

A new system for managing placer mining activity under the *Fisheries Act* in the Yukon

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The Yukon Placer Authorization (YPA) underwent a mandatory review in 2001, and the Yukon Placer Committee submitted its report to the Minister of Fisheries and Oceans (DFO) in June, 2002. In December, 2002, Minister Thibeault announced his decision to phase out the YPA and manage placer mining activity in the Yukon differently.

In May, 2003, the Yukon government, DFO and the Council of Yukon First Nations signed a Record of Agreement (RoA) that set out a process for developing a new management system for Yukon placer mining. The RoA described two management objectives: conservation and protection of fish and fish habitat supporting fisheries; and a sustainable placer mining industry. The agreement specified that the YPA must be replaced by 2007.

The Record of Agreement also contained a set of expected outcomes. The new regime must:

- be achievable and science-based
- incorporate experience and traditional knowledge
- include a schedule for implementation
- be a harmonized, efficient and timely approach, and
- be fair and understandable to industry

In May, 2005, the committees established by the RoA submitted a report entitled “An Integrated Regulatory Regime for Yukon Placer Mining” to the Minister of Fisheries and Oceans. This report was endorsed by all parties to the RoA, and the consultation and implementation phase of the process was initiated.

Why is placer mining governed by the *Fisheries Act*?

Placer gold deposits are generally found in valley bottoms or on riverside benches, and the methods used to mine them may affect fish and fish habitat in several ways. Under the federal *Fisheries Act*, it is an offence to deposit a deleterious substance into waters frequented by fish or to harmfully alter, disrupt or destroy fish habitat. The Minister of Fisheries and Oceans, however, may authorize the harmful alteration, disruption or destruction (HADD) under strictly specified conditions. The YPA is an Authorization under Section 35(2) of the *Fisheries Act* that applies to the entire Yukon.

Basic habitat management principles

Even where the HADD is authorized, DFO’s approach to habitat management is centred on a policy of ‘no net loss’. First, every effort must be made to avoid the HADD by redesigning or relocating a project, or through the application of mitigative measures. If harmful effects can be completely avoided, no HADD occurs, and there is no requirement for authorization under the *Fisheries Act*.

When the HADD is authorized, an operator is required to provide compensation. For Yukon placer mining, compensation means restoring or replacing any habitat that is compromised, in compliance with the ‘no net loss’ policy.

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What is the new regime?

The new system for managing Yukon placer mining under the *Fisheries Act* is based on a Risk Management Framework and a watershed health approach, and includes a set of watershed-based authorizations, habitat suitability classification maps, a compliance monitoring and enforcement program, and an 'Adaptive Management Framework'.

Risk Management Framework

The Risk Management Framework has two key components: the Pathway of Effects (PoE) and the Fish Habitat Risk Assessment Matrix (Fig. 1). The PoE is a simple model which links specific industrial activities to their potentially adverse aquatic effects. The model is employed to break the link between an activity and an effect as early in the process as possible. This is accomplished by relocating or redesigning a project, or through the application of mitigative measures. Any effects that can not be entirely eliminated through the application of mitigation measures (residual effects) are evaluated using the Fish Habitat Risk Assessment Matrix (Fig. 2).

This two-dimensional model maps the sensitivity of fish habitat against the potential severity of negative effect from a proposed activity. In general terms, habitat is categorized as rare or highly sensitive, moderately sensitive, or of low sensitivity; while severity is considered high, medium, or low. The likely regulatory response can be predicted by reading the contents of the cells where each column and row intersects. In general, the rules for activities proposed in habitats of higher sensitivity will be more restrictive than the rules for a similar activity in habitats of lower sensitivity.

For the new regime, matrices have been prepared for stream channel diversions, water acquisition, and instream works. Using these matrices, miners, environmental

