Boundary Bay Conservation Committee
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June 22, 2020

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Gaps in Report on the Roberts Bank Terminal 2 Project Prevent Informed Decision

Request Clarification of Review Panel's Conclusions and Recommendations

RE: Review Panel Report ("*the Report*"), for the Roberts Bank Container Terminal 2 Project (RBT2)

The Boundary Bay Conservation Committee (BBCC) requests that your offices, under *Section 43(1)(f)* [1] of the *Canadian Environmental Assessment Act, 2012, (CEAA 2012)* seek clarification of the Conclusions and Recommendations of the Review Panel Report for the Roberts Bank Container Terminal 2 Project (RBT2) that are not consistent with the:

- *Species at Risk Act*
- *Canadian Environmental Assessment Act (CEAA 2012)*
- *Migratory Birds Convention Act, 1994*
- *Fisheries Act*
- The Terms of Reference including the Review Panel Mandate

The Conclusions and Recommendations of the Report lack correlation and don't reasonably fit with the Key Findings. The omission of scientific evidence in some of the Report's Conclusions and Recommendations, and the failure to meet legal requirements of environmental assessment, will prevent the Governments of Canada and British Columbia from making an informed decision on RBT2.

The Conclusions and Recommendations of the Review Panel Report fail to advise Governments that there will be destruction of critical Chinook salmon habitat which, even with mitigation, will have a significant *residual* adverse effect on the endangered Southern Resident Killer Whales (SRKW).

Fisheries and Oceans will be required to issue permits and authorization for habitat destruction. The evident consequences will be illegal destruction of SRKW habitat in contravention of both *CEAA 2012* and the *Species at Risk Act (SARA).*

[1] *Canadian Environmental Assessment Act (CEAA 2012)*, Review Panel's Duties, Section 43(1)(f). See Attachment Q, Pg.4

The Conclusions and Recommendations of the Report include future mitigation measures:

- that are not proven to be either technically feasible or economically feasible
- that are not presented in the environmental assessment for public comment
- that are plans to make future plans and actions
- that have not applied the Precautionary Principle
- that have not provided evidence of credible implementation and follow-up

This is in contravention of *CEAA 2012* and is beyond the Mandate of the Review Panel which is to report on information in the environmental assessment, not recommend future, unproven, vague possibilities. The unproven mitigation measures place responsibility for future studies and plans onto government agencies with significant costs to taxpayers.

The Key Findings, Conclusions, and Recommendations of the Review Panel Report are all critical to government decision -makers as they summarize the environmental assessment of the Roberts Bank Terminal 2 Project in the Fraser River Estuary.

The location of the planned man-made island has international significance for:

- salmon runs
- migratory birds of the Pacific Flyway, Canada's No. 1 Important Bird Area (IBA)
- endangered Southern Resident Killer Whales

The Fraser River Estuary has international significance as a Ramsar site, a Wetland of international significance. Roberts Bank is central to the Ramsar site but was not included in the designation for political reasons i.e. port development. Damage to Roberts Bank will significantly impact the Fraser River Estuary and Canada will, therefore, have failed its commitment under the Ramsar Convention.

The text of the Report includes Panel conclusions of residual adverse effects which are not incorporated into the formal Conclusions and Recommendations.

In some cases, the precautionary principle is not applied to uncertainties and the Conclusions and Recommendations infer, and assume, a way of moving forward:

- without credible scientific evidence
- without proven mitigation measures
- without identifying and reporting all residual significant adverse environmental and cumulative effects

On the highly controversial issue of effects of the Project on Western Sandpipers and their primary food source, biofilm, there are no appropriate warnings to decision makers; the Conclusions evade the issues and fail to apply the Precautionary Principle.

There are no recommendations on Western Sandpipers and the recommendations for biofilm are for future measures which are beyond the Mandate of the Review Panel.

The Panel Analysis on Cumulative Effects identifies failures but the Report does not offer any conclusions on the information. The Recommendations are for future unproven actions.

Consequently, the Governments of Canada and B.C. are not informed on the Cumulative Effects of RBT2.

The environmental assessment becomes meaningless if the Conclusions and Recommendations do not comply with the Review Panel Mandate, the Terms of Reference, *CEAA 2012*, the *Species at Risk Act*, and *Fisheries Act* and all legislation in place to protect the environment.

Numerous government and independent scientists documented concerns that plans to dredge and fill the estuary to build the 460-acre artificial island[2] and expanded causeway for the new container terminal will irreparably alter the ecology of the Fraser River estuary. Dredging, filling, construction, shipping, and operation of the planned terminal will destroy habitat and alter geomorphological processes causing changes in water quality, salinity regimes, sedimentation, and biological processes leading to further habitat loss as well as habitat degradation and fragmentation.

A chain of significant residual adverse environmental and cumulative effects triggered by the Project are not sufficiently incorporated into the Conclusions and Recommendations.

The Fraser River Estuary Ecosystem, not just individual components, factors, and functions, will be impacted with significant residual adverse environmental and cumulative effects on globally significant species including bird and fish populations, marine mammals, and numerous organisms that support the unique estuarine processes.

Specific and documented information is provided in Attachments to this letter demonstrating:

1. failure to incorporate the Precautionary Principle in some Conclusions and Recommendations
2. failure to sufficiently incorporate findings of significant residual adverse environmental and cumulative effects into Conclusions and Recommendations
3. failure to incorporate a high level of public concern into Conclusions and Recommendations
4. failure to meet legal requirements of assessment under *CEAA 2012* and the *Species at Risk Act*
5. failure to meet requirements of the *Federal Policy on Wetland Conservation*
6. failure to provide a Conclusion on the Cumulative Effects Assessment after stating unacceptable omissions and insufficiencies
7. no assessment of cumulative effects on intertidal wetlands and the red-listed species in those areas
8. failure to incorporate information from government and independent scientists and the public
9. transference of responsibility and accountability for mitigation measures to government agencies at a cost to taxpayers
10. recommending unproven mitigation measures beyond the Review Panel Mandate
11. failure to ensure recommended mitigation measure are technically and economically feasible
12. failure to incorporate documented uncertainty into Conclusions and Recommendations
13. contradictions in the Review Panel approach as documented in the Report
14. reading too much into modeling data and making unreasonable conclusions
15. wording of some Conclusions obfuscates findings of significant adverse environmental effects
16. failure to reasonably assess the domino effect and implications of geomorphology
17. serious omission of evidence that changes to the salinity regime that will negatively impact the entire ecosystem and the species it supports
18. failure to heed warnings that offsetting for shallow subtidal sand flat habitat is not technically feasible
19. refusal of the Review Panel to consider the option of the Port of Prince Rupert as an Alternative Means after introducing an unjust interpretation of CEAA 2012 five years into the assessment.

[2] Roberts Bank Terminal 2 Project, EIS, Volume 1, Section 4, Page 54/206

Specific and documented information is provided in the following Attachments

Attachment A: Contradictions in the Review Panel Approach as stated in the Report

Attachment B: Failure to report that Geomorphology Changes will adversely affect the Fraser Estuary

Attachment C: Residual Adverse Effects on Wetlands and Wetland Functions with Far-reaching Effects

Attachment D: Incomplete & Contradictory Information on Biofilm avoids identifying residual adverse effects

Attachment E: Failure to conclude significant residual adverse environmental effects on Sandpipers

Attachment F: Residual Effects on Coastal Birds

Attachment G: Failure to comply with *CEAA 2012* and *SARA* for Great Blue Heron and Barn Owl

Attachment H: Failure to assess intertidal habitats; flawed Conclusions on Biomat, Macroalgae and Eelgrass

Attachment I: Failure to conclude significant residual adverse effect from Greenhouse Gas Emissions

Attachment J: Failure to conclude significant residual adverse environmental effects on Air Quality

Attachment K: Failure to conclude significant residual adverse environmental effects from Light Pollution

Attachment L: Split assessment of Noise avoids alarming significant residual adverse environmental effects

Attachment M: Failure to comply with *CEAA 2012* and *SARA* for endangered S. Resident Killer Whales

Attachment N: Irreversible significant residual adverse effects on Fraser River Chinook Salmon

Attachment O: Failure of the Review Panel to consider the option of the Port of Prince Rupert as an Alternative Means after introducing an unjust interpretation of CEAA 2012 five years into the Assessment.

Attachment P: Failure to appropriately advise Governments of inadmissible Cumulative Effects Assessment

The Boundary Bay Conservation Committee (BBCC) was established in 1988 to enhance public awareness of the Fraser River delta and estuary. We have worked with other conservation groups to obtain protection and recognition for this world class ecosystem.

Attachment A: Contradictions in the Review Panel Approach as stated in the Report

Insufficient Mitigation Measures

The BBCC notes that the Review Panel Report states that monitoring, future management plans, and adaptive management are not sufficient mitigation measures for significant adverse effects. The Report states these initiatives did not substitute for technical and feasible measures:

> "While uncertainty is inherent in predicting the environmental effects in a complex ecosystem, future management plans were not considered as a substitute for providing technical and economical feasible mitigation measures nor was adaptive management appropriate as a response to uncertainty about the significance of environmental effects. Therefore, the Panel is also of the view that if there is uncertainty about whether the Project would be likely to cause a significant adverse environmental effect, a commitment to monitoring Project effects and to manage adaptively is not sufficient. The Panel is also of the view that, if evidence from the follow-up programs indicate unforeseen adverse Project-related effects, offsetting those effects is not the appropriate first line of corrective action for the elimination, reduction or control of the adverse environmental effects of a designated project." [3]

Recommendations Beyond Review Panel Mandate

Contrary to the statement above, the Review Panel made recommendations for the same measures that they claimed were insufficient and could not substitute for technical and feasible measures. Many of their 71 recommendations include future mitigation of monitoring, additional information, management plans, future studies, adaptive management and offsetting. The Review Panel explained their approach was to advise the government of significant adverse effects and make recommendations to assist any subsequent regulatory review, information, studies, and/or measures.

> "Where there was a potential that the Project could result in significant adverse environmental effects, the Panel identified the likelihood and made recommendations to assist any subsequent regulatory review. In some cases, this included collecting additional information prior to regulatory approvals so monitoring and adaptive management during construction and operations could be more effective. If, taking into account the implementation of proposed mitigation measures, there remained uncertainty about whether the Project would be likely to cause a significant adverse environmental effect, the Panel proposed, when applicable, the requirement of additional measures or studies prior to the construction or operation of the Project.
>
> In instances where there were uncertainties related to the data presented (e.g., number of ships in the marine shipping area presented in the EIS and the MSA), or where there were different standards or guidelines available, for instance provincial and federal standards, the Panel used the most stringent standards or adopted a conservative approach."[4]

[3] The Review Panel Report for the Roberts Bank Terminal 2 Project, Document #2062, March 27, 2020, Page 26; Scrolled Page 40/627

[4] Ibid., Pages 26&26; Scrolled 40&41/627

Although the *Canadian Environmental Assessment Act (CEAA 2012), Section 43.(1)(d) (i)* states the duties of the Review Panel include recommending mitigation measures and follow-up program, they are with respect to the environmental assessment, not subsequent regulatory review and additional information that has not been included in the environmental assessment process with the opportunity for public input:

> (d) prepare a report with respect to the environmental assessment that sets out
>
> > (i) the review panel's rationale, conclusions and recommendations, including any mitigation measures and follow-up program, and

The Review Panel Terms of Reference[5], Section 4.28, qualify that the recommendations include information received through the process which, if implemented, would avoid or mitigate the environmental effects of the Project.

"The Report shall include:

1. the rationale, conclusions and recommendations of the Review Panel on the environmental assessment of the project including any mitigation measures and follow up programs;
…
5. an identification of recommended mitigation measures and follow up programs that relate to the environmental effects of the project defined in section 5 of CEAA 2012, including, as appropriate, any commitments identified by the proponent in the EIS or during the review panel process;…

Therefore, recommending subsequent unproven mitigation measures, plans, and regulatory reviews that have not been included in the environmental assessment process, and have not been provided to the public for comment, are inappropriate and beyond the mandate of the Review Panel.

Mitigation Measures must be Technically and Economically Feasible

CEAA 2012, Section 19 (1) (d) states the environmental assessment must take into account:

> "mitigation measures that are technically and economically feasible and that would mitigate any significant adverse environmental effects of the designated project;"

As quoted above, the Review Panel stated that subsequent initiatives did not substitute for technical and feasible measures:

> "While uncertainty is inherent in predicting the environmental effects in a complex ecosystem, future management plans were not considered as a substitute for providing technical and economical feasible mitigation measures"

For a number of factors identified in the environmental assessment, the Review Panel reported in their Key Findings that there would be significant adverse environmental and cumulative effects even after mitigation measures. However, the Review Panel did not appropriately incorporate these Key Findings and insufficient mitigation measures into some of the Conclusions and Recommendations.

[5] Roberts Bank Terminal 2 Environmental Assessment, Terms of Reference, Document #1680, Amended April 2019

Attachment B:

Failure to report that Geomorphology Changes will adversely affect the Fraser River Estuary

Geomorphological changes will trigger a chain of habitat loss and significant adverse environmental and cumulative effects that are not sufficiently addressed in the environmental assessment of geomorphology.

1. Geomorphology Changes from the Project will affect the entire Fraser River Estuary and the species it supports
2. Review Panel Report fails to appropriately disclose the serious limitations of the Proponent's modeling that led to unfounded and misleading conclusions.
3. Review Panel Report failed to apply the Precautionary Principle to Uncertainty and Concerns from government and independent scientists
4. Conclusion and Recommendation contradict the Panel's Statement of commitment to apply the Precautionary Principle

1. Geomorphology Changes from the Project will affect the entire Fraser River Estuary and the species it supports

The Review Panel Report states there would be significant adverse and cumulative effect on wetlands[6] but does not connect these effects with the geomorphological changes as identified by independent and government scientists who advised that the Project would alter geomorphological-related processes leading to changes in salinity thereby impacting estuarine habitats.

Environment and Climate Change Canada (ECCC):

> "Due to what ECCC believes to be high and unmitigable risks to an entire species of migratory shorebird, ECCC advises that only a Project redesign would avoid geomorphological processes on Roberts Bank impacting biofilm and shorebirds."[7]

> "The Project footprint would: …
> • Affect geomorphological processes over the intertidal and shallow subtidal flats.
> • Potentially contribute to on-going wetland losses.
> • Potentially affect wetlands functions."[8]

> "Further to the predicted changes to salinity, the Project footprint would affect other geomorphological-related processes, including scour, deposition, currents, wave regime, turbidity, and sedimentation. These effects are particularly pronounced in areas of shallow subtidal sand flat wetland habitat."[9]

Independent expert, Dr. Baird, echoes the concerns of Environmental Canada and advises the Review Panel of the chain reaction of effects from geomorphological changes that continue through to the food web and can lead to the collapse of existing functions.

Patricia Baird, Ph.D. Kahiltna Research Group:

> "Building of RBT2
> - Higher temperatures from Fraser River will dominate RB
> - More freshwater during breeding migration of western sandpipers

[6] RBT2 Environmental Assessment, Document #2062, The Review Panel Report March 27, 2020 Pg.1; Scrolled Page 15/627
[7] RBT2 Environmental Assessment, ECCC, Document #1637, April 15, 2019, Page 37/115
[8] RBT2 Environmental Assessment, ECCC, Document 1766, May 18, 2019, Slide 26/35
[9] RBT2 Environmental Assessment, ECCC, Document 1454, February 8,2019, Page 22/40

COULD RESULT IN:

- Increased freshwater diatoms
- Reduction of marine & estuary diatoms high in EPA/DHA

Repercussions on marine food web will be IRREVERSIBLE

- DAMAGE to Roberts Bank by RBT2 CANNOT BE UNDONE. RB cannot return to native functional state
- Damage might result in:
- Severe decrease or elimination of the marine & estuary diatoms with high EPA & DHA that support the entire marine food web
- Decrease in zooplankton like copepods that support other invertebrates and fish like the endangered Fraser River salmon or sand lance
- Decrease in numbers of shorebirds
- Irreversible species level impact to shorebirds on Pacific Flyway

This kind of collapse has happened before after anthropogenic structures erected at coastal sites…

…ALL MARINE LIFE IN FRASER RIVER ESTUARY DEPENDS ON EPA & DHA from MARINE & ESTUARY diatoms…

…The Port says that energy is everywhere – it is the EPA & DHA that might be even more important and which the Port has not looked at"[10]

In the Review Panel Report, these concerns from well-known experts were not documented or incorporated into the assessment of geomorphological changes and their effects.

Concerns from B.C. Ministry of Forests, Lands, Natural Resources Operation and Rural Development (FLNRORD):

"The British Columbia Ministry of Forests, Lands, Natural Resource Operations and Rural Development (FLNRORD) stated that previous port developments appeared to have altered the flow of sediment across Roberts Bank, and it was likely that the Project would also alter the deposition of sediment along the Roberts Bank foreshore. FLNRORD emphasized that the ecology of the area is not properly monitored and the current environment and biological processes within Roberts Bank are poorly understood."[11] *Review Panel Report, March, 2020, Page112 & 113/627*

The Review Panel Report refers to concerns expressed during the environmental assessment that past projects have caused historical and ongoing changes to Roberts Bank geomorphology but the Report does not address how the current Project would affect the ongoing changes. The Report states that past and ongoing effects from geomorphological are addressed in other components in the Report such as fish and fish habitat. No reasonable rationale is provided for omitting to incorporate explicit concerns and a high level of uncertainty identified by scientists and the public with respect to the domino effect to the Roberts Bank ecosystem from geomorphological changes that will occur with the Project.

[10] RBT2 Environmental Assessment, Dr. P Baird, Kahiltna Research, Document 1771, May 17,2019, Pg. 29-31,33&34
[11] RBT2 Environmental Assessment The Review Panel Report , Document 2062, Mar. 27, 2020, Scrolled Pages 112&113/627

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2. Review Panel Report fails to appropriately disclose the serious limitations of the Proponent's modeling that led to unfounded and misleading conclusions.

The predicted changes in coastal geomorphology and effects were based on modeling by the Proponent. The modeling was also used by the Proponent to predict consequential effects on water quality, salinity regimes, sedimentation, intertidal and shallow subtidal sand and mudflats.

The Review Panel Report omits to include the concerns raised by ECCC, DFO and independent scientists, and inaccurately states that Fisheries and Oceans found the modelling appropriate for predicting changes to coastal morphology:

> "DFO and NRCan indicated that the TELEMAC-MASCARET model selected to estimate the impact of the Project on ocean circulation, salinity, and wave climate, as well as changes from climate change on nearshore wave climate was appropriate."[12] *(NRCan- Natural Resources Canada)*

To the contrary, Fisheries and Oceans Canada advised:

> "As a consequence of this clarification of the RB EwE objective, it is not the appropriate model to use to forecast Project impacts to individual functional groups. This is a broader interpretation than was suggested in earlier statements…
> …In particular, the RB EwE model is not appropriate to represent highly migratory functional groups"[13]

> "Although we assess that the general pattern of salinity change predicted by the model is reasonable, the information provided is not sufficient to assess the uncertainty in the magnitude of the predicted changes…
> …Some confidence could be placed in the model if it were demonstrated that it is capable of representing existing conditions accurately. However, it seems that no comprehensive assessment of the capability of the model to represent existing conditions has been undertaken, particularly for the intertidal area. Indeed it seems unlikely that there are sufficient salinity data available to make such an assessment over the area of concern…
> …The claim that observed salinity patterns are well represented by the model is unsubstantiated. The few comparisons between model and observations that have been made for the intertidal zone suggest that the model performs, at best, indifferently; generally it tends to be too fresh and insufficiently stratified, as acknowledged by the Proponent… DFO emphasizes, however, that these very limited comparisons (at a handful of points, for a few days) are insufficient to assess whether the patterns and magnitude of the modelled salinity field is accurate."[14]

> "The new results provided in the Proponent's December 2018 document do lend confidence in the general ability of the model to represent existing conditions, at least in a weekly-averaged sense. However, the new results do not remove the uncertainties associated with using flow conditions in the fall period to assess conditions in early spring…"[15]

[12] RBT2 Environmental Assessment, The Review Panel Report , Document 2062, Mar. 27,2020, Page 99; Scrolled P. 113/627
[13] RBT2 Environmental Assessment, Fisheries and Oceans Canada, Document 1102, 2017/11/04; Page 7/47
[14] RBT2 Environmental Assessment, Fisheries and Oceans, Document 1221, July 3, 2018, Scrolled page 3&4/7
[15] RBT2 Environmental Assessment, Fisheries and Oceans Canada, Document 1630, April 15, 2019, Page 25/207

"There are limitations of the model and model development leading to uncertainty regarding how well the model represents the Roberts Bank ecosystem…
…
• The area being modelled is small (54.68 km2) relative to the degree of exchange across the large open boundaries;
• Model results are presented as the ratio of ecosystem productivity before and after the Project,
• however, the base models, and their uncertainties, are not rigorously evaluated
…
• The model has challenges evaluating highly mobile functional groups, such as salmon
• For these groups other lines of evidence, such as field surveys, other models, and literature, should be taken into account as described in the EIS.[16]

3. Review Panel Report failed to apply the Precautionary Principle to Uncertainty and Concerns from government and independent scientists

As noted above, the Review Panel did not address concerns from Environment and Climate Change Canada and independent experts about the effects to the Fraser estuary ecosystem from geomorphology changes that will occur with the man-made island and widened causeway. Nor did the Panel explain why they dismissed the concerns about the identified specific limitations of the modeling and how the modeling was inaccurately applied to numerous other valued components and biological processes addressed in the environmental assessment.

Without proven evidence, the Review Panel made a broad statement that is unreasonable and cannot be supported:

"The Panel accepts the Proponent's model performance as appropriate for the assessment of Project effects."[17]

Concerns from B.C. Ministry of Forests, Lands, Natural Resources Operation and Rural Development (FLNRORD) were documented in the Report but their serious significance was not incorporated as the Report claims uncertainty is unavoidable and dismisses uncertainty on the grounds of ecosystem complexity. As noted above, Fisheries and Oceans advised the Panel in several submissions that the modeling was limited:

"the information provided is not sufficient to assess the uncertainty in the magnitude of the predicted changes"*…(Reference 9)*

"There are limitations of the model and model development leading to uncertainty regarding how well the model represents the Roberts Bank ecosystem… *(Reference 11)*

The Review Panel rationalized:

"The Panel acknowledges DFO's concerns and considers that the Proponent's modelling is subject to moderate and unavoidable uncertainty because of the dynamic and complex nature of the Roberts Bank area."[18]

[16] RBT2 Environmental Assessment, Fisheries and Oceans, Document 1729, May 21, 2019, Pages 7-12.
[17] RBT2 Environmental Assessment, The Review Panel Report , Document 2062, Mar. 27,2020, Page 99; Scrolled P. 113/627
[18] RBT2 Environmental Assessment The Review Panel Report , Document #2062, March 27, 2020, Scrolled Page 113/627

It is specifically the complex nature of the Roberts Bank ecosystem that scientists claim will be adversely impacted by the Project. Uncertainty is the reason for the Precautionary Principle in the *Canadian Environmental Assessment Act (CEAA 2012)* and cannot be used to adopt lax decisions where there is a serious threat of irreversible damage as has been identified with the Robert Bank Terminal 2 Project.

The Precautionary Principle is documented as intent in the Purpose of CEAA 2012 to avoid lack of full scientific certainty and a serious threat of irreversible damage:

CEAA 2012:

> 4 (1) The purposes of this Act are
> (a) to protect the components of the environment that are within the legislative authority of Parliament from significant adverse environmental effects caused by a designated project;
>
> (b) to ensure that designated projects that require the exercise of a power or performance of a duty or function by a federal authority under any Act of Parliament other than this Act to be carried out, are considered in a careful and precautionary manner to avoid significant adverse environmental effects;[19]

The Federal Court has ruled on the importance of complying with the precautionary principle:

> "…lack of full scientific certainty should not be used a reason for postponing measures to prevent environmental degradation".
> "The Federal Court accepted the precautionary principle as a norm of substantive Canadian law, to be used in the interpretation of all statutes and regulations."[20]

4. Conclusion and Recommendation contradict the Panel's Statement of commitment to apply the Precautionary Principle

The Review Panel offered one Conclusion and one Recommendation:

Conclusion: "The Panel concludes that the follow-up program proposed by the Proponent is required to address the Proponent's modelling uncertainties and be developed and managed in collaboration with Fisheries and Oceans Canada and Natural Resources Canada."

Recommendation 8

"The Panel recommends that the Proponent be required to monitor scour along the northwest corner of the terminal at 5-year intervals immediately following the completion of construction and extending for 20 years after the commencement of operations (i.e. 5 monitoring episodes). In the event that scour is detected, the Proponent should be required to remediate any such changes."

In contravention of the Precautionary Principle, the Conclusion infers a way of moving forward in spite of modelling uncertainties and based on a presumed assumption that the uncertainties can be managed. A large responsibility is inappropriately transferred to Government Agencies. There is no scientific evidence to support this Conclusion.

[19] Canadian Environmental Assessment Act (CEAA 2012), Section 4.1(a)&(b)
[20] Canada: Precautionary Principle Stronger Part of Canadian Law, Sept. 7, 2015

Recommendation 8 addresses only one issue and does not address major concerns of highly significant residual adverse environmental and cumulative effects raised by government and independent scientists, as well as the public.

Unproven Mitigation and follow-up program

The Proponent commits to a follow-up program which is yet to be designed and planned.

> "The Proponent noted that further changes to geomorphology were largely avoided by siting the marine terminal almost entirely within the subtidal zone. The Proponent stated that these changes could not be mitigated beyond its selection of terminal design and location…
> ...The Proponent committed to a coastal geomorphology follow-up program, which it stated would include the Canoe Passage area." [21]

Endorsing a subsequent mitigation measure that has yet to be formulated and proven technically and economically feasible is beyond the Mandate of the Review Panel, and contravenes the CEAA 2012.

Mandate of the Review Panel:

The Review Panel Terms of Reference, Section 4.28, qualify that the recommendations include information received through the process which, if implemented, would avoid or mitigate the environmental effects of the Project:

"The Report shall include:

2. the rationale, conclusions and recommendations of the Review Panel on the environmental assessment of the project including any mitigation measures and follow up programs;
…
6. an identification of recommended mitigation measures and follow up programs that relate to the environmental effects of the project defined in section 5 of CEAA 2012, including, as appropriate, any commitments identified by the proponent in the EIS or during the review panel process;… [22]

Therefore, recommending subsequent unproven mitigation measures, plans, and regulatory reviews that have not been included in the environmental assessment process, and have not been provided to the public for comment, are inappropriate and beyond the mandate of the Review Panel.

