2019 Adaptive Management Report for the Fish Habitat Management System for Yukon Placer Mining

Appendix C: 2019 Economic Health Monitoring Report

Yukon

Draft Economic Health Monitoring Program 2019 Report

Adaptive Management Framework for the Fish Habitat Management System for Yukon Placer Mining

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Document Contributors

Economic Health Monitoring & Reporting	• Nina Modeland, Government of Yukon, EMR, CMI
Economic Health Panel Survey	• Vector Research

Acronyms

EHM	Economic Health Monitoring
FHMS	Fish Habitat Management System for Yukon Placer Mining

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Introduction

The Fish Habitat Management System for Yukon Placer Mining (FHMS) 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. Within the FHMS there are three effects-monitoring programs and associated protocols including Economic Health, Water Quality Objectives, and Aquatic Health. All three programs help to verify the effectiveness of the FHMS in meeting its objectives.

The Economic Health Monitoring (EHM) Protocol was designed to measure and signal whether a viable placer industry is being maintained under the fish habitat management system. The EHM Protocol outlines a series of indicators which are used to measure whether or not the objective of a viable placer industry is being met. Viability refers to the placer mining industry's ability to exist and/or grow in the new regulatory environment. This information may be used, in combination with the results of the other effects-monitoring programs, to make changes to the FHMS through adaptive management. The annual EHM program is delivered by Government of Yukon Department of Energy, Mines and Resources. This report provides background information into the EHM program and presents the results of monitoring for 2019.

Methods

To monitor and evaluate the occurrence of any changes in placer mining industry viability, the two part EHM Protocol was followed for the 2019 assessment period. Part 1 involved the monitoring of placer industry viability and was administered by the Government of Yukon Department of Energy Mines and Resources. Part 2 involved the use of a panel survey, administered by a contracted supplier, which would be used to correlate adverse changes in industry viability were they detected. As per the EHM Protocol, advancement to Part 2 of the EHM Protocol should only be triggered when the adverse changes are detected in the Type A.1. However, both Part 1 and Part 2 of the EHM Protocol were to be carried out for the first five years following

implementation of the EHM Protocol in 2008 and this practice has continued to date. A detailed description of the methodology is available in the EHM Protocol (YPS 2008).

EHM Protocol Part 1: Monitoring of placer industry viability

For Part 1, two categories of economic health indicators are used to assess the viability of Yukon's placer mining industry. These include Type A Indicators, which are indicators potentially correlated with the FHMS; and Type B indicators which are indicators not attributable to the FHMS. Type A indicators are broken into A.1 and A.2, where A.1 indicators are based on secondary data sources. Type A.2 and Type B indicators are based on primary data collected through the panel survey.

During Part 1 of the EHM Protocol, Type A.1 indicator data was collected for 2019 and compared with the data from the previous assessment period (2018) to determine if there were any adverse changes that would trigger advancement to Part 2 of the EHM Protocol. Changes that would constitute advancement to Part 2 include: more than 15% adverse change in two or more of the indicators or more than 10% adverse change in four or more of the of the indicators. The data and results of this analysis are presented in the Results section of this report.

EHM Protocol Part 2: Panel Survey

Advancement to Part 2 of the EHM Protocol is triggered when the adverse changes are detected in the Type A.1. However, it was decided that both Part 1 and Part 2 of the EHM Protocol would be carried out for the first five years following implementation of the EHM Protocol in 2008. This practice has continued to date, and the panel survey for 2019 was administered by the contracted supplier, Vector Research.

Part 2 of the EHM Protocol was designed to help ""*allocate" changes in the values of Type A.1 viability indicators between a) changes that are the result of factors independent of the habitat management system and b) changes that are the result the new system.*" (EHM Protocol, p.8). A panel survey is utilized to elicit the views of placer mine operators, representative of the industry in the Yukon, regarding the impacts of the FHMS on their businesses. The panel survey questions have been relatively constant since implementation.

