

ATTACHMENT 7
Assisted Assessment of Serious Harm

MEMORANDUM

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| Date: | April 17, 2015 |
| To: | Charlotte Olson, P.Geo., PMP |
| From: | Jim Roberts, B.Sc., R.P.Bio |
| File: | 302-035.04 |
| Re: | Port Metro Vancouver's Habitat Enhancement Program – Tsawwassen Eelgrass Project QEP Assisted Assessment, in accordance with DFO Fisheries Protection Program Guidance |

Introduction

The Tsawwassen Eelgrass Project, located on the southern limits of Roberts Bank, in close proximity to the Canada-United States border (**Figures 1 and 2**), is being advanced towards construction over the next few years under Port Metro Vancouver's (PMV's) Habitat Enhancement Program. This project is being undertaken in accordance with the 2012 working agreement between PMV and Fisheries and Oceans Canada (DFO) entitled "Working Agreement Concerning Procedures for Development and Operation of the Port Metro Vancouver Habitat Bank". This agreement acknowledges the mutual benefits of a habitat bank to both parties and provides guidelines for the establishment of habitat enhancement sites.

Recently, the results of an assisted Serious Harm Assessment were provided in support of the Glenrose Tidal Marsh Project. As would be expected for a viable habitat enhancement opportunity, the Glenrose assessment concluded that the project would not result in Serious Harm to fish that contribute to commercial, recreational or Aboriginal (CRA) fisheries or fish that support such fisheries. A similar conclusion applied to an assessment that was completed for the Westham Island/Canoe Pass Tidal Marsh Project. In both cases, the approach taken for the purposes of self-assessment was guided by information presented in DFO's Projects Near Water web site (<http://www.dfo-mpo.gc.ca/pnw-ppe/index-eng.html>).

Consistent with the approach taken for these other projects and subject to guidance from Qualified Environmental Professionals (QEPs, Scott Northrup, R.P.Bio. and Jim Roberts, R.P.Bio., Hemmera), please consider this memo to comprise an assisted assessment for the Tsawwassen Eelgrass Project.

The assessment for the Tsawwassen Eelgrass Project is also based on consideration of DFO's "Science Advice for Managing Risk and Uncertainty in Operational Decisions of the Fisheries Protection Program" (DFO Science Advisory Report, dated September, 2014; available at http://www.dfo-mpo.gc.ca/csas-sccs/Publications/SAR-AS/2014/2014_015-eng.html).

The project will involve the conversion of three subtidal depressions into more productive fish habitat. This will be accomplished through construction of a containment berm, placement of fill material to the appropriate elevation for the establishment of native eelgrass, and planting of donor stock eelgrass (**Figure 3**).

Existing biophysical conditions at the sites are relatively homogenous with sediments consisting of sandy silt, and accumulations of drift macroalgae and eelgrass detritus. All three sites are entirely unvegetated (**Photo 1**) and the existing fish and wildlife habitat values are generally considered to be limited. Dense natural eelgrass meadows are located immediately east and south of the sites and these meadows appear to have been expanding since 1960 (**Photo 2**). The sites are also bordered to the north by a 60 m wide boating channel, which was originally a dredge borrow associated with the Tsawwassen Ferry Causeway construction. The channel is now frequently used by recreational boaters to access a boat ramp located mid-way along the causeway.

The Project can be considered restoration, as the sites proposed for conversion to eelgrass habitat were likely eelgrass beds prior to disturbance in the 1960s. Two eelgrass beds, created as compensation habitat by the British Columbia Transmission Corporation in 2008 for the Vancouver Island Transmission Reinforcement Project, are located in close proximity to the sites.

Managing Risk and Uncertainty in the Fisheries Protection Program

DFO's science advisory report entitled "Science Advice for Managing Risk and Uncertainty in Operational Decisions of the Fisheries Protection Program" (September, 2014) provides direction for self-assessments (completed by proponents) or assisted assessments (prepared by QEPs). Assessments of this type are used to determine if a proposed project requires DFO review and/or approval. For a project to proceed under a self- or assisted assessment, both the death of fish and residual adverse habitat effects need to be avoided. Furthermore, the project should be designed in such a way that there will be no loss of local productivity which would otherwise result in the need for offsetting.