Mitigation under CEAA 2012:

> 19 (1) The environmental assessment of a designated project must take into account the following factors:
>
> (d) mitigation measures that are technically and economically feasible and that would mitigate any significant adverse environmental effects of the designated project;
>
> (e) the requirements of the follow-up program in respect of the designated project;[23]

[21] RBT2 Environmental Assessment The Review Panel Report , Document #2062, March 27, 2020, Scrolled Page 111/627
[22] Roberts Bank Terminal 2 Environmental Assessment, Terms of Reference, Document #1680, Amended April 2019
[23] Canadian Environmental Assessment Act (CEAA 2012), Section 19.(1)(d)€

Additionally, the Conclusion and Recommendation contradict the approach the Review Panel committed to follow in their Report:

> *"Acting in a Precautionary Manner*
> …
> While uncertainty is inherent in predicting the environmental effects in a complex ecosystem, future management plans were not considered as a substitute for providing technical and economical feasible mitigation measures nor was adaptive management appropriate as a response to uncertainty about the significance of environmental effects. Therefore, the Panel is also of the view that if there is uncertainty about whether the Project would be likely to cause a significant adverse environmental effect, a commitment to monitoring Project effects and to manage adaptively is not sufficient.
>
> The Panel is also of the view that, if evidence from the follow-up programs indicate unforeseen adverse Project-related effects, offsetting those effects is not the appropriate first line of corrective action for the elimination, reduction or control of the adverse environmental effects of a designated project." [24]

[24] RBT2 Environmental Assessment The Review Panel Report ,Document #2062, March 27, 2020, Scrolled Page 40/627

Attachment C:

Residual Adverse Effects on Wetlands and Wetland Functions with Far-reaching Effects

1. In the Review Panel Report, the Roberts Bank Wildlife Management Area is omitted under designations recognizing wetlands at Roberts Bank
2. "Residual" significant adverse environmental and cumulative effects are not consistently or sufficiently addressed
3. Information from independent and government scientists is not sufficiently incorporated into the Conclusions and Recommendations
4. Recommendations are for subsequent unproven mitigation measures not acceptable under CEAA 2012 and beyond the Review Panel Mandate

1. In the Review Panel Report, the Roberts Bank Wildlife Management Area is omitted under designations recognizing wetlands at Roberts Bank

The Report omits to include the Roberts Bank Wildlife Management Area in the list of designations that recognize the ecological importance of Wetlands and Biodiversity Protection in the Fraser Estuary. [25]

2. "Residual" significant adverse environmental and cumulative effects are not consistently or sufficiently addressed

One statement in the Review Panel Report states there will be irreversible "residual" adverse environmental and cumulative effects on wetlands whereas other statements omit the degree of significance. This is important because "residual" adverse effects are documented as highly significant adverse effects that cannot be mitigated.

The Key Findings of the Review Panel Report state:

> "There would be significant adverse and cumulative effects on wetlands and wetland functions at Roberts Bank."[26]

Under Wetlands and Biodiversity Protection:

> "The Panel considers that Project effect on wetlands and wetland functions would not be fully mitigated, which constitutes a residual effect on wetlands that is high in magnitude, permanent and irreversible…
> …The Panel finds it received sufficient evidence of past effects and ongoing developments to conclude that significant cumulative effects are already present in the Fraser River estuary. Therefore, Project effects would consist of an additional contribution to wetland losses and degradation regionally. The Panel concludes that the Project would result in a significant adverse cumulative effect on wetlands and on wetland functions, including provincially red-listed marsh communities."[27]

The Conclusions do not include "residual" adverse environmental effects. Also, Conclusion #1 concludes significant adverse environmental effects from the widened causeway on red-listed species but does not include effects of the widened causeway on other wetland components and functions.

[25] The Review Panel Report for RBT22 , Document #2062, March 27, 2020, Page 155; Scrolled Page 169/627
[26] Ibid; Scrolled Page 15/627
[27] Ibid; Scrolled Page 176/627

Conclusion #1:

> "The Panel concludes that the Project would result in a significant adverse effect on wetlands. The Panel further concludes that the expansion of the causeway would result in a significant adverse effect on provincially red-listed marsh communities."

Conclusion #2:

> "The Panel concludes that the Project would result in a significant cumulative effect on wetlands and on wetland functions in the lower Fraser River estuary, including provincially red-listed marsh communities."

3. Information from independent and government scientists is not sufficiently incorporated into the Conclusions and Recommendations

Although the Review Panel Report concludes significant adverse effects on wetlands and wetland functions, qualifying statements minimize the extent and significance of the effects and do not incorporate important submitted information.

> Review Panel Report:
>
> "With regards to potential effects from the Project on intertidal marsh as a part of the wetlands in the LAA, the Panel agrees with the Proponent that the loss in productivity from the causeway widening would be counterbalanced by long-term gains resulting from geomorphic changes caused by the Project placement…
> … The Panel notes that causeway widening would result in the partial loss of three provincially red-listed communities, but that gains were predicted by the Proponent due to improved growing conditions for intertidal marsh."[28]

No evidence, or reasonable rationale, is provided for the Panel's position that widening of the causeway would be mitigated by geomorphic changes and that loss of provincially red-listed species would be mitigated by gains in the intertidal marsh. In fact, the Report states cumulative effects on intertidal marsh and wetlands were not even assessed:

> "The Proponent concluded there were no residual effects on intertidal marsh and wetlands, therefore cumulative effects were not assessed. Similarly, cumulative effects were not assessed for red-listed marsh communities." [29]

The Environmental Impact Statement did not include assessment of shallow subtidal areas:

> "The Proponent mentioned that the shallow subtidal area was not a wetland according to the classification guidance and disagreed with ECCC that wetlands should be assessed to -2 m CD."[30]

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[28] The Review Panel Report for RBT22 , Document #2062, March 27, 2020, Page 155; Scrolled Page 175/627
[29] Ibid; Scrolled Page 176/627
[30] Ibid; Scrolled Page 169/627

Environment and Climate Change Canada (ECCC) provided evidence to the contrary:

> "The Canadian Wetland Classification System (CWCS) includes the shallow subtidal zone in its definition of estuarine and tidal wetlands, both of which are present on Roberts Bank."[31]
> Environment and Climate Change Canada informed the Review Panel that Wetland losses in the Lower Fraser have reached critical level and the goal of Wetland Functions Assessment was no net loss. They advised:
>
> "• Wetland losses in the Lower Fraser are characterized by ECCC as having reached critical levels, due to loss of functional wetlands, the role they play in ecosystems, and their ability to support species….
> …
> • Shallow subtidal sand flats of Roberts Bank should be classified as a specific wetland type.
> • ECCC data indicates marshes receded between 1989 and 2011, which does not agree with the Proponent's view that marshes on Sturgeons Bank and Roberts Bank have expanded.[32]
>
> "Further to the predicted changes to salinity, the Project footprint would affect other geomorphological-related processes, including scour, deposition, currents, wave regime, turbidity, and sedimentation. These effects are particularly pronounced in areas of shallow subtidal sand flat wetland habitat."[33]

The Report acknowledges information from government scientists but the Conclusions and Recommendation do not expose the lack of data, the degree of uncertainty, and the seriousness of the effects the Project will have on wetlands:

Environment and Climate Change Canada (ECCC):

> "The Project footprint would:
> • Overlap with and permanently remove marine vegetation.
> • Potentially degrade and fragment marine vegetation.
> • Affect geomorphological processes over the intertidal and shallow subtidal flats.
> • Potentially contribute to on-going wetland losses.
> • Potentially affect wetlands functions.[34]

B.C. Forests, Land and Natural Resources Operations and Rural Development (FLNRORD):

> "FLNRORD was of the view that the predicted increase in net productivity of intertidal marsh did not accurately reflect the risk level to the eight blue and red-listed wetland communities in the Project area, given the high site specificity of these communities…
> …FLNRORD stated that predictions of red- and blue-listed communities' recovery were hindered by data deficiencies that prevented community-specific management plans from being developed. The lack of information rendered it difficult to determine the Project effects on these eight red- and blue-listed communities or the long-term consequences of their loss or degradation in the region. Due to this uncertainty, any decline in these communities or their integrity was viewed as harmful to their recovery and a precautionary approach that prioritizes the protection of all of these communities was recommended."[35]

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[31] RBT2 Environmental Assessment, ECCC, Document 1454, February 8, 2019, Page 22/40
[32] RBT2 Environmental Assessment, ECCC, Document 1766, May 24,2019, Pages 7&29/35
[33] RBT2 Environmental Assessment, ECCC, Document 1454, February 8, 2019, Page 22/40
[34] RBT2 Environmental Assessment, ECCC, Document 1766, May 24,2019, Page 26/35
[35] The Review Panel Report for RBT22 , Document #2062, March 27, 2020, Scrolled Page 174/627

4. **Recommendations are for subsequent unproven mitigation measures not acceptable under *CEAA 2012* and beyond the Review Panel Mandate**

The Review Panel Report states the Environmental Impact Statement for Wetlands:

- did not assess cumulative effects on shallow wetlands
- did not assess cumulative effects on red-listed marsh communities
- did not conclude residual adverse environmental and cumulative effects; and
- did not provide technically and economically feasible mitigation measures [36]

> "The Panel considers that Project effect on wetlands and wetland functions would not be fully mitigated, which constitutes a residual effect on wetlands that is high in magnitude, permanent and irreversible."[37]

These findings are not incorporated into the Recommendations which advise unproven mitigation measures already identified as insufficient in the Report. Intertidal offsets are recommended in spite of stated uncertainties in their success:

> "Further, the Panel finds that there is uncertainty in the effectiveness of the intertidal marsh offsets for at-risk communities."[38]

Environment and Climate Change Canada advised the mitigation measures are not technically feasible:

> Mitigation – Offsetting……
> • There is uncertainty if future wetlands will provide the same productivity and range of functions as in the (current) baseline condition.
> • Habitat offsetting is not proposed for intertidal or shallow subtidal sand flats, which support many taxa of coastal birds, including herons (e.g. Great Blue Herons), diving birds (e.g. Scoters) and shorebirds (e.g. Dunlin).
> • It is not technically feasible to recreate shallow subtidal sand flat habitat, and offsetting measures other than 'like-for-like' would need to be considered to address residual effects.
> • There is insufficient supporting scientific and technical information to demonstrate that offsetting for intertidal mud flat habitat can result in conditions that will support biofilm of the type important to Western Sandpipers and other shorebirds. There is a high level of uncertainty that this offsetting measure would be successful.[39]

The Recommendations advise unproven mitigation measures despite:

- uncertainty documented by the Review Panel
- no assessment of cumulative effects on shallow wetlands and the red-listed species in those areas
- findings of significant residual adverse environmental and cumulative effects;
- failure to meet requirements of *Federal Policy on Wetland Conservation*
- serious domino environmental effects submitted by government and independent scientists
- a high level of submitted public concern
- warnings that offsetting measures for shallow subtidal sand flat habitat are not technically feasible
- transference of responsibility and accountability to government agencies at a cost to taxpayers
- advising future unproven mitigations measures is not in the Mandate of the Review Panel
- contravention of the Precautionary Principle
- failure to meet requirements of *CEAA 2012*

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[36] The Review Panel Report for RBT22 , Document #2062, March 27, 2020, Scrolled Page 176/627
[37] The Review Panel Report for RBT22 , Document #2062, March 27, 2020, Scrolled Page 176/627
[38] Ibid; Scrolled Page 175/627
[39] RBT2 Environmental Assessment, ECCC, Document 1766, May 24, 2019, Pages 31&32/35

Mitigation under CEAA 2012:

19 (1) The environmental assessment of a designated project must take into account the following factors:
(d) mitigation measures that are technically and economically feasible and that would mitigate any significant adverse environmental effects of the designated project;
(e) the requirements of the follow-up program in respect of the designated project;[40]

The Conclusions are also beyond the Mandate of the Review Panel as they are for unproven, future measures and the Mandate is to address mitigation measures that are provided in the EIS with evidence, and with the opportunity for public input. The Recommendations place accountability on Government Agencies at a cost to taxpayers.

Mandate of the Review Panel:

The Review Panel Terms of Reference, Section 4.28, qualify that the recommendations include information received through the process which, if implemented, would avoid or mitigate the environmental effects of the Project:

"The Report shall include:

3. the rationale, conclusions and recommendations of the Review Panel on the environmental assessment of the project including any mitigation measures and follow up programs;
…
7. an identification of recommended mitigation measures and follow up programs that relate to the environmental effects of the project defined in section 5 of CEAA 2012, including, as appropriate, any commitments identified by the proponent in the EIS or during the review panel process;…[41]

Recommendation 21

The Panel recommends that the Proponent, in collaboration with Fisheries and Oceans Canada, Environment and Climate Change Canada, BC Ministry of Forests, Lands, Natural Resource Operations and Rural Development, the Tsawwassen First Nation and the Musqueam Indian Band, be required to include in its final Offsetting Plan:

- Design for intertidal marsh offset habitats to promote the growth of native species that would compensate for the loss and degradation of listed marsh communities due to the expanded causeway; and
- An offsite Offsetting Plan that could include areas of the Fraser River estuary such as Sturgeon Bank and the foreshore of Westham Island where bulrush marshes have recently receded.

Recommendation 22

The Panel recommends that the Proponent, in collaboration with Environment and Climate Change Canada, BC Ministry of Forests, Lands, Natural Resource Operations and Rural Development, and in partnership the Tsawwassen First Nation and the Musqueam Indian Band, be required to include in its follow-up program for intertidal marsh offsets:

- Monitoring of British Columbia red- and blue-listed communities in the Local Assessment Area;
- Monitoring of the tidal marsh communities at Brunswick Point and on Tsawwassen First Nation Lands, in order to better understand Project effects and effects from sea-level rise in comparison with the historical state of the marshes; and
- Measures for detecting and reporting the presence of invasive species in its onsite offsets and ensure their eradication if detected.

[40] Canadian Environmental Assessment Act (CEAA 2012), Section 19.(1)(d)(e)
[41] Roberts Bank Terminal 2 Environmental Assessment, Terms of Reference, Document #1680, Amended April 2019

Attachment D:

Incomplete and Contradictory Information on Biofilm avoids identifying residual adverse effects

5. Incomplete information and contradictions in the Review Panel Report on biofilm productivity
6. Conclusion #1 fails to incorporate evidence and the Precautionary Principle
7. Conclusion #2 fails to sufficiently incorporate submitted evidence of unmitigable changes to Roberts Bank biofilm with irreversible effects on shorebirds.
8. Recommendations #19 and #20 do not incorporate the precautionary principle; mitigation requirements under CEAA 2012; or the Review Panel Mandate

1. Incomplete Information and Contradictions in the Review Panel Report on Biofilm Productivity

Panel Analysis:

> "The Panel notes the Proponent predicted that direct habitat loss and reductions in salinity would not result in adverse effects from the Project on biofilm productivity. The Panel also heard from DFO that the modest salinity changes predicted in the vicinity of biofilm habitat were plausible."[42]

These statements infer confirmation from DFO that reductions in salinity would not result in biofilm productivity. In fact, the full comments from DFO state there was not sufficient salinity data to assess biofilm productivity and the magnitude of effects:

DFO reported:

> "Although we assess that the general pattern of salinity change predicted by the model is reasonable, the information provided is not sufficient to assess the uncertainty in the magnitude of the predicted changes….
> …it seems that no comprehensive assessment of the capability of the model to represent existing conditions has been undertaken, particularly for the intertidal area. Indeed it seems unlikely that there are sufficient salinity data available to make such an assessment over the area of concern."[43]

DFO reported continued uncertainty with the subsequent data:

> "The new results provided in the Proponent's December 2018 document do lend confidence in the general ability of the model to represent existing conditions, at least in a weekly-averaged sense. However, the new results do not remove the uncertainties associated with using flow conditions in the fall period to assess conditions in early spring…"[44]

The Review Panel Report also incorrectly infers that ECCC agrees the Project would not adversely affect biofilm productivity:

> "The Panel also heard from ECCC that the Proponent's studies regarding overall productivity of biofilm were technically sound. The Panel finds there is sufficient certainty in the Proponent's predictions and studies to conclude that the Project would not result in adverse effects on biofilm productivity at Roberts Bank. " [45]

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[42] The Review Panel Report , RBT2 Environmental Assessment, Document #2062, March 27, 2020, Scrolled Page 163/627
[43] RBT2 Environment Assessment, Fisheries and Oceans, Document 1211, July 3, 2018, Page 3/7
[44] RBT2 Environment Assessment, Fisheries and Oceans, Document 1630, April 15, 2019, Page 25/207
[45] The Review Panel Report , RBT2 Environmental Assessment, Document #2062, March 27, 2020, Scrolled Page 163/627

Contrary to this statement, submissions from ECCC advise irreversible, residual adverse effects on biofilm productivity:
Note: WFA refers to Wetlands Function Assessment

> "The WFA is based on the position that the predicted change in salinity and concomitant increase in overall biofilm productivity would be beneficial to Roberts Bank ecosystem functioning rather than deleterious. ECCC does not think that the scientific data presented to date sufficiently supports the Proponent's conclusions." [46]
>
> "Changes in salinity regime would disrupt or remove salinity trigger for fatty acid production in microalgae, presenting high risk of reducing the quality and quantity of marine-type biofilm with high fatty acid content…
> …Disruption or removal of salinity trigger for fatty acid production by microalgae on Roberts Bank are predicted to have species-level consequences for Western Sandpipers
>
> …ECCC maintains that predicted Project-induced changes to Roberts Bank constitute an unmitigable species-level risk to Western Sandpipers, and shorebirds more generally, due to the predicted disruption to the salinity regime that supports fatty acid production from biofilm.[47]

2. Conclusion #1 Fails to Incorporate Evidence and the Precautionary Principle
As outlined under #1 above, the Review Panel Report fails to incorporate submitted information:

- DFO advising lack of evidence to support the claim of no adverse effect on biofilm productivity
- ECCC scientists advising that the Project would have species-level consequences to Western Sandpipers due to salinity changes that will negatively impact biofilm productivity

No credible evidence is provided to support Conclusion #1.

Conclusion #1

The Panel concludes that the Project would not result in an adverse effect on biofilm Productivity or composition and diatom assemblages at Roberts Bank

Other evidence of adverse effects on biofilm productivity is stated in the Review Panel Report but not incorporated into Conclusion #1.

> "Dr. Baird noted that the biofilm on Roberts Bank mudflats provided PUFAs, especially EPA and DHA, in high concentrations unavailable elsewhere for shorebird migration. Dr. Baird stated that many studies had shown that the PUFAs in freshwater diatoms were less concentrated than in marine diatoms and that, unlike what the Proponent had stated, not all PUFAs were similar. She mentioned that the Proponent had keyed out diatoms only to genus and stated that the Proponent should have focussed on diatom species. Dr. Baird stated that freshwater diatoms would not produce the high concentrations of EPA and DHA on which shorebirds depend." [48]

[46] RBT2 Environment Assessment, ECCC, Document 1454, February 8, 2019, Page 22/40
[47] RBT2 Environment Assessment, ECCC, Document 1775, May 18, 2019, Pages 17&19/23
[48] The Review Panel Report , RBT2 Environmental Assessment, Document #2062, March 27, 2020, Scrolled Page 162/627

"The focus of this presentation to the Panel is the ecology of marine diatoms in the biofilm, the food web at Roberts Bank, why marine diatoms are such a critical component of this ecosystem, and how construction of RBT2 will have serious deleterious and irreversible effects on the current food web there.

My conclusions address the data presented by VFPA on biofilm, and focus on their misinterpretation of the data. VFPA missed salient points and thereby reached wrong conclusions. They did not analyze biofilm (diatoms in biofilm) correctly because they 1) did not separate them into freshwater and marine diatoms, 2) keyed out diatoms only to genus, and many genera have both freshwater and marine species, 3) combined short chain and long chain polyunsaturated fatty acids (PUFAs) in biofilm in their analysis, thereby missing the importance of the long chained PUFAs like EPA and DHA, 4) did not present findings of others which clearly state the critical need of marine-dependent life, including shorebirds, on EPA and DHA for growth, reproduction, and migration, 5) did not state that fatty acids like EPA and DHA are so important because they are bioactive lipids more than they are stored lipids, and as such are responsible for a myriad of physiological cascades which enhance shorebird migration, and growth and reproduction for the entire marine food web at Roberts Bank."[49]

Additionally, uncertainty is expressed by the Proponent and the Review Panel:

"The Proponent noted that the ecological role of biofilm was poorly understood…
…The Proponent reported that since biofilm was a relatively recent area of study, there were sampling and methodological uncertainties for biofilm and there was no information on historical distribution and long-term trends for biofilm at Roberts Bank." [50]

"The Panel notes that DFO recommended more work would be required to verify the accuracy of the predicted changes in salinity." [51]

Ecojustice advised application of the precautionary principle as evidence indicates significant adverse effects to biodiversity in the Fraser River estuary:

"… Further, the Review Panel heard extensive evidence from multiple parties about the Project's likely effects on biodiversity in the Fraser River estuary due to potential adverse effects on biofilm. Scientific understanding of the role of biofilm in the ecosystem is emerging and thus the significance of adverse effects on biofilm must be evaluated in a precautionary way.[52]

The evidence, as well as a high level of public concern, is not incorporated into the Conclusion on Biofilm Productivity failing to meet requirements of the precautionary principle of avoiding irreversible adverse environmental effects.

3. Conclusion #2 fails to sufficiently incorporate submitted evidence of unmitigable changes to Roberts Bank biofilm with irreversible effects on shorebirds

Conclusion #2

"The Panel is unable to conclude with certainty that the Project would result in an adverse effect on polyunsaturated fatty acid production by biofilm."

[49] RBT2 Environment Assessment, Dr. P Baird, Kahiltna Research, Document 1604, April 15, 2019, Page 1/5
[50] The Review Panel Report , RBT2 Environmental Assessment, Document #2062, March 27, 2020, Scrolled Page 160/627
[51] Ibid: Scrolled Page 163/627
[52] RBT2 Environment Assessment, Ecojustice, Document 2036, August 29, 2019, Pages 9&19/38

Conclusion #2 lacks clarity as it infers it is the job of the Review Panel to conclude an adverse effect with certainty. This is misleading as the task is to identify uncertainty and apply the precautionary principle to avoid significant adverse environmental effects and a serious threat of irreversible damage.

The evidence provided during the environmental assessment indicates the Project will impact the production and availability of the richest sources of biofilm resulting in a significant adverse environmental and cumulative effect that cannot be effectively mitigated:

> "ECCC characterizes the Project's residual adverse impacts on biofilm due to predicted changes in salinity as potentially high in magnitude, permanent, irreversible, and, continuous. ECCC's confidence in the EIS's predictions is characterized as low…In particular, impacts to biofilm could potentially implicate the long-term viability of Western Sandpipers as a species…ECCC similarly characterizes impacts to Western Sandpipers as potentially high in magnitude, permanent, irreversible, and continuous."[53]

This information was reiterated in the ECCC presentation at the Public Hearing of May 27, 2019, in a submission, April 15, 2019

> "Biofilm and Shorebirds
> ECCC is of the view that the Project would likely result in adverse effects to biofilm with major, unmitigable consequences for shorebirds, Western Sandpipers in particular. The Project would likely reduce the quality and quantity of fatty acids provided by biofilm on the intertidal mudflats of Roberts Bank to migratory shorebirds. ECCC maintains that predicted Project-induced changes to Roberts Bank constitute an unmitigable species-level risk to Western Sandpipers, and shorebirds more generally, due to the predicted disruption to the salinity regime that supports fatty acid production from biofilm.
>
> Given the high shorebird usage at Roberts Bank, even low probability events carry a high risk because nutrient shortfalls during breeding migration could have species-level consequences. Also, the proposed offsetting measures on Roberts Bank are not adequate to address the potential impacts. Due to what ECCC believes to be high and unmitigable risks to an entire species of migratory shorebird, ECCC advises that only a Project redesign would avoid geomorphological processes on Roberts Bank impacting biofilm and shorebirds."[54]

The Review Panel Report does not conclude a significant adverse environmental and cumulative effect, yet vaguely refers to "potential adverse effects on polyunsaturated fatty acid production" in Recommendation #20. This sends a mixed message to Governments.

The Conclusion in the Review Panel Report expresses uncertainty if the Project would result in an adverse effect on the production of fatty acid production by biofilm in spite of evidence to the contrary noted above.

[53] RBT2 Environment Assessment, ECCC, Document 1146, February 12, 2018, Page 14/16
[54] RBT2 Environment Assessment, ECCC, Document 1637, April 15, 2019. Page 58/115 and Document #1775, May 27, 2019, Slides 17&19/23

Under Purposes, CEAA 2012, it is the duty of the Review Panel and the Government of Canada to:

> (b) to ensure that designated projects that require the exercise of a power or performance of a duty or function by a federal authority under any Act of Parliament other than this Act to be carried out, are considered in a careful and precautionary manner to avoid significant adverse environmental effects;[55]

Under the precautionary principle, a lack of full scientific certainty does not excuse lax conclusions and recommendations. Failing to appropriately identify the significant residual adverse environmental effect to biofilm, as advised by government and independent experts, does not apply the precautionary principle. A serious threat of irreversible disruption to the salinity regime at Roberts Bank legally requires acknowledgement and if proven mitigation measures cannot be established, the Project should not proceed.

As documented above, ECCC repeatedly advised throughout the environmental assessment process that the Project's:

> "residual adverse impacts on biofilm due to predicted changes in salinity as potentially high in magnitude, permanent, irreversible and continuous"[56]

Numerous submissions from the public, naturalists, independent experts, as well as Bird Studies Canada, provided further evidence of irreparable harm to biofilm production.

Furthermore, to remove uncertainty, ECCC advised the Review Panel:

> "As this is a rapidly evolving scientific area, the Panel may wish to obtain an additional perspective from an independent, arms-length review of the datasets by leading authorities on mudflat ecology, biofilm, diatoms, fatty acids and shorebird physiology."[57]

Unfortunately, further expertise was not sought.

4. Recommendations #19 and #20 do not incorporate the precautionary principle; mitigation requirements under CEAA 2012; or the Review Panel Mandate

The intent of the precautionary principle is to avoid a lack of full scientific certainty and a serious threat of irreversible damage. It is surprising that the Review Panel Report concludes uncertainty on fatty acid production by biofilm in spite of evidence to the contrary. Furthermore, having identified uncertainty, Recommendations #19 and #20 do not incorporate the uncertainty as required under the Precautionary Principle and do not meet requirements under sections 19.1 (d) and (e) of CEAA 2012:

> "(d) mitigation measures that are technically and economically feasible and that would mitigate any significant adverse environmental effects of the designated project;
>
> (e) the requirements of the follow-up program in respect of the designated project;"

[55] CEAA 2012, Section 4.(1)(b)
[56] RBT2 Environment Assessment, ECCC, Document 1146, February 12, 2018, Page 14/16
[57] RBT2 Environment Assessment, ECCC, Document 1637, April 15, 2019, Page 75/115

Nor do Recommendations #19 and #20 incorporate the stated Review Panel Approach:

> "While uncertainty is inherent in predicting the environmental effects in a complex ecosystem, future management plans were not considered as a substitute for providing technical and economical feasible mitigation measures nor was adaptive management appropriate as a response to uncertainty about the significance of environmental effects. **Therefore, the Panel is also of the view that if there is uncertainty about whether the Project would be likely to cause a significant adverse environmental effect, a commitment to monitoring Project effects and to manage adaptively is not sufficient**.
>
> The Panel is also of the view that, if evidence from the follow-up programs indicate unforeseen adverse Project-related effects, offsetting those effects is not the appropriate first line of corrective action for the elimination, reduction or control of the adverse environmental effects of a designated project."[58]

Recommendations #19 and #20 do not meet the stated or legal requirements. They recommend unacceptable mitigation measures of adaptive measures such as future planning, sampling and monitoring. They do not acknowledge the significant adverse environmental and cumulative effects as identified by ECCC, independent scientists, naturalists and the public and the uncertainties expressed by Fisheries and Oceans. Even the Proponent stated uncertainty:

> "The Proponent noted that the ecological role of biofilm was poorly understood."[59]

Recommendation #19

The Panel recommends that the Proponent, in collaboration with Fisheries and Oceans Canada and Environment and Climate Change Canada, be required to include identification of sources and dynamics of polyunsaturated fatty acid production in its salinity and biofilm monitoring follow-up program.

