

FISHERIES PROTECTION SELF-ASSESSMENT SERIOUS HARM IMPACTS DETERMINATION RECORD

February 2016 - V 2.0 – GNWT DOT

Project Name: James Creek Emergency Remediation Works – Spill Containment

Water body Type(s): Freshwater, small braided creek, permanent flow.

Course of Action:

1] Risk management decision is low risk/emergency works

→ Proceed without review by DFO

2] Risk management decision is NOT low risk

→ Further review options to try and achieve low risk

→ Request for review to be submitted to DFO

Next Steps:

The following mitigation measures must be a component of the works to mitigate liability under the *Fisheries Act*:

- Any in-water works must be done before April 1, 2017. In-water work is expected to be a few weeks in duration in August.
- Ensure fish passage. A braided channel will be affected by site isolation techniques. The main channel is left undisturbed.
- Ensure no fish mortality. Isolated site will be scanned for any fish presence and any fish found will be removed from the isolated area and immediately placed downstream.
- Using best management practices and through the implementation of the GNWT Department of Transportation - Erosion and Sediment Control Manual, ensure the following:
 - o Install appropriate and effective sediment control measures before beginning the work. Ensure sediment control measures are inspected regularly during the course of the work and all necessary repairs are made if damage is discovered (i.e. you see silt or sediment entering the water outside of the work area). Aqua Dam will be used to isolate the site.
 - o Stabilize any waste materials removed from the work site to prevent them from entering any waterbody. All waste material is contaminated and will be removed from the site and trucked to another location or placed in an existing Land Treatment Unit already on site.
 - o All disturbed areas should be stabilized and/or re-vegetated upon completion of work and restored to a pre-disturbed state or better. Some native soils with vegetation and seed bed will be placed on newly re-created area. All area will be stabilized using shale 10mm or greater to re-create the existing shale shoreline.
 - o Maintain effective sediment and erosion control measures until the site has stabilized. Will implement DOT ESC Manual as needed.
 - o Materials installed for stabilization (e.g. rock) should be clean and free of fine particulates, and are not to be taken from below the high water mark or shoreline of any waterbody. Existing quarry on site contains parent material also found in James Creek and will be replacing removed material with 10mm plus shale.

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Project Location: Dempster Highway – James Creek Maintenance yard at kilometer 14 (14 kilometers from the NWT/Yukon border)

Summary of the relevant information considered and documentation of DOT’s analysis when making a risk based determination of “serious harm to fish” as per the legislative obligations under the *Fisheries Act*.

Project Description – provide a brief description of the Project and the component works, undertakings or activities (w/u/a) that **have the potential to impact fish and fish habitat**.

Project: Emergency works to contain a diesel spill. With guidance and oversight by ENR – Water Resources Officer, contain the spill and remediate the site, including a section of the bank of James Creek adjacent to a highway maintenance camp.

Component W/U/A:

Pathways of Effects identified: Vegetation clearing, excavation, industrial equipment use, grading, water extraction, water flow, structure removal, placement of material, dredging, debris management, fish passage.

CRA Fishery – Identify if the fish potentially impacted by the proposed w/u/a are part of or support a fishery.

Commercial Recreational Aboriginal Fish that support Arctic Grayling has been caught at this location.

Habitat Description – Provide a brief description of the existing fish habitat in the Project area for the fish species identified above, potentially impacted by the w/u/a (include type and quantity).

The habitat is permanent flowing cold water with up to three braids in the channel. Predominantly shale substrate and rocky shale shorelines with sporadic grasses and willow shrubs as riparian cover.

QUESTIONS	DESCRIBE YOUR ASSESSMENT
1. Measures to avoid and mitigate impacts	Identify measures used to avoid and mitigate impacts on fish or habitat for specific project component w/u/a
Has DOT designed and located the project, and included standard or site-specific measures to avoid and mitigate impacts to fish and fish habitat?	<p>Yes</p> <ul style="list-style-type: none"> • Isolate work from the main channel using an Aqua Dam. Standard northern mitigations such as using silt curtains and erosion fencing until the site has stabilized. Clean local fill will be used and the slopes will be stabilized to prevent erosion into the water body. • Be ever mindful of permafrost, eliminating or fully mitigating and permafrost disturbance. • Remove contaminated material and replace with similar from the on-site aggregate source.

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<p>Are there additional design/location or site-specific mitigation measures that can be applied to avoid and mitigate impacts to fish and fish habitat?</p>	<p>Yes</p> <ul style="list-style-type: none"> No in-water works to between April 1 and July 16 of any given year or when the crossing location is frozen solid or dry to protect all potential fish that may use this stream during their sensitive periods of their life cycle.
<p>2. Residual Project Impacts Describe the residual impacts anticipated for each w/u/a</p>	
<p>a) Following avoidance and mitigation, will there be residual impacts to CRA fish or their habitat?</p> <p><input type="checkbox"/> death of fish?</p> <p><input type="checkbox"/> permanent alteration to fish habitat?</p> <p><input type="checkbox"/> destruction of fish habitat?</p>	<p>No</p> <ul style="list-style-type: none"> No death of fish. No fish passage issues. No infilling of the watercourse. No channel realignments. No destruction of fish habitat. Any alterations at this location is not harmful in terms of serious harm to an Aboriginal, Commercial, or Recreational fishery.
<p>3. Considerations for Serious Harm Summary – analysis used to consider whether a project is likely to cause serious harm to fish requiring an authorization.</p>	
<p>Is the unavoidable residual serious harm to fish likely to result in “a localized effect to fish populations or fish habitat in the vicinity of the project”?</p>	<ul style="list-style-type: none"> N/A

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Assessment of Sensitivity of Fish and Fish Habitat			
Attribute	Sensitivity	Examples/Measure	Rationale for Scale Ranking
Species Sensitivity Sensitivity of species to short term change (alteration or disruption) in environmental conditions, such as suspended sediments, bottom substrate, aquatic or riparian vegetation, or water temperature.	Low <input type="checkbox"/>	No use by fish or species present are resilient to change and perturbation (e.g. most cyprinid species);	Arctic Grayling are in the system. Arctic Grayling have high sensitivity.
	Moderate <input type="checkbox"/>	Species present are moderately resilient to change and perturbation (e.g. bass, pike, walleye and some cyprinids)	
	High <input checked="" type="checkbox"/>	Species present are highly sensitive to perturbations, temperature, etc. (e.g. many salmonidae, COSEWIC species, END / THR ESA species)	
Species' Dependence on Habitat Use of habitat by fish species. Some species may be able to spawn in a wide range of habitats, while others may have very specific habitat requirements (e.g. over-wintering habitat, nursery, rearing habitat).	Low <input type="checkbox"/>	No direct use by fish; habitat has the potential to support only single-use life-cycle function (e.g. marginal spawning, migration, rearing, feeding, or over-wintering) non-specialized habitat; or Indirect / contributing habitat	Areas could be spawning or nursery habitat for Arctic Grayling.
	Moderate <input checked="" type="checkbox"/>	Habitat has the potential to support multiple life-cycle functions (e.g. spawning, migration, rearing, feeding, and over-wintering)	
	High <input type="checkbox"/>	Important (e.g., site specific spawning such as upwellings) or specialized habitat (e.g., over-wintering) that is essential to the survival of species or populations. Critical Habitat for END/ THR Schedule 1 SAR. Habitat for Schedule 1 Special Concern Species	
Rarity The relative strength of a fish species or population, or prevalence of a particular type of habitat. Consideration should be given to cumulative effects of all existing developments in a water body. * Where the scale for species or habitat is different select the most appropriate scale	Low <input type="checkbox"/>	Habitat/species is/are prevalent and are widely distributed in the province/territory or water body where the work is being undertaken (e.g. rock bass, white sucker)	Arctic Grayling are throughout the area but could be considered moderate distribution.
	Moderate <input checked="" type="checkbox"/>	Habitat/species has/have moderate distribution confined to small areas in the province/territory or water body where the work is being undertaken	
	High <input type="checkbox"/>	Species/habitat is rare/limiting (e.g., SC, THR and END SARA Schedule 1 species, and critical habitat under SARA COSEWIC listed species, END/THR ESA, other fish/habitat identified in Fish Management Plans);	
Habitat Resiliency Habitat resiliency refers to the ability of an aquatic ecosystem to recover from changes in environmental conditions. Consideration of the physical characteristics of the stabilization design is important in predicting the resiliency of the affected freshwater ecosystem (i.e. preserving its function). Consider residual impacts such as the stability of the immediate and adjacent fish habitats as a result of the stabilization design.	Low <input type="checkbox"/>	Thermal regime, physical characteristics, unsuitable for fish species or warmwater baitfish systems that are stable and resilient to change – typically ephemeral and some intermittent systems where habitat is non-specialized	Coldwater stream.
	Moderate <input type="checkbox"/>	Warmwater (more sensitive fish species) and coolwater systems; system is unstable, but resilient to change and perturbation. Intermittent systems with habitat that is specialized, permanent flowing warmwater systems and coldwater systems without specialized habitat	
	High <input checked="" type="checkbox"/>	Coldwater systems that cannot buffer temperature changes with specialized habitat (e.g., spawning and nursery).	

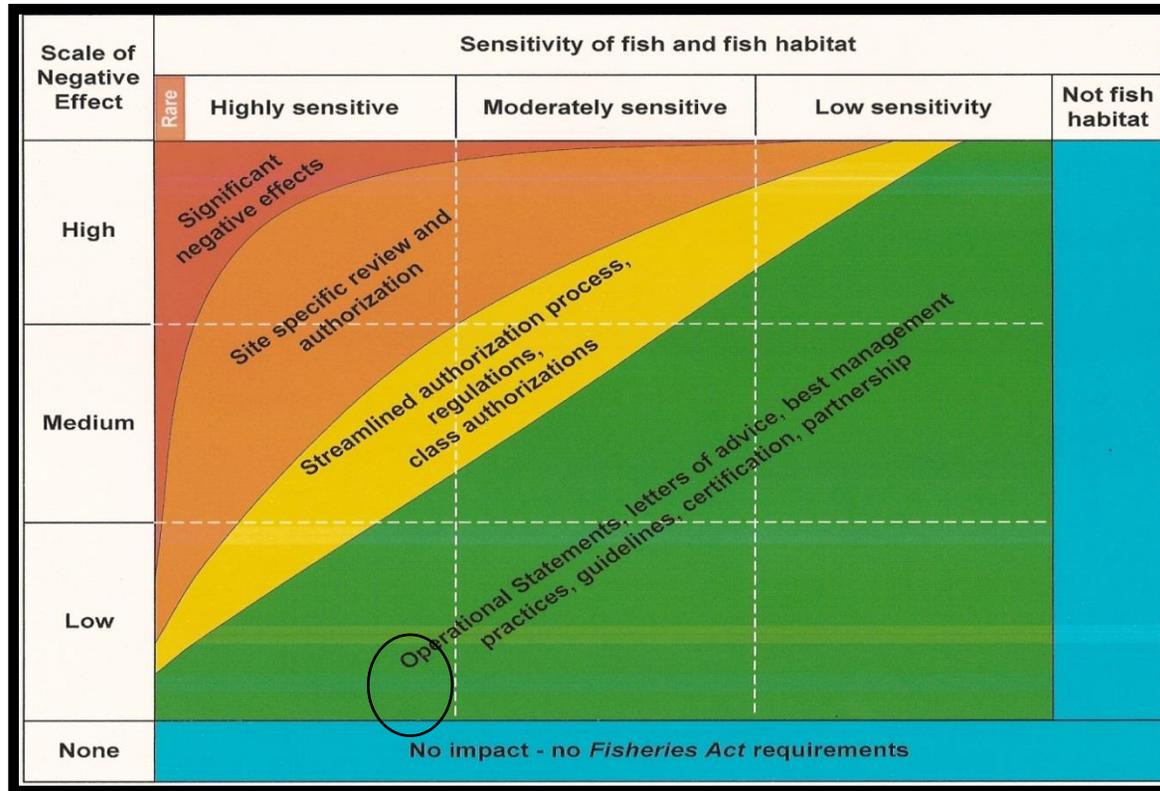
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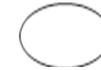
Assessment of Scale of Negative Effects			
Attribute	Scale	Examples/Measure	Rationale for Scale Ranking
<p>Extent (size) Refers to the direct "footprint" of the proposal in fish habitat, including riparian areas, as well as adjacent areas that may be indirectly affected.</p> <p>The ecological unit where the work is being completed should be considered when assessing the extent of the project and determining the footprint size.</p>	Low <input checked="" type="checkbox"/>	Site or segment, localized effect (e.g. no greater than one meander wavelength); or small portion of ecological unit.	Low to none as there should be no additional footprint associated with this remediation work.
	Medium <input type="checkbox"/>	Ecological unit moderately reduced in size, length of watercourse impacted – greater than one meander wavelength (e.g. channel reach or lake region)	
	High <input type="checkbox"/>	Majority of ecological unit impacted,(e.g. stream channel length reduced more than one meander wavelength) would include impacts to an entire watershed or lake	
<p>Duration The amount of time that a residual effect will persist. Includes construction, re-stabilization and long term impacts (use of natural stabilization approaches will often reduce duration).</p>	Low <input checked="" type="checkbox"/>	Short term (days – a few weeks).	Duration of work is expected to be two weeks in August.
	Medium <input type="checkbox"/>	Medium term (months - year).	
	High <input type="checkbox"/>	Long term (multiple years – permanent).	
<p>Intensity The expected amount of change from the baseline condition. Intensity is a way of describing the degree of change, such as changes in shoreline processes, groundwater flow, suspended sediment, bottom substrate, aquatic and riparian vegetation, etc.</p>	Low <input checked="" type="checkbox"/>	Altered habitat still suitable but not as productive; or Changes to habitat productivity are acceptable as per FMP	Low. The habitat will be altered as the existing material with contaminants is being removed and replaced with similar parent material to match as best as possible existing conditions.
	Medium <input type="checkbox"/>	Habitat quality significantly reduced; or Changes to habitat productivity are acceptable as per FMP	
	High <input type="checkbox"/>	Altered habitat not suitable; significant change to habitat productivity that may compromise FMP; no value compared to existing, or has been permanently removed (e.g. infilled)	

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Categorize risk by plotting a uncertainty oval on the Risk Assessment Matrix.



Use a Point, circle or oval depending on uncertainty.

A red box labeled “Rare” is located at the most highly sensitive end of the axis and is meant to represent fish and fish habitats that are particularly rare and/or afford special protection under the Species at Risk Act

Risk Management Decision	Risk	Rationale for Risk Decision
Provide rationale for <i>Scale of Negative Effect, Sensitivity of Fish and Fish Habitat</i> Rankings as well as Risk Decision factoring in the answer to Question 3.	Low Risk <input checked="" type="checkbox"/>	Although the fish and fish habitat is relatively high, this emergency remediation work has very low to no impacts. This emergency work will not likely result in “a localized effect to fish populations or fish habitat in the vicinity of the project”.
	Medium Risk <input type="checkbox"/>	
	High Risk <input type="checkbox"/>	
	Significant Effects <input type="checkbox"/>	

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References:

- 1] Remedial Action Plan Budget: Impacted Areas to James Creek, by KBL, dated August 2, 2016.
- 2] DFO Fisheries Protection Program website www.dfo-mpo.gc.ca/pnw-ppe/fpp-ppp/index-eng.html
- 3] DFO Risk Management Framework Worksheet, version January 2012
- 4] DFO Fisheries Protection Program Serious Harm/SAR Impacts Determination Record, November 2014, version 1.0