By design, this project is habitat restoration that will result in an overall net benefit to fish and fish habitat. This project will not result in any residual adverse effects on habitat and is, in fact, expected to result in a net increase in local productivity. Furthermore, it is noted that fish mortality (including fish that contribute to CRA fisheries) can be avoided during construction through application of appropriate best management practices.

The aforementioned DFO advisory report also states that assessments of this type need to provide appropriate consideration for risk. For a project to proceed under a self- or assisted assessment and without DFO review/approval, low likelihood and low uncertainty needs to apply to both the death of fish and any net residual habitat impacts.

Projects Near Water Web Page Guidance

DFO's "Projects Near Water" website guides proponents to either self-assess a project, submit a Request for Review to DFO or to apply for an Authorization. Projects that do not require a review can include "Habitat Restoration" projects:

- **Habitat Restoration**
 - Habitat restoration projects including riparian planting, bank stabilization, bio-engineering and creation of in-stream structure do not require DFO review if:
 - No new temporary or permanent fill is placed below the High Water Mark; and,
 - Works are undertaken such that any obstruction to fish passage will respect timing windows.

The Tsawwassen Eelgrass Project will not result in "fill", which is defined as the creation of new land. Given this, it appears appropriate that this project be assessed by a QEP to definitively confirm that there is no Serious Harm associated with the proposed works.

Fisheries Act and Serious Harm to Fish

The *Fisheries Act* requires that proposed projects avoid Serious Harm to fish that contribute to CRA fisheries, unless authorized. PMV is committed to follow appropriate measures to avoid harm to ensure compliance with the *Fisheries Act* for the Tsawwassen Eelgrass Project, as well as all other projects which are advanced under PMV's Habitat Enhancement Program.

Under the updated *Fisheries Act* (November 25, 2013) and associated policy guidance, proponents are asked to consider the following key project-related effects when making determinations about whether a project is likely to cause Serious Harm to fish:

1. **Impacts to fish and fish habitat caused by the project:** Existing fish habitat values at the project sites consist of unvegetated sediment, and are considered poor. Fish habitat values will be enhanced through the conversion of the existing subtidal depressions into subtidal eelgrass beds, a high-value habitat type which will provide long-term benefits for estuarine-dependant salmonid stocks, and other commercially and ecologically important invertebrate and vertebrate species that utilize the Fraser River estuary and Roberts Bank.

Eelgrass habitat creation has been successfully undertaken in the past in southwestern B.C. and elsewhere in the Pacific Northwest. More notably, eelgrass beds created as compensation habitat by the British Columbia Transmission Corporation in 2008 are thriving. It is also well understood that construction can be undertaken with well-established mitigation measures in place, reducing the risk of any serious impacts to fish or fish habitat.

Once the physical construction of the site is complete, donor eelgrass stock will be transplanted to the site via SCUBA methods; due to the size of the sites, plantings may be undertaken in two separate, consecutive years. Establishment of eelgrass by this pro-active planting program will add a boost to site specific productivity beginning in the first year post-construction. Based on the success of previous eelgrass habitat creation in the general area, eelgrass is expected to extensively proliferate and become well-established at the project sites within two to three years following transplantation of donor stock. This will result in a dramatic improvement to site productivity, within the short-term.

2. **The duration of the impacts:** Enhanced productivity associated with this new eelgrass habitat will begin contributing to the fish habitat values of the site in a substantive way after its first season of growth. Given this, the project will provide direct benefits to the next generation of rearing salmonids. Full productivity of this new habitat is expected within a three year period and will be confirmed by a monitoring program.
3. **The geographic scale of the impacts:** The Fraser River estuary sustains an extensive mosaic of intertidal and shallow subtidal areas that are utilized by fish. This includes the Roberts Bank area, which is characterized by extensive dense natural eelgrass meadows located to the east and south of the project sites. The geographic scale of any construction-related effects of the project will be relatively small within the context of the extensive intertidal and shallow subtidal habitats present within the Fraser River estuary, including the Roberts Bank area.
4. **The availability and condition of nearby fish habitat:** In the context of the extensive fish habitat mosaic currently present within the Fraser River Estuary, nearby intertidal and shallow subtidal habitats (including eelgrass beds and brackish tidal marshes in the Roberts Bank Wildlife Management Area, along with brackish tidal marshes on the seaward edge of Westham Island and in the Sturgeon Bank Wildlife Management Area) will continue to be available during and immediately after construction. Proposed project works will enhance habitat values and provide for an overall net gain in productivity, without impacting fish access or use of alternative habitats.
5. **Impact on the relevant fish:** No localized effect on fish populations or stocks (e.g., juvenile Pacific salmon, Pacific herring, or dungeness crab) will result from the proposed works. Works with the risk of impacts to fish will be undertaken during the appropriate low risk work window. In the end, any potential for direct injury to, or mortality of, fish will be avoided through construction mitigation measures. There will be no measurable effect to Pacific salmon or other CRA fish populations as a result of the physical works and the project will result in enhanced productivity for these fish (including rearing salmonids).
6. **Proposed avoidance and mitigation measures:** Eelgrass habitat construction will utilize well-established enhancement technique that has been used throughout the Pacific Northwest, including some sites that are located within close proximity to project sites. Avoidance of potential fish impacts will be provided through the application of well-established mitigation measures, including low risk work windows where warranted. These mitigation measures are