Results

EHM Protocol Part 1: Monitoring of placer industry viability

The data and results of the analysis for the Type A.1 viability indicators are presented in Table 1. None of the A.1 indicators, adversely changed between 2018 and 2019, all changes in economic health were positive. Data for two of these indicators was unavailable. These include the total fuel consumption, and the number of active water licenses for placer mines washing (sluicing) more than 40,000 cubic yards of material per year. The reasons for these gaps in the information were investigated by Vector Research in 2019. With regard to estimates of total fuel consumption, there has been a change in the Government of Yukon department responsible for this information as well as the policy for calculating and sharing this information. As such, estimates of total fuel consumption is not available at this time. The viability of the number of active water licenses for placer mines washing (sluicing) more than 40,000 cubic yards of material per year as an indicator for the EHM Protocol is under review.

EHM Protocol Part 2: Panel Survey

The results of Part 1 did not trigger advancement to Part 2 of the EHM Protocol. However, the panel survey was conducted out of routine. The results of the panel survey are provided in Appendix C1.

Table 1: Data and results for the Type A.1 Viability Indicator analysis. The decision rule, yearly data, and percent (%) change for 2018-2019 is provided for each indicator.

	Type A.1 Viability Indicator	Potential adverse change if the indicator goes...	2018	2019	% change 2017 to 2019
Top Four Indicators	Active licenses	down	160	160	0% (no adverse change)
	Gold royalty collected	down	$ 27,207	$30,167	11% (no adverse change)
	Number of person days of employment	down	83,447	97,293	17% (no adverse change)
	Level of non-compliance (# of "inspectors directions")	up	6	2	-67% (no adverse change)
Bottom Four Indicators	Total placer claims staked in reporting period - Sept to Oct	down	2311	2406	4 % (no adverse change)
	Total fuel consumption	down	Not available		
	Number of claims in good standing per type of stream classification	down	25,507	27,068	6% (no adverse change)
	Number of water licenses (>40,000 cubic yards washed per year)	down	Indicator under review		

Conclusion

The FHMS did not adversely affected the viability of Yukon's placer mining industry in 2019. This was demonstrated through the monitoring and analysis of the placer viability indicators following Part 1 of the EHM Protocol. For this reason, no further action related to the FHMS is required at this time.

Fish Habitat Management System for Yukon Placer Mining
Economic Health Monitoring Program 2019 Report.

Appendix C1: Panel Survey Results

Fish Habitat Management System for Yukon Placer Mining

Economic Health Monitoring Protocol Wave 12 Panel Survey Findings

Submitted to:
Compliance Monitoring and Inspections
Yukon Energy, Mines and Resources
300 Main Street
Whitehorse, Yukon
Y1A 2B5

Prepared by:
Paul Kishchuk, MA
Vector Research
203 - 301 Hawkins Street
Whitehorse, Yukon Y1A 1X5
paul@vectorresearch.ca
t: 867.668.3164

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Economic Health Monitoring Protocol
Wave 12 Panel Survey Findings

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Introduction

A new system for managing placer mining activity under the *Fisheries Act* was implemented by the Yukon Placer Secretariat in 2008. 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."

The twelfth wave of the panel survey was undertaken over the months of November 2019 to January 2020 with the assistance of the Klondike Placer Miners Association. Panel surveys were completed by representatives of 13 placer mining operations. Thus, the population size (n) for the Wave 12 panel survey is 13. This report presents the findings of the Wave 12 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. As a result, some of the findings of the Wave 2 through Wave 12 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 12 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:

- *The mining season went well.*
- *I did not rehire eight of the most senior people that have worked for the mine for the last five years. Some had worked there for more than 10 years prior to my purchase. It went very well with new younger crew.*
- *It went pretty well with dry warm weather, good thaw, few breakdowns, and a very good gold price.*
- *OK – normal season.*
- *Season was average. Learned lots about ground and didn't lose money.*
- *Excellent – we hit our production target and the higher gold prices were an added bonus.*
- *The mining season was about average for us this past season, with all the dry weather we still had sufficient water to keep our operation moving. The early spring we had was also a bonus for us.*
- *Mining season was good, we moved to Sulphur Creek in 2019. The spring was early which gave us a chance to get started early. Gold price was a big positive this season.*
- *All operations went well for the season: stripping, sluicing, reclamation, maintenance and employee relations.*
- *Good season, good weather and nice rise in the price of gold.*
- *It was a successful year. Water management system performed as designed, stripping met its target values in spite of presence of*

permafrost. Sluice production fell behind schedule by two weeks which was recovered by working later in September and October due to favorable weather.