Recommendation #20

The Panel recommends that the Proponent be required to, in partnership with Environment and Climate Change Canada, develop a plan to address potential adverse effects on polyunsaturated fatty acid production, which would include:

- A plan to continue biofilm research during the northern migration period of Western sandpiper for the duration of construction and the first 3 year of operations;
- A review of biofilm sampling and statistical methodology used in past studies and integrating best practices in future studies;
- Open data sharing with other researchers in mudflat and biofilm ecology; and
- Continuation of public reporting on biofilm and Western sandpiper research.

These Recommendations are for subsequent, unproven measures which beyond the Mandate of the Review Panel. Furthermore, they shift responsibility onto government agencies at a cost to taxpayers.

[58] The Review Panel Report , RBT2 Environmental Assessment, Document #2062, March 27, 2020, Scrolled Page 40/627
[59] Ibid; Page 145/627

Attachment E:

Failure to conclude significant residual adverse environmental effects on Sandpipers

1. Series of miscalculations result in failure to correctly assess adverse effects on Western Sandpipers
2. Conclusion fails to sufficiently incorporate submitted evidence of irreversible effects on shorebirds, particularly Western sandpipers
3. Conclusion fails to incorporate scientific evidence and apply the Precautionary Principle, *CEAA 2012*, the Review Panel Terms of Reference and the *Migratory Birds Convention Act, 1994*
4. Conclusion fails to incorporate the fact that there are no proven technical and scientific mitigation measures to eliminate or reduce significant residual adverse environmental and cumulative effects on shorebirds, particularly Western Sandpipers

Review Panel Conclusion on Western Sandpipers. No recommendations were made.

Due to the uncertainty with respect to fatty acid production in biofilm, the Panel is unable to conclude with reasonable confidence that the Project would or would not have an adverse effect on the Western sandpiper

1. Series of miscalculations result in failure to correctly assess adverse effects on Western Sandpipers

Attachment E of this BBCC report states the Review Panel Report on biofilm incorrectly infers that Fisheries and Ocean and Environment and Climate Change Canada agree that the Project will not adversely affect biofilm productivity. In fact, the evidence provided by government and independent experts warns that the Proponent's claims lack credible scientific evidence:

Environment and Climate Change Canada:

> "Proposed Mitigation Measures are not likely to be effective
> - In addition to the direct loss of 2.5 ha of intertidal mudflats from widening of the causeway, indirect effects would affect up to 558 ha of intertidal flats
> - ECCC View: Large-scale re-creation of biofilm that supports shorebirds has no precedent, and currently no way exists to create high quality biofilm habitat (fatty acid rich)"[60]

Dr. Patricia Baird:

> "Dr. Baird noted that the biofilm on Roberts Bank mudflats provided PUFAs, especially EPA and DHA, in high concentrations unavailable elsewhere for shorebird migration."[61]

Attachment E also identifies lack of clarity in the Conclusions on biofilm which fail to apply the precautionary principle and fail to advise Governments of a serious threat of irreversible significant residual adverse environmental and cumulative effects from the Project on biofilm productivity.

[60] RBT2 Environment Assessment, ECCC, Document 1775, May 18, 2019, Page 15/23
[61] The Review Panel Report , RBT2, Document #2062, March 27, 2020, Scrolled Page 162/627

Environment and Climate Change Canada:

> "Changes in salinity regime would disrupt or remove salinity trigger for fatty acid production in microalgae, presenting high risk of reducing the quality and quantity of marine-type biofilm with high fatty acid content…
> …Disruption or removal of salinity trigger for fatty acid production by microalgae on Roberts Bank are predicted to have species-level consequences for Western Sandpipers …
>
> …ECCC maintains that predicted Project-induced changes to Roberts Bank constitute an unmitigable species-level risk to Western Sandpipers, and shorebirds more generally, due to the predicted disruption to the salinity regime that supports fatty acid production from biofilm.[62]

As documented in Attachment B on Geomorphology Changes, a number of predictions in the Proponent's Environmental Impact Statement (EIS) were based on modeling. Failure by the Proponent's reports to appropriately identify modeling limitations led to unproven predictions of the effects of geomorphology changes from the Project. These led to unproven predictions of changes to the salinity regime which led to unproven impacts to biofilm productivity and use. This, in turn, led to unproven claims by the Proponent:

> "The Proponent's studies determined that the only pathway potentially affecting biofilm was change in salinity from the Project, but that this change would not adversely affect biofilm and would consequently not adversely affect Western sandpiper prey availability…The Proponent concluded that the Project would have negligible residual effects on the Western sandpiper."[63]

The Review Panel Report fails to incorporate submissions from government and independent experts proving the Proponents claims on biofilm are based on modeling limitations and lack scientific evidence. Unfortunately, the Review Panel repeats the same omissions in their report on Western sandpipers.

By omitting to incorporate scientific evidence into the Conclusions and Recommendations, the Review Panel Report fails to provide decision makers with critical information from experts who advise:

- Geomorphological changes will trigger a chain of habitat loss and significant adverse environmental and cumulative effects which are not addressed in the environmental assessment of geomorphology. [64]
- Wetland losses in the Lower Fraser have reached critical levels due to loss of functional wetlands; the role they play in ecosystems; and their ability to support species. (wetlands)[65]
- There is not sufficient salinity data to assess biofilm productivity and the magnitude of effects (biofilm)[66]
- Disruption or removal of salinity trigger for fatty acid production by microalgae on Roberts Bank are predicted to have species-level consequences for Western Sandpipers[67]

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[62] RBT2 Environment Assessment, ECCC, Document 1775, May 18, 2019, Pages 17&19/23
[63] The Review Panel Report , RBT2, Document #2062, March 27, 2020, Scrolled Page 247/627
[64] Attachment B
[65] RBT2 Environmental Assessment, ECCC, Document 1454, February 8, 2019, Page 22/40
[66] RBT2 Environment Assessment, Fisheries and Oceans, Document 1211, July 3, 2018, Page 3/7
[67] RBT2 Environment Assessment, ECCC, Document 1775, May 18, 2019, Pages 17&19/23

2. Conclusion fails to sufficiently incorporate submitted evidence of irreversible effects on shorebirds, particularly Western sandpipers

The Review Panel Report summarizes some of the serious concerns documented by government and independent scientists about the significant residual adverse environmental and cumulative effects the Project will have on Western Sandpipers but the Conclusion fails to incorporate the concerns. As a result, crucial information will not be communicated to Governments who rely on Conclusions and Recommendations in the decision making process. By evading an informative Conclusion and offering no recommendations, major warnings will not be disclosed to Governments:

> "ECCC maintains that there is insufficient, science-based information to support the Proponent's finding that the Project would not adversely impact intertidal biofilm and consequently, migratory shorebirds in general, and the Western Sandpiper species in particular. ECCC characterizes the Project's residual adverse impacts on biofilm due to predicted changes in salinity as potentially high in magnitude, permanent, irreversible, and, continuous. ECCC's confidence in the EIS's predictions is characterized as low (IBID). In particular, impacts to biofilm could potentially implicate the long-term viability of Western Sandpipers as a species (IBID). ECCC similarly characterizes impacts to Western Sandpipers as potentially high in magnitude, permanent, irreversible, and continuous."[68]

> "Notwithstanding, ECCC previously advised that there is a potentially high risk to shorebirds because the assessment did not account for lipid production by diatomaceous biofilm
> If adverse impacts were to occur, they would be irreversible as no known mitigation exists to address the predicted changes in salinity. This has been identified as a critical factor influencing the distribution and abundance of specific lipid-rich diatom species in the LAA."[69]

Dr. Patricia Baird provided evidence on the unique role of the Roberts Bank food web:

> "The shorebirds forage where diatoms with LCEFA are present, and this is at Roberts Bank. In nearby areas in the Lower Mainland, concentrations of shorebirds are not as high as they are at Roberts Bank, and the reason for this appears to be lack of diatoms with high levels of essential nutrients. If the mudflats where shorebirds forage now are altered in any way, specifically by construction of RBT2, the removal of this unique source of essential fatty acids will severely affect numbers of shorebirds migrating, their reproductive success in Alaska, and essentially would disrupt their migration. Lack of marine diatoms would also negatively affect the entire food web from zooplankton, to salmon and other fish, to whales." [70]

Fisheries and Oceans warned of impacts on food availability for millions of shorebirds:

> "Shorebirds, especially the entire species of Western Sandpiper, are the principal functional group at issue with annualized estimate of prey productivity, although highly migratory salmon which use this area as juveniles are also of concern. Roberts Bank is a critical stopover where migrating shorebirds "re-fuel" between their overwintering areas as far south as Peru and breeding grounds in Alaska. Shorebird food requirements, such as the amount, quality, and timing of food availability for short stopover periods (2-3 weeks) during spring breeding migration have been documented… Any shift in sediment conditions (sulfide development) and food sources (macrofauna and meiofauna, but predominantly biofilm) would have a large impact on the food availability for the million or so shorebirds on Roberts Bank during their spring breeding migration."[71]

Environment and Climate Change Canada:

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[68] RBT2 Environment Assessment, ECCC, Document 1146, February 12, 2018, Page 14/16
[69] RBT2 Environment Assessment, ECCC, Document 1109, November 23, 2017, Page 7/12
[70] RBT2 Environmental Assessment, Dr. P Baird, Kahiltna Research, Document 1604, April 15, 2019, Page 4/15
[71] RBT2 Environment Assessment RBT2, Fisheries and Oceans, Document 1102, November 14, 2017, Page 11/47

"The Proponent concludes that the productive potential of the Roberts Bank study area to support shorebirds would not be compromised as a result of the Project. However, ECCC's assessment is that there are substantive issues, omissions, and uncertainties within the EIS related to biofilm and shorebirds. Such uncertainties cast reasonable doubt on the Proponent's conclusions with respect to potential effects of the Project on shorebirds, in particular the Western Sandpiper. If the migration chain is compromised, the long-term viability of Western Sandpipers as a species would be adversely affected given Roberts Bank's importance as a stopover site during northward migration. An improved understanding of the relationship between shorebirds and the specific lipid producing diatom species found in biofilm, and how this relationship may affect their migration and breeding success, is necessary to predict long-term impacts associated with the Project."[72]

The Conclusion, and lack of recommendations, fails to advise decision makers of this critical level of concern that could have catastrophic consequences for Western sandpipers and millions of shorebirds.

3. Conclusion fails to incorporate scientific evidence and apply the Precautionary Principle, *CEAA 2012*, the Review Panel Terms of Reference and the *Migratory Birds Convention Act, 1994*

The Review Panel Report characterizes the scientific critiques by government and independent scientists as a disagreement with the Proponent.

"The Panel acknowledges that there is disagreement between the Proponent, ECCC and BSC on the proportion of the total Western sandpiper population that utilize Roberts Bank as a stopover in their northward migration." *(Note: BSC – Bird Studies Canada)*[73]

On the serious issue of the threat to the survival of hundreds of thousands of Western Sandpipers; millions of shorebirds; and warnings of a breakdown of the Roberts Bank food web, identifying scientific evidence as a "disagreement" trivializes a serious issue. Under the precautionary principle, a lack of full scientific certainty does not excuse lax conclusions and recommendations.

The science presented in the Environmental Impact Statement (EIS) was commissioned by the Proponent whereas numerous submissions refuting the EIS modeling, data and conclusions came from government and independent scientists, as well as the public.
Environment and Climate Change Canada spelled out for the Review Panel significant residual adverse environmental and cumulative effects to shorebirds, particularly Western Sandpipers:

"Assessment Criteria and Ranking

- magnitude; High
- geographic extent; Local/National
- duration; Permanent
- frequency; Continuous
- reversibility; Irreversible"[74]

These are the criteria for determining significant residual adverse environmental and cumulative effects as outlined in the Guidelines for the Preparation of an Environmental Impact Statement pursuant to the *Canadian Environmental Assessment Act, 2012*

These have not been incorporated into the Conclusions and Recommendations on Biofilm and Shorebirds, particularly Western Sandpipers.

[72] RBT2 Environment Assessment, ECCC, Document 581, October 14, 2016, Page 8/70
[73] The Review Panel Report , RBT2, Document #2062, March 27, 2020, Scrolled Page 256/627
[74] RBT2 Environment Assessment, ECCC, Document 1775, May 18, 2019, Page 22/23

Furthermore, Environment and Climate Change Canada advised the Review Panel to exercise the option under their Mandate to employ other independent scientists:

> "As this is a rapidly evolving scientific area, the Panel may wish to obtain an additional perspective from an independent, arms-length review of the datasets by leading authorities on mudflat ecology, biofilm, diatoms, fatty acids and shorebird physiology."[75]

Unfortunately, further expertise was not sought and scientific data, summaries and advice from numerous government and independent scientists, as well as the public, was effectively ignored.

The Review Panel Report Conclusion on Western Sandpipers lacks clarity as it infers that a conclusion of 'adverse effects' requires certainty. This is misleading as environmental assessment requires identification of uncertainty and application of the precautionary principle to avoid significant adverse environmental effects and a serious threat of irreversible damage.

The Conclusion on shorebirds and Western Sandpipers sidesteps the responsibility of advising Governments of critical concerns submitted by scientists and avoids protection of the environment in contravention of the purpose of CEAA 2012 and the precautionary principle:

> "Purposes
>
> • 4 (1) The purposes of this Act are
>
> (a) to protect the components of the environment that are within the legislative authority of Parliament from significant adverse environmental effects caused by a designated project;
>
> (b) to ensure that designated projects that require the exercise of a power or performance of a duty or function by a federal authority under any Act of Parliament other than this Act to be carried out**,** are considered in a careful and precautionary manner to avoid significant adverse environmental effects;"[76]

Under the Terms of Reference, the Review Panel is tasked with complying with the *Purpose* of CEAA 2012 as well as *Section 19:*

> 19 (1) The environmental assessment of a designated project must take into account the following factors:
>
> - (a) the environmental effects of the designated project, including the environmental effects of malfunctions or accidents that may occur in connection with the designated project and any cumulative environmental effects that are likely to result from the designated project in combination with other physical activities that have been or will be carried out;
> - (b) the significance of the effects referred to in paragraph (a);…[77]

The Conclusion on shorebirds and Western Sandpipers fails to apply the Precautionary Principle

"Precautionary Principle
Under the precautionary principle, a lack of full scientific certainty…does not excuse lax regulation…

[75] RBT2 Environment Assessment, ECCC, Document 1637, April 15, 2019, Page 75/115
[76] CEAA 2012, Section 4.(1)(b)
[77] CEAA 2012, Section 19(1)(a)(b)

…The Federal Court accepted the precautionary principle as a norm of substantive Canadian law, to be used in the interpretation of all statutes and regulations…

> "(43) The precautionary principle recognizes that as a matter of sound public policy the lack of complete scientific certainty should not be used as a basis for avoiding or postponing measures to protect the environment, as there are inherent limits in being able to predict environmental harm. Moving from the realm public policy to the law, the precautionary principle is at a minimum, an established aspect of statutory interpretation, and arguably, has crystallized into a norm of customary international law and substantive domestic law..."[78]

Under Section *4 (2)* of *CEAA 2012*:

> (2) The Government of Canada, the Minister, the Agency, federal authorities and responsible authorities, in the administration of this Act, must exercise their powers in a manner that protects the environment and human health and applies the precautionary principle.

The Review Panel Reports notes accountability to the precautionary principle and the *Migratory Birds Convention Act, 1994*, but fails to offer any Conclusions or Recommendations:

> "The Panel notes the recent steep decline of Western sandpipers calling at Roberts Bank during their northward migration. The protected status of the Western sandpiper under the Migratory Birds Convention Act, 1994 in the context of an apparent steep population decline mandates a highly precautionary approach in relation to the Project;"[79]

As scientists warn of irreversible effects on migratory birds, it is the duty of the Review Panel Report to report that dredging and filling in biofilm habitat will destroy and alter migratory bird habitat. This information needs to be imparted to decision makers who are accountable to the *Migratory Birds Convention Act, 1994.*

> Purpose
>
> 4 The purpose of this Act is to implement the Convention by protecting and conserving migratory birds — as populations and individual birds — and their nests.
>
> …
>
> 5.1 (1) No person or vessel shall deposit a substance that is harmful to migratory birds, or permit such a substance to be deposited, in waters or an area frequented by migratory birds or in a place from which the substance may enter such waters or such an area.
>
> …
>
> (3) For greater certainty, the deposit of a substance in contravention of section 5.1 that, together with other deposits made in contravention of that section by one or more persons or vessels has a cumulative or aggregate effect may cause major damage to the environment.[80]

The Conclusion in the Review Panel Report on shorebirds and Western Sandpipers does not appropriately advise Governments of significant residual adverse environmental and cumulative effects on shorebirds, particularly Western Sandpipers.

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[78] Morton v Canada (Fisheries and Oceans *2015 FC 575,* Siskinds, Canada: Precautionary Principle Stronger Part of Canadian Law, September 7, 2015

[79] The Review Panel Report , RBT2, Document #2062, March 27, 2020, Scrolled Page 257/627

[80] *Migratory Birds Convention Act, 1994*

4. Conclusion fails to incorporate the fact that there are no proven technical and scientific mitigation measures to eliminate or reduce significant residual adverse environmental and cumulative effects on shorebirds, particularly Western Sandpipers

The Review Panel Report uses uncertainty as a means of side stepping the fact that there are no proven mitigation measures to replace the lost and impacted Roberts Bank habitat that will result in significant residual adverse environmental and cumulative effects on millions of shorebirds and, in particular, Western Sandpipers.

> "There exists considerable uncertainty around the possibility that loss of productive biofilm habitat could be mitigated by the large-scale re-creation of biofilm habitat capable of supporting shorebirds, including appropriate bottom sediment characteristics and salinity conditions."[81]

The Review Panel Report offers no recommendations and the Conclusion fails to incorporate the precautionary principle and inform Governments of the lack of proven mitigation measures to address the adverse effects, as advised by government and independent experts, as well as the public.

Environment and Climate Change Canada:

> "Proposed Mitigation Measures are not likely to be effective
>
> - In addition to the direct loss of 2.5 ha of intertidal mudflats from widening of the causeway, indirect effects would affect up to 558 ha of intertidal flats
> - ECCC View: Large-scale re-creation of biofilm that supports shorebirds has no precedent, and currently no way exists to create high quality biofilm habitat (fatty acid rich) …
> - Proposed location of mudflat offset is not an area with high numbers of shorebirds, and proximity of location to causeway may result in low use due to predator avoidance…
> - The Proponent's proposed Follow-up monitoring program is not a sufficient way to address the risk to shorebird populations
> - While the follow-up program would provide monitoring data, the predicted Project effects on biofilm would be immediate, irreversible and are not mitigable…
> - Disruption or removal of salinity trigger for fatty acid production by microalgae on Roberts Bank are predicted to have species-level consequences for Western Sandpipers
> - Best available scientific evidence does not support Proponent's statement that biofilm at Roberts Bank would continue to be capable of supporting migrating Western Sandpipers with the Project in place…
> - ECCC maintains that predicted Project-induced changes to Roberts Bank constitute an unmitigable species-level risk to Western Sandpipers, and shorebirds more generally, due to the predicted disruption to the salinity regime that supports fatty acid production from biofilm
> - ECCC advises that only a Project redesign would avoid geomorphological processes on Roberts Bank impacting biofilm and shorebirds"[82]
>
> "There is a high likelihood that proposed Project offsetting would not be fully successful, even in the long term. In particular, technical measures are not currently available to offset biofilm impacts. ECCC advises that substantial technical challenges exist to achieving successful offsets in terms of replacing wetland habitat types and wetland functions. Finally, a high level of uncertainty remains on biofilm-shorebird ecology and the potential impacts that this Project may have on biofilm production."[83]

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[81] The Review Panel Report , RBT2, Document #2062, March 27, 2020, Scrolled Page 257/627
[82] RBT2 Environment Assessment, ECCC, Document 1775, May 18, 2019, Pages 15,16,18&19/23
[83] RBT2 Environment Assessment, ECCC, Document 1105, November 10, 2017, Page 15/22

Attachment F: Residual Effects on Coastal Birds

Note: Shorebirds, particularly Western Sandpipers are addressed in Attachment E of this document

Failure to provide cumulative effects assessment for coastal bird assessment subcomponents

The Environmental Impact Statement (EIS) and the Review Panel Report address Coastal Birds in subcomponents but there is not a cumulative effects assessment:

> "The Panel requested that the Proponent perform a cumulative effects assessment for coastal bird subcomponents, including barn owl. In making this request, the Panel stated that the Proponent had not adequately substantiated the conclusions that the Project would not have residual effects, since the relationship between the effectiveness of the mitigation measures and their capacity to reduce the effects was neither clearly nor systematically described. The Proponent did not perform the requested cumulative effects assessment[84].

The Review Panel Report states Conclusions and Recommendations for subcomponents bur does not provide Conclusions or Recommendations for Coastal Birds in general.

Incomplete environmental assessment and residual effects of the Project on Coastal Birds

The Environmental Impact Statement is incomplete and fails to fully assess effects of lost habitat and effects of the Project on all coastal birds and their habitats:

> "The rationale for concluding that only diving ducks would be subject to residual effects is not supported by the EIS or the revised assessment tables…ECCC does not support the Proponents conclusion that diving ducks are the only coastal bird group subject to residual effects. All coastal birds assessed by the Proponent are reliant on wetland habitats within the LAA for at least of a portion of their life requisites. The Project is predicted to result in direct loss of wetland habitat. Additionally…indirect habitat loss is also a concern for the Project and does not appear to have been fully considered in the assessment of residual effects. The primary mitigation proposed to offset these effects are less than the Project's predicted direct habitat losses"[85]

> "ECCC disagrees with the Proponent's conclusion that the Project, with the implementation of proposed mitigation measures, would result in no residual effects to coastal birds other than for diving birds…
> ... ECCC maintains that there is insufficient, science-based information to support the Proponent's finding that the Project would not adversely impact intertidal biofilm and consequently, migratory shorebirds in general…
>
> ECCC is of the view that the Proponent's description of potential adverse effects and proposed mitigation measures are not appropriate. In brief, the Project may result in adverse environmental effects to migratory birds because marine shipping may disturb or result in collisions with migratory birds. There is also a potential for adverse environmental effects to migratory birds as a result of

[84] The Review Panel Report , RBT2, Document #2062, March 27, 2020, Scrolled Page 255/627
[85] RBT2 Environment Assessment, ECCC, Document 1454, February 8, 2019, Page 14/40

accidental heavy fuel spills. With respect to mitigation measures, the Proponent has not developed an emergency marine response strategy for marine birds and other wildlife species in the event of a heavy fuel spill. ECCC brings to the Review Panel's attention recently published studies that emphasize even light to modest oil exposure can result in long-term deleterious effects to marine birds, including hematologic injury… and migratory ability."[86]

"Habitat offsetting is not proposed for intertidal or shallow subtidal sand flats, which support many taxa of coastal birds, including herons (e.g. Great Blue Herons), diving birds (e.g. Scoters) and shorebirds (e.g. Dunlin)."[87]

Residual effects from increased light pollution:

"ECCC does not consider the assertion that there would be no measurable residual effects to coastal birds due to artificial light to be adequately supported by the EIS…the effects of artificial light on coastal birds in the area may represent a data gap. Although the Project is located along a well-lit coastline, this does not adequately address concerns related to the potential for residual or cumulative effects or the lack of data available for the region…"[88]

Residual effects from automobile bird strikes:

"ECCC does not support the Proponent's conclusion that there would be no residual effect on coastal birds. The Proponent also indicates there were "no species of conservation concern…documented suffering bird-vehicle mortalities…", but does not discuss the data upon which this statement is based. Furthermore, few, if any, measures are 100% effective in addressing avian-related road mortality, and ECCC does not support the conclusion that residual effects to coastal birds would be completely avoided through application of the currently proposed mitigation measures."[89]

Potential effects from oil spills not scientifically addressed:

"ECCC maintains that data available from sources including, but not limited to, eBird, Bird Studies Canada, Canadian Wildlife Service Technical Report Series, North Pacific Seabird Database, and existing environmental assessments for the region, would support a more scientifically sound assessment of potential spill effects on marine birds…
…While the marine bird vulnerability scores provide some spatial and temporal specificity of where oil spill effects may be greatest, the Proponent does not explain how this information relates back to specific marine bird species, including sub-components, representative species, and/or species at risk…."

…ECCC notes there is potential for prolonged effects to marine birds from shipping activities including a heavy fuel spill event. As such, the Proponent does not adequately describe the specific sensitivities of these species to shipping activities or a heavy fuel spill within certain habitats or during sensitive seasons…

…ECCC advises that pelagic bird, waterfowl, and shorebird representative species that best reflect the nature and extent of potential Project impacts from marine shipping be employed in the assessment of project effects on marine birds."[90]

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[86] RBT2 Environment Assessment, ECCC, Document 1454, February 8, 2019, Pages 14& 15/40
[87] RBT2 Environment Assessment, ECCC, Document 1766, May 24, 2019, Page 31/35
[88] RBT2 Environment Assessment, ECCC, Document 1454, February 8, 2019, Pages 15/40
[89] RBT2 Environment Assessment, ECCC, Document 1454, February 8, 2019, Pages 15/40
[90] Ibid; Pages 12;1;17&18

Bird Studies Canada advised the Review Panel of the fragility of the important bird habitat of the Fraser River Estuary stating it is on the edge of collapse from ongoing industrialization:

> "…the Fraser estuary is documented as the most important piece of bird habitat in all of BC and Western Canada. The estuary deserves to be protected and treated as a national treasure. Unfortunately, while the people and economy in the region are flourishing, the estuary is on the edge of ecological collapse. Balance is needed for a sustainable future. No further industrial development within the delta can be justified until the estuary is restored to a healthy and functional state. Maintaining freshwater flow, sediment movement, biofilm productivity and migratory connectivity are key elements that need to be protected before any further development is permitted. We expect the panel will take this opportunity to require government to implement the actions needed to maintain these core functions of the estuary prior to recommending the Roberts Bank Terminal 2 project proceed."[91]

Diving Birds

Review Panel Conclusion

The Panel concludes that the Project would result in a residual adverse effect and an adverse cumulative effect on diving birds. Since diving birds are not habitat-limited in the Project area the effects would not be significant. Page 254/627

No Recommendations

> "The Panel accepts the Proponent's assessment that changes in productive potential to support diving birds in the LAA would be minor. The effect would not be significant because the Project footprint comprises a small fraction of total diving bird habitat in the Salish Sea"[92]

The Review Panel Report appears to accept the Proponent's argument that the region offers a large enough ecosystem to support diving birds so the effects of the Project would not be measureable.

Environment and Climate Change Canada advised there are insufficiencies in the assessment:

> "Addressing impacts to residual effects to diving ducks should be assessed in relation to the subcomponent's use of shallow subtidal sand flat wetland areas in the LAA. The residual effects should also be considered in relation to the potential loss of wetlands and the federal government's no-net-loss objective as found in the Federal Policy on Wetland Conservation."[93]

> "ECCC also expressed concerns about the effectiveness of mitigation measures for the Western Grebe. Given the predicted loss of orange sea pen, ECCC stated that it was unclear whether the orange sea pen transplant strategy would take into account the habitat requirements of Western Grebe and other diving birds. ECCC also mentioned that the offset plan for wetlands was not sufficiently explicit to ensure that piscivorous diving birds would benefit from it."[94]

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[91] RBT2 Environment Assessment, Bird Studies Canada, Document 2029, August 24, 2019, Page 3/3
[92] The Review Panel Report , RBT2, Document #2062, March 27, 2020, Scrolled Page 253/627
[93] RBT2 Environment Assessment, ECCC, Document 1454, February 8, 2019, Pages 14/40
[94] The Review Panel Report , RBT2, Document #2062, March 27, 2020, Scrolled Page 253/627

Mitigation and a Follow-up Program to verify Proponent's predictions:

> "The Panel notes the concerns expressed by ECCC that these proposed mitigation measures may not be adequate. The Proponent has proposed a follow-up program to verify the prediction that the Project effect on diving birds would be minor and that the effect would not be significant."[95]

A Follow-up Program to verify Proponent's predictions lacks certainty. This fails to apply the precautionary principle under *CEAA 2012.*

Shorebirds

Shorebirds are addressed in Attachment E of this document.