considered to prevent Serious Harm by avoiding CRA fish mortality or residual habitat impacts. The project will be monitored through both construction and post-construction (effectiveness) monitoring to ensure its success as a habitat banking project under PMV's Habitat Enhancement Program.

Consideration of Uncertainty and Risk

In assessing the Tsawwassen Eelgrass Project, both uncertainty and risk need to be properly considered to ensure compliance with DFO's science advisory report entitled "Science Advice for Managing Risk and Uncertainty in Operational Decisions of the Fisheries Protection Program" (September, 2014). This assisted assessment finds that there is a low likelihood of potential death of fish or net negative residual habitat impacts and that there is strong confidence in this conclusion.

Regarding the need for low likelihood, the death of fish can be avoided during construction through application of appropriate best management practices and construction mitigation. In particular, application of an appropriate low risk work window will protect juvenile Pacific salmon and other CRA fish species. Furthermore, there is extremely low likelihood that residual habitat impacts will apply as the project primarily involves restoration of a degraded upland site.

There is high certainty that this project will result in an overall net benefit for fish and fish habitat. Projects of this type have been successfully implemented in the past and it is well understood that construction can be successfully completed with appropriate mitigation measures in place. There is no notable uncertainty in the ability of the project to avoid the death of fish in the short-term. Furthermore, residual habitat benefits will apply over the long-term.

Self-Assessment Summary

Based on the above information, it is our opinion that the proposed Project will not result in Serious Harm to fish that are part of any CRA fisheries, or to any fish that support such fisheries, and that a Section 35(2)(b) Authorization is not required for this project. We are also confident that both low likelihood and low uncertainty apply to the potential death of fish or net negative residual habitat impacts.

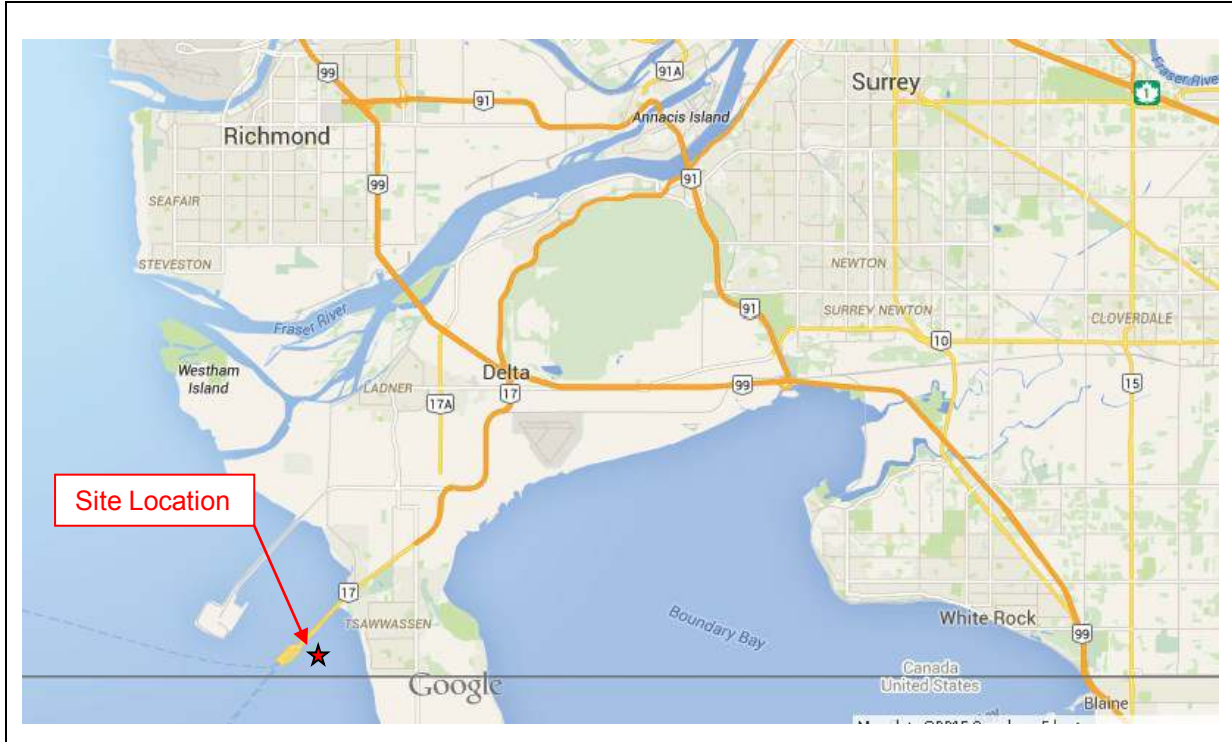


Figure 1 Regional setting for the Tsawwassen Eelgrass Project (Google Maps 2015).



Figure 2 Local setting for the Tsawwassen Eelgrass Project (Approximate Locations)

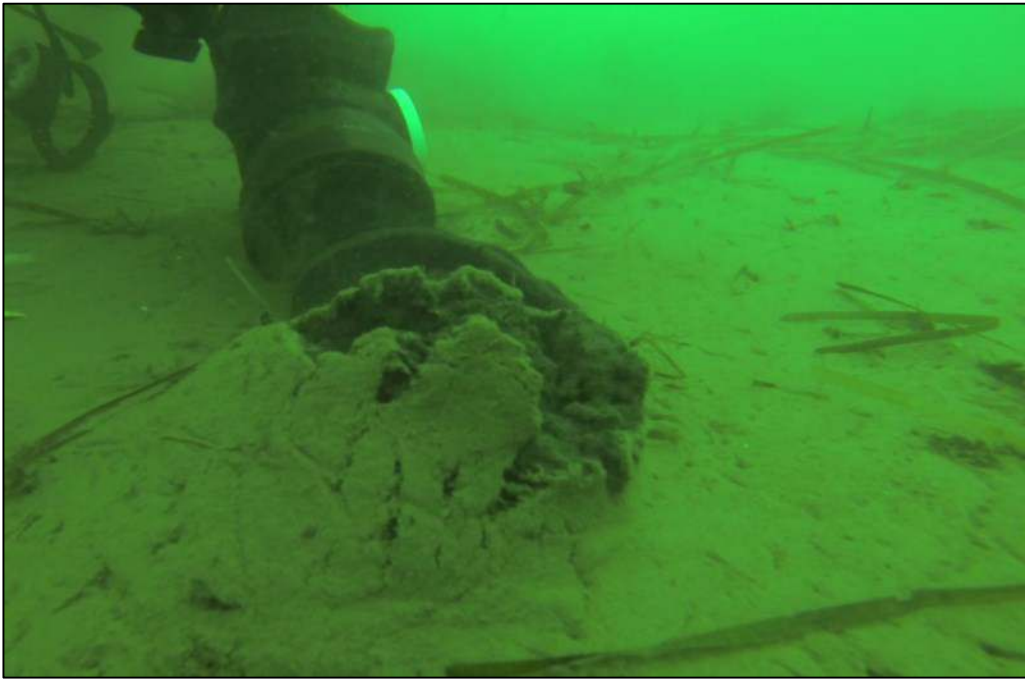


Photo 1 Unvegetated sediment at one of the sites, with dark hypoxic layer underneath (January 2015).



Photo 2 Representative photo of eelgrass beds that border the project sites (January 2015).



Figure 3 Tsawwassen Eelgrass Project Design – Site Plan