High Habitat Suitability Watercourses (Chinook Salmon Production)

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Before You Begin

This workbook and associated worksheets are provided to assist with compiling information to support project proposals for submission to the Yukon Environmental and the Socio-economic Assessment Board (YESAB) and the Yukon Water Board (YWB). Once completed, the worksheets must be submitted for review as a component of both the YESAB and Yukon Water Board applications.

The guidance provided focuses on the requirements of the *Authorizations for Works or Undertakings affecting Fish Habitat for Specified Streams in the Yukon Territory* (Federal *Fisheries Act*) for watersheds in the Yukon (herein referred to as Watershed Authorizations). Please note that this workbook and associated worksheets may undergo revisions in the future, and users are encouraged to ensure that they use the current version.

In order to achieve compliance with the Watershed Authorizations, the placer mining proposal must meet the requirements outlined in this workbook for the watershed type and specific habitat suitability type at the location where the activities are to occur (see Yukon Placer Fish Habitat Suitability Maps).

In addition to this workbook and worksheets, the following documents provide the required information to support the development and submission of proposals for placer mining activities. All supporting documents are available online through the Yukon Placer Secretariat web page, www.yukonplacersecretariat.ca/howto_prepare_project_proposal.html or through the web addresses given for the specific documents.

1. ***Authorization for Works or Undertakings affecting Fish Habitat for Specified Streams in the Yukon Territory***
   www.yukonplacersecretariat.ca/placer_authorizations.html – Provides the legal authority, with respect to placer mining, to carry on a work, undertaking or activity that results in the permanent alteration and destruction of fish habitat. Also specifies sediment discharge standards for placer mine effluent and the sensitivity category of the watershed (i.e. Category A or B). Please note that the death of fish is not authorized.
2. **Yukon Placer Fish Habitat Suitability Maps**
   www.yukonplacersecretariat.ca/maps.html – Identifies the watershed sensitivity and habitat suitability of the watercourse where placer mining activities are proposed to occur.
3. **Guidebook of Mitigation Measures for Placer Mining in the Yukon**
   www.yukonplacersecretariat.ca/infocentre.html – Provides technical information related to best management practices, mitigation measures, and design considerations to achieve compliance with the Watershed Authorizations and to assist with proposal development.

Note: Complete and submit only the worksheets that are relevant to your operation.

Note: There are no Watershed Authorizations in place for the Liard and Alsek watersheds. Applications for review, forms and process to apply for a placer mine in the Liard or Alsek watershed can be obtained from the Yukon Placer Secretariat, contact information can be found online at, www.yukonplacersecretariat.ca/index.html.

For assistance completing the worksheets please contact the Yukon Placer Secretariat (contact information is available at, www.yukonplacersecretariat.ca/index.html) or the Yukon Government Client Services & Inspections office in your mining district (contact information is available at, www.emr.gov.yk.ca/cmi/cmi_district_offices.html).

If Your Project Does Not Comply With The Requirements

Placer mine operators are encouraged to design proposals that comply with the requirements described in this workbook. However, if the proposal is not able to achieve these requirements and the operator would like to proceed with the regulatory review process, an application for site-specific review should be submitted to Fisheries and Oceans Canada (DFO) for consideration **prior to the submission of the proposal to the YESAB and the YWB**.

When a proposal is submitted for site-specific review, DFO will review the information to determine whether a site-specific authorization is required. In some cases, DFO may recommend measures to avoid or mitigate the harm to fish and fish habitat to allow the application to proceed under the Watershed Authorization.

Applications for site-specific review, forms and process to apply can be obtained from the Yukon Placer Secretariat, contact information can be found online at, www.yukonplacersecretariat.ca/index.html. Should it be determined that a site-specific authorization is required, a more detailed application, including a fish habitat offsetting plan and a letter of credit, will have to be submitted to DFO. Information on the site-specific authorization application process, offsetting plans, and letters of credit can be found on DFO's Projects Near Water website, www.dfo-mpo.gc.ca/pnw-ppe/reviews-revues/application-eng.html.

Fish Habitat Design, Operation and Reclamation Requirements for High Habitat Suitability Watercourses (Chinook Salmon Production)

High habitat suitability watercourses are defined as watercourses that provide spawning habitat for salmon or critical migratory corridors required to access salmon spawning habitat. Typically, the distribution of this habitat type is the most limited in watersheds. High habitat suitability watercourses require effective management of mining activities to provide protection from potentially harmful effects resulting from development activities and to achieve conservation and protection of habitats. As such, **placer mining works, undertakings or activities will be highly restricted in this habitat type**.