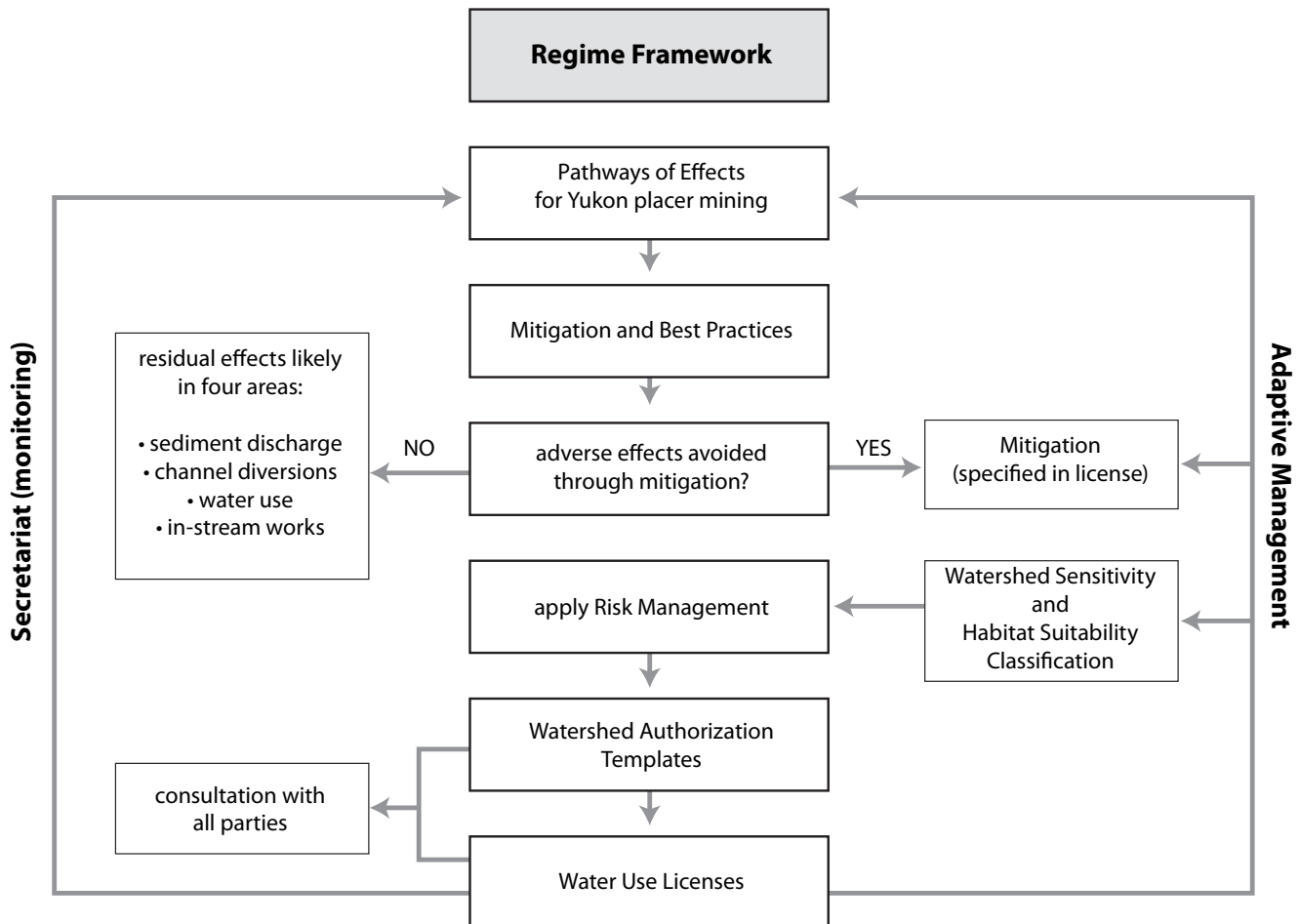


Figure 1. Schematic diagram of regime framework.

assessment officers, water licensing officers, habitat technicians, inspectors, or any other interested party can determine what activities are governed by a watershed-based authorization, or what activities may require site-specific review and authorization in each watershed.

Watershed health approach

A two-step classification process has been developed to identify and assess selected environmental and ecological components of aquatic areas. The process involves the classification of both watersheds and fish habitat through the evaluation of physical, biological, environmental and cultural values.

The sensitivity of a watershed is classified into one of two possible categories, based on an assessment of both physical and biological characteristics. Watersheds are designated as either more likely, or less likely to display an ecological response to placer mining activities.

The habitat suitability designation categorizes fish habitat areas based on sensitivity and ecological significance. The resulting classification of fish habitat is structured to mesh with the Risk Management Framework. The ecological importance of habitat is identified through a habitat suitability evaluation which considers both physical and biological indicators. The output of these analyses allows for the ranking of individual fish habitat areas based on relative suitability.

Watershed-based authorizations

The YPA governs placer mining in the entire Yukon. It will be replaced by a set of separate authorizations, each governing placer mining in a specific watershed. Each authorization will contain the habitat suitability classification map for that basin; risk management decision matrices for water acquisition, diversion channels, and in-stream works; and a schedule of sediment discharge standards and water quality objectives.

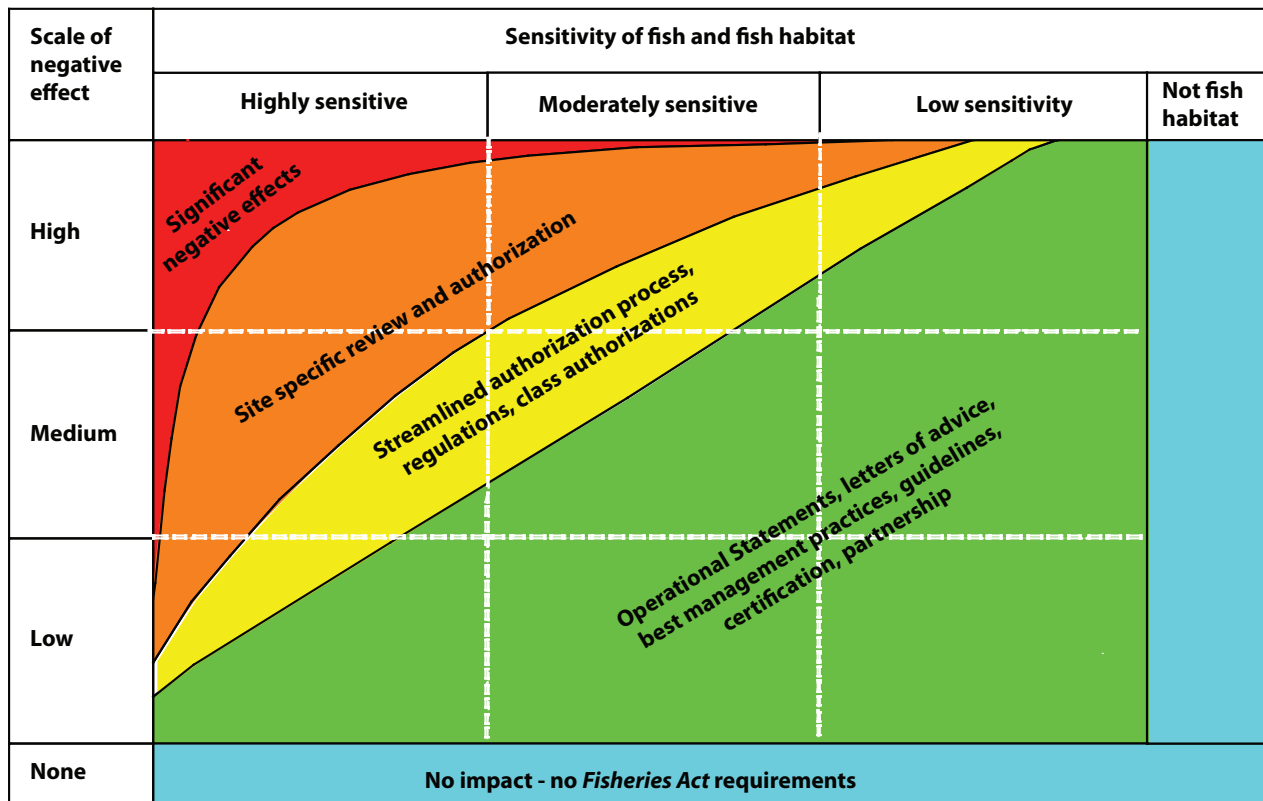


Figure 2. Fish Habitat Risk Assessment Matrix.

Mining activities may be proposed in locations that were not anticipated when the watershed-based authorizations were developed, or that are not necessarily suited for some habitats. This will be evident from the authorizations, and in these cases DFO will perform a site-specific review of the proposal, and a site-specific authorization may be the management response.

Compliance monitoring and enforcement

The Yukon government and DFO have agreed to a Protocol providing a coordinated approach to habitat inspections under the federal *Fisheries Act* and inspections pursuant to the territorial *Waters Act* and *Placer Mining Act*. Under this agreement, Yukon officials have the lead for all compliance monitoring and enforcement activities related to placer mining.

The agreement also addresses the timing and frequency of inspections. In addition, the Client Services and Inspections Branch performs a yearly risk assessment exercise, and establishes an inspection plan designed to prevent or reduce the risk to persons, property or the environment posed by placer mining activity.

Adaptive Management Framework

Adaptive management has been defined as the process whereby management is initiated and then incrementally evaluated and refined [Kershner (1997), Monitoring and Adaptive Management]. Unlike traditional management, an adaptive approach recognizes uncertainty and the constraints of limited knowledge. It provides a process for using new information from monitoring and research to modify management practices. In particular, high-quality monitoring data from both successes and failures leads to improved decision-making.

Three effects-monitoring programs will be implemented in the new regime: water quality objectives monitoring; aquatic health monitoring; and economic health monitoring. Monitoring will follow strict protocols addressing sampling methodology; the location, timing and frequency of sampling; and sample analysis. Reports from the monitoring programs will be evaluated on an annual basis in combination with any newly acquired traditional knowledge, following decision rules set out in the Adaptive Management Framework. If the results are significant, recommendations will be made to the regulators that may result in changes to watershed authorizations.

In summary

The Yukon Placer Authorization will be replaced by a new system for managing Yukon placer mining under the *Fisheries Act*. The new regime employs a Risk Management Framework, a watershed health approach, and an Adaptive Management Framework to achieve its management objectives: conservation and protection of fish and fish habitat supporting fisheries; and a sustainable placer mining industry in the Yukon.

Reference

Kershner, Jeffrey L., 1997. Monitoring and Adaptive Management. *In*: Watershed Restoration: Principles and Practices. J.E. Williams, C.A. Wood and M.P. Dombeck (eds.), American Fisheries Society, Bethesda, Maryland, 561 p.

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