the claims they mined affect the health of their placer operation. Their responses are outlined in the table below.

Extent to which the quality of the placer gold resource on claims mined affected health of the placer operation in 2013.	
Degree of extent	Number of responses (5)
not at all	0
to a small extent	1
to a moderate extent	0
to a great extent	4

Additional Comments

Panel survey participants were also asked if they had any other comments about how the new Fish Habitat Management System affected their placer mining operation this past season. Participants' responses are outlined below:

- *One major item of importance to industry health is the quality of the Placer Inspector. A negatively biased or ill-trained inspector is a great hardship both in terms of dollars and health (both the personal health of the mine operator and the health of the industry). A good inspector is a joy and helps keep the industry healthy – very important!*
- *The future of the industry requires us to find new ground to mine. However, the creeks that we have staked in new areas will be very difficult to permit and if they are put into production, the operating costs*

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will be much higher than what we have been dealing with. It is very difficult to determine the values of the new ground until the miner has actually done a test cut. Therefore, some miners may not be able to justify the relatively high risks and costs associated with opening up new ground.

- *In my case, when it comes to ground, I have been saving some of what I think is good ground for when I retire, that time is [upon me] now, so I am working on proving it up and making access to it. So that means that I will be growing my operation for next 5 or so years. If the ground is as good as I think it is.*