In **all cases**, any placer mining works, undertakings or activities (other than those listed in the following operational requirements) that are likely to result in the permanent alteration or destruction of, High habitat suitability watercourses require a site-specific review. If the proposed activity is deemed to be acceptable, a site-specific authorization will be issued by Fisheries and Oceans Canada. All applications for a site-specific authorization must include a fish habitat offsetting plan and letter of credit (see "If your project does not comply with the requirements" section at the beginning of this document).

SUMMARY OF GENERAL RESTRICTIONS IN HIGH HABITAT SUITABILITY WATERCOURSES

Activity Type / Operation	Restrictions in High Habitat Suitability Watercourses
Effluent Discharge	Discharge of sediment concentrations above background levels not authorized
Riparian Zone	Work within 30 metres from the high water mark not authorized.
Fords	Construction of new Fords not authorized.
Diversion Channels	Construction of diversion channels not authorized.
In-stream Works	In-stream works are not authorized.

Note: The table above summarizes those placer mining activities which are not authorized by the Watershed Authorizations and will require a site-specific review (see "If your project does not comply with the requirements" section at the beginning of this document).

To determine how to proceed, please answer the following questions regarding a work, undertaking or activity in or around High habitat suitability watercourses.

Do you propose to undertake placer mining activities in, or within, 30 metres of a watercourse? Activities may include discharging effluent, constructing stream crossings, clearing riparian vegetation, constructing channel diversions, or withdrawing water.

NO: No further review pursuant to the *Fisheries Act* is required.

YES: Proceed to Step A, Project Information.

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A. Project Information

The first step in compiling a project proposal that involves activities proposed to occur in or around fish habitat areas is the completion of the Project Location Worksheet (Appendix A).

Note: The Project Location Worksheet (Appendix A) is required for all applications.

A1. On the Project Location Worksheet enter the stream name, the watershed name (as per Yukon Placer Fish Habitat Suitability Maps), identify the watershed sensitivity and habitat suitability classification for the reaches you proposed to work in, provide a short description of the location, describe the proposed duration of activities and include a copy of a map of the specific location of the site.

Once the sections noted above are completed on the Project Location Worksheet, proceed to the next question.

Do you propose to discharge effluent from your mine site?

NO: Proceed to Step C, Riparian Zones.
YES: Proceed to Step B, Settling Pond Discharge.

Note: Discharge of sediment concentrations above background levels is not authorized in High habitat suitability watercourses.

B. Settling Pond Discharge (effluent concentration)

Point source sediment discharges from gold recovery processes are typically managed through the use of settling facilities. Typically only total recirculation systems will be considered as discharge of sediment concentrations above background levels is not authorized in High habitat suitability watercourses. For more information on settling pond design and operation, recirculation systems, and settling pond reclamation refer to the Guidebook of Mitigation Measures for Placer Mining in the Yukon (herein referred to as the Guidebook).

Water quality objectives and sediment discharge standards for High habitat suitability watercourses are identified in the Watershed Authorizations for the specific watershed you propose to work in. Please verify your specific discharge standard in the respective watershed you plan to work in (specifically if any exemptions exist) prior to proceeding with your application.

B1. Record the Compliance Level on the Project Location Worksheet (Appendix A).

Once the effluent discharge standards are recorded on the Project Location Worksheet proceed to the next question.

Do you propose to construct works other than diversion channels within the Riparian Zone (see Step C for the definition of the Riparian Zone) – this could include stripping, construction of reservoirs, construction of settling ponds, etc.?

NO: Proceed to Step D, Diversion Channels
YES: Proceed to Step C, Riparian Zone

C. Riparian Zones

The Riparian Zone is defined as the portion of the stream bank (either vegetated or not) immediately adjacent to the stream channel. Riparian Zones are measured from the high

water mark on each bank of the watercourse and follow the pattern/morphology of the channel.

The designated Riparian Zone in High habitat suitability watercourses is **30 metres**.

The Riparian Zone designation applies to all High habitat suitability watercourses. The only activity permitted within the Riparian Zone is the clearing of surface vegetation to create a corridor to provide access to the stream (typically for water acquisition purposes). The maximum width of the corridor is to be no more than **3 metres**. Riparian Zones must be staked out by the operator prior to development.

Do you propose clearing of surface vegetation or subsurface works in the Riparian Zone? (this could include stripping, construction of reservoirs, construction of settling ponds, etc.)