- *Our gold production was down from previous season, but our costs were down also, because mining shallow ground with small crew.*
- *Season went OK, shut down sluicing on August 5 to allow time to do some exploration.*

Size of Operation

Panel survey participants were asked to indicate the size of their total operating costs [fuel, repairs, maintenance, labour, etc.] in 2019. Counts of participants' responses are outlined in the table below.

Total operating costs in 2019	Number of Respondents (13)
less than $50,000	0
between $50,000 and $250,000	1
between $250,000 and $500,000	3
between $500,000 and $1 million	2
between $1 million and $2.5 million	3
between $2.5 million and $5 million	1
more than $5 million	3

Permitting Experiences

Ten of the 13 panel survey participants indicated they had permitted a placer operation in 2019. All participants who permitted a placer operation under the new placer system in 2019 indicated that more effort was required than was their experience in the past. The additional effort was described as:

- *The cost of the consultant was increased due to the complexity of the new rules. We are in the process of acquiring a new 10 year license - we have 3.5 years left on current license but think it prudent to get this started early in view of the delays others have had.*
- *Required a lot more paperwork and maps.*
- *Additional time dealing with multi-layered government.*
- *We have been trying to get permits and water license has been held up for over a year.*
- *Expensive and exhausting interventions by First Nations caused delays and required extra work and expense.*
- *More DFO water sheets and had to produce maps.*
- *The assessors and the Water Board have become much more prescriptive. You have to be very vigilant or they will insert unneeded or unwarranted terms and conditions in your license. When you successfully argue their removal, they magically pop back up in the decision document process (were the proponent has no means to discuss) and cannot be removed.*
- *A lot of extra time was spent convincing a skeptical Board and officers that a continuously elevated perched settling pond design was practical and effective for the location and posed no safety issues.*

- *Much more detail requested for water license application. We have hired a contractor to help with application because too time consuming to do it myself.*
- *Could not finish the application without assistance from a consultant! This is not acceptable!*

The additional costs were described as:

- *$20,000 – cost of consultant.*
- *The costs were my own time in doing all the paperwork for the new licenses. It took approximately five days of my time compared to approximately one day of my time 10 years ago. $4,000 in additional costs.*
- *Cost has doubled using professional help. $3,000 in additional costs.*
- *Consulting fees, time delays, still no license. Additional cost unquantifiable at this time.*
- *Management and consultant's time. $10,000 in additional costs.*
- *It was a small amount as it was just more time to produce, so essentially just wages. $500 in additional costs.*
- *Additional cost was related to staff time required to respond to additional questions and submission of more information over a period of four months. $16,000 in additional costs.*
- *We had to pay the contractor we hired to help with license application. $5,000 in additional costs.*
- *Hiring a consultant. $5,000 in additional costs.*

Water Quality Sampling

Four out of 13 panel survey participants found it necessary to take additional water quality samples in order to comply with the new placer system. The additional number of samples required was reported as:

- 30 additional water samples.
- Approximately 50 water samples.
- 5 additional water samples.
- Approximately 5 water samples.

Settling Ponds

Six out of 13 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:

- 250 machine hours ($500 per hour).
- Approximately 800 machine hours ($150 per hour).
- 50 machine hours ($250 per hour).
- 300 machine hours ($200 per hour).
- 30 machine hours ($200 per hour).
- 50 machine hours ($400 per hour).

Diversion Channels

Two out of 13 panel survey respondents 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.
- 400 machine hours.