> "…ECCC concludes that there is insufficient, science-based information to support the Proponent's finding that the Project would not negatively impact migratory shorebirds, in particular the Western Sandpiper. Given the high shorebird usage at Roberts Bank, even low probability events carry a high risk because nutrient shortfalls at Brunswick Point during the key spring migration period could have species-level consequences. ECCC considers a species level impact to migratory birds to be significant. Without additional information, a high level of uncertainty remains and as such, there presently exists an unquantified potential for significant adverse effects on Western Sandpipers and possibly other shorebird species.[96]

[95] The Review Panel Report , RBT2, Document #2062, March 27, 2020, Scrolled Page 254/627
[96] RBT2, Environment Assessment, ECCC, Document 581, October 14, 2016, Scrolled Page 12/70

Attachment G: Failure to comply with *CEAA 2012* and *SARA* for Great Blue Heron and Barn Owl

The Environmental Impact Statement identified 19 species listed under the *Species at Risk Act (SARA)* or designated by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) that use the Project area or the marine shipping area.

Two of the listed species addressed in the EIS:

- **Great blue heron**: listed as a species of 'Special Concern' in Schedule 1 of SARA
- **Barn owl**: listed as 'Threatened 'in Schedule 1 of SARA

Great blue heron: listed as a species of 'Special Concern' in Schedule 1 of SARA

1. Largest and most significant colony of Great blue herons in Canada
2. Concerns from Environment and Climate Change Canada have not been incorporated into the Review Panel Conclusion and Recommendations
3. The Assessment, Conclusion and Recommendations fail to meet requirements of *CEAA 2012*
4. The Assessment, Conclusion and Recommendations fail to meet requirements of the *Species at Risk Act*

Conclusion in the Review Panel Report:

> "The Panel concludes the Project would result in a residual adverse effect on the Great blue heron and the barn swallow if the mitigation measures proposed by the Proponent and the Panel are not appropriately applied and fully effective."

Largest and most significant colony of Great blue herons in Canada

> "ECCC noted that the largest and most significant colony of Great blue herons in Canada was located in the Tsawwassen area adjacent to the Project. A minimum of 462 nests were counted by ECCC in 2017. ECCC stated that while 27 ha of onsite marine habitat restoration might be considered 'beneficial' to herons, these measures might not adequately mitigate the potential adverse effects to Great blue herons. Given the importance of intertidal habitats for this species, ECCC recommended that the Great blue heron be incorporated in the offsetting framework."[97]

Concerns from Environment and Climate Change Canada have not been incorporated into the Review Panel Conclusion and Recommendations:

In reference to the Marine Shipping Area, Environment and Climate Change Canada (ECCC) found the description of potential adverse effects and proposed mitigation measures inadequate:

> "…ECCC has concluded that the description of potential adverse effects and proposed mitigation measures are inadequate for several species at risk: Barn Owl, Great Blue Heron fannini subspecies, Western Grebe and Barn Swallow. Any Project related impacts that are not adequately mitigated by the Proponent would have the potential to contribute to the status elevation of these species. However, species typically become listed or uplisted as a result of not only one sole factor, but rather due to the cumulative effects of several anthropogenic or environmental stressors."[98]

[97] The Review Panel Report , RBT2, Document #2062, March 27, 2020, Scrolled Page 253/627
[98] RBT2 Environment Assessment, ECCC, Document 1146, February 12, 2018, Page 10/16

"Project-induced changes to the highly complex food web in Roberts Bank have the potential to cause adverse effects to Great Blue Herons, in particular to its prey base such as forage fish, flatfish, and demersal fish. The Ecosystem Model predicts that there would be an overall negative change in marine fish biomass (-28.3 tonnes).

The Proponent concluded that productivity changes were 'negligible' for Great Blue Herons, and hence is not considering offsetting measures for the species. While 27 ha of on-site marine habitat restoration may be considered 'beneficial' to herons, these measures may not adequately mitigate the aforementioned potential adverse effects to Great Blue Herons in a targeted fashion. In particular, the Proponent did not consider this species in developing its offset plan.

It is ECCC's view that the proposed offset plan to mitigate the loss of wetlands and wetland functions, including those related to the Great Blue Heron, is not adequate."[99]

The Assessment, Conclusion and Recommendations fail to meet requirements of *CEAA 2012*

"The Proponent has predicted a negligible decrease in productive potential for Great blue heron, before mitigation and has proposed no direct species-specific mitigation measures."[100]

The mitigation measures for the Great blue heron lack clarity. As stated above, there are no 'direct species-specific mitigation measures.' The Review Panel Conclusion infers effective mitigation as proposed by the Proponent and the Review Panel. It is beyond the Mandate of the Review Panel to propose future unproven mitigation measures.

Conclusion in the Review Panel Report**:**

"The Panel concludes the Project would result in a residual adverse effect on the Great blue heron and the barn swallow if the mitigation measures proposed by the Proponent and the Panel are not appropriately applied and fully effective."

The Conclusion is unreasonable as the stated mitigation measures are unclear. There is vague reference in the Recommendations of considering herons in the on-site habitat restoration but no scientific evidence is provided:

Recommendation 36
The Panel recommends that the Proponent be required to include as part of the offsetting framework objectives, solutions that focus specifically on the Great blue heron that would compensate any loss of productivity of foraging habitat in the intertidal zone of the Local Assessment Area that is used by the species.

Recommendation 37
The Panel recommends that the Proponent be required to include in its Wildlife Management Plan:

- Any SARA-listed or COSEWIC designated bird species found in the Local Assessment Area, to verify the accuracy of the effects assessment and the effectiveness of mitigation measures. This should explicitly include the Great blue heron and the barn swallow; and
- Contingency or adaptive management measures in the event that monitoring results indicate the Project effect on diving birds to be greater than predicted.

[99] RBT2 Environment Assessment, ECCC, Document 1146, February 12, 2018, Page 7/16
[100] The Review Panel Report , RBT2, Document #2062, March 27, 2020, Scrolled Page 258/627

Recommendation 36 assumes loss of foraging habitat which has not been appropriately identified in the Review Panel Report.
Recommendation 37 requires future assessment of effectiveness of mitigation measures. As no specific measures were committed, this is unreasonable.

The rationale provided in the Review Panel Report confirms undefined, unproven, vague mitigation measures with no assurances of success.

> "It is possible that the proposed marine habitat offsetting could serve as an indirect mitigation measure that would be beneficial for the Great blue heron. However, it is not clear that these measures would adequately mitigate the full extent of potential adverse effects on Great blue heron. Given the importance of intertidal habitats for this species, ECCC recommended that the Great blue heron be explicitly incorporated in the Final Offsetting Framework."[101]

This fails to comply with *CEAA 2012* which requires:

> 19 (1) The environmental assessment of a designated project must take into account the following factors:
>
> (a) the environmental effects of the designated project, including the environmental effects of malfunctions or accidents that may occur in connection with the designated project and any cumulative environmental effects that are likely to result from the designated project in combination with other physical activities that have been or will be carried out;
> (b) the significance of the effects referred to in paragraph (a);…
> …
> (d) mitigation measures that are technically and economically feasible and that would mitigate any significant adverse environmental effects of the designated project;
>
> (e) the requirements of the follow-up program in respect of the designated project;

CEAA 2012: Precautionary Principle:

> 4 (1) The purposes of this Act are
>
> (a) to protect the components of the environment that are within the legislative authority of Parliament from significant adverse environmental effects caused by a designated project;
> (b) to ensure that designated projects that require the exercise of a power or performance of a duty or function by a federal authority under any Act of Parliament other than this Act to be carried out, are considered in a careful and precautionary manner to avoid significant adverse environmental effects;

The Assessment, Conclusion and Recommendations fail to meet requirements of the *Species at Risk Act*

As the Great blue heron is listed as 'Special Concern' in Schedule 1, the *Species at Risk Act* requires additional legal requirement on the Review Panel to identify adverse effects and ensure effective measures are in place. Section 79(2):

> "(2) The person must identify the adverse effects of the project on the listed wildlife species and its critical habitat and, if the project is carried out, must ensure that measures are taken to avoid or lessen those effects and to monitor them. The measures must be taken in a way that is consistent with any applicable recovery strategy and action plans."

[101] The Review Panel Report , RBT2, Document #2062, March 27, 2020, Scrolled Page 258/627

A Guide to the Species at Risk Act (SARA)

> "SARA contains a prohibition against destroying any part of critical habitat of endangered or threatened species listed in Schedule 1…
>
> …
>
> When an EA is being carried out on a project that may affect a listed species or its critical habitat, SARA requires that the potential adverse effects be identified. If the project is carried out, measures need to be taken to avoid or lessen and monitor those adverse effects. Such measures must be consistent with any applicable recovery strategies, action plans and management plans for those particular species.
>
> SARA also amends the definition of "environmental effect" under the Canadian Environmental Assessment Act to clarify, for greater certainty, that environmental effects include any change the project may cause to a SARA listed species, their residence or critical habitat."[102]

Barn owl: listed as 'Threatened 'in Schedule 1 of *Species at Risk Act (SARA)*

1. Failure to address serious gaps in the environmental assessment of the Barn Owl
2. Ambiguous Conclusions Will Prevent Informed Decision
3. Failure to meet legal requirements of *CEAA 2012*, the *Species at Risk Act (SARA)*, the Review Panel Mandate under their Terms of Reference

Conclusion #1 on Barn Owl

"The Panel concludes that the Project would result in a residual adverse effect on the barn owl. The effect on the barn owl would not be significant if both the Panel's proposed recommendations and the Proponent's mitigation measures are applied."

Conclusion #2 on Barn Owl

"The Panel concludes that increases in vehicle traffic due to the Project in combination with existing traffic and projected increases in human population and urbanization would result in a significant adverse cumulative effect on the barn owl population in the regional area."

Recommendation 35
The Panel recommends that the Proponent be required to, in consultation with Environment and Climate Change Canada, Bird Studies Canada and BC Ministry of Transportation and Infrastructure:

- Design and install physical barriers in the Local Assessment Area to reduce road associated mortality risk for barn owls. Further, the physical barriers should be designed to:
  - not attract other avian species and therefore increase vehicle collision risk. This includes species with conservation status or protected under the Migratory Bird Conservation Act, 1994; and
  - conserve suitable barn owl roadside grass verge hunting habitat where the road and the verge habitat are co-located; and

[102] Government of Canada, A Guide to the Species at Risk Act, Pages 2&3

- Develop a barn owl conservation plan that includes:
  - the type(s) of physical barriers to be installed, locations, and maintenance requirements;
  - the number of nest boxes that would be installed and their locations in the Local and Regional Assessment Areas;
  - post-installation nest box effectiveness monitoring, to assess usage and productivity, for the first five years of operations; and
  - a system for annual reporting to assess mitigation effectiveness and any need for adaptive management measures.

Failure to address serious gaps in the environmental assessment of the Barn Owl

Failure of the Proponent to perform cumulative effects as requested by the Review Panel

> "The Panel requested that the Proponent perform a cumulative effects assessment for coastal bird subcomponents, including barn owl. In making this request, the Panel stated that the Proponent had not adequately substantiated the conclusions that the Project would not have residual effects, since the relationship between the effectiveness of the mitigation measures and their capacity to reduce the effects was neither clearly nor systematically described. The Proponent did not perform the requested cumulative effects assessment."[103]

While the Review Panel states the Proponent failed to perform a cumulative effects assessment, the consequences of this omission are not incorporated into the Conclusions and Recommendation.

Environment and Climate Change Canada (ECCC) advised the Environmental Impact Statement (EIS) did not sufficiently address potential adverse effects on the listed Barn owl:

> "Although mortality risk is anticipated to increase, the EIS does not provide adequate information regarding the risks of long-term, population level impacts of prolonged high road mortality rates. As such, ECCC is of the opinion that the Proponent has not adequately described, in full, potential adverse effects to Barn Owls."[104]

Bird Studies Canada (BSC) advised that the scope of the assessment in the Environmental Impact Statement (EIS) was insufficient:

> "BSC advised the Panel that the LAA employed by the Proponent does not adequately capture the breeding and hunting range of barn owl in the lower Fraser Valley. In consequence, the assessment provided by the Proponent underestimated the extent of the Project effect on the barn owl population. BSC suggested the effect would be regional rather than local. …
>
> BSC explained that the restricted geographic boundaries of the assessment undermined the conclusions and did not allow for a proper evaluation of the majority of area where barn owls and the Project would interact, which was outside the LAA. BSC cited the Proponent's study that reported six dead barn owls along a portion of the Deltaport Way in 2013, and argued that the study was omitted from the EIS because the area was outside the LAA. "[105]

[103] The Review Panel Report , RBT2, Document #2062, March 27, 2020, Scrolled Page 255/627
[104] RBT2 Environment Assessment, ECCC, Document 1146, February 12, 2018, Page 5/16
[105] The Review Panel Report , RBT2, Document #2062, March 27, 2020, Scrolled Page 254 & Page 250/627

Ambiguous Conclusions Will Prevent Informed Decision

The Proponent Committed to Mitigation and concluded that effects on Barn owl would be fully mitigated with no measurable residual effects:

> "In addition to the general mitigation measures identified for coastal birds, the Proponent committed to additional measures specific to barn owl. Those would be part of the Terrestrial Vegetation and Wildlife Management Plan and would include the following:
>
> - Collaborating with transportation authorities and Canadian Wildlife Service to develop and implement measures, including speed management within the LAA to the extent that the authorities having jurisdiction are able, to decrease the potential for bird-vehicle collisions;
> - Identifying, installing, and maintaining artificial nest structures (e.g., nest boxes) within the RAA to enhance barn owl productivity, with the installation of five nest boxes during the first year of construction;
> - Support the establishment/maintenance of barn owl foraging habitat close to barn owl nest sites through contribution to third party programs; and
> - Increase education and driver awareness of bird-vehicle (including barn owl) collisions"[106]
>
> Review Panel Report Page 245/627

> "The Proponent explained that the installation of physical barriers as mitigation would not be technically and economically feasible…
> The Proponent expected that effects on barn owl would be fully mitigated and concluded that the Project would result in no measurable residual effect on barn owl and other raptor populations.
> The Proponent also committed to a follow-up program for barn owl to verify the effectiveness of mitigation measures and the prediction of the negligible project effect."

Review Panel Findings are unclear and ambiguous. The Panel states a residual effect on the Barn owl from the Project, even with mitigation, but the effect would be low in magnitude because the roads in the Project area represent only a fraction of the regional roads:

> "The Panel concludes that there would be a residual effect on barn owl, even after mitigation. The Project effect would be low in magnitude since the Project would directly affect only a small fraction of total roadway in the barn owl habitat; regional in extent since the Project would indirectly result in an increase in regional traffic; irreversible; and, permanent."

Then in the next paragraph, the Panel states the Project effect would be "significant" due to road mortality, and other effects. The Panel and makes a vague reference to the *Species at Risk Act (SARA*)

> "The Panel concludes that the Project effect would be significant because of the already depressed population of barn owl due to foraging habitat loss, reduced breeding opportunities, and road mortality. The Project has the potential to further exacerbate the factors that have led to a depressed population status. The Panel conclusion also relies on the barn owl's SARA status and concentrated presence in the LAA."[107]

[106] The Review Panel Report , RBT2, Document #2062, March 27, 2020, Scrolled Page 245/627
[107] Ibid: Scrolled Page 254/627

The 2 Conclusions are also ambiguous:

Conclusion #1 on Barn Owl

"The Panel concludes that the Project would result in a residual adverse effect on the barn owl. The effect on the barn owl would not be significant if both the Panel's proposed recommendations and the Proponent's mitigation measures are applied."

Conclusion #2 on Barn Owl

"The Panel concludes that increases in vehicle traffic due to the Project in combination with existing traffic and projected increases in human population and urbanization would result in a significant adverse cumulative effect on the barn owl population in the regional area."

Failure to meet legal requirements of *CEAA 2012*, the *Species at Risk Act (SARA)*, the Review Panel Mandate under their Terms of Reference

The ambiguity in statements and Conclusions contravene *CEAA 2012*, the *Species at Risk Act (SARA)*, the Review Panel Mandate, and the Project Terms of Reference and prevents decision makers from making an informed decision on the effects of the Project on the listed Barn owl.

As documented above, Environment and Climate Change Canada and Bird Studies Canada advised the Review Panel that EIS did not sufficiently identify and address potential adverse effects. The Review Panel Report also stated the Proponent did not provide cumulative effects assessment as required. The Review Panel Report should have flagged these omissions as failures to meet legal requirements.

Additionally, the proposed mitigation measures are vague and there is no evidence that they can mitigate the increase in disturbance to Barn owl habitat that the Project will cause. There is no specific information on the significance of effects and no evidence the mitigation measures can prevent residual effects.

The assessment, Conclusions, mitigation, and Recommendation fail to meet the requirements of CEAA 2012:

CEAA 2012:

19 (1) The environmental assessment of a designated project must take into account the following factors:

(a) the environmental effects of the designated project, including the environmental effects of malfunctions or accidents that may occur in connection with the designated project and any cumulative environmental effects that are likely to result from the designated project in combination with other physical activities that have been or will be carried out;
(b) the significance of the effects referred to in paragraph (a);…
…
(d) mitigation measures that are technically and economically feasible and that would mitigate any significant adverse environmental effects of the designated project;

(e) the requirements of the follow-up program in respect of the designated project;

CEAA 2012: Precautionary Principle:

> 4 (1) The purposes of this Act are
>
> (a) to protect the components of the environment that are within the legislative authority of Parliament from significant adverse environmental effects caused by a designated project;
>
> (b) to ensure that designated projects that require the exercise of a power or performance of a duty or function by a federal authority under any Act of Parliament other than this Act to be carried out, are considered in a careful and precautionary manner to avoid significant adverse environmental effects;

Species at Risk Act (SARA)

As the Barn owl is listed as 'Threatened' in Schedule 1, the *Species at Risk Act* requires additional legal requirement on the Review Panel to identify adverse effects and ensure effective measures are in place.

> "(2) The person must identify the adverse effects of the project on the listed wildlife species and its critical habitat and, if the project is carried out, must ensure that measures are taken to avoid or lessen those effects and to monitor them. The measures must be taken in a way that is consistent with any applicable recovery strategy and action plans."
> *Species at Risk Act, Section 79(2)*

A Guide to the Species at Risk Act (SARA)

> "SARA contains a prohibition against destroying any part of critical habitat of endangered or threatened species listed in Schedule 1…
> …
> When an EA is being carried out on a project that may affect a listed species or its critical habitat, SARA requires that the potential adverse effects be identified. If the project is carried out, measures need to be taken to avoid or lessen and monitor those adverse effects. Such measures must be consistent with any applicable recovery strategies, action plans and management plans for those particular species.
>
> SARA also amends the definition of "environmental effect" under the Canadian Environmental Assessment Act to clarify, for greater certainty, that environmental effects include any change the project may cause to a SARA listed species, their residence or critical habitat."[108]

Future Unproven Mitigation Measures are Beyond the Mandate of the Review Panel

Although the *CEAA 2012, Section 43.(1)(d) (i)* states the duties of the Review Panel include recommending mitigation measures and follow-up program, they are with respect to the environmental assessment, not subsequent regulatory review and additional information that has not been included in the environmental assessment process with the opportunity for public input:

> (d) prepare a report with respect to the environmental assessment that sets out
>
> (i) the review panel's rationale, conclusions and recommendations, including any mitigation measures and follow-up program, and

[108] Government of Canada, A Guide to the Species at Risk Act, Pages 2&3

The Review Panel Terms of Reference, Section 4.28, qualify that the recommendations include information received through the process which, if implemented, would avoid or mitigate the environmental effects of the Project.

"The Report shall include:

4. the rationale, conclusions and recommendations of the Review Panel on the environmental assessment of the project including any mitigation measures and follow up programs;
…
8. an identification of recommended mitigation measures and follow up programs that relate to the environmental effects of the project defined in section 5 of CEAA 2012, including, as appropriate, any commitments identified by the proponent in the EIS or during the review panel process;…

Therefore, recommending subsequent unproven mitigation measures, plans, and regulatory reviews that have not been included in the environmental assessment process, and have not been provided to the public for comment, are inappropriate and beyond the mandate of the Review Panel.

Attachment H: Failure to assess intertidal; flawed Conclusions on Biomat, Macroalgae and Eelgrass

1. Serious Gaps in the Wetlands and Wetland Functions Assessment as intertidal areas were not included in the environmental assessment
2. Serious implications of unmitigable adverse environmental effects on listed species affected by changes to intertidal areas
3. No assessment and no evidence for Conclusion of no adverse effects on biomat, macroalgae and eelgrass; failure to incorporate information from government scientists

1. Serious Gaps in the Wetlands and Wetland Functions Assessment as intertidal areas were not included in the environmental assessment

The Proponent claimed shallow tidal areas were not wetlands and did not include them in the environmental assessment. Government scientists advised the Review Panel that the shallow subtidal areas should have been included. The omission results in serious gaps in species assessment; mudflats assessment and cumulative effects assessment.

The Environmental Impact Statement did not include assessment of shallow subtidal areas:

> "The Proponent mentioned that the shallow subtidal area was not a wetland according to the classification guidance and disagreed with ECCC that wetlands should be assessed to -2 m CD.[109]"

> "The Proponent concluded there were no residual effects on intertidal marsh and wetlands, therefore cumulative effects were not assessed."

Environment and Climate Change Canada (ECCC) provided evidence to the contrary:

> "The Canadian Wetland Classification System (CWCS) includes the shallow subtidal zone in its definition of estuarine and tidal wetlands, both of which are present on Roberts Bank."[110]

Fisheries and Oceans:

> "…it seems that no comprehensive assessment of the capability of the model to represent existing conditions has been undertaken, particularly for the intertidal area. Indeed it seems unlikely that there are sufficient salinity data available to make such an assessment over the area of concern."[111]

British Columbia Ministry of Forests, Lands, Natural Resource Operations and Rural Development (FLNRORD)

> "Previous port development appears to have altered the flow of sediment across Roberts Bank, and thus it is likely that the proposed port development will also alter the deposition of sediment along the foreshore. There is a need to understand how the proposed port development may alter sedimentation through the Roberts Bank foreshore…
>
> …There is a poor understanding of historic rates and patterns of sedimentation throughout the Brunswick Point and Deltaport foreshores."[112] Page 2/6

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[109] The Review Panel Report , RBT2, Document #2062, March 27, 2020, Scrolled Page 169/627
[110] RBT2 Environment Assessment, ECCC, Document 1454, February 8, 2019, Page 22/40
[111] RBT2, Environment Assessment, Fisheries and Oceans, Document 1221, July 3, 2018, Page 3/7
[112] RBT2, Environment Assessment, B.C. Ministry of Forests, Lands, Natural Resources, Operations and Rural Development (FLNRORD), Document 2015, August 20, 2019 Pages 1&2/6

2. Serious implications of unmitigable adverse environmental effects on listed species affected by changes to intertidal areas

The failure to assess the intertidal areas is a serious omission as mudflats and foreshore habitats are vital components of the Roberts Bank ecosystem.

> "…ECCC concluded that it was not technically feasible to recreate shallow subtidal sand flat habitat…
>
> …FLNRORD commented that the tidal ecosystems of the estuary were mostly under provincial jurisdiction in provincial wildlife management areas. FLNRORD anticipated both direct and indirect effects from the Project on environmental components within the Roberts Bank Wildlife Management Area. Direct Project effects would include the destruction of ecosystems and indirect effects would affect biofilm, tidal marsh, and sedimentation processes.
>
> FLNRORD was of the view that the predicted increase in net productivity of intertidal marsh did not accurately reflect the risk level to the eight blue and red-listed wetland communities in the Project area, given the high site specificity of these communities…"[113]

3. No assessment and no evidence for Conclusion of no adverse effects on biomat, macroalgae and eelgrass; failure to incorporate information from government scientists

Biomat

The Proponent defined biomat as blue-green algae and associated diatoms.

Conclusion: The Panel concludes that biomat at Roberts Bank is unlikely to be compromised by the Project, and that any Project effect would be negligible

No data or evidence supports this conclusion as the Environmental Impact Assessment did not include intertidal and shallow subtidal sand and mudflats. The Conclusion omits to incorporate information from government scientists.

ECCC advised the Review Panel that the assessment of wetlands was inadequate as it did not assess the presence of biomat and biofilm on the intertidal and shallow subtidal sand and mud flats. ECCC further advised that as mudflats are now widely understood to be highly productive wetland ecosystems and:

> "The Federal Policy on Wetland Conservation (FPWC) commits the Government of Canada to the goal of no net loss of wetland function on federal lands and waters or when an activity that may impact wetlands is subject to approvals under federal legislation." [114]

Fisheries and Oceans advised that the applied modeling was not able to provide information on mobile functional groups and species which occur at only a few locations. As a result, there is no credible data on the location of these species over the Project area. This applies to biofilm, brown algae, native eelgrass, green algae, Japanese eelgrass, tidal marsh, biomat, and orange sea pens:

> "The Proponent has not yet sufficiently validated the model."[115]

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[113] The Review Panel Report , RBT2, Document #2062, March 27, 2020, Scrolled Page 174/627
[114] RBT2 Environment Assessment, ECCC, Document 1109, November 23, 2017, Page 4/12
[115] RBT2 Environment Assessment, Fisheries and Oceans, Technical Review, Science Response 2016/050Page 14/23

Macroalgae

Conclusion: **The Panel concludes that the Project would not result in an adverse effect on macroalgae.**

No data or evidence supports this conclusion as the Environmental Impact Assessment did not include intertidal and shallow subtidal sand and mudflats. The Conclusion omits to incorporate information from government scientists.

ECCC advised that the Environmental Impact Statement did not include intertidal and shallow subtidal sand and mud flats in its wetland assessment. As a result, it did not address the presence of macroalgae and eelgrass at these locations.
ECCC advised the Review Panel in reference to Wetlands:

> "It is ECCC's view that the information provided in the Proponent's effects assessment for the Roberts Bank Terminal 2 Project is not adequate."[116]

The Review Panel Report mentions the comment from DFO that predictions for green algae were likely inaccurate but does not incorporate the information in the Conclusion:

> "'DFO concluded that the RBEM adequately represented brown algae at Roberts Bank, but predictions for green algae were likely inaccurate." [117]

The Review Panel Report omits to address gaps in information identified by ECCC:

> "The assessment does not include adequate scientific evidence to support the position that there is low biological activity in intertidal/shallow subtidal sand flats…Single-celled and filamentous green algae are likely important contributors to primary productivity but are not described. Additionally, sand flats vegetated with macrophytes, such as Ulva and Fucus, should be evaluated…
> …A large proportion of the sand flats north of the causeway are vegetated with Ulva, eelgrass, and other macrophytes[118]
> …
> "should include an assessment of macrophytes on Roberts Bank, including for example, Fucus and Ulva, and single celled/filamentous green algae. Micro- and macrophytes make important contributions to primary productivity on Roberts Bank, and provide a range of hydrological, biochemical, and ecological functions to secondary and higher trophic levels."[119]

Eelgrass

The Proponent concluded that the potential effect of the Project on native eelgrass would be negligible, even without mitigation

The Panel agrees with the Proponent's assessment that Project effects are negligible for both native and non-native eelgrass species.

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[116] RBT2 Environment Assessment, ECCC, Document 1109, November 223, 2017, Page 4/12
[117] The Review Panel Report , RBT2, Document #2062, March 27, 2020, Scrolled Page 167/627
[118] RBT2 Environment Assessment, ECCC, Document 1454, February 8, 2019, Page 29/40
[119] Ibid; Page 23/40

Conclusion: The Panel concludes that the Project would not result in an adverse effect on eelgrass.

No data or evidence supports this conclusion as the Environmental Impact Assessment did not include intertidal and shallow subtidal sand and mudflats. The Conclusion omits to incorporate information from government scientists.

> "The WFA defines eelgrass as a separate wetland type. However, on Roberts Bank, eelgrass is associated with both sand flat and mud flat wetlands and is an indicator of a wetland 'Aquatic' Type."[120]

The Report does not include comments from ECCC that point out the direct loss of both native and non-native eelgrass will impact habitat for fish, migrating waterfowl and Great Blue Herons. Furthermore,

> 'ECCC advises that in the document 'Federal policy of wetland conservation implementation guide', all eelgrass within the Zostera genus (including marina and japonica) are captured under wetlands designated as ecologically important to BC, and as such are subject to the goal of no-net-loss."[121]

[120] RBT2 Environment Assessment, ECCC, Document 1454, February 8, 2019, Page 30/40
[121] Ibid; Page 39/40

Attachment I:
Failure to conclude significant residual adverse effect from Greenhouse Gas Emissions

Review Panel Report:

Conclusion:

The Panel concludes that the construction and operations of the Project would contribute to additional greenhouse gas emissions in the Metro Vancouver area even after the application of mitigation measures. This contribution would result in a significant adverse cumulative effect.

Recommendation 3 - The Panel recommends that the Proponent be required to:

- Develop and publicize regular inventories of greenhouse gas emissions from the Project, develop greenhouse gas reduction strategies for all components of the Project, and monitor and publicize the effectiveness of these strategies in reducing greenhouse gas emissions;
- Develop and implement a greenhouse gas emissions reduction plan for the Project in consultation with British Columbia Ministry of Environment and Climate Change Strategy and Metro Vancouver; and
- Require, through its contractual arrangements, the infrastructure developer and project operator to reduce greenhouse gas emissions aligned with British Columbia Ministry of Environment and Climate Change Strategy and Metro Vancouver greenhouse gas reduction strategies.)

1. Evidence points to a conclusion of a **residual** significant adverse environmental and cumulative effect
2. Significant adverse environmental effect from Greenhouse Gas Emissions was not identified under Key Findings
3. Recommendations are for subsequent unproven mitigation measures beyond the Review Panel Mandate

1. Evidence points to a conclusion of a residual significant adverse environmental and cumulative effect

The Conclusion states adverse effects even with mitigation which means an increase in greenhouse gas emissions which will continue as they cannot be mitigated. This is a serious residual adverse environmental and cumulative effect.

2. Significant adverse environmental effect from Greenhouse Gas Emissions was not identified under Key Findings

No explanation is given for not including the residual adverse environmental effect under Key Findings

3. Recommendations are for subsequent, unproven mitigation measures beyond the Review Panel Mandate

The Recommended mitigation measures are for future strategies and plans that have not been developed or presented to the environmental assessment. They also suggest future contractual agreements for greenhouse gas emissions reduction. There is no evidence that these measures can mitigate the emissions. The recommended measures are beyond the Mandate of the Review Panel and do not meet CEAA requirements for technically and economically feasible mitigation measures.
Furthermore, recommendations transfer responsibility and accountability to government agencies at a cost to taxpayers.

Legal Requirements for Mitigation under *CEAA 2012*

Requirements under sections *19.1 (d*) and *(e)* of *CEAA 2012*:

(d) mitigation measures that are technically and economically feasible and that would mitigate any significant adverse environmental effects of the designated project;

(e) the requirements of the follow-up program in respect of the designated project;

CEAA 2012, Section 43.(1)(d) (i) states the duties of the Review Panel include recommending mitigation measures and follow-up program. They are with respect to the environmental assessment, not subsequent regulatory review and additional information that have not been included in the environmental assessment process with the opportunity for public input.

Under Section *43 (1)* of *CEAA 2012*, Review Panel Duties:

(d) prepare a report with respect to the environmental assessment that sets out

(i) the review panel's rationale, conclusions and recommendations, including any mitigation measures and follow-up program, and

Future Mitigation Measures are Beyond the Mandate of the Review Panel

Although the *CEAA 2012, Section 43.(1)(d) (i)* states the duties of the Review Panel include recommending mitigation measures and follow-up program, they are with respect to the environmental assessment, not subsequent regulatory review and additional information that has not been included in the environmental assessment process with the opportunity for public input:

(d) prepare a report with respect to the environmental assessment that sets out

(i) the review panel's rationale, conclusions and recommendations, including any mitigation measures and follow-up program, and

The Review Panel Terms of Reference, Section 4.28, qualify that the recommendations include information received through the process which, if implemented, would avoid or mitigate the environmental effects of the Project.

"The Report shall include:

5. the rationale, conclusions and recommendations of the Review Panel on the environmental assessment of the project including any mitigation measures and follow up programs;

…

9. an identification of recommended mitigation measures and follow up programs that relate to the environmental effects of the project defined in section 5 of CEAA 2012, including, as appropriate, any commitments identified by the proponent in the EIS or during the review panel process;…

Therefore, recommending subsequent unproven mitigation measures, plans, and regulatory reviews that have not been included in the environmental assessment process, and have not been provided to the public for comment, are inappropriate and beyond the mandate of the Review Panel.

Attachment J:

Failure to conclude significant <u>residual</u> adverse environmental effects on Air Quality

<u>Review Panel Report:</u>

Conclusion #1 - The Panel concludes that construction and operations of the Project would result in exceedances of applicable air quality standards and guidelines for NO_2, $PM_{2.5}$, and contribute to exceedances of ozone.

Conclusion #2 - In spite of the uncertainties regarding dispersion of pollutants, the Panel concludes that ambient air pollution conditions in the marine shipping area and adjacent coastal regions, including in transboundary waters, are unlikely to be materially affected by Project associated marine shipping because it would emit a very small fraction of total pollutants in the marine shipping area.

Recommendation 4 - Summary of Recommendation 4: The Review Panel recommends inventories, monitoring strategies, and an adaptive management plan.

<u>Comments:</u>

1. Failure to correlate Conclusions on Air Quality documented under Key Findings, Air Quality and Human Health
2. Insufficient data for a credible assessment on Air Quality
3. Scientific Evidence and correlation of Conclusions on Air Quality warrant a finding of **<u>residual</u>** significant adverse environmental and cumulative effects
4. Recommendations are for subsequent unproven mitigation measures beyond the Review Panel Mandate

1. Failure to correlate Conclusions on Air Quality documented under Key Findings, Air Quality and Human Health

Conclusion #1 does not correlate with the Key Findings which state a significant adverse effect and a cumulative effect on human health from air quality effects:

> "During the operational phase, the Project would result in a significant adverse effect and a cumulative effect on human health based on predicted exposures to 1-hour average NO_2 and other respiratory irritants"[122]

Conclusion #1 does not correlate with the two Conclusions on Human Health which state a significant adverse effect on human health from air quality effects:

> "Human Health, Exposure to Atmospheric Pollutants…
> Conclusion #1:
> The Panel concludes that the operational phase of the Project would result in a significant adverse effect on human health based on predicted exposures to 1-hour average NO_2 and respiratory irritants.
>
> Conclusion #2:
> The Panel concludes that the operational phase of the Project would result in a significant adverse effect on human health based on predicted exposures to 1-hour average NO_2 and respiratory irritants."[123]

[122] The Review Panel Report , RBT2, Document #2062, March 27, 2020, Scrolled Page 16/627
[123] Ibid; Scrolled Page 404/627

2. Insufficient data for a credible assessment on Air Quality

Insufficient Air Quality Assessment of Local and Regional Air Quality

Government agencies, independent scientists and the public submitted serious concerns that the Air Quality Assessment was insufficient and lacked credibility.

> "Metro Vancouver stated that emissions from ships as they transit from the ocean to the port were not accurately modelled." [124]

Metro Vancouver outlined how the Air Quality assessment was insufficient:

- "Non-representative background concentrations used in assessment
- Potential underestimate of emissions
- Single, non-representative year of meteorology
- Inappropriate modelling domain…
- …Assessment did not consider appropriate future air quality objectives…
- … Assessment only included a single Metro Vancouver station when developing the background concentrations
- Dispersion modelling typically only predicts impacts for a single facility…
- … T39 (Tsawwassen) often measures some of the lowest ambient concentrations in the region and is likely not representative of background air quality in areas outside of South Delta
- Assessment did not conduct cumulative modelling and used a single station and single background concentration"[125]

Environment and Climate Change Canada:

> "The analysis and comparison of Tsawwassen First Nation (TFN) monitoring data to T39 is incomplete and ECCC cannot verify the Proponent's conclusion that station T39 data is representative of air quality on TFN lands.
>
> Given that SO2 and PM2.5 concentrations have changed in more recent years, these changes should be reflected in the determination of background….
>
> …The modelling methodology used by the Proponent does not adequately determine effects to air quality…
> …The Proponent's approach of using a small model domain and excluding many regional sources is a simplified approach.
> …ECCC identified several limitations to the model bias analysis…
>
> …ECCC is of the view that more is required in order to determine the appropriate background for the Project. The background value should be determined using more than one air quality station, a more complete analysis of differences between monitoring stations, and more recent data particularly given recent changes in emission controls and monitoring technology." [126]

[124] The Review Panel Report , RBT2, Document #2062, March 27, 2020, Scrolled Page 90/627
[125] RBT2 Environment Assessment, Metro Vancouver, Document 1803, May 29, 2019, Pages 7-9
[126] RBT2 Environment Assessment, ECCC, Document 1795, May 29, 2019, Pages 8,13,12&16

Insufficient Air Quality Assessment on Marine Shipping Area and Coastal Regions

The Review Panel did not provide evidence to support Conclusion #2 that air quality in the shipping area, coastal regions and transboundary waters would not be materially affected by marine shipping from the Project.

Conclusion #2 contradicts the information provided by government and independent experts. Experts advised the Review Panel that the limited monitoring; assessment; and modeling did not provide sufficient evidence to determine effects on air quality in the marine shipping area and coastal regions, including transboundary waters.

Metro Vancouver

> "Metro Vancouver stated that emissions from ships as they transit from the ocean to the port were not accurately modelled." [127]

Metro Vancouver:

- … potential underestimate of marine emissions for project
- Shift of marine vessels to cleaner Tier III engines may have been overestimated…
- … Assessment did not follow key recommended practices when conducting dispersion modelling…
- …Use of 2010 as "representative" year is not appropriate
- 2010 was abnormal compared to climatology
- Additional years would typically be modelled for project of this size to capture all possible meteorological conditions
- Use of pseudo-stations not an approved method
- Should incorporate meteorology data from Metro Vancouver…
- …Domain used in assessment was very small; does not accurately capture dispersion of pollutants and the complex movement of pollutants in this region of the airshed
- Larger modelling domains are required for projects with multiple sources, large emissions or large footprints
- Domain too small to capture recirculation patterns caused by complex mesoscale meteorology in and around Georgia Strait…
- … Assessment did not consider concentrations outside of Local Study Area
- Sensitivity analysis demonstrated an increase in concentrations near the edge of domain[128]

Environment and Climate Change Canada:

> "Future emissions from ships underway in the Strait of Georgia would not be captured in a background concentration at T39…
>
> …The Proponent has not used appropriate assumptions for calculating locomotive and cargo handling emissions and therefore NOx emissions are underestimated, which leads to the potential for NO2 predictions to be underestimated as well…
>
> …ECCC considers that future impacts from marine shipping have not adequately been assessed
> In the absence of more realistic assumptions of the rate of introduction of Tier III vessels and marine emissions from ships underway in the Strait of Georgia, ECCC cannot fully assess the effects from the Project…[129]

[127] The Review Panel Report , RBT2, Document #2062, March 27, 2020, Scrolled Page 90/627
[128] RBT2 Environment Assessment, Metro Vancouver, Document 1803, May 29, 2019, Pages 10-15
[129] RBT2 Environment Assessment, ECCC, Document 1795, May 29, 2019, Pages 8,12&17

3. Scientific Evidence and correlation of Conclusions on Air Quality warrant a finding of <u>residual</u> significant adverse environmental and cumulative effects

<u>Environment and Climate Change Canada</u>

"The EIS's regional study area is too small to assess air emissions from rail transport in urban areas. ECCC notes that the Project is contained within an air shed which is already known to have air quality concerns.
- A joint report by ECCC and the US Environmental Protection Agency described the air shed as requiring management and highlighted the growth in the marine sector as a concern; and
- The British Columbia Ministry of Environment described the air shed in their Lower Fraser Air Zone Report as requiring actions to prevent of deterioration of air quality levels…

…Further, under CEAA 2012, the environmental effects assessment must take into account transboundary effects as per section 5(1)(b), and cumulative effects as per section 19(1)(a). A larger regional study area could allow for air emissions from road transport to inform these assessments."[130]

<u>Metro Vancouver</u>

"• In general, issues identified are cause for concern and create uncertainty in assessment findings
• Assessment demonstrates that there will likely be exceedances of applicable ambient air quality objectives
• Concern that backsliding in regional emissions reductions will trigger new regional air quality management actions
• Emission reduction requirements from external regulators may be required to achieve objectives"[131]

<u>Islands Trust:</u>

"There are also concerns about air emissions near shipping lanes in the Islands Trust Area from an increase in vessels due to the Roberts Bank Terminal 2 vessels particularly in light of cumulative effects on air quality from increasing vessel traffic generally."[132]

<u>Health Canada:</u>

• Measured levels of NO2 already indicate the potential for occasional exceedances of the CAAQS.
• HC has concerns regarding the potential, short-term exposure of Indigenous peoples to air pollutants near the terminal during construction.
• The potential health-risks of coal dust (particulate matter) from Westshore Terminals may be underestimated.
• HC does not support the Proponent's determination that the residual health effects associated with predicted exposures to air quality on the water near the proposed Project terminal is "not significant".[133]

<u>B.C. Ministry of Health:</u>

"Outstanding Information Requests suggest potential risks to human health were underestimated or overlooked.
…Significance determination for Project-related impacts to human health, rated as 'Not Significant', cannot be validated at this time."[134]

[130] RBT2 Environment Assessment, ECCC, Document 581, October 14, 2016, Pages 32&35/70
[131] RBT2 Environment Assessment, Metro Vancouver, Document 1803, May 29, 2019, Page 16
[132] RBT2 Environment Assessment, Islands Trust, Document 1644, April 15, 2019, Page 4
[133] RBT2 Environment Assessment, Health Canada, Document 1782, May 21, 2019, Page 12
[134] RBT2 Environment Assessment, B.C. Ministry of Health, Document 1793, May 29,2019, Page 14/15

4. Recommendations are for subsequent unproven mitigation measures beyond the Review Panel Mandate

The Recommended mitigation measures are for future monitoring, inventories and management strategies that have not been developed or presented to the environmental assessment. There is no evidence that these measures can mitigate the emissions.

The future plans lack credibility as the same recommendations were made by a Review Panel for Cargill's proposal for a grain terminal at Roberts Bank in 1996:

> "The Port's 1996 Review Panel for Cargill's proposal for a grain terminal on Roberts Bank recommended (#6) that all partners on Roberts Bank **"immediately undertake an emissions inventory and analysis of dust samples in the Roberts Bank area to establish baseline information on emission levels and their sources"**. The Panel also recommended (#7) that all partners **"arrange with the GVRD to re-establish air quality monitoring station(s) in the vicinity of Roberts Bank in support of long-term air quality modeling and monitoring".**
> If these recommendations had been followed invaluable data would now be available on which to base a realistic assessment. They could have provided baseline data, a measure of the cumulative impact of all the PMV expansions and consequent ship, train and truck emissions. It is especially negligent that no follow-up was done since, as reported by the Port's Panel (1996), "air quality in the vicinity of Roberts Bank is a concern to Delta residents and the Corporation of Delta."[135]

The recommended measures are beyond the Mandate of the Review Panel and do not meet CEAA 2012 requirements for technically and economically feasible mitigation measures.
Furthermore, recommendations transfer responsibility and accountability to government agencies at a cost to taxpayers.

Legal Requirements for Mitigation under *CEAA 2012*

> Requirements under sections *19.1 (d*) and *(e)* of *CEAA 2012*:
>
> (d) mitigation measures that are technically and economically feasible and that would mitigate any significant adverse environmental effects of the designated project;
>
> (e) the requirements of the follow-up program in respect of the designated project;

CEAA 2012, Section 43.(1)(d) (i) states the duties of the Review Panel include recommending mitigation measures and follow-up program. They are with respect to the environmental assessment, not subsequent regulatory review and additional information that have not been included in the environmental assessment process with the opportunity for public input.

> Under Section *43 (1)* of *CEAA 2012,* Review Panel Duties:
>
> (d) prepare a report with respect to the environmental assessment that sets out
>
> (i) the review panel's rationale, conclusions and recommendations, including any mitigation measures and follow-up program, and

[135] RBT2 Environment Assessment, Boundary Bay Conservation Committee, Document 88, Sept. 14, 2014, Page 7

Future Mitigation Measures are Beyond the Mandate of the Review Panel

Although the *CEAA 2012, Section 43.(1)(d) (i)* states the duties of the Review Panel include recommending mitigation measures and follow-up program, they are with respect to the environmental assessment, not subsequent regulatory review and additional information that has not been included in the environmental assessment process with the opportunity for public input:

(d) prepare a report with respect to the environmental assessment that sets out

(i) the review panel's rationale, conclusions and recommendations, including any mitigation measures and follow-up program, and

The Review Panel Terms of Reference, Section 4.28, qualify that the recommendations include information received through the process which, if implemented, would avoid or mitigate the environmental effects of the Project.

"The Report shall include:

6. the rationale, conclusions and recommendations of the Review Panel on the environmental assessment of the project including any mitigation measures and follow up programs;
…
10. an identification of recommended mitigation measures and follow up programs that relate to the environmental effects of the project defined in section 5 of CEAA 2012, including, as appropriate, any commitments identified by the proponent in the EIS or during the review panel process;…

Therefore, recommending subsequent unproven mitigation measures, plans, and regulatory reviews that have not been included in the environmental assessment process, and have not been provided to the public for comment, are inappropriate and beyond the mandate of the Review Panel.

Attachment K:

Failure to conclude significant residual adverse environmental effects from Light Pollution

Review Panel Report:

Conclusion
"The Panel concludes that without effective mitigation measures and management plans, the Project would result in further degradation of the light environment."

Recommendation 5 Summary: The Review Panel recommends the Proponent develop, implement and monitor a Light Management Plan in collaboration with government agencies.

Recommendation 6 Summary: The Review Panel recommends an adaptive management plan.

Comments:

1. The wording of the Conclusion obfuscates the message of residual significant adverse environmental and cumulative effects
2. The Review Panel should have concluded that even with mitigation there will be residual significant adverse environmental and cumulative effects
3. Failure to incorporate evidence of residual adverse environmental effects even with mitigation
4. Recommendations are for subsequent mitigation measures that cannot mitigate the effects

1. The wording of the Conclusion obfuscates the meaning of residual significant adverse environmental and cumulative effects

As no specific measures are provided to ensure effective mitigation, it is clear there will be a residual adverse environmental and cumulative effect from light pollution.

2. The Review Panel should have disclosed that even with mitigation there will be residual significant adverse environmental and cumulative effects

A large new terminal will obviously generate a significant increase in light pollution, even with the best mitigation measures available. Effective lighting is essential as shipping terminals to meet work safety standards.

The Review Panel was advised by the public and First Nations that for years there has been significant ongoing increases in light pollution and sky glow at the Roberts Bank container terminal with larger cranes and incremental infrastructure projects. The Project is a new terminal so the light pollution will likely double and spread over a much larger area of the region.

The Review Panel Report notes in Key Findings that light pollution is already in the local area and the Project has the potential to exacerbate the pollution. However, the Review Panel's Conclusions and Recommendations on Light Pollution do not incorporate this residual significant adverse environmental effect. Nor is it incorporated into the Cumulative Effects Assessment.

The serious impacts to the Roberts Bank ecosystem and to human health from light pollution are missing in this Report.

The Review Panel documented some concerns about light pollution but in their analysis, conclusion, and the recommendations, they did not incorporate the concerns raised by the public, experts, and First Nations about significant impacts to human and wildlife health in the region surrounding the Project site.

3. Failure to incorporate evidence of adverse effects even with mitigation

Review Panel Report acknowledges some residual significant adverse environmental and cumulative effects from light pollution but fails to appropriately document them in the Conclusion and Recommendations.

> "Indigenous groups raised concerns that light from the Project would affect their current use of lands and resources for traditional purposes and cultural practices. Tsawwassen was specifically concerned about the change in sky glow at Brunswick Point and the potential subsequent effects to human health, cultural practices, migratory birds, and harvesting. Tsawwassen stated that they disagreed with the Proponent's conclusions that the changes predicted were not significant."[136]

> "The City of Delta raised concerns that the Project would increase light pollution in the city and exacerbate the existing conditions….Additional participants were concerned about the effects of existing light and noise pollution levels on the quality of life and value of residential homes."[137]

Scientists and the public raised serious concerns that have not been sufficiently incorporated into the Conclusion and Recommendations.

As fish migrations will have to circumnavigate the massive new land mass, their susceptibility to predation will increase considerably. This will be exacerbated by artificial night light.

The Review Panel omitted important information from the federal Department of Fisheries and Oceans (DFO) on the effects of lighting on fish. Submissions from DFO advised the Review Panel:

Fisheries and Oceans, October 1, 2018:

> "… The responses below identify uncertainty, and/or where appropriate, examples of statements related to any conclusions provided by the Proponent which may be poorly substantiated with regard to the potential impacts to fish from changes in the light environment resulting from the Roberts Bank Terminal 2 Project construction and operation.
>
> **...Potential delays to outmigration of juvenile salmon**:
>
> …Juvenile salmon entering the Strait of Georgia from the Fraser River are dispersed through the river plume region due in part to the high water flows during their ocean entry periods…The Proponent's conclusions do not adequately acknowledge the uncertainties associated with the variable age classes, species, and stocks of salmon that may make up the juveniles present in the area, nor the variability associated with migration timing or potential delays in outmigration.
>
> Juvenile salmon that enter the marine environment in the year of emergence (e.g. Pink, Chum, some Chinook) may utilize the nearshore region and river plume for more extended periods than Sockeye.

[136] The Review Panel Report , RBT2, Document #2062, March 27, 2020, Scrolled Pages 99&100/627
[137] Ibid; Page 99

…<u>Lighting related effects on forage fish migration and Eulachon:</u>

Forage Fish (Herring, Sand Lance)

"The Proponent's conclusion that effects are not anticipated is inconsistent with the uncertainty acknowledged by the Proponent that above water lighting during night periods does attract fish such as Herring (Hourston 1957, McConnell et al 2010), potentially from nearshore shallower water protective habitats, such as eelgrass beds. By drawing forage fish out of night rearing refuge areas to hunt in lit surface waters (and or in deeper waters penetrated by light), the forage fish would be expected to be more accessible to a wider range and larger amount of predators (seals, adult salmonids, rockfish, etc.)…

…If predators such as seals are drawn to the terminal area to capitalize on night hunting with the use of lights, the seasonal concentrations of predators at or near the terminal and estuary may have an indirect impact on Eulachon using the area as a migratory corridor to spawning grounds…

…the potential ecological impacts of artificial lighting at night are likely quite complex and are poorly understood (Bolton et al 2017; Becker et al 2012). In addition, when the artificial lighting is associated with other potential effects (cumulative) such as noise, physical structures and their movements (such as boats, equipment, floating docks, etc.), discerning the cause and effect is further complicated (Rooper et al. 2015; Becker et al 2012)…

…The use of artificial lights has the potential to significantly affect predator-prey interactions in aquatic systems by altering habitat use of predator and prey species….

…Pinnipeds, especially Harbour Seals, may utilize artificial light for hunting, which may have considerable cumulative effects on some species or stocks. *(Page 18/35)*…

…Furthermore, the literature the Proponent referred to on fish predator and prey responses to artificial lighting at night was limited and reflected the lack of information on this subject, especially in the Pacific Northwest marine coastal ecosystems of Canada and the United States. There are other studies (Becker et al 2013; Bolton et al 2012; Ryer and Olla 1999) which have applied rigorous methods to investigate fish predator and prey responses to artificial night lighting in relation to variability by species, fish size and environmental factors; all of which exemplify the complexity of interacting factors and generally conclude that artificial lighting at night does have notable effects."[138]

<u>Fisheries and Oceans, April 15, 2019:</u>

"Above water lighting during night periods does attract fish such as Herring (Hourston 1957, McConnell et al. 2010), potentially from nearshore shallower water protective habitats, such as eelgrass beds. By drawing forage fish out of night rearing refuge areas to hunt in lit surface waters (and or in deeper waters penetrated by light), the forage fish would be expected to be more accessible to a wider range and larger amount of predators (seals, adult salmonids, rockfish, etc.) *(Page 16/207)*

"Permanent lighting over or adjacent to potential suitable Sand Lance burying habitat has the potential to result in Sand Lance avoidance of the sea bed. This activity would result in higher energy expenditure, higher predation rates, and no opportunity to develop gonads, leading to a negative impact on the Sand Lance population in the area."[139]

[138] RBT2 Environment Assessment, Fisheries and Oceans, Document 1289, October 1, 2018, Pages 14-18/35
[139] RBT2 Environment Assessment, Fisheries and Oceans, Document 1630, April 15, 2019, Page 16/207

British Columbia Ministry of Forests, Lands, Natural Resource Operations and Rural Development:

"Changes to the estuarine document particular due to increased TSS and light regimes, might significantly affect bull trout and Dolly Varden which feed on salmon fry in the estuary. As pointed out in the EIS, changes to light regimes sometimes negatively affect predatory fish, while changes in turbidity may also affect their success in preying on smaller fish. It is unclear that the effects of these project impacts can be considered negligible for these species … apparent omission of consideration due to apparent rarity." [140]

Environment and Climate Change Canada (ECCC):

"The Project is anticipated to increase sky glow dependant on the location of the point of reception as identified in Section 9.4 of the EIS. Light trespass at the existing Deltaport Terminal is identified as the highest point of increase and will be re-classified from E2 (low ambient brightness) to E3 (medium ambient brightness). Marine and coastal birds are known to be sensitive to artificial light, which can lead to behaviour modification, injury, or death."[141]

Anne Murray, Delta Naturalists:

"Light pollution has not been adequately addressed in the Environmental Review. Light pollution associated with Deltaport has increased steadily as the port has expanded in the last thirty years. The effects on marine wildlife around Roberts Bank remain largely unstudied. If Terminal 2 were to be built lighting pollution would be compounded by at least a factor of two, and would be extended much further into the subtidal" [142]

Western Hemisphere Shorebird Reserve Network (WHSRN):

"Light pollution and oil spills have known impacts on shorebirds and increasing ship traffic in the Fraser estuary will increase the risk of these threats."[143]

Kathleen Johnnie, Lake Cowichan First Nation:

"Lighting: General
Light pollution and light trespass of the existing infrastructure was already an issue for the public and First Nations. The addition of the RBT2 Project could significantly increase both the light pollution and light trespass….
…The lights of from these operations obscure the night sky and provide excessive light pollution and transference to adjacent neighbourhoods and even across the Salish Seas…

Lighting: Wildlife
Light at night is a known stressor to day and night birds, animals and fish. It can cause confusion and exhaustion in these species leaving them more vulnerable to prey.