NO: Proceed to Step D, Diversion Channels.

YES: Not authorized by the Watershed Authorizations, see "If your project does not comply with the requirements" section at the beginning of this document. Proceed to next question.

Do you propose to construct a new stream crossing (Ford)?

NO: Proceed to next question.

YES: Not authorized by the Watershed Authorizations, see "If your project does not comply with the requirements" section at the beginning of this document. Proceed to next question.

Do you propose to clear surface vegetation only?

NO: Proceed to next question.

YES: Not authorized by the Watershed Authorizations, see "If your project does not comply with the requirements" section at the beginning of this document. Proceed to next question.

D. Diversion Channels

It is unlikely that the construction of a diversion channel will be permitted in High habitat suitability watercourses. Operators wishing to propose construction of a diversion channel in High habitats must first prepare a detailed design of the diversion channel and, if required, a detailed fish habitat offsetting plan. Ultimately, the proposal will need to clearly demonstrate how harm to fish and fish habitat will be avoided mitigated and offset in a manner that will maintain or improve the productivity of fisheries. (see "If your project does not comply with the requirements" section at the beginning of this document).

Do you propose to use an Existing Ford?

NO: Proceed to next question.

YES: Proceed to Step E, Watercourse Crossings, then E1, Use of Existing Ford.

Do you propose to construct a New Ford?

NO: Proceed to Step F, Water Acquisition.

YES: Not authorized by the Watershed Authorizations, see "If your project does not comply with the requirements" section at the beginning of this document. Proceed to next question.

E. Watercourse Crossings (Fords)

Fording is defined as the crossing of creeks, streams and / or rivers at locations where a bridge, causeway or elevated embankment does not exist or is not utilized by a vehicle or equipment. Fording typically involves driving directly through a watercourse, across the banks and bed. In some instances, Fording locations (Fords) have been "improved" or constructed through watercourses by way of adding materials such as rocks or gravel, the modification of approaches, or the modification of the bed of a watercourse.

E1. Use of Existing Ford

Use of existing Fords is often the least preferred option for crossing watercourses however it is recognized that there are instances where it is the only viable option. Refer to the Guidebook for additional information on Fords. The following measures should be adhered to when utilizing existing Fords.

NOTE: Use of existing Fords in High habitat suitability watercourses is only permitted within the timing window of reduced risk of any given year. Please refer to, www.dfo-mpo.gc.ca/pnw-ppe/measures-mesures/measures-mesures-eng.html for timing windows specific to your location. Identify if you intend to use existing Fords on the Project Location Worksheet (Appendix A).

- Ensure water depth is sufficiently shallow to allow passage of vehicle / equipment.
- Plan your activities in advance to minimize the number of crossings required.
- Avoid crossing during extreme rain or flood events.
- Access approaches at 90° to the bank, when entering or exiting the Ford.
- Maintain speed at a very slow and steady pace throughout the crossing.
- Avoid rapid acceleration while on approaches or while in the water.

Do you propose to withdraw water from a High habitat suitability watercourse?

NO: Proceed to Step G, In-stream Works.
YES: Proceed to Step F, Water Acquisition.

F. Water Acquisition

Acquisition of water is required for processing materials during placer mining. Effective water management is a key consideration at all placer mine sites. The following requirements must be achieved to meet compliance with the respective Watershed Authorizations.

F1. Water Intake Screens

In order to meet the requirement of the *Fisheries Act*, all water intakes must be screened. A general summary of screening requirements are provided in the Guidebook.

NOTE: The objective behind the installation of intake screens is to prevent the death of fish caused by the acquisition of water. If screens of the correct mesh size are deployed between a watercourse and the intake to a water reservoir or gravity feed ditch, it is not necessary to screen the pump intake that removes water from within these structures provided these structures do not already contain fish. In the case of total recirculation systems, the operator shall ensure that any areas where fish could enter the system have barriers to prevent the entry of fish.

G. In-stream Works

In-stream works are defined as works that occur within the high water mark of a watercourse, but do not include diversion channels or Fords. Some in-stream works can lead to effects on fish and fish habitat such as erosion/scouring, sediment inputs, loss of habitat area, changes in channel morphology, blockages to passage, and reduced productivity.

No physical works are permitted within a watercourse under the auspices of a Watershed Authorization in habitats of High suitability. Should in-stream works be contemplated in these areas, operators must apply to Fisheries and Oceans Canada for a site-specific review of proposed in-stream works prior to proceeding (see “If your project does not comply with the requirements” section at the beginning of this document).