Two respondents indicated making a more rapid transition from temporary diversion channels to final restoration channels in 2019. Factors considered when deciding to make a more rapid transition to final restoration channels were described as:

- *Not sure [what factors to consider] as inspectors are unclear on requirements for each and don't want to consent to giving green light on final diversions as they are underexperienced.*
- *We have not done the diversion yet, but we have begun getting prepared, It takes more planning and moving material further distances. It will have again larger costs once we get close to finalizing the stream bed.*

One respondent noted that "we have only permanent diversion in our current license. It is difficult to build a permanent diversion so we are waiting for our license that will have permanent, temporary and seasonal approval."

Zero Discharge Approach (100% Recirculation)

Five respondents indicated they moved to a zero discharge approach (100% recirculation system) in order to conform with more restrictive discharge standards. Additional costs were noted by respondents as follows:

- *Unsure of long term costs.*
- *$50,000 additional costs for extra pumps and dirt work.*
- *$50,000 additional costs.*
- *$16,000 additional costs.*

A respondent noted that "we have always been 100% recycle to avoid compliance issues.

In response to being asked about the extent to which they perceive a change in gold recovery rate resulting from the move to a zero discharge approach, respondents stated:

- *I know there are old folks tales that decreased recovery if heavily sedimented water is used. I have not seen a proper study that confirms this and I read every study I can. I can see very, very heavily silted water causing an issue but it would have to be extreme.*
- *Hard to quantify this but most likely 1-5%.*
- *Estimated 10% loss of gold due to using dirty recycled water.*
- *We hope that it has not been affected but to ensure we lose as little as possible we clean up twice as often which doubles the gold room work.*
- *5 – 10% less recovery is estimated due to the heavier / more dense sluice water being utilized in the recirculation.*

Four out of 13 respondents indicated 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).

A respondent noted that "our mining method of all sluicing in cut looks after this." Another responded noted "we are at 100% recirc in spite of valley wall, groundwater and valley gradient. This is entirely due to the elevated, perched pond concept."

Other Operating Activities to Ensure Conformity

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

- *100% recirculation where possible and [we] halted operations to build up settling ponds. Overall operating costs were estimated to have increased by 10 to 20%.*
- *When a settling pond's water became too dirty to use due to recirculation, we had to take time to build new plant location and recirculation ponds to replace it, which cost valuable time and money. Overall operating costs were estimated to have increased by 10%.*
- *Mine life activity to elevate the perched pond and renovate (i.e., remove sediment) from the transfer pond. Overall operating costs were estimated to have increased by 10%.*

A respondent who responded with a *no* noted that "our mining method of all sluicing in cut looks after this."

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:

- *We did not have any additional costs as we have been 100% recirculating over the past five mining seasons.*
- *This must be very small operators. None of the mid or larger mines would require stopping sluicing or another activity to do a 10 minute sampling. I can see more labour required to build settling ponds but that is good mining practice. We settled into cuts [made] years ago, so there is no significant additional costs, just proper planning.*
- *Designing pond systems and additional sampling did not really take more time than previously. But downtime from sluicing at a small mine with three employees was significant. And additional 50 hours were required to comply.*
- *Small operation, so not much difference.*

- *Time to build/design robust settling ponds, time to get approval of inexperienced inspectors. Time during shut down to build up system. Hundreds of hours were estimated to be required.*
- *Time spent designing and building new pond systems. Time taken away from sluicing to do additional sampling. Extra time required for reclamation of wetlands areas to new, higher standards. One thousand hours were estimated to be required.*
- *We are 100% recycle. We incur extra costs maintaining a 100% recycle system. We have to make sure our water is settled before it reaches our pumps so shutting down sluicing is required from time to time to build ponds up / add new ponds.*
- *We have been running near 100% recirculation for more than five years. We still have small amounts of discharge so we run probably 95% recirculation. This has always come a larger cost but we do it so that we are well prepared when it becomes mandatory. Equipment needs to take time to build centre dykes, build better pump ponds as well as haul the cuts out completely to sluice back into old cuts. An estimated 200 additional hours were required (which hasn't really increased from other years).*
- *Drone surveys for mine planning. An estimated 200 additional hours were required.*
- *Extra settling pond (30 hours x $200 per hour = $6,000.00); extra stream diversion work (20 hours x $200 per hour = $4,000.00); five days of sluicing lost due to settling / diversion work @ $5,000 per day = $25,000.*
- *Loss of production due to downtime building bigger settling facilities and decreased efficiency in sluice plant from recirculation. An estimated 50 additional hours were required.*