Lighting: Cultural
From the Hul'q'umi'num' speaking First Nations cultural perspective, there is a legend that the little people came from the stars. Lighting from these infrastructures can cause the night sky to be obscured and increases the night sky's concealment from adjacent municipalities. Culturally referencing, the night sky is of considerable importance to the LCFNs legends…"[144]

[140] RBT2, Environment Assessment, B.C. Ministry of Forests, Lands, Natural Resources, Operations and Rural Development (FLNRORD), Document 1279, August 20, 2019 Pages 1&2/4
[141] RBT2 Environment Assessment, ECCC, Document 1637, April 15, 2019. Page 45/115
[142] RBT2 Environment Assessment, Delta Naturalists, Document 1574, April 12, 2019, Page 5/7
[143] RBT2 Assessment, Western Hemisphere Shorebird Reserve Network (WHSRN), Document 2042, Aug. 26, 2019, Page 2/2
[144] RBT2 Environment Assessment, Lake Cowichan First Nation, Document 1101, November 15, 2017, Pages 1&2

Debra and Barry Probert:

> "In the last few years, we have become aware of another threat to the environment – light pollution. This is not just an annoyance to people living in this area, who are already impacted by the current facility plus the proliferation of greenhouses, the mall development, the ferry terminal and other sources of unwelcome light, but also has impacts on wildlife. One of many concerns raised is the effect on fish migration and nocturnal predation of juvenile salmon in the estuary. As well, the effect of 'skyglow' – light scattered and reflected for great distances – is known to negatively affect many animal species, including shorebirds. Dr. Jo Garrett at the University of Exeter, where research has taken place, states: "Night-time lighting is known to affect microbes, plants and many groups of animals such crustaceans, insects, fish, amphibians, reptiles, birds and mammals."[145]

4. Recommendations are for subsequent mitigation measures that cannot mitigate the effects

The Recommendations are for development and implementation of a Light Management Plan in collaboration with government agencies; monitoring; and adaptive management. As this is a new industrial operation in the estuary, there will be a significant increase in light pollution that cannot be mitigated.

The mitigation measures do not comply with CEAA 2012 or the Review Panel Mandate.

Legal Requirements for Mitigation under *CEAA 2012*

Requirements under sections *19.1 (d*) and *(e)* of *CEAA 2012*:

(d) mitigation measures that are technically and economically feasible and that would mitigate any significant adverse environmental effects of the designated project;

(e) the requirements of the follow-up program in respect of the designated project;

CEAA 2012, Section 43.(1)(d) (i) states the duties of the Review Panel include recommending mitigation measures and follow-up program. They are with respect to the environmental assessment, not subsequent regulatory review and additional information that have not been included in the environmental assessment process with the opportunity for public input.

Under Section *43 (1)* of *CEAA 2012,* Review Panel Duties:

(d) prepare a report with respect to the environmental assessment that sets out

(i) the review panel's rationale, conclusions and recommendations, including any mitigation measures and follow-up program, and

[145] RBT2 Environment Assessment, D.& B. Probert, Document 1640, April 15, 2019

Future Mitigation Measures are Beyond the Mandate of the Review Panel

Although the *CEAA 2012, Section 43.(1)(d) (i)* states the duties of the Review Panel include recommending mitigation measures and follow-up program, they are with respect to the environmental assessment, not subsequent regulatory review and additional information that has not been included in the environmental assessment process with the opportunity for public input:

(d) prepare a report with respect to the environmental assessment that sets out

(i) the review panel's rationale, conclusions and recommendations, including any mitigation measures and follow-up program, and

The Review Panel Terms of Reference, Section 4.28, qualify that the recommendations include information received through the process which, if implemented, would avoid or mitigate the environmental effects of the Project.

"The Report shall include:

7. the rationale, conclusions and recommendations of the Review Panel on the environmental assessment of the project including any mitigation measures and follow up programs;
…
11. an identification of recommended mitigation measures and follow up programs that relate to the environmental effects of the project defined in section 5 of CEAA 2012, including, as appropriate, any commitments identified by the proponent in the EIS or during the review panel process;…

Therefore, recommending subsequent unproven mitigation measures, plans, and regulatory reviews that have not been included in the environmental assessment process, and have not been provided to the public for comment, are inappropriate and beyond the mandate of the Review Panel.

Attachment L:

Split assessment of Noise avoids alarming significant residual adverse environmental effects

The cumulative effects from noise caused by past and current port operations at Roberts Bank combined with the effects from planned Roberts Bank Terminal 2 have not been sufficiently addressed.
The Review Panel Reports on noise effects in two entirely different sections of the Report:

I. Noise and Vibration - effects on atmospheric noise levels
II. Underwater Noise – effects on the underwater environment

This fails to provide a meaningful assessment of the cumulative effects of noise. Evidence from government and independent scientists, as well as the public, proves a residual adverse effect on human health and on endangered Southern Resident Killer Whales.

The Environmental Impact Statement concluded a significant residual cumulative effect from noise with operations of the proposed new terminal. This is not incorporated into the Conclusion and Recommendations.

The Review Panel Report fails to provide any conclusions on the Cumulative Effects Assessment.

The Cumulative Effects Assessment by the Proponent, as reported in the Review Panel Report, is vague. The assessment finds significant effects on endangered Southern Resident Killer Whales but does not identify the seriousness of noise effects as reported in the Environmental Impact Statement.

The intent of the precautionary principle is to avoid a lack of full scientific certainty and a serious threat of irreversible damage. Failure to identify effects and their significance contravenes the precautionary principle.

By not including the significant residual adverse environmental and cumulative effect of noise on human health and endangered SRKW (and other mammals) and by not addressing concrete mitigation measures, the Conclusion and Recommendations fail to appropriately inform the Minister and Cabinet in their decision-making process.

Review Panel Report on Noise and Vibration:

Conclusion #1:

"The Panel concludes that the Project would increase noise levels in the upland area and over marine surfaces adjacent to the proposed terminal. The Panel concludes that the contribution of the Project would be the greatest at site 4 and surrounding areas."

Conclusion #2:

"The Panel concludes that marine shipping associated with the Project would not measurably affect annual average atmospheric noise levels in the marine Local Assessment Area."

Recommendation 7: "The Panel recommends that the Proponent be required to:

- Develop and implement, in collaboration with the Tsawwassen First Nation and Health Canada, additional mitigation measures to reduce noise levels, including those for low frequency noise, for the construction and operational phases of the Project; and
- Implement a solution-oriented complaint resolution process that is in place for the duration of the Project, and communicate the process, decisions, actions taken and outcomes achieved to potentially-impacted residents and communities."

Comments:

1. Failure to correlate Conclusions on Noise and Vibration documented under Key Findings, Human Health and Cumulative Effects
2. Failure of Conclusions and Recommendations to incorporate evidence of residual significant adverse environmental and cumulative effects on human health and the quality of life in the area
3. Failure of Conclusions and Recommendation to incorporate effects of noise and vibration on wildlife and, in particular, the endangered Southern Resident Killer Whales
4. Mitigation Recommendations are for subsequent mitigation measures that cannot mitigate the residual adverse effects

1. Failure to correlate Conclusions on Noise and Vibration documented under Key Findings, Human Health and Cumulative Effects

Conclusion #1 does not correlate with the statement in Key Findings:

"The Project would result in significant adverse cumulative health effect due to noise"[146]

Conclusion #1 does not correlate with 3 Conclusions under Human Health:

i. "The Panel concludes that noise from the construction and operations of the Project would result in a residual adverse effect on human health. The effect would not be significant**."** Page 414/627

ii. "The Panel concludes that the Project would result in a significant adverse cumulative effect on human health due to noise."

iii. "The Panel concludes that noise from marine shipping associated with the Project would not result in a residual adverse effect on human health." Page 415

Conclusion #1 does not correlate with the Proponent's Conclusion on Noise under Cumulative Effects:

"While the total future cumulative noise levels may cause adverse effects to a small number of individuals, the total cumulative effect on the overall health of the community was considered not significant."[147]

[146] The Review Panel Report , RBT2, Document #2062, March 27, 2020, Scrolled Page 16/627
[147] Ibid; Scrolled Page 476/627

The numerous Conclusions on effects from Noise and Vibration are contradictory. Furthermore, the Review Panel Report fails to address the issue under the Cumulative Effects Assessment. The varied conclusions do not incorporate the evidence provided in the environmental assessment and will fail to provide sufficient or credible information to assist Governments in making a decision on effects from noise and vibration caused by the Project.

2. Failure of Conclusions and Recommendations to incorporate evidence of residual significant adverse environmental and cumulative effects on human health and the quality of life in the area

The issue of effects from Vibration are not even addressed in the Conclusions and Recommendations in spite of the fact that this is a significant issue with ongoing and future vibrations from port operations and shunting trains.

To correlate with the Key Findings, the Review Panel should have concluded that, even with mitigation, the existing and increased noise levels will cause significant adverse environmental and cumulative effects on the health of residents in the upland area and regional communities of the Tsawwassen First Nation, Ladner and Tsawwassen.

Concerns submitted by the Mayor of Delta, residents, and nearby impacted communities were noted by the Review Panel but the Conclusions and Recommendation failed to incorporate the high level of residual effects of noise from past, current and planned port operations which cannot be mitigated:

City of Delta:

> "Noise disturbance is a consistent and enduring problem, and an issue over which VFPA has limited control. People living close to the shore, facing the port, are particularly vulnerable to noise disturbance from terminal operations and from ships' generators which are kept running while the ships are docked. In addition, rail operations, such as train shunting and whistling, are a more general source of noise disturbance throughout the Delta community."[148]

Tsawwassen First Nation:

> "Tsawwassen stated that their members already experience disturbance from noise and LFN and that any future change would be significant and measures to minimize noise, especially at night, were required."[149]
>
> "The experience of Tsawwassen Members, who are receptors of atmospheric and low-frequency noise generated as a result of the operation of the current Roberts Bank Superport is not reflected by the result of the EIS…
>
> …Tsawwassen Members have identified concerns with both low frequency noise (vibration) and atmospheric noise inside of their properties and homes, and have noted anecdotally to Tsawwassen Government staff and advisors that these environmental affects are caused by the operations of the existing Roberts Bank facility, and that these effects often disturb their sleep."[150]

[148] RBT2 Environment Assessment, City of Delta, Document 1401, January 14, 2019, Page 12/59
[149] The Review Panel Report , RBT2, Document #2062, March 27, 2020, Scrolled Page 107/627
[150] RBT2 Environment Assessment, Tsawwassen First Nation, Document 651, Oct. 28, 2016, Page 13/22

"Table IR7-04.03 indicated that the actual nighttime dBC was 6 dB higher than the inferred measurement and is substantially greater 21.2 dB) higher than the maximum nighttime noise levels recommended by the UN to prevent sleep disturbance. Give the statistically significant difference, the effects assessment must be reconsidered. It is TFN's first view that increased noise from the project will be significant."[151]

"TFN's view is that the public hearings should not proceed until proper mitigation and offsetting measures are fully developed between TFN and the Proponent, and satisfactory to TFN."[152]

"…TFN is concerned that the revised modelling requested predicts a more than 5dB increase in Ln (to greater than 50dB) suggesting that not only will the project construction and operational phases exceed recommended nighttime noise limits set by the UN, but conversation at night may be hampered because nighttime LN exceeds the value (50dB) at which normal conversation may be adversely affected."[153]

…The potential emissions, air quality, additional traffic, dust levels and noise levels, among other Project effects, will have significant impacts on TFN's traditional way of life, including fishing, crabbing, gathering and overall quality of life. Critical mitigation measures are yet to be developed, such that it is not possible to conclude at this time that they will effectively mitigate the impacts on TFN.[154]

Significant health effects were also identified by Health Canada:
(Note: LFN = low frequency noise)

"Even at very low levels of noise that do not cause awakenings, physiological reactions can occur."
…
"LFN can be associated with vibrations and rattles and this may cause a disproportionate increase in annoyance.

For Expected Conditions and Project Operation scenarios predicted night-time LFN levels exceed or approach the American National Standards Institute rattle criterion at Sites 4, 4a, and 7…

HC does not support the Proponent's conclusion that the Project's contribution to LFN is "imperceptible"." [155]

Health Canada advised that increased noise levels from the railways will be significant:

"During operations, the occurrence of rail-related impulsive noise events at sites 4 and 5 would increase from 7.4 to 8 events per hour under expected conditions, to 10.3 to 16 events per hour."[156]

"Given the concerns raised by the Tsawwassen First Nation regarding their experience of existing LFN levels and their anticipation of increased noise levels in the future (CEAR Doc #651), Health Canada is of the opinion that the Project's contribution to LFN should not be considered imperceptible. Any change in LFN would represent a cumulative effect, and specific mitigations should be considered to eliminate LFN in areas where the Proponent has already been made aware of an existing LFN problem."[157]

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[151] RBT2 Environment Assessment, Tsawwassen First Nation, Document 1316 , October 5, 2018, Page 50/67
[152] RBT2 Environment Assessment, Tsawwassen First Nation, Document 1461, February 8, 2019, Page 3/70
[153] Ibid; Page 45/70
[154] RBT2 Environment Assessment, Tsawwassen First Nation, Document 2044, August 26, 2019, Page 40/48
[155] RBT2 Environment Assessment, Health Canada, Document 1782, May 29, 2019, Slides 19&22
[156] The Review Panel Report , RBT2, Document #2062, March 27, 2020, Scrolled Page 105/627
[157] RBT2 Environment Assessment, Health Canada, Document 1436, February 8, 2019, Page 14/18

3. Failure of Conclusions and Recommendation to incorporate effects of noise and vibration on wildlife and, in particular, the endangered Southern Resident Killer Whales

In their conclusions and recommendations, the Review Panel failed to incorporate effects of noise from Project construction and operation on wildlife.

In the Review Panel Report, the Panel noted that:

> "Noise from marine shipping associated with the Project has the potential to affect both people and wildlife within marine areas and on shores adjacent to shipping lanes." [158]

However, they did not incorporate the effects on wildlife in their conclusions and recommendation.

Fisheries and Oceans:

> "From analysis of SRKW sighting data, the effort-corrected density of SRKW in summer shows that there are areas where these animals spend a disproportionately greater percentage of their time and the Project site is included in these areas."[159]

4. Mitigation Recommendations are for subsequent unproven mitigation measures that cannot mitigate the residual adverse effects

The Proponent and the Review Panel agreed that mitigation measures were required but no evidence was provided to indicate realistic, proven measures.

The recommendation that the Proponent be required to develop additional mitigation measures is beyond the mandate of the Review Panel as the Report is accountable to the current environmental assessment not future unproven measures.

The Recommendation is for the development of mitigation in collaboration with the Tsawwassen First Nation and Health Canada placing accountability on government agencies at a cost to taxpayers.

No specific mitigation is identified and the Recommendation is vague and presumes mitigation is possible. As this is a new industrial operation in the estuary, there will be a significant residual increase in noise and vibration that cannot be mitigated.

Review Panel on Underwater Noise:

Conclusion:

The Panel concludes that during construction and operations of the Project, the underwater noise environment in the Local Assessment Area would intermittently become noisier than existing conditions.

Recommendations 12, 13, 14, 15, 16 and 17

[158] The Review Panel Report , RBT2, Document #2062, March 27, 2020, Scrolled Page 106/627
[159] RBT2 Environment Assessment, Fisheries and Oceans, Document 1630, April 15, 2019, Page 60/207

The Recommendations do not comment on existing, proven mitigation plans. They advise future initiatives. This is beyond the Mandate of the Review Panel as it is required to report on the information from the environmental assessment process.
The Recommendations require accountability to government agencies at a cost to taxpayers.

Comments

1. Failure of Conclusion and Recommendations to conclude a significant residual environmental and cumulative effect on endangered Southern Resident Killer Whales
2. Failure to report on environmental effects from noise on other listed mammals

1. Failure of Conclusion and Recommendations to conclude a significant residual environmental and cumulative effect on endangered Southern Resident Killer Whales

The Review Panel Report Conclusion does not correlate with Key Findings of the Report:

> "The Project would cause significant adverse and cumulative effects on SRKW through a small loss of legally-defined critical habitat, reduced adult Chinook salmon prey availability and a minor increase in underwater noise. In the absence of mandatory mitigation measures to reduce underwater noise from marine shipping associated with the Project, there would be further degradation of SRKW critical habitat."[160]

The Review Panel Conclusion and Recommendations do not incorporate the Environmental Impact Statement (ESI) findings that residual effects on SRKW from underwater noise would be significant considering past, present and cumulative effects.

> "Due to the determination of significant effects to SRKW due to projects and activities that have been carried out, in combination with the Project and other certain and foreseeable activities - this assessment concludes that for the marine mammal VC, there is an overall significant residual cumulative effect from changes in the acoustic environment during operation."[161]
>
> This is tabulated in Table 14-13 of the EIS:
> "Residual Effect: Change in acoustic environment resulting in behavioural effects or acoustic masking during operation phase
> Residual Cumulative Effects: Significant (considering past, present, and future cumulative effects)"[162]

The Review Panel Conclusion does not incorporate evidence submitted by government and independent scientists.

Fisheries and Oceans noted that the Proponent has concluded that underwater noise would adversely impact SRKW:

> "The Proponent concluded that the Project would contribute to cumulative adverse effects on Southern Resident Killer Whale. This would occur through the disturbance (underwater noise) resulting from construction and operation of the Project and the associated ship traffic."[163]

[160] The Review Panel Report , RBT2, Document #2062, March 27, 2020, Scrolled Page 16/627
[161] RBT2 Environmental Impact Statement, Section 14.10, Page 567/823
[162] Ibid; Table 14-31, Page 568/823
[163] RBT2 Environment Assessment, Fisheries and Oceans, Document 1742, May 15, 2019, Page 6/19

Fisheries and Oceans described insufficiencies in the Proponent's conclusion that the Project will add only incrementally to existing underwater noise effects on SRKW and their critical habitat:

> "The primary pathway of potential significant effects of the Project is through increased underwater noise which could affect SRKWs by causing: acoustic injury; behavioural effects, including potential displacement or avoidance of a portion of habitat; and, acoustic masking of communication calls or feeding echolocation."[164]

Fisheries and Oceans documented uncertainties and assumptions and advised a precautionary assessment:

> "…additional levels of disturbance may reduce foraging efficiency below a threshold at which it is no longer energetically profitable to forage in the habitat, particularly in years with low prey availability. This could potentially lead to displacement from or abandonment of critical habitat, as well as reduced survival and compromised recovery. It is difficult to estimate the probability of such a scenario being realized, but recognizing the possibility is consistent with an appropriate precautionary assessment of potential impacts. Displacement from habitats due to underwater noise has been documented in a variety of cetaceans … including resident killer whales…"[165]

Fisheries and Oceans noted that the Proponent has concluded that underwater noise would adversely impact SRKW:

> "The Proponent concluded that the Project would contribute to cumulative adverse effects on Southern Resident Killer Whale. This would occur through the disturbance (underwater noise) resulting from construction and operation of the Project and the associated ship traffic."[166]

These significant adverse effects are not incorporated into the Conclusions and Recommendations for Underwater Noise in the Review Panel Report.

2. Failure to report on environmental effects from noise on other listed mammals

As underwater noise impacts the endangered SRKW and other listed mammals, the *Species at Risk Act (SARA)* requires the Review Panel to identify all listed species and their habitat that are likely to be affected by the Project.

The Proponent identified three listed mammal species potentially affected by underwater noise due to acoustic injury and disruption of behaviours due to changes in the acoustic environment:

- Southern Resident Killer Whales
- North Pacific Humpback Whales
- Steller Sea Lions

> "14.6.3 Potential Effects of the Project on North Pacific Humpback Whale Project activities that could potentially affect North Pacific humpback whales include acoustic injury and disruption of behaviours due to changes in the acoustic environment from underwater noise during construction and operation activities, and physical disturbance from vessel strikes."[167]
>
> "14.6.4…Potential effects on Steller sea lions include acoustic injury and disruption of behaviours due to changes in the acoustic environment during construction and operation activities and physical disturbance from vessel strikes during operations…"[168]

[164] RBT2 Environment Assessment, Fisheries and Oceans, Document 919, January 24, 2017, Page 7/28
[165] Ibid; Page 17/28
[166] RBT2, Environment Assessment, Fisheries and Oceans, Document 1742, May 15, 2019, Page 6/19
[167] RBT2 Environmental Impact Statement, , Page 537/823
[168] Ibid; Page 540/823

Attachment M:

Failure to comply with *CEAA 2012* and *SARA* for endangered Southern Resident Killer Whales

1. Serious threats to the survival of endangered Southern Resident Killer Whales (SRKW)
2. Significant adverse effects from Roberts Bank Terminal 2 Project (RBT2) exacerbate threats to survival of the endangered Southern Resident Killer Whales (SRKW)
3. Omissions in Conclusions of significant adverse and residual effects
   (a) Failure to include loss of critical SRKW habitat in Conclusion #1 and omission of the fact the Project will be built on prime SRKW habitat in the Fraser River Estuary
   (b) Failure to include significant adverse effects from contaminants in the Key Findings, Conclusions, and Recommendations; the effects will be residual and are potentially catastrophic
   (c) Omission of "residual" adverse effects from noise in Conclusion #1
4. Legal Accountability to Environmental Assessment and Mitigation Measures
5. Project Effects cannot be effectively or fully mitigated
6. Failure of the Review Panel Report to advise Governments that the environmental assessment of the SRKW does not meet the requirements of *CEAA 2012* and the *Species at Risk Act*.

1. Serious threats to the survival of endangered Southern Resident Killer Whales (SRKW)

The condition of the endangered Southern Resident Killer Whales is so serious that the Government of Canada initiated a study in 2108 that determined there is a serious threat to their survival:

> "Imminent threat to survival
> Based on the information reviewed and analysis undertaken as part of this assessment, it is considered that SRKW are likely facing imminent threat to survival. Unless mitigated, the current threats may make survival of the population unlikely or impossible.
>
> Imminent threat to recovery
> Based on the information reviewed and analysis undertaken as part of this assessment, it is considered that SRKW are likely facing imminent threat to recovery. Unless mitigated, the current threats may make recovery of the population unlikely or impossible."[169]

2. Significant adverse effects from Roberts Bank Terminal 2 Project exacerbate threats to survival of the endangered Southern Resident Killer Whales (SRKW)

The Project will dredge and fill the Fraser River estuary for a 460-acre artificial island[170] and widened causeway destroying habitat and negatively impacting water and air quality and biological processes of the estuarine ecosystem that supports endangered Southern Resident Killer Whales (SRKW).

- The Project will be located in an important foraging area for critically endangered Southern Resident Killer Whales (SRKW) in the Fraser River estuary
- Construction and operation of the Project will destroy SRKW critical habitat
- The Project is in critical habitat for Chinook salmon, a vital food source for SRKW.
- There will be a loss of SRKW primary food source of Chinook salmon from habitat destruction, pollution and Project blockage of the Chinook migratory path

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[169] Southern Resident Killer Whale: Imminent Threat Assessment, May 24, 2018, Government of Canada

[170] Roberts Bank Terminal 2 Project, EIS, Volume 1, Section 4, Page 54/206
https://iaac-aeic.gc.ca/050/documents/p80054/101388E.pdf

- Larger (or increased smaller) container ships will be operating in SRKW critical habitat increasing vessel strikes as well as noise, light and water pollution.[171]
- Due to the current imperiled state of the SRKW, any additional noise from construction, port operations, and shipping would constitute a significant adverse effect
- Dredgeate, fill, and spills (including bunker and diesel) will contaminate the SRKW critical habitat with toxins, especially deadly Polychlorinated Biphenyls (PCBs) which are still prevalent in local sediments; PCBs and four other toxins present a major threat to the survival of the whales.

Significant Residual Adverse Effects from Noise

Fisheries and Oceans advised the Review Panel that SRKW spend more time in certain parts of critical habitat including the Project site. They advised that the Proponent omitted to use the model noise maps to estimate areas that will be particularly degraded by underwater noise:

> "The EIS concludes that Project-related shipping noise is anticipated to cause increased behavioural disturbance and acoustic masking leading to reduced foraging opportunities for SRKWs, and that this could be considered to constitute a loss of function of SRKW critical habitat. However, no mitigation of ship noise during operations is proposed in the EIS…" [172]

Significant Residual Adverse Effects from Contaminants

Fisheries and Oceans advised contaminants are a serious threat to Killer Whales:

> "Environmental contaminants pose a serious threat to Killer Whales…As high trophic level, long-lived animals; Killer Whales are particularly vulnerable to persistent bioaccumulating toxins (PBTs) that accumulate in their fatty tissues as they feed on already contaminated prey. The introduction of high levels of contaminants is therefore a threat to Resident Killer Whale critical habitat. While many contaminants are airborne and dispersed throughout the coastal waters of BC, the waters surrounding the lower mainland and Vancouver Island are particularly at risk due to their proximity to human settlement.
> The threat of a spill of oil or other toxic material within the areas of critical habitat poses not only an immediate and acute risk to the health of Resident Killer Whale populations… but has the potential to make critical habitat areas uninhabitable for an extended period of time."[173]

Environment and Climate Change Canada:

> "PCBs have been identified as a threat to SRKW at current ambient concentrations found in the sediment of SRKW Critical Habitat."[174]

> "PCB concentrations in the supernatant discharge itself have not been estimated by the Proponent… …ECCC does not consider the Proponent's response to IR11-23 as adequate to demonstrate that the PCB concentrations in the discharged sediments will be below DFO's recommended threshold of 12-200pg/g or that the discharged sediments will not result in an increase of ambient PCB concentrations."[175]

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[171] Ecojustice, Roberts Bank Terminal 2 Project, Document #2036, August 26, 2019, Scrolled Pages 15&18/38
[172] RBT2 Environment Assessment, Fisheries and Oceans, Document 919, January 24, 2017, Page 25/28
[173] RBT2 Environment Assessment, 2018 Recovery Strategy for the N. and SRKW, Document 1374, Dec.12,2018, Page 65/95
[174] RBT2 Environment Assessment, ECCC, Document 1091, Nov.10, 2017, Page 5/22
[175] RBT2 Environment Assessment, ECCC, Document 1454, February 8, 2019, Page 3/40

"…in ECCC's view, the information provided does not resolve the uncertainty regarding whether Project activities may negatively affect polychlorinated biphenyls (PCB) concentrations in the critical habitat of the Southern Resident Killer Whale (SRKW)."[176]

The Port of Vancouver did not address water and sediment quality in the Marine Shipping Addendum.

"With regard to the potential effects of contaminants on SRKW related to the project shipping activities, the Port Metro Vancouver (PMV) did not address water and sediment quality in the addendum." [177]

In response to an information request from the Review Panel, the Port responded:

"The assessment of marine mammals provided in the Marine Shipping Addendum did not include changes to water and sediment quality as an indicator because routine marine shipping associated with the Project is not anticipated to adversely affect water and sediment quality." [178]

This explanation is unreasonable and does not apply the precautionary principle under *CEAA 2012*. Nor does it address the higher accountability under the *Species at Risk Act*.

CEAA 2012:

4 (1) The purposes of this Act are

(a) to protect the components of the environment that are within the legislative authority of Parliament from significant adverse environmental effects caused by a designated project;

(b) to ensure that designated projects that require the exercise of a power or performance of a duty or function by a federal authority under any Act of Parliament other than this Act to be carried out, are considered in a careful and precautionary manner to avoid significant adverse environmental effects;

Species at Risk Act (SARA)

79 (1) Every person who is required by or under an Act of Parliament to ensure that an assessment of the environmental effects of a project is conducted, and every authority who makes a determination under paragraph 67(a) or (b) of the *Canadian Environmental Assessment Act, 2012* in relation to a project, must, without delay, notify the competent minister or ministers in writing of the project if it is likely to affect a listed wildlife species or its critical habitat.

(2) The person must identify the adverse effects of the project on the listed wildlife species and its critical habitat and, if the project is carried out, must ensure that measures are taken to avoid or lessen those effects and to monitor them. The measures must be taken in a way that is consistent with any applicable recovery strategy and action plans.

[176] RBT2 Environment Assessment, ECCC, Document 1454, February 8, 2019, Page 2/40
[177] RBT2 Environment Assessment, Ecojustice, Document 1605, Vol.2, Page 181/671
[178] RBT2 Environment Assessment, Ecojustice, Document 1605, Vol.2, Page 180/671

Significant Residual Adverse Effects from Loss of Foraging opportunities

"DFO expressed concerns during the Hearing that the Proponent is underrepresenting the impact of Project Related Shipping. The Conservation Coalition submits that the record is clear that even under this new scenario the Project would result in decreased foraging time for the Southern Residents. Consequently, due to the fact that the Southern Residents face an imminent threat to survival for the very reason that they are nutritionally stressed, any decrease in foraging time constitutes a significant adverse effect"[179]

Significant Residual Adverse Effects from Cumulative Effects

"Underwater noise from marine shipping associated with the Project would contribute to cumulative adverse effects on SRKW"[180]

"…due to the current imperiled status of the Southern Residents, any additional noise or disturbance due to vessels would constitute a significant adverse effect. The National Energy Board recently concluded in its reconsideration report on the Trans Mountain Expansion Project that "the Southern resident killer whale population has crossed a threshold where any additional adverse environmental effects would be considered significant."[181]

"…due to the small size and social complexity of the Southern Residents, the loss of an individual Southern Resident can have population level impacts. Potential adverse effects of the Project and Project Related Shipping on Southern Residents include vessel strikes and physical disturbance and displacement of whales, underwater noise, pollution of critical habitat and impacts on the whales' primary prey, Chinook salmon. These adverse effects could all result in the death of one or more individual whales, with population level impacts…

…As explained in more detail in DFO's and the Conservation Coalitions submissions during the Hearing, the threats to Southern Resident survival and recovery act together in a sometimes synergistic fashion. The Proponent has still not looked at the combined effect of the Project's effects on the Southern Residents, including the synergistic nature of threats, raised by the Conservation Coalition and by DFO….

…the record before the Review Panel shows that the Project's cumulative effects would further diminish prey availability in critical habitat, further destroy the acoustic quality of critical habitat and increase the risk of harm to individual whales. While each threat on its own is in the submission of the Conservation Coalition significant, the combined effect of these effects is surely very significant.

…it is clear that the Project would likely jeopardize survival and recovery of some populations of Fraser River Chinook and certainly the Southern Residents. It is clear from the weight of evidence presented to the Review Panel during the Hearing… that the adverse effects of the Project on estuary dependent populations of Fraser River Chinook salmon and Southern Residents will reach the threshold of significant.[182]

[179] RBT2 Environment Assessment, Ecojustice, Document 2036, August 26, 2019, Page21/38
[180] RBT2 Environment Assessment, Fisheries and Oceans, Document 1742, May 15, 2019, Pages 11-13/19
[181] RBT2 Environment Assessment, Ecojustice, Document 2036, August 26, 2019, Page 18/38
[182] Ibid; Pages 15,16,20 &11

3. Omissions in Conclusions of significant and adverse residual effects

(a) Failure to include loss of critical SRKW habitat in Conclusion #1 and omission of the fact the Project will be built on prime SRKW habitat in the Fraser River Estuary

(b) Failure to include significant adverse effects from contaminants in the Key Findings, Conclusions, and Recommendations; the effects will be residual and are potentially catastrophic

(c) Omission of "residual" adverse effects from noise in Conclusion #1

The Conclusions and Recommendations do not appropriately incorporate the statements, informal conclusions, and Key Findings in the Report. This will prevent an informed legal decision by Governments.

(a) Failure to include loss of critical SRKW habitat in Conclusion #1 and omission of the fact the Project will be built on prime SRKW habitat in the Fraser River Estuary

Conclusion #1

> "Based on the effects due to the Project and marine shipping associated with the Project on underwater noise, Chinook salmon prey availability and potential ship strikes, and in the absence of effective and mandatory mitigation measures, the Panel concludes that there would be a significant adverse effect on the Southern Resident Killer Whale."

Conclusion #1 does not correlate appropriately with Key Findings and a stated informal conclusion in the text of the report. The Key Findings refer to the 'loss of critical habitat' which is not included in the Conclusion.

Key Findings in the Review Panel Report:

> "The Project would cause significant adverse and cumulative effects on SRKW through a small loss of legally-defined critical habitat, reduced adult Chinook salmon prey availability and a minor increase in underwater noise. In the absence of mandatory mitigation measures to reduce underwater noise from marine shipping associated with the Project, there would be further degradation of SRKW critical habitat. Although unlikely, a lethal vessel strike on a single individual SRKW could have significant adverse population consequences." [183]

In the body of the text, the Review Panel Report states a stronger conclusion on the loss of critical habitat and prey availability which is not properly incorporated into the Conclusions

> "The Panel concludes that the Project would result in a residual adverse effect on prey availability for SRKW, and the effect would be moderate in magnitude due to the nutritionally stressed state of the population. The effects would be regional in extent, permanent in duration, irreversible, and continuous. This residual effect would result in the partial loss of legally defined critical habitat for SRKW."[184]

This paragraph lacks clarity as it infers the loss of prey availability will result in the loss of critical habitat. This is misleading as it is the significant residual loss of critical habitat that will be one of causes of the significant residual loss of prey availability. This is dodging the fact that there will be a direct loss of critical habitat as the man-made island will dredge and fill a prime foraging area in the Fraser River estuary.

[183] The Review Panel Report , RBT2, Document #2062, March 27, 2020, Scrolled Page 16/627
[184] Ibid; Page 299/627

To dismiss this residual effect as moderate due to fact that the SRKW is already stressed is illogical; it is a non sequitur. The phrasing seems to have the intent of avoiding the obvious fact that loss of critical habitat and prey availability are significant residual adverse environmental and cumulative effects that will exacerbate the existing threats to the survival of the stressed endangered SRKW.

Also, the Key Findings refer to a "small loss of legally-defined critical habitat." No evidence is provided to support this statement which attempts to minimize the effect. As the new container terminal requires dredging and filling for a massive island, it will directly destroy critical estuarine habitat supporting some of the world's greatest salmon runs. The foraging opportunities in the estuary make this highly significant habitat and the effects will be not only from the Project site but also from industrial and shipping effects from port operations. This can hardly be characterized as a "small loss."

Omitting to accurately identify loss of critical SRKW habitat and the effects is serious as it does not meet requirements of the *Species at Risk Act* of identifying all adverse effects on SRKW and their critical habitat and ensuring measures are taken to avoid them. The measures must also be consistent with recovery strategies. Reference here
Species at Risk Act, Section 79.2 & Section 38

(b) Failure to include significant adverse effects from contaminants in the Key Findings, Conclusions, and Recommendations; the effects will be residual and are potentially catastrophic

The Key Findings, Conclusions and Recommendations fail to include significant adverse effects from contaminants as identified by submissions from independent experts and Environment and Climate Change Canada:

> "Contamination by toxic substances, including through bunker or diesel fuel spills, is one of the three main threats to the Southern Residents…
>
> …the Marine Shipping Addendum, without explanation, fails to consider the risk of contaminants, other than a fuel spill, that may arise from shipping activities through intentional or accidental release of bilge, ballast, grey or black waters. Further, the limited contaminant-related studies referred to by the Proponent do not appear to be related to contaminants of potential concern for this Project. Although the Proponent was asked by the Review Panel to consider contaminants more broadly (IR5-37), this has not happened. Dr. Kennedy cautions that these omissions call into question the Proponent's suggestion that the potential effect of contaminants is negligible."[185]
>
> "However, in ECCC's view, the information provided does not resolve the uncertainty regarding whether Project activities may negatively affect polychlorinated biphenyls (PCB) concentrations in the critical habitat of the Southern Resident Killer Whale (SRKW)"[186]
> ECCC 1454, Pages 2/40, February 8, 2019
> https://iaac-aeic.gc.ca/050/documents/p80054/126775E.pdf

The Review Panel does not address all potential origins of contaminants and fails to disclose and incorporate the fact that they requested that the Proponent consider contaminants more broadly and the Proponent failed to provide the information.

[185] RBT2 Environment Assessment, Ecojustice, Document 1605, April 15, 2019, Page 40, 41&42/72
[186] RBT2 Environment Assessment, ECCC, Document 1454, February 8, 2019, Page 2/40

The Review Panel provides the following rationale for not identifying PCB contaminants in Key Findings, Conclusions and Recommendations.

> "The Panel notes that the measure committed to by the Proponent, and also recommended by the Panel, to employ specific dredging practices to handle the upper 0.5 m of sediments in the tug basin expansion area, is precautionary and warranted, given the endangered conservation status of SRKW. With the implementation of this measure, the Panel agrees with the Proponent that the Project would not increase contaminant uptake by SRKW."[187]

No evidence is provided to confirm the mitigation will be implemented, or successful, as required under the precautionary principle. This is an opinion which does not concur with evidence provided by Environment and Climate Change Canada.

Also there is greater legal responsibility under the *Species at Risk Act* to identify adverse effects and ensure effective mitigation measures that are consistent with current recovery strategies and plans.

> "(2) The person must identify the adverse effects of the project on the listed wildlife species and its critical habitat and, if the project is carried out, must ensure that measures are taken to avoid or lessen those effects and to monitor them. The measures must be taken in a way that is consistent with any applicable recovery strategy and action plans." *Species at Risk Act, Section 79(2)*

(c) Omission of "residual" adverse effects from noise in Conclusion #1

The various statements in the Report are not clear. Key Findings and Conclusion #1 omit to include "residual adverse effect" from noise as reported in the text of the Report:

- Conclusion #1 states a "significant adverse effect" from noise. Page
- Key Findings states a, "minor increase in underwater noise…with further degradation of SRKW habitat." Page 16/627
- The body of the text states the Panel concludes: "…, there would be a residual adverse effect on the acoustic environment that is moderate in magnitude within SRKW critical habitat."

4. Legal Accountability to Environmental Assessment and Mitigation Measures

> "The Review Panel is tasked with conducting an environmental assessment of the Project in accordance with the requirements of CEAA 2012 and the Terms of Reference. As the Project is likely to affect federally listed wildlife species and their critical habitat, the additional mandatory provisions of s. 79 of SARA are engaged."[188]

Under *CEAA 2012*, *(Section 19.1 & 4.1)*, the environmental assessment must apply the Precautionary Principle while meeting requirements of identifying environmental effects and their significance, including past and future cumulative effects. The assessment must include technically and feasible mitigation measures that can mitigate significant adverse effects; this includes an identified and effective follow up program.

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[187] The Review Panel Report , RBT2, Document #2062, March 27, 2020, Scrolled Page 228/627
[188] RBT2 Environment Assessment, Ecojustice, Document 2036, August 26, 2019, Page 6/38

As the Project affects endangered Southern Resident Killer Whales, there is a heightened accountability under the Species at Risk Act.

> Section 79
> "(2) The person must identify the adverse effects of the project on the listed wildlife species and its critical habitat and, if the project is carried out, must ensure that measures are taken to avoid or lessen those effects and to monitor them. The measures must be taken in a way that is consistent with any applicable recovery strategy and action plans."

Under a federal Guide to the Species at Risk Act:

> "SARA also amends the definition of "environmental effect" under the Canadian Environmental Assessment Act to clarify, for greater certainty, that environmental effects include any change the project may cause to a SARA listed species, their residence or critical habitat."[189]

The Review Panel Terms of Reference, Section 4.28 require that the Review Panel Report include:

8. the rationale, conclusions and recommendations of the Review Panel on the environmental assessment of the project including any mitigation measures and follow up programs;
…
12. an identification of recommended mitigation measures and follow up programs that relate to the environmental effects of the project defined in section 5 of CEAA 2012, including, as appropriate, any commitments identified by the proponent in the EIS or during the review panel process;…

5. Project Effects cannot be effectively or fully mitigated

> "As the Conservation Coalition argued in the Written Submission, mitigation measures are intended to be actual, identifiable measures which will eliminate, reduce, or control adverse effects of a project. Courts have been clear that "vague hopes for future technology" to address effects do not constitute mitigation measures. Assurances of adaptive management, further study, and conceptual and unproven ideas do not constitute mitigation measures."[190]

No effective mitigation measures have been identified for the significant adverse effects of the Project on the endangered Southern Resident Killer Whales. As a result, the effects will be residual.

Critical Habitat - As noted above, the Project is planned in critical SRKW habitat in the Fraser River Estuary. This is a significant adverse residual and environmental and cumulative effect that cannot be mitigated.

Availability of Prey (Chinook Salmon) – Not only will there be a direct loss of SRKW critical foraging habitat, there will also be a loss of prey availability from the Project site blocking migrating salmon, the food source of the SRKW. Salmon will also be negatively impacted from port and shipping operations. Also, also adverse effects to water quality and salinity regimes from geomorphological changes caused by the manmade island and expanded causeway will affect declining Chinook salmon. This is a significant residual adverse environmental and cumulative effect that cannot be mitigated.

[189] Government of Canada, A Guide to the Species at Risk Act, Pages 2&3
[190] RBT2 Environment Assessment, Ecojustice, Document 2036, August 26, 2019, Page 27/38

Noise – As documented above, the body of the text of the Review Panel Report concludes a residual adverse effect from noise and the Panel reports the voluntary measures do not meet mitigation requirements of *CEAA 2012*. Ironically, the Review Panel Report Recommendation 31 offers ineffective measures of setting goals, annual reports, and utilizing underwater noise reductions. These noise reduction measures are unspecific and unproven. These do no not meet the requirements of *CEAA 2012.* This is a significant residual adverse environmental and cumulative effect cannot be effectively mitigated.

Contaminants – As documented above, the effects of contaminants were not identified or addressed in the Conclusions and Recommendations of the Review Panel Report. One mitigation measure supported in the Review Panel Report was the Proponent's claim that they would employ specific dredging practices to handle upper sediments in the tug basin expansion. These measures were not specific and not supported by Environment and Climate Change Canada:

> "ECCC does not consider the Proponent's response to IR11-23 as adequate to demonstrate that the PCB concentrations in the discharged sediments will be below DFO's recommended threshold of 12-200pg/g or that the discharged sediments will not result in an increase of ambient PBC concentrations."[191]

Cumulative Effects

> "The Panel agrees with the Proponent that the cumulative effects of the Project and marine shipping associated with the Project would be significant. The Panel concludes that a reduction in prey availability due to the Project, exposure to underwater noise and risk of vessel strike due to marine shipping associated with the Project have the potential to interact synergistically with the effects of past, present, and future Projects and activities, and would result in a significant adverse cumulative effect." [192]

> "…it is clear that the Project would likely jeopardize survival and recovery of some populations of Fraser River Chinook and certainly the Southern Residents. It is clear from the weight of evidence presented to the Review Panel during the Hearing… that the adverse effects of the Project on estuary dependent populations of Fraser River Chinook salmon and Southern Residents will reach the threshold of significant."[193]

13. Failure of the Review Panel Report to advise Governments that the environmental assessment of the SRKW does not meet the requirements of *CEAA 2012* and the *Species at Risk Act.*

The significant adverse environmental and cumulative effects on SRKW cannot be effectively and fully mitigated and will, consequently, be residual. Therefore, the effects cannot be justified

At the Public Hearing, May 23, 2019, Fisheries and Oceans, in reference to SRKWs, advised:

> "…At this point the proponent has not proposed mitigation for this project but has instead chosen to indicate that no effect will occur on this population. And throughout their presentations and documentation, much of the information that they provided is prefaced with "estimated likelihood" and "the possibility of". And these uncertainties are cause for concern."[194]

[191] RBT2 Environment Assessment, ECCC, Document 1454, February 8, 2019, Page 3/40
[192] The Review Panel Report , RBT2, Document #2062, March 27, 2020, Scrolled Page 230/627
[193] RBT2 Environment Assessment, Ecojustice, Document 2036, August 26, 2019, Page 11/38
[194] RBT2 EA, Fisheries and Oceans, Hearing Transcript, Document 1798, May 23,2019, Scrolled Pages 58&59/302

Ecojustice summarized the adverse effects of the Project on SRKW in submissions to the environmental assessment on behalf of the Conservation Committee representing the David Suzuki Foundation, Georgia Strait Alliance, Raincoast Conservation Foundation and the Wilderness Committee:

Ecojustice advised the Review Panel that the Project's effects on the endangered Southern Resident Killer Whales (SRKW) amount to critical habitat destruction:

> "The Conservation Coalition submits that the Project is likely to result in significant adverse environmental effects to many components of the Salish Sea ecosystem. These effects include adverse effects on federally protected species at risk that cannot be fully mitigated…"[195]

As documented above, there are no substantive or effective mitigation measures for the significant residual adverse environmental and cumulative effects on the endangered SRKW.

The Five Recommendations in the Review Panel Report are for future plans and continuation of voluntary initiatives. They fail to advise the Government of significant residual adverse environmental and cumulative effects.

The five Recommendations place all responsibility and accountability on Government agencies at a cost to taxpayers.

Recommendation 28 advises Fisheries and Oceans to develop a Marine Management Plan. This Recommendation is beyond the Mandate of the Review Panel in the Terms of Reference which stipulates that the Panel report on technically feasible mitigation measures provided during the environmental assessment process with opportunities for public input.

The Review Panel Terms of Reference, Section 4.28, qualify that the recommendations include information received through the process which, if implemented, would avoid or mitigate the environmental effects of the Project.

"The Report shall include:

9. the rationale, conclusions and recommendations of the Review Panel on the environmental assessment of the project including any mitigation measures and follow up programs;
…
14. an identification of recommended mitigation measures and follow up programs that relate to the environmental effects of the project defined in section 5 of CEAA 2012, including, as appropriate, any commitments identified by the proponent in the EIS or during the review panel process;…

Therefore, recommending subsequent unproven mitigation measures, plans, and regulatory reviews that have not been included in the environmental assessment process, and have not been provided to the public for comment, are inappropriate and beyond the mandate of the Review Panel.

Recommendation 29 advises the Port of Vancouver to continue voluntarily working with ongoing initiatives. Recommendations 30, 31, and 32 advise Government Agencies to continue with initiatives and programs for protection of SRKW.

[195] RBT2 Environment Assessment, Ecojustice, Document 2036, August 26, 2019, Page 8/38

The Recommendations do not advise Governments that these adverse effects cannot be effectively mitigated and the consequences from the Project will exacerbate existing injurious conditions in the estuary for salmon and endangered SRKW.

The failure to report that the environmental assessment does not ensure protection of the salmon and the SRKW contravenes the requirements of *CEAA 2012* and the *Species at Risk Act*:

CEAA 2012:

A submission by Ecojustice advises the Review Panel:

> "Pursuant to s. 43(1) of CEAA 2012, the Review Panel must conduct an environmental assessment, and prepare a report setting out its "rationale, conclusions and recommendations, including any mitigation measures and follow-up program", and submit the report to the Minister."
>
> The environmental assessment process
>
> 30. To comply with the requirements of CEAA 2012, the Review Panel must, in conducting its environmental assessment, consider, among other things:
>
> a) the environmental effects of the Project including the effects of malfunctions or accidents and any cumulative environmental effects (resulting from the project in combination with other physical activities that have been or will be carried out);
> b) the significance of those environmental effects;
> c) comments from the public;
> d) mitigation measures that are technically and economically feasible that would mitigation any significant adverse environmental effects; and
> e) the purpose and alternative means of carrying out the project.
>
> 31. The Review Panel's report will inform the Minister's decision under s. 52(1): whether the Project, taking into account any mitigation measures that the Minister considers appropriate, is likely to cause significant adverse environmental effects."

As outlined in this document, the Conclusions and Recommendations of the Review Panel omit to identify some significant adverse environmental effects and fail to sufficiently report on the lack of proven mitigation measures. As a result, the Review Panel's assessment, Conclusions and Recommendations are not consistent with CEAA 2012 requirements listed above and with further requirements:

> "33. This entire process, including the Review Panel's assessment and recommendation, must be carried out consistently with the purposes of CEAA 2012, which include:
> a) protection of the environment within federal jurisdiction from significant adverse environmental effects caused by a designated project;
> b) ensuring that designated projects are considered in a careful and precautionary manner to avoid significant adverse environmental effects; and
> c) encouraging federal authorities to take actions that promote sustainable development – defined as development that meets the needs of the present, without compromising the ability of future generations to meet their own needs – in order to achieve or maintain a healthy environment and a healthy economy. [196]

[196] RBT2 Environment Assessment, Ecojustice, Document 1605, April 15, 2019, Page 16/72

Species at Risk Act (SARA)

In a submission, Ecojustice provides guidance to the Review Panel on application of the Species at Risk Act (SARA):

> "… SARA imposes additional legal requirements on the Review Panel
>
> … Because the Project will affect SARA-listed species, including the Southern Residents, section 79(2) of SARA imports additional requirements into the environmental assessment and imposes additional, heightened legal obligations on the Review Panel. Specifically, pursuant to s. 79(2) of SARA, the Review Panel must also ensure measures to avoid or lessen the Project's adverse effects on the species that the Agency has identified as likely to be affected by the Project. The Review Panel must meet these obligations to lawfully complete the environmental assessment…
>
> …
>
> Section 79(2) establishes:
>
> a. a requirement for the Review Panel to ensure that the environmental assessment identifies all adverse effects of the Project on a listed wildlife species and its critical habitat, and, if the Project is carried out, further requirements to ensure that those effects are both mitigated and monitored;
> b. a requirement for the Review Panel to ensure that measures are taken to avoid or lessen all "adverse effects" of the Project on listed wildlife species and critical habitat, regardless of the significance of those effects; and
> c. a requirement that, if a recovery strategy or action plan exists for the species, the measures must be taken in a way that is consistent with that recovery strategy or action plan.

As outlined in this document, these requirements have not been met. As a result, this will prevent Governments from making an informed decision on the Project. Furthermore, the Review Panel Report fails to equip Governments with the information required to issue permits:

> "54. Further, under SARA, no agreements, permits, or authorizations can issue for the harming of a listed species or its critical habitat that would the jeopardize survival and recovery of the species.
>
> …
>
> As permits and authorizations will be required for the Project, they cannot be issued for harming listed species or critical habitat if they jeopardize survival and recovery of the species. Critical habitat is legally protected under the Species at Risk Act. It is also protected under Canada's international agreements."[197]

The Review Panel Report fails to inform Governments that approval of the Project could also breach international agreements and commitments as well as Canadian law.

[197] RBT2 Environment Assessment, Ecojustice, Document 1605, April 15, 2019, Pages 21,22&23/72

Attachment N

Irreversible significant residual adverse environmental effects on Fraser River Chinook Salmon

7. There will be a significant residual adverse cumulative effect on Chinook salmon.
8. The Conclusion and Recommendation fail to disclose that adverse effects on at-risk Chinook salmon cannot be mitigated; there will be ruinous consequences to their declining populations and to the food source of endangered Southern Resident Killer Whales.
9. Failure of the Review Panel Report to advise Governments that the environmental assessment of the Chinook salmon does not meet the requirements of *CEAA 2012* and the *Species at Risk Act (SARA)*

1. There will be a significant residual adverse cumulative effect on Chinook salmon

The Review Panel reported:

> "The Proponent concluded that the Project would not result in residual effects on Pacific salmon, and no cumulative effects assessment was undertaken. The Panel heard from many participants, such as Ecojustice, Fraser Voices and the VAPOR Society about past and ongoing developments in the Fraser River estuary. The Panel finds it reasonable to expect that past effects on juvenile Chinook salmon would combine with the Project effects to result in a significant cumulative effect." [198]
>
> "The Panel concludes that the Project will have an adverse residual effect on juvenile Chinook salmon due to migration disruption, coupled with minor adverse effects in the acoustic and light environments during construction and operations. This effect would be high in magnitude, local in extent, permanent in duration, and irreversible. The Panel concludes that this effect would be significant". [199]

Review Panel Conclusion on Chinook salmon:

> "The Panel concludes that the Project would result in a residual adverse effect and an adverse cumulative effect on ocean-type juvenile Chinook salmon populations from the Lower Fraser and South Thompson Rivers. The effects would be significant."[200]

Fisheries and Oceans advised the Review Panel that Project alterations and their effects will be significant, even with mitigation, and will impact 12 COSEWIC listed species of Chinook Salmon that are dependent on the Fraser River estuary habitat:

> "The proposed Roberts Bank Terminal 2 Project will significantly alter the existing Roberts Bank ecosystem resulting in the loss of a large area of marine fish habitats and changes to water circulation and sediment transport processes.
>
> Destruction or alteration of approximately 176 ha of tidal and sub-tidal habitats is anticipated as a result of construction of the marine terminal, causeway widening, and dredging to expand the tug boat basin and deepen the berth pocket. The types of marine habitat that would be impacted as a result of the Project include tidal and sub-tidal sand, mudflat, eelgrass, and marsh….

[198] RBT2 Environmental Assessment, Review Panel Report, Document #2062, Page 188, Scrolled 202/627
[199] RBT2 Environmental Assessment, Review Panel Report, Document #2062 Page 187, Scrolled 201/627
[200] RBT2 Environmental Assessment, Review Panel Report, Document #2062, Page 188, Scrolled 202/627

… even with mitigation, unavoidable death of fish is anticipated. This will be greatest for those species and life stages that live within the seabed sediments and those that attach themselves to rock…

…Based on the Project information to date - including the large-scale destruction of fish habitat, the high degree of uncertainty in predictions of incidental benefits and the small-scale of proposed offset concepts – DFO's view is that the goal of sustaining the ongoing productivity of fisheries will not be achieved….

… Fraser River Chinook Salmon are very dependent on the estuary for a critical juvenile growth period before entering the ocean.

Twelve populations of Fraser River Chinook Salmon has been determined to be at risk by COSEWIC – 7 Endangered, 4 Threatened and 1 Special Concern.

Given the dependence of this species on estuary habitat, the Proponent may have underestimated the significance of effects on fish and fish habitat, specifically effects on Chinook Salmon."[201]

Ecojustice on behalf of the David Suzuki Foundation, Georgia Strait Alliance, Raincoast Conservation Foundation and Wilderness Committee (the "Conservation Coalition") advised the Review Panel the Project will affect globally significant wild salmon runs including several species listed as threatened or endangered under the Committee on Status of Wildlife in Canada (COEWIC). [202]

Ecojustice further advised the Project would further fragment and contaminate salmon habitat:

"Impacts of the Project include further alteration and fragmentation of salmon habitat in the estuary, and obstruction migration of salmon to and from their natal streams. It is also likely that the estuary will be further contaminated through the routine operation of the terminal and there is the increased risk of a significant fuel spill in the estuary that could contaminate both salmon and their habitat."[203]

Ecojustice advised the Review Panel that the Project would alter freshwater and saline water mixing patterns:

"Juvenile salmon migrating southward from the mouth of the Fraser River may be exposed to highly saline waters as a result of the migration interruption created by the terminal, with unknown effects on their physiology and survival."[204]

"Given the concern about the scale and importance of Chinook and chum salmon habitat loss, lack of data on the biological functionality of past habitat restoration projects, and Fraser River Chinook's conservation status, the Conservation Coalition submits that the effects of the Project on Fraser River Chinook and chum salmon are likely to be adverse and significant…

…Finally, as discussed below, the importance of Fraser River Chinook as the primary prey of the critically endangered and the nutritionally stressed Southern Residents further indicates the significance of the adverse effects of the Project on Chinook salmon…

…Any additional impacts on prey availability, or additional noise or disturbance, will exacerbate the existing untenable conditions in the Salish Sea and will therefore be a significant adverse effect."[205]

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[201] RBT2 Environmental Assessment, Fisheries and Oceans, Document #1630, April 15, 2019, Page 75&76/207

[202] RBT2 Environmental Assessment, Ecojustice, Document #1605, Vol. 1, April 15, 2019, Page 4; Scrolled Page 11/72

[203] RBT2 Environmental Assessment, Ecojustice, Document #1605, Vol.1, April 15, 2019, Pages 4&5; Scrolled Pages 11&12/72

[204] RBT2 Environmental Assessment, Ecojustice, Document #1605, Vol.2, April 15, Page 88/671

[205] RBT2 Environmental Assessment, Ecojustice, Closing Remarks, Document 2036, August 26, 2019, Pages 14&15/38

2. The Conclusion and Recommendation fail to disclose that adverse effects on at-risk Chinook salmon cannot be mitigated; there will be ruinous consequences to their declining populations and to the food source of endangered Southern Resident Killer Whales.

The Key Findings, Conclusion and Recommendation (25) on the Chinook salmon fail to warn Governments that not only is there a significant residual adverse environmental and cumulative effect on Chinook salmon, but also, more importantly, there is no evidence that this critical effect can be mitigated.

Further, the Key Findings, Conclusion and Recommendation (25) fail to incorporate the important fact that 12 species of Chinook salmon are at risk. They are identified under the Committee on the Status of Endangered Wildlife in Canada (COSEWIC); 7 endangered, 4 threatened and 1 Special Concern. This vital information should not be omitted from summary sections of the Review Panel Report.

As Chinook salmon are a critical food source of the endangered Southern Resident Killer Whales, these concerns should be flagged to decision makers who will rely on Key Findings, Conclusions, and Recommendations of this Report.

The Review Panel Report notes that the Proponent concluded the Project would not result in residual effects on Pacific salmon. No cumulative effects assessment was undertaken.

The Proponent claimed the adverse effects on juvenile salmon would be negligible with the following mitigation commitments:

- to install lighting away from the marine environment
- to transplant eelgrass and construct tidal marsh habitat
- to restrict construction activities in the water from March 1 to August 15
- to explore the feasibility of a follow-up program of monitoring and data collection
- to include additional offsets if there are detectable changes in juvenile salmon with the Project[206]

No specific information is provided to ensure the mitigation measures are technically and economically feasible. The option of offsets and replacement tidal marsh habitat are unproven.

Fisheries and Oceans advised the Review Panel of uncertainty of success of mitigation measures:

- "Uncertainty in the successful design and construction of the proposed offsets and uncertainty associated with constructed offsets meeting the desired outcomes
- Uncertainty in predicted indirect (non-footprint) project impacts and benefits to fish and fish habitat and the extent to which benefits can be considered in the accounting of residual effects of the Project on fish and fish habitat.
- Due to the large-scale destruction of fish habitat, the high degree of uncertainty in predictions of incidental benefits and the small-scale of proposed offset concepts, DFO's view is that ongoing productivity of fisheries will not be achieved through creation of the proposed offsetting without additional offsetting or a reduction in Project impacts.[207]

"In concluding, in terms of fish and fish habitat, and again, due to large-scale destruction of fish habitat, the high degree and uncertainty and predictions of incidental benefits, and a small scale proposed off-site concepts, DFO's view is that the ongoing productivity of fisheries will not be achieved through creation of proposed offsetting without additional offsetting or reduction of project impacts."[208]

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[206] RBT2 Environmental Assessment, Review Panel Report, Document #2062, Page 183, Scrolled 197/627

[207] RBT2 Environmental Assessment, Fisheries and Oceans, Document #1741, May 15, 2019, Pages 13&14/22

[208] RBT2 Environmental Assessment, Fisheries and Oceans, Document #1797, Public Hearing, Page 1590; Scrolled 115/344

The Review Panel found the mitigation measures are not proven to be fully effective so the effects cannot be fully mitigated and would result in a residual adverse effect.

Ecojustice provided further evidence of unproven mitigation measures "

> "As explained in the Scott Report, the Proponent's experience with habitat compensation projects illustrate many of the concerns and cautions raised by witnesses about the limitations of habitat restoration to offset the loss of fish habitat. As confirmed during the Hearing, while the Proponent has demonstrated its ability to physically grow plants and physically create marsh like environments they have not yet studied the biological function of these recreated environments to confirm whether they actually function as fish habitat."[209]

Ecojustice strongly warned the Review Panel that in a late filing the Proponent made vague and unsupported commitments that cannot be legally supported:

> "There is no evidence on the record that the Proponent can or will avoid or lessen the Project's adverse effects on the availability Chinook salmon prey in critical habitat for Southern Residents…
>
> …the Project will result in the direct loss of large-scale destruction of important habitat for Fraser River Chinook populations that are both at risk and in decline… As confirmed by the Recovery Strategy, reduced availability of Chinook salmon prey is one of the key threats pushing the Southern Residents towards extinction…. As DFO told the Review Panel in the Hearing, the Project's impacts on Chinook salmon would constitute destruction of a legally protected biological feature of critical habitat.
>
> In the EIS, and during its presentation to the Review Panel at the Hearing, the Proponent repeatedly stated its plan to address adverse effects on Chinook salmon through habitat offsets on site and off site. They plan to replace the habitat they are destroying by creating new habitat along the perimeter Recap on offsetting plan for Chinook salmon. As stated above, the Conservation Coalition shares DFO's concern that it will not be possible to seamlessly offset the loss of so much important Chinook habitat
>
> In its new filing setting out updated Project commitments, the Proponent improperly goes beyond updating its commitments to make unsupported and vague claims with respect to the potential to offset impacts on Chinook, such as claims that the Proponent is "aware of many […] opportunities" for offsetting… The Board should not rely on unsupported claims about the potential contents of the not-yet-finalized Offsetting Plan the Proponent refers to.
>
> In the same document, the Proponent states that it "will undertake ongoing monitoring and adaptive management to ensure that offsetting projects are successful over the long-term, and that ecosystem and species productivity goals are met." …the Federal Court has cautioned that it is not reasonable to rely on vague commitment to adaptive management…This commitment is so vague as to be meaningless."[210]

[209] RBT2 Environmental Assessment, Ecojustice, Closing Remarks, Document 2036, August 26, 2019, Page 14/38

[210] RBT2 Environmental Assessment, Ecojustice, Closing Remarks, Document 2036, August 26, 2019, Pages 29-31/38

3. Failure of the Review Panel Report to advise Governments that the environmental assessment of Chinook salmon does not meet the requirements of *CEAA 2012* and the *Species at Risk Act (SARA)*

The Proponent committed to unproven mitigation measures that are not technically or economically feasible as required under *CEAA 2012:*

> 19 (1) The environmental assessment of a designated project must take into account the following factors:
>
> …(d) mitigation measures that are technically and economically feasible and that would mitigate any significant adverse environmental effects of the designated project
>
> (e) the requirements of the follow-up program in respect of the designated project;

The Review Panel Report omits to advise Governments that, in contravention of *CEAA 2012*, the environmental assessment of the Roberts Bank Terminal 2 Project does not protect Chinook from adverse environmental effects; does not provide technically and feasible mitigation measures; and does not apply the Precautionary Principle:

> *CEAA 2012*:
>
> 4 (1) The purposes of this Act are
>
> (a) to protect the components of the environment that are within the legislative authority of Parliament from significant adverse environmental effects caused by a designated project;
>
> (b) to ensure that designated projects that require the exercise of a power or performance of a duty or function by a federal authority under any Act of Parliament other than this Act to be carried out, are considered in a careful and precautionary manner to avoid significant adverse environmental

Governments need to know that if they approve the Roberts Bank Terminal 2 Project, Fisheries and Oceans will be required to issue permits and authorizations for destruction of fish habitat under the *Fisheries Act.* This fails adherence to the Precautionary Principle in *CEAA 2012.*

The authorization for the destruction of the Chinook critical habitat will contravene the *Species at Risk Act (SARA)* as the destruction of Chinook habitat means destruction of the critical habitat for the endangered Southern Resident Killer Whales.

> "As explained by DFO terminal construction will require authorization under s. 35 of the Fisheries Act for serious harm to fish. The potential for destruction of critical habitat would also trigger the permitting provisions of SARA in ss. 73-74.
>
> DFO said in its written submissions and in the Hearing that it is "uncertain" that the preconditions in the SARA permitting provisions can be met for this Project.54 This is because SARA s. 74 prevents the Minister from permitting fish habitat destruction under the Fisheries Act that, in the Minister's opinion, could jeopardize survival and recovery of a listed wildlife species."[211]

Ecojustice advises:

"If the Review Panel finds that there will be significant adverse effects on a listed wildlife species that cannot be avoided or lessened then it must recommend against proceeding with the Project."[212]

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[211] RBT2 Environmental Assessment, Ecojustice, Closing Remarks, Document 2036, August 26, 2019, Pages 17&18/38

[212] RBT2 Environmental Assessment, Ecojustice, Closing Remarks, Document 2036, August 26, 2019, Page 8/38

Attachment O:

Refusal of the Review Panel to consider the option of the Port of Prince Rupert as an Alternative Means after introducing an unjust interpretation of CEAA 2012 five years into the assessment

1. The Port of Prince Rupert is an alternative in the Environment Impact Statement (EIS)
2. Rationale of RBT2 is based on west coast container business demand which includes Prince Rupert
3. Public input advises that the container business expansion should be at the Port of Prince Rupert
4. Review Panel Announced Prince Rupert would not be assessed as an alternative to RBT2
5. Public Banned from speaking at the Public Hearing on the topic of Alternative Means
6. The Canadian Environmental Assessment Agency should have advised the Proponent and the public from the outset if the Port of Prince Rupert was not going to be assessed as an alternative means
7. Review Panel Report on Alternative Means

1. **The Port of Prince Rupert is an alternative in the Environment Impact Statement (EIS**)

From the outset of the environmental assessment of the Roberts Bank Terminal 2 Project (RBT2), it was the understanding of the public and the Proponent that the Port at Prince Rupert is a possible alternative means of fulfilling RBT2's purpose of meeting Canada's west coast container business demand.

Discussions of the Port of Prince Rupert as an alternative means are included in the Roberts Bank Terminal 2 (RBT2) Environmental Impact Statement (EIS). The Project 'Purpose' and 'Rationale' and 'Objectives' are presented as meeting west coast container business demand, not just Vancouver demand.

Introduction:

> "…The proposed Roberts Bank Terminal 2 Project …is an important component of PMV's plan to meet growing demand for container capacity in support of Canada's import and export markets. By providing for an additional 2.4 million twenty-foot equivalent units of container capacity per year, the Project will help to ensure that container capacity on the west coast of Canada is sufficient to meet projected demand to 2030."[213]

Purpose:

> "Port Metro Vancouver (PMV) proposes to build RBT2 to meet increasing forecasted demand for containerised trade on the west coast of Canada and to continue to maximise the potential economic and competitive benefits of the port."

Rationale:

> "Forecasts developed by Ocean Shipping Consultants (OSC), independent experts in global economics and logistics show that in the near term, existing container capacity on Canada's west coast and specifically, in B.C.'s Lower Mainland, will become constrained."

Objectives:

> "1. Meet demand for containerised trade growth on behalf of Canada and Canadians
> …
> 5. Align with federal and provincial strategies to continue to strengthen Canada's Asia-Pacific Gateway." [214]

[213] Roberts Bank Terminal 2 Environmental Impact Statement, Volume 1, Section 1. Introduction, Page 1-1, Scrolled 1/206
[214] Roberts Bank Terminal 2 Environmental Impact Statement, Volume 1, Section 2, 2-1 & 2-2; Scrolled Pages 16&17/206

The port of Prince Rupert was also included in the RBT2 Environmental Impact Statement (EIS) under alternative means:

"5.0 ALTERNATIVE MEANS OF CARRYING OUT THE PROJECT

…

As stated in the EIS Guidelines, section 8, the following alternative means have been considered in the analysis:

- Location of the marine terminal within B.C…

…For purposes of this assessment, these nine alternatives have been regrouped within three main categories as follows:

- Location of Marine Terminal within B.C. Alternatives (Section 5.3) –
  - Increase capacity and efficiency at existing container terminals within PMV's jurisdiction,
  - Convert existing other terminals and properties within PMV's jurisdiction to handle containers,
  - Build a new terminal within PMV's jurisdiction, and
  - Pursue other west coast container terminal plans and concepts;
- Location, Orientation, Layout, and Configuration Alternatives at Roberts Bank (Section 5.4) –

…

- Construction Alternatives at Roberts Bank (Section 5.5) –

…

5.3 LOCATION OF MARINE TERMINAL WITHIN BRITISH COLUMBIA ALTERNATIVES [215]

- Location of Marine Terminal within B.C. Alternatives (Section 5.3) –
  - Increase capacity and efficiency at existing container terminals within PMV's jurisdiction,
  - Convert existing other terminals and properties within PMV's jurisdiction to handle containers,
  - Build a new terminal within PMV's jurisdiction, and
  - Pursue other west coast container terminal plans and concepts;

Table 5-1 Location of Marine Terminal within British Columbia – Alternative Means Considered in the Assessment

Category	Specific Alternatives Considered
Increase capacity and efficiency at existing container terminals within PMV's jurisdiction (**Section 5.3.1**)	Increase capacity at Deltaport Terminal
	Increase capacity at Centerm
	Increase capacity at Vanterm
	Increase capacity at Fraser Surrey Docks (FSD)
Convert other existing terminals/properties within PMV's jurisdiction to handle containers (**Section 5.3.2**)	Lynnterm conversion
	Develop vacant site at Fraser Richmond properties
Build a new terminal within PMV's jurisdiction (**Section 5.3.3**)	Construct a new terminal at Roberts Bank
Pursue other west coast container terminal plans/concepts (**Section 5.3.4**)	Prince Rupert expansion(s)

[215] RBT2 Environmental Impact Statement, Volume 1, Sections 5.0 & 5.3, Pages 5-1;5-2;&5-3; Scrolled:107,108,&111/206

The Roberts Bank Terminals 2 (RBT2) Environmental Impact Statement (EIS) uses west coast container business demand to support the claim that RBT2 is needed. The statistics presented in the EIS are for west coast container demand, not just Vancouver. The EIS made the point that statistics predicted both expansions at Prince Rupert and RBT2 would be required to meet west coast container demand. [216]

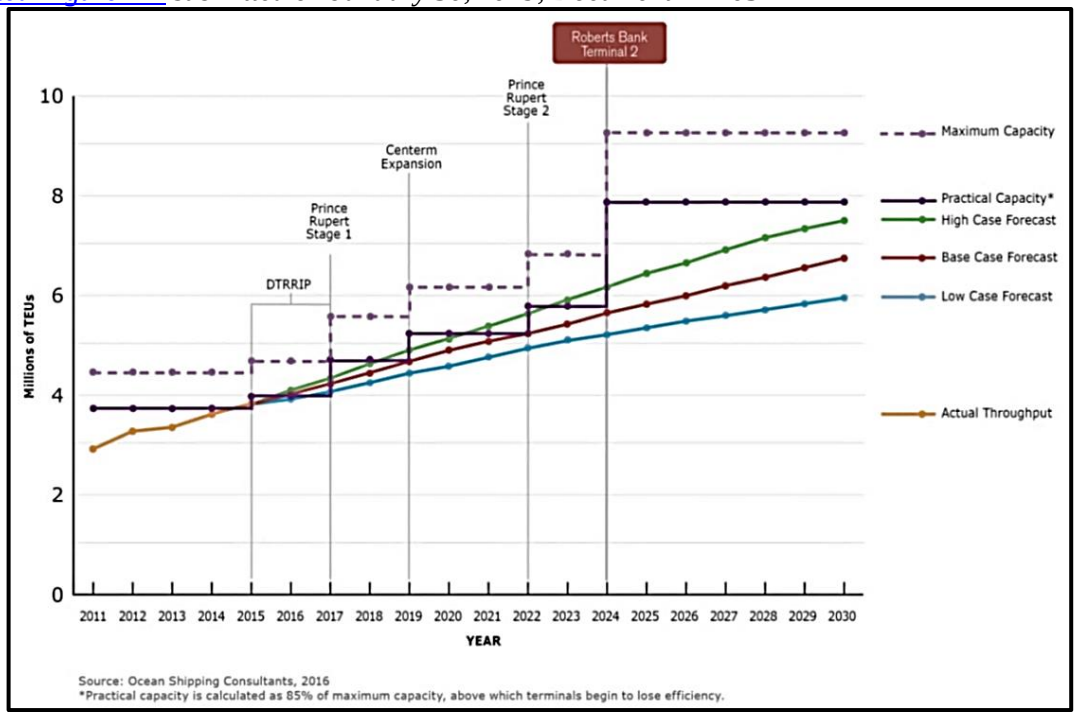
> "5.3.5 Location of Marine Terminal within British Columbia Alternatives – Summary Even with recent and current improvements at PMV's terminals, in addition to planned investments at the Fairview Terminal in Prince Rupert, the west coast of Canada will still need further new container capacity to meet the anticipated long-term demand. A new terminal at Roberts Bank is the only technically and economically feasible alternative to meet the long-term needs of the containerised market; the other alternatives identified in Table 5-1 and described above were not carried forward in this assessment."

The claim that other alternatives were not carried forward in the assessment is not accurate because the EIS continues to address the need of meeting west coast container capacity. If the intent was to address meeting the need of container capacity at only the Port of Vancouver, then the statistics and evidence should have been provided for only the Port of Vancouver. It appears the intent was to use the growing demand at the Port of Prince Rupert to justify RBT2.

2. Rationale of RBT2 is based on west coast container business demand which includes Prince Rupert

The EIS included two graphs depicting west coasts forecasts and/or capacity. One was Figure 2-4, '*Canadian West Coast Container Traffic Forecast (2014) and Planned Capacity Increases to 2030'*. The west coast container business did not expand as forecasted and, as the Prince Rupert Port showed increasing business and expansions, Figure 2-4 was updated in 2016 showing reduced forecasts and greater capacity at Prince Rupert. No specific data or statistics were provided – just a vague reference to the 2016 Ocean Shipping Consultants Report.

Updated Figure 2-4 submitted on January 30, 2019, Document # 1405

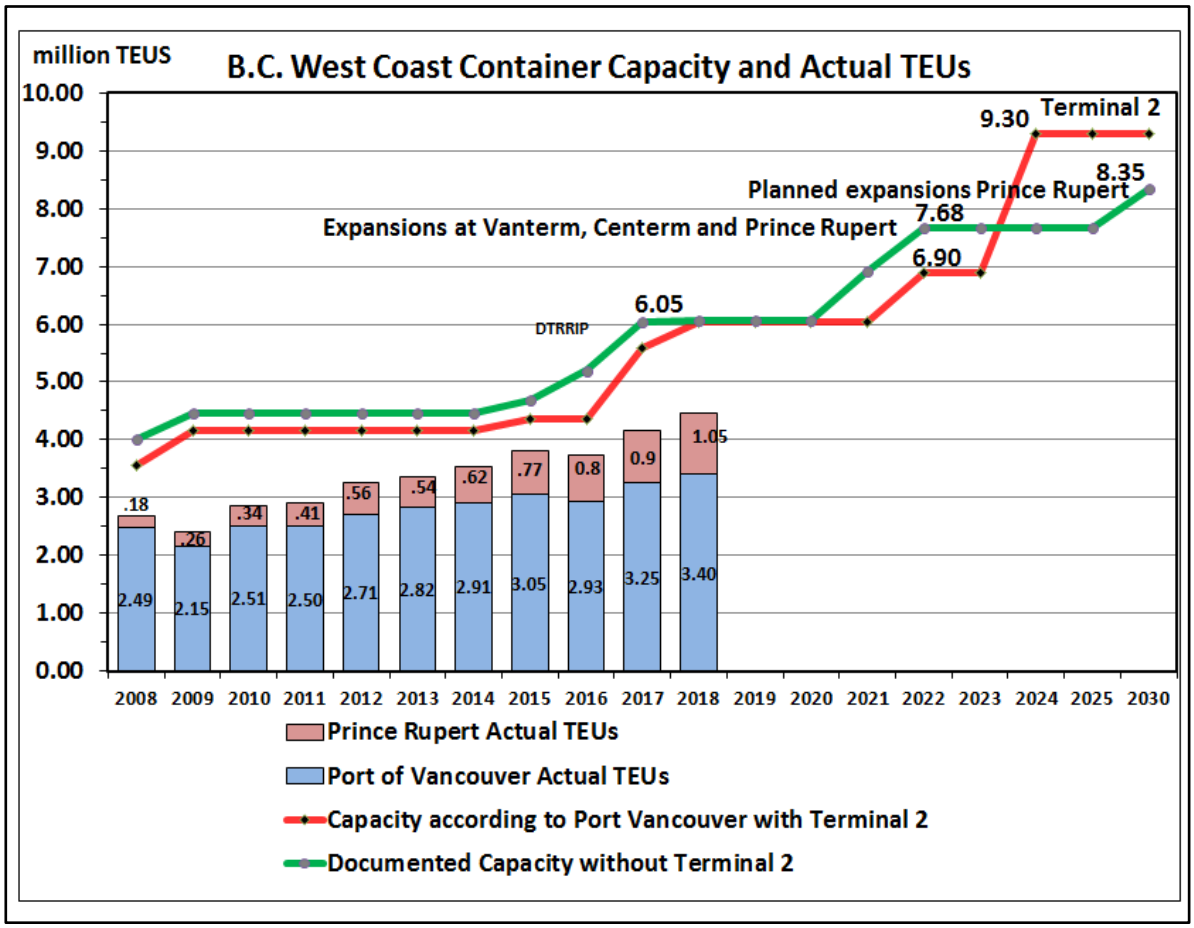


[216] RBT2 Environmental Impact Statement, Volume 1, Sections 5.3.5, Pages 5-11; Scrolled:117/206

The EIS presents Canada's west coast statistics on actual container traffic business, projected demand, and capacity but omits to provide data for the Port of Vancouver. During the environmental assessment process, the Review Panel requested more specific statistics for the Port of Vancouver container business. The statistics were not submitted.

In response to the RBT2 EIS, the Boundary Bay Conservation Committee submitted reports with documented statistics indicating that the Port of Vancouver forecasts are inflated and there is sufficient capacity without RBT2. The following graph was submitted at the Public Hearing, Document #1710[217], using the statistics provided to the Environmental Assessment in Documents #1267[218] and #1421[219].

Note: one TEU = one 20-foot container unit



In the EIS, the Port of Vancouver relied on the rapid growth of the container business in Prince Rupert to state its case for demand in Vancouver. In fact, the container business Vancouver has not met even the lowest case forecasts for over 10 years and it was flat in 2019.

Furthermore, the small increase in the Vancouver container business is for US- bound import containers from Asia being funnelled through Vancouver. The Port of Vancouver refuses to provide data on US-bound container business but the 2016 Ocean Shipping Consultants Report states:

"Table 1R1-03-2, forecasts that 23% of future import containers will be US-bound."

[217] RBT2 Environmental Assessment, Document #1710, Boundary Bay Conservation Committee, May 10&17, 2019, Slide 11
[218] RBT2 Environmental Assessment, Document #1267, Boundary Bay Conservation Committee, September 24, 2018
[219] RBT2 Environmental Assessment, Document #1421, Boundary Bay Conservation Committee, February 3, 2019

If other planned and ongoing expansions at B.C. ports continue, there will be sufficient container capacity for decades without the Roberts Bank Terminal 2 Project:

> "There is potential, with future expansions at Prince Rupert, for 10 million TEUs for Canada's west coast container traffic without RBT2. This is more than double the current business of 4.4 million TEUs in 2018."[220]

The container business is growing rapidly at the Port of Prince Rupert but not in Vancouver *(VFPA – Vancouver Fraser Port Authority):*

> "The VFPA has continually provided information that combines statistics from the Port of Prince Rupert with statistics of the VFPA. This is misleading as the container business at the Port of Prince Rupert is growing considerably faster at a Compound Annual Growth Rate (CAGR) of 20% from 2008-2017 compared to a CAGR of 3% in VFPA ports over the same period."[221]

In Submission 1275, the Boundary Bay Conservations advised the Review Panel that in 2008, the federal Government had hired three independent transportation experts who advised that:

> "…policy makers develop container capacity in Prince Rupert before making investments in Vancouver"…and further that: "…a systematic approach be taken to achieve an understanding of port capacity before a conclusion is reached that a particular port must necessarily be larger." [222]

The Report, commissioned by Canada's Minister of Transportation, was, and continues to be, ignored.

RBT2 will be an unnecessary cost of millions, maybe billions, tax dollars

The Governments of Canada and British Columbia need to know that the Consultants' Reports were commissioned by the Port of Vancouver. There has not been an independent review of the Port's numbers. Nor did the EIS provide a feasibility study, a cost/benefit analysis, or a formal document showing specifically how much it will cost to build RBT2. The Port of Vancouver is having difficulty finding investors as the latest estimate is $3.5 billion in Canadian dollars:

> "The Vancouver Fraser Port Authority is seeking investment partners to finance the construction and operation of a container terminal expansion that's been delayed for several years.
>
> The authority began reaching out to investors about a week ago regarding the project, at Roberts Bank in Delta, British Columbia, which may cost as much as C$3.5 billion ($2.7 billion), Chief Executive Officer Robin Silvester said Tuesday in an interview."[223]

Even if the Port finds a client to pay for the terminal, millions of tax dollars will be spent on providing infrastructure – road and rail upgrades, power lines, water, drainage, and the numerous mitigation measures that the Review Panel has advised be carried out by Government Agencies.

Additionally Metro Vancouver municipalities will need to upgrade train intersections and local roads to accommodate double the current truck traffic. This will need to be funded by Vancouver area taxpayers.

The Asia- Pacific Gateway Program has already spent over a billion dollars to facilitate the west coast container business.[224] There is no substantive evidence to justify dredging and filling the world-class Fraser River Estuary for a man-made island container terminal that is not needed to meet Canada's west coast container demand.

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[220] RBT2, EIS, Boundary Bay Conservation Committee, Document #1421, February 3, 2019, Page 9
[221] RBT2, EIS, Boundary Bay Conservation Committee, Document 2024, August 25, 2019, Slide #22
[222] Asia Pacific Gateway and Corridor Initiative Report, Advisors Report, 2008, Burghadt, De Fehr & Turner
[223] Bloomberg, Gillian Tan and Natalie Obiko Pearson, December 17, 2019
[224] Evaluation of the Asia-Pacific Gateway & Corridor Initiative & the Gateways and Borders Crossing Fund, October, 2017

3. Public input advises that the container business expansion should be at the Port of Prince Rupert

The Environmