

Reason for Decision

A2005590

Application for Approval of Gravel Removal from Tranmer Bar

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An application for Approval of works in and about a stream pertaining to extraction of gravel from Tranmer Bar in the Fraser River was received by the Water Stewardship Division (WSD) of the Ministry of Environment (MOE; the Ministry) in 2008 for consideration under the provincial *Water Act*. A more detailed description of the application, accompanying studies and WSD technical report can be found on MOE-WSD file A2005590.

This application was regarding one of a selection of candidate sites for gravel removal being applied for by Emergency Management BC (EMBC, a provincial agency) in the context of the Fraser River Gravel Management Program. The overarching objective of the program is to maintain the current flood profile for reasons of flood protection benefit and public safety. A key associated objective is to do so in an environmentally sustainable manner.

There were a number of aspects considered in reviewing this application which are discussed in greater detail in the supporting WSD technical report (found on file). The following discussion will focus on two key considerations for which there were information limitations and/or differences of professional opinion regarding:

- gravel extraction design for achieving the maintenance of the flood profile; and
- environmental impact considerations, particularly to fish and fish habitat.

Maintenance of the Present Flood Profile

Removing gravel from the Fraser River in areas where material has or is depositing (i.e. aggrading) over the longer term is believed to be effective in maintaining the current flood profile and managing flood risks to people and property. Tranmer Bar was identified in previous studies as a location that has aggraded in the past, making it a candidate site for gravel removal.

Opinions on whether the proposed gravel extraction design for Tranmer Bar met the key program objective were provided by qualified professionals (an engineering consulting firm hired by the applicant, a Ministry staff person (now retired) and a Ministry contractor).

Common opinion provided was that removal of gravel from Tranmer bar was likely to contribute positively to maintaining the current flood profile of the Fraser River. Differences of opinion however arose regarding options for gravel extraction design (primarily location) and their effectiveness in meeting the stated objective.

There appeared to be a strong argument from a flood protection benefit standpoint that extraction of gravel from the outer edge of the bar would provide a high (potentially highest) benefit. However, prior to submitting the application considered herein, EMBC

sought advice regarding the potential impacts to fish and fish habitat associated with that design. When opinion provided indicated that one of the top options for gravel extraction conflicted with high value fish habitat, at least for salmonids, EMBC submitted for consideration an alternative design which was believed and anticipated to be less damaging to fish and fish habitat (from verbal conversation with EMBC).

Impacts to Fish and Fish Habitat

The biological impacts information provided by the applicant's consultant (report on file) discussed potential impacts related to gravel extraction and bridge (i.e. site access) construction on salmonids and sturgeon.

The report described observation of existing sturgeon habitat. Potential impacts to sturgeon habitat as a result of changes in flow and deposition post-extraction were also discussed.

My understanding of the report's discussion in summary was as follows:

- a lack of sampling for sturgeon at this location resulted in higher uncertainty as to impacts to sturgeon as compared to salmonids;
- that with regards to both sturgeon and salmonids, changes to habitat were anticipated with some possibilities for temporary creation and/or improvement of habitat for both fish species suggested;
- that winter work in the dry was not expected to result in direct impacts to sturgeon at any life stages; and that
- overall, the impacts to all species were associated with uncertainty either from not knowing enough about the species behaviour and/or presence and/or not having a detailed enough model of post-extraction conditions to anticipate outcomes.

As part of the application review process, WSD sought feedback and advice on the application and supporting documentation from the Environmental Stewardship Division (ESD) of the Ministry as well as the Department of Fisheries and Oceans (DFO).

ESD advised against issuing an Approval for this application until an assessment of white sturgeon is completed. The supporting comments to the advice (here provided paraphrased in brief summary) were that the submission fell short in the analysis of the impacts of this extraction on sturgeon as sturgeon were not specifically surveyed; that there was not enough information provided to assess impacts to sturgeon and that there exists valuable sturgeon habitat in the area of the extraction but that without sturgeon-specific survey information provided with the application, impacts to sturgeon at this location could not be reasonably assessed.

DFO provided WSD with their draft technical report (but not their final decision) prior to the conclusion of the decision process for this Approval. The draft report included discussion of impacts to fish and fish habitat, reference to information submitted by the applicant's consultant as well as previously published reports on the subject of gravel removal and impacts to fish and fish habitat. DFO's draft report provided discussion of aspects relating to both salmonids and sturgeon such as:

- the extent of the area of impact in relation to area of other comparable fish (including sturgeon) habitat in the reach, and
- the potential for establishment of new habitat and the re-establishment of pre-extraction-type habitat following gravel extraction.

Further detailed discussion can be found in the WSD technical report for this application as well as the final version of the DFO CEAA screening report (when issued). This information was considered along with information regarding:

- the potentially long timeframe needed to collect detailed and meaningful information on sturgeon at this location given the speed, distance and return periods for which sturgeon are currently understood to travel (learned from verbal information provided by Ministry staff specializing in sturgeon); as well as
- the design of the gravel extraction occurring in the dry (bar-top) and therefore not of direct and immediate impact to living fish.


All of these considerations, along with the professional opinions provided by the applicant's consultant, Ministry staff (ESD and WSD), WSD contractor and DFO led me to conclude that:

- extracting gravel from Tranmer was likely to be beneficial from a flood protection benefit objective (when considered on its own and separate from the issue of environmental impacts);
- while the gravel extraction design applied for was most likely not the optimal design with regards to the stated objective of the program regarding maintaining the flood profile, that the protection of certain habitat values, at least of values of high importance to salmonids, were necessary and reasonable to accommodate in the gravel extraction design;
- this decision was clearly being made in a context of uncertainty regarding how changes to habitat were going to impact fish in the future (i.e. stating that no impacts would occur was not a reasonable conclusion based on the information provided);
- the information and advice provided suggested that the extent of the habitat being lost was small relative to other available habitat in the reach (specifically for salmonids, less conclusive for sturgeon);
- there was potential for fish and fish habitat recovery both from a salmonid and sturgeon perspective; and
- on the balance, there seemed to be enough potential for benefit to off-set or balance the potential negative consequences (i.e. negative impacts potentially arising from alteration of habitat and increased turbidity).

Consequently the decision was made to issue an Approval under the *Water Act* provided that conditions were applied that partially addressed the aforementioned information shortfall regarding sturgeon.

Further to the comments from ESD regarding lack of site-specific information on sturgeon, the Approval includes a requirement to monitor for sturgeon activity post-extraction. This could be done in conjunction with post-extraction monitoring required by DFO, if DFO Authorization is issued.

This decision to issue an Approval was intended to apply a reasonable degree of precaution to the objective of maintaining the flood profile without contributing an unacceptable level of harm and destruction to the environment. The Approval contains a condition requiring the collection of information intended to contribute to our knowledge of sturgeon activity at this location.


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