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 2019. Their responses are outlined below:

Most important factor	No. of responses (13 total)
gold price	10
quantity and quality of the gold resource	3

Second-most important factor	No. of responses (13 total)
permitting costs / delays	5
fuel costs	4
quantity and quality of the gold resource	2
gold price	1
natural conditions (snow pack, water flows, fires, etc.)	1

Third-most important factor	No. of responses (11 total)
fuel costs	3
labour costs	3
permitting costs / delays	2
borrowing costs	1
natural conditions (snow pack, water flows, fires, etc.)	1
wetland issues	1

Fourth-most important factor	No. of responses (11 total)
quantity and quality of the gold resource	3
gold price	2
fuel costs	2
equipment costs	2
ability to mine in a systematic manner	1
permitting costs / delays	1

Fifth-most important factor	No. of responses (11 total)
natural conditions (snow pack, water flows, fires, etc.)	3
minesite access	3
labour costs	2
equipment costs	1
quantity and quality of the gold resource	1
ability to mine in a systematic manner	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 (4)
quantity and quality of the gold resource	3
gold price	1

Second-most important factor	No. of responses (4)
ability to mine in a systematic manner	1
equipment costs	1
new minesite management costs	1
quantity and quality of the gold resource	1

Third-most important factor	No. of responses (3)
gold price	1
labour costs	1
labour quality rather than labour costs	1

Fourth-most important factor	No. of responses (2)
ability to mine in a systematic manner	1
natural conditions (snow pack, water flows, fires, etc.)	1

Fifth-most important factor	No. of responses (1)
borrowing costs	1

For survey respondents who reported a decrease in production:

Most important factor	No. of responses (4)
quantity and quality of the gold resource	3
minesite access	1

Second-most important factor	No. of responses (4)
quantity and quality of the gold resource	1
new minesite management costs	1
gold price	1
fuel costs	1

Third-most important factor	No. of responses (4)
labour costs	2
equipment costs	1
quantity and quality of the gold resource	1

Fourth-most important factor	No. of responses (4)
labour costs	1
ability to mine in a systematic manner	1
equipment costs	1
fuel costs	1

Fifth-most important factor	No. of responses (4)
natural conditions (snow pack, water flows, fires, etc.)	2
gold price	1
permitting costs / delays	1

For survey respondents who reported that production stayed the same:

Most important factor	No. of responses (5)
quantity and quality of the gold resource	2
gold price	2
equipment costs	1

Second-most important factor	No. of responses (5)
gold price	2
natural conditions (snow pack, water flows, fires, etc.)	1
ability to mine in a systematic manner	1
fuel costs	1

Third-most important factor	No. of responses (5)
fuel costs	2
equipment costs	1
labour costs	1
natural conditions (snow pack, water flows, fires, etc.)	1

Fourth-most important factor	No. of responses (5)
labour costs	2
borrowing costs	1
gold price	1
permitting costs / delays	1

Fifth-most important factor	No. of responses (5)
natural conditions (snow pack, water flows, fires, etc.)	2
ability to mine in a systematic manner	1
equipment costs	1
labour costs	1

Labour Requirements

Three respondents reported an increase in labour requirements at their most productive placer operation in 2019. Four respondents reported a decrease in labour requirements. Six respondents reported that their labour requirements were about the same.

Reasons for the increase in labour requirements included:

- *Increase in size operation and operation complexity.*
- *Increase in equipment size and production targets.*
- *Additional staff to accomplish the greater depth of stripping required and the additional work to place overburden in proximity to where it will be used.*

Reasons for the decrease in labour requirements included:

- *FYI, mines are mostly the same: 1/3 fuel cost, 1/3 labour cost and 1/3 everything else. Our labour decreased with the increase use of conveyors.*
- *New efficient machinery. Significant changes in materials handling methods.*
- *We are mining relatively shallow ground, therefore, our labour/equipment needs are less.*
- *Downsized to allow for less overhead and ability to spend time on exploration.*

Respondents whose labour requirements stayed the same noted that:

- *High gold price meant less pressure on people and equipment.*
- *Wage creep of long term employees offset by hiring less people.*
- *It's getting harder to find reliable, trustworthy, hard-working people.*
- *I don't imagine there was too much new staking due to the increase in staking over that last 10 or so years, resulting in less potential ground available.*
- *We have aging equipment and need more mechanics to continue mining. Having trouble finding good mechanics for a reasonable wage.*

Claim Staking

Panel survey respondents were asked, while thinking about the overall Yukon placer industry during the past year, whether the total number of placer claims staked increased, decreased or stayed the same.

Reasons given by panel survey respondents for the increase in staking included:

- *The price of gold I think would have made an increase in claims staked.*
- *The rising gold price is bringing a lot more people to the area. It also makes a lot more ground seem workable/cost effective to test and/or mine.*
- *Interest globally in placer mining and gold price.*

- *We are still dealing with the TV shows and the promoters who try to cash in on the fad.*
- *Probably the main reason is the speculation as a result of exposure from TV shows.*
- *Price of gold.*

Reasons given by panel survey respondents for the decrease in staking included:

- *Onerous permitting regulations and new Class 1 requirements.*

Reasons given by panel survey respondents who indicated that the number of placer claims staked stayed the same included:

- *I believe the red tape and bureaucratic nightmare that is now the normal for new miners vastly reduces the lure of mining.*
- *Gold price.*
- *We staked less due to time constraints.*
- *Lack of access to ground and Class 1 requirements once ground is staked deterred some people from staking. At the same time, gold price encouraged others.*

Fuel Consumption

Three respondents reported that their fuel requirements decreased, five respondents reported that their fuel requirements stayed about the same and four reported an increase in fuel consumption.

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

- *Quality of the ground being mined (2 respondents).*
- *Fuel prices (1 respondent).*
- *Fuel efficiency of earth moving equipment (1 respondent).*
- *Quantity of ground moved (1 respondent).*
- *Shorter mining season (1 respondent).*
- *Downsized crew (1 respondent).*

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

- *Fuel efficiency of earth moving equipment (2 respondents).*
- *Quality of the ground being mined (1 respondent).*
- *More hours moving earth (1 respondent).*
- *Quantity of ground moved (1 respondent).*
- *Use of conveyor system to move gravel (1 respondent).*

A respondent who noted that their fuel consumption stayed about the same noted that an increase in fuel consumption due to more ground needing to be moved was offset through the use of more fuel efficient equipment.

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

- *The cost of fuel is important, but equipment efficiency is a big driver of cost. The new system does not change the amount of gold, the weather, or the cost of spare parts.*
- *More machine hours went into stripping and pre-stripping years ahead. The wetland issue is a worry in that it could void certain areas of the claim block from mining.*
- *More machine hours to meet requirements, so burning more fuel.*
- *I do believe it is affecting the industry as a whole but our operation wasn't affected last season with a change in fuel consumption due to new placer system.*
- *Small amount more fuel consumption to maintain dykes and ponds. As well as needing to clear sediments out of old ponds.*
- *Every season we burn fuel to comply with only regulatory requirements. To the greatest extent possible we merge operational necessity with regulatory requirement. We dual purpose fuel management.*
- *Our fuel consumption decreased mainly because of equipment hours. However, the cost of fuel related to new placer system is disproportionately higher.*

Expansion into New Areas

When asked if the new Fish Habitat Management System for Yukon Placer Mining discouraged them from expanding into new areas, four of 13 respondents to this question said 'yes'. Comments from respondents included:

- *Fish habitat is one of the least of our worries. I recognized several years ago it had the potential to shut down mining, but I do not feel that now.*
- *As yet it hasn't discouraged expanding into a new area but we have a block of claims that hasn't been mined and has very stringent mining requirements which we need addressing at some stage in the future.*
- *Creeks that are of interest to development become less interesting when they are classed as high suitability fish habitat and a water license is unlikely to be possible to obtain.*
- *Not worth the additional cost and effort to ensure compliance.*
- *Some creeks are so stringent it tends to lead you to want to avoid them as extra costs to meet requirements would be so high.*
- *The real problem is YESAB.*
- *We have applied for a water license on the creek with historic placer workings. However, the classification of the stream as a result of the new habitat system is too restrictive. We have subsequently allowed these claims to lapse.*

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 2019.	
Degree of extent	**Number of responses (13)**
not at all	0
to a small extent	1
to a moderate extent	5
to a great extent	7

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. Participant's responses are outlined below:

- *You have totally missed the main reason for the decline. I am a businessman, new to mining, only six years. Here is the biggest threat to mining and in many ways the Yukon economy: UNCERTAINTY. Money hates uncertainty and this government and to some extent the one before listened and reacted to the vocal minority, whether it is environmentalist or Indigenous groups, there is huge uncertainty in this industry. If I was aware of the control these groups have over the government, I would have invested elsewhere. The next feeling I have is there is little care from government about timing or delays. Their paycheques and indexed pensions come every two weeks no matter how long things take. The longer and more complex they can make them, the more they complain about overwork and needing more staff who in turn make more rules and complexities and need more staff.*
- *I think the water use/discharge and fish habitat regulations are generally becoming less of an issue compared with the current wetland issue. And the focus seems to be on the Indian River, while ignoring similar catchments such as the Sixtymile. This issue is a worry in that permits are being held up, creating frustration and stress.*
- *At various public events, I have seen signs promoted by government that say the Yukon is "open for business." This is a false statement given the regulatory "creep" that continuously occurs and the attempt by First Nations to blackmail industry to provide them with cash, equity or royalties from our operations. If this continues, I will seriously consider closing down my mine and retiring, thus ending many jobs for Yukon and removing the millions of dollars my operation injects into the local economy each summer.*

- *Concerns over wetlands and changing regulatory environment has led us to mining some of our ground in higher risk areas. We are doing this to hopefully prevent us from losing ground, as well we want to attempt reclaiming these areas in order to show or give an example that we can point to, to show we are capable of doing excellent reclamation in these wetland areas.*
- *The future health of placer mining is dependent on, 1) access to the resources - transport and regulation-wise, 2) increased use of exploration tools like sonic drills, ground penetrating radar, etc. and 3) increased use of drones for data collection to be used in enhanced mine planning and regulatory submissions.*
- *As mentioned in an earlier question, my family has recently abandoned hopes of mining ground that has had historic placer mining activity nearby. The consequences of this loss are very hard to measure.*
- *There has been a regulatory creep in government that is making the application of the new regime too prescriptive, asking for too much detail making "on-the-ground" operations more difficult. [The] licenses issued now say "refer to application", so inspectors are using the application verbatim for actions taking place on the minesite. When the regime was negotiated, a big piece and understanding was that we the placer miner need flexibility on the ground to operate efficiently. This is being taken away from us more and more every year and needs to be addressed before it's too late.*

Conclusion

On the basis of the Wave 12 panel survey responses, the overall economic health of the Yukon placer mining industry appears to be good, bolstered in part by higher gold prices in 2019. Respondents continued to note a level of permitting complexity that required the assistance of consultants to complete the permitting process. A shift to a zero-discharge approach appears to be continuing. Concern about the viability of exploring and moving operations into new areas continued to be expressed by respondents. Wave 12 respondents also noted concerns about what lies ahead for placer mining in wetland areas and the implications of new requirements for Class 1 land use notifications.