

24/11/2008

Comments on the Victoria International Marina Project Environmental Assessment Reports (May 2007 and August 2008)

These reports were prepared by Chatwin Engineering Ltd. for Community Marina Concepts Ltd. for a CEAA screening level environmental assessment (EA) for a large marina development proposed for Victoria Harbour. The 2007 report was initially submitted to Transport Canada, the lead federal agency for the CEAA screening. The report was subsequently amended in August 2008 to reflect changes in the proposed design as well as to respond to regulatory agency comments. The marina basin is expected to encompass an area of approximately 2.6 hectares, protected by a floating breakwater. This area is approximately five times the area of the present floating wharves in the Inner Harbour. The basin will be dredged to a depth of 3.5m relative to Canadian Hydrographic Service chart datum.

The following comments result from a review of these reports. Initially a review was conducted for the May 2007 report. When the August 2008 report became available, this report was also reviewed and, if relevant, comments on the 2008 report are added in italics below each point made for the 2007 review. The 2008 report provided to the reviewer did not include accompanying figures, however it appears that most figures are unchanged from the 2007 report as Section 10 (Design Information) of both reports refer to the same engineering drawing numbers.

These comments are not intended to form a comprehensive review but rather to highlight issues, including deficiencies or conflicting information, that should be addressed to provide decision makers with sufficient information to make informed decisions about this major development within Victoria Harbour.

1. Dredge Volume

The 2007 Chatwin report (Section 1.2 Project Description, page 3) points out that approximately 37,000 m³ of seabed sediments will have to be dredged from the marina basin to achieve an overall depth of 3.5 m relative to chart datum. An additional 14,000m³ would have to be dredged for the navigation channel. This is very large volume of material, equivalent to over 5,000 average truckloads. The letter from Minister of Transport accompanying the report suggests "that minimal dredging is required". This statement is clearly in error and conflicts with the information provided in Chatwin's report.

The 2008 amended report (pg 4) anticipates that approximately 32,000m³ of material will have to be dredged to construct the marina basin. The western dredged channel is no longer a part of the project plan. This is still a very large volume of material, equivalent to 4,500 truckloads at 7m³ per truckload.

Project reviewers need to be aware that the anticipated volume of dredge material is significant and would likely exceed the volume of any dredge project conducted in Victoria Harbour over the past 25 years, if not longer.

2. Floating Breakwater Design (Section 1.2 Project Description page 3).

The project description provides no detail for the design or specifications for the floating breakwater. This area of the harbour is exposed to both wave and swell for the Strait of Juan de Fuca during south-westerly storm events. South-westerly fetch distances are in excess of 20 kilometres for this section of shore. The floating breakwater will have to be substantive, and the EA should provide an assessment of potential impacts (shading, wave attenuation) on intertidal and subtidal habitats.

The 2008 amended report does not appear to provide detail on the floating breakwater design, although Table 13 provides some float and pile dimensions.

Given the nature of the exposure of this section of the harbour and the potential for impacts to other areas of the harbour from reflected waves (see Point 13 below), the EA should provide design drawings for the proposed breakwater.

3. Birds

Section 5.2.4, pg. 20 of the 2007 document fails to mention that black oystercatchers are known to nest on Colville Island. Oystercatchers lay eggs very close to the high water mark and are vulnerable to impacts from vessel wake. The report does not assess the potential impact of the marina construction or operation on nesting oystercatchers. *Black oystercatcher nesting on Colville Island is also not mentioned in the 2008 amended report.*

4. Anoxic Sediments

The Marine Habitat Survey, Section 6.1 Page 22 notes the presence of white bacterial mat (*Beggiatoa*) on the seabed associated with wood waste (referred to as “white mold” by Chatwin, pg 22). *Beggiatoa* is an indicator of hypoxic or anoxic (low to no oxygen) sediments. Anoxic sediments are likely widespread in the area due to the high amount of organic waste on the bottom. When these sediments are re-suspended by dredging there is a risk that oxygen levels in the water column will be reduced to levels harmful or lethal to fish. This is one of the most likely and significant potential impacts resulting from construction activity and it is not addressed by the 2007 assessment report. *The 2008 report also does not mention the potential impacts of re-suspension of anoxic sediments on oxygen levels in the water column.*

5. Subtidal Habitat Ecological Value

Section 3.1 Biological Investigations (page 11) and Section 11 Compensation Measures (page 40). The EA report references VEHEAP’s Harbour Ecological inventory and rating project (HEIR, <http://www.harboursatlas.ca/>). On page 11 the report correctly points out that the ecological value of backshore and intertidal zone was rated “low” for most of the proposed development area (Shore Unit 63). However about 15% of the project shoreline (the portion fronting Lime Bay Park, which is part of Shore Unit 64) is rated “High” Ecological Value. These high valued areas have not been considered in the subsequent impact analysis. In Section

11 the EA incorrectly assumes that the subtidal area of the proposed marina basin was also rated “low ecological value” by HEIR. In fact the HEIR project does not provide subtidal habitat ratings for the harbour. Chatwin has concluded that the habitat value of the subtidal seabed within the proposed marina basin is “poor”. This conclusion is not corroborated by an ecological rating of the HEIR project. *This error remains in the 2008 amended report.*

6. Degree of Subtidal Habitat Survey Effort

It appears that the extent of the subtidal survey was not adequate to support the overall conclusion that the subtidal habitat value of the proposed basin area was “poor” (pg. 40). Figure 3 of the 2007 report shows 4 dive transects, spaced approximately 40m apart in the eastern portion of the proposed marina basin. No dive transects were conducted in the western portion of the basin fronting Lime Bay Park. The report does not provide a figure or map of subtidal habitat features to support its conclusion that the overall habitat value is “poor”. Some subtidal areas clearly are degraded; however, given the size of the marina basin (2.6 hectares), more detailed dive or towed video subtidal survey effort is warranted.

7. Pile Driving Noise Mitigation (Section 8.3, page 29)

While the threshold of 30kPa is appropriate for the requirement to use a bubble curtain, regulators should also specify a threshold distance from the pile where 30kPa should not be exceeded. *A distance threshold for the 30kPa criteria is also not specified in the 2008 report*

8. Criteria for Silt Laden Waters

Section 8.5, page 31, of the 2007 EA provides thresholds for induced turbidity of marine waters from both upland and in-water construction activities. These thresholds should be amended to include thresholds for dissolved oxygen levels. The report should clearly state whether these turbidity and dissolved oxygen thresholds are applicable within the silt curtain area. If not, it should be stated that the silt curtain area should be restricted to the minimum size necessary for a workable dredging operation. These thresholds should be below levels known to be harmful to fish. *This comment remains applicable to the 2008 amended report.*

9. Significance of Environmental Effects (Section 8.6, Table 9 of the 2007 report states that 3 of 6 physical components (air quality, soil/marine sediments, surface marine waters) as well as 2 of 6 biological components (marine mammals, fish/fish habitats) will have residual effects (potential effects following the application of mitigation) of UNKNOWN significance. The EA should provide better resolution of the significance of residual effects and, for those that cannot be resolved, an appropriate operational monitoring and response plan should be proposed. The EA does not propose any follow up studies for 4 of the 6 residual effects of unknown significance.

The 2008 amended report has modified ratings for the significance of residual effects. Air Quality is changed from unknown to insignificant; soil and marine

sediments is changed from unknown to a positive effect and surface marine waters is changed from unknown to positive effect. However there is no material difference in the mitigation/compensation approach provided in both reports, with the exception of the adoption of the Clean Marine Program, which should help mitigate impacts to water quality from the marina operation. Reviewers should ask for details of the rationale for these changes in the rating of the significance of residual effects. Note that the ratings for biological components (Table 10) remain unchanged.

10. Compensation

This section (Section 11.0) assumes that dredging will result in an increase in seabed habitat value due to removal of historic wood and bark debris. While this maybe true, removal of this material comes with considerable risk to the environment due to re-suspension of anoxic and contaminated sediments. Capping the seabed with clean sediments is likely a more appropriate “remediation” strategy. *This comment remains applicable to the 2008 amended report.*

11. Assessment of Habitat Gain and Loss

In response to a request from DFO the 2008 amended report contains a tabulation of marine fish habitat gains and losses (Table 13). This table points out that 5,500m² of seabed will potentially be impacted by shading from the docks and floating breakwater, and suggests that this potential loss will be offset by 7,486m² of habitat created by the underside of the breakwater and floats which are, in fact, responsible for shading the seabed. Clearly the underside of these structures will also be shaded, so how can they be used to offset seabed shading? This table should focus on potential habitat losses to specific seabed features such as kelp habitat. However it appears that the subtidal habitat survey effort (see Point 6 above) has not adequate to map these features in relation to the proposed locations of the breakwater, floats or elevated commercial buildings.

12. Cumulative Effects – No consideration of Visual Impacts

This section (Section 9) is deficient in that it does not considered visual aspects such as the cumulative effects of the proposal on harbour viewsapes, particularly viewsapes from upland parkland (Lime Bay Park and the Songees walkway). In addition it is naive to assume that this project will not contribute to cumulative impacts to navigation in Victoria Harbour. All “in water” development and “in water” activity impacts navigation and navigational safety in the harbour. One aspect of this project that has not been considered is the impact on “channelization” of the harbour. Historically infilling has reduced and narrowed the water area of this small harbour. This project will contribute significantly to continued reduction in the usable width of the harbour in an area where adequate water surface is critical to vessel and floatplane movements. *These comments remain applicable to the 2008 amended report.*

13. Impact of the Breakwater on Harbour Waves

The floating breakwater will have to be substantive and likely incorporate a vertical, hard surface wave attenuator. As these hard surfaces are in deeper water and further into the harbour than the present shoreline, they will reflect incoming wave energy more strongly and in different directions, with possible impacts on marina facilities across the harbour (Fisherman's Wharf and West Bay marina as well as the adjacent float plane taxiways). This possibility should be evaluated by a qualified coastal engineer prior to any approval for construction.

14. Letters of Support.

Both the 2007 report (Appendix J) and the amended 2008 report (Appendix 10) contain letters of support for the project concept. It is highly unusual for an Environmental Assessment to include letters of support. The environmental assessment is intended to be a systematic determination of environmental effects and evaluation of the significance of these environmental effects. Letters of support have no role in this process. I note that several of the letters appended to the EA report are from elected officials. This potentially prejudices the evaluation of the EA by public servants who are answerable to these elected officials.

A handwritten signature in black ink, appearing to read 'B. Emmett', with a long horizontal flourish extending to the right.

Brian Emmett, M.Sc., R.P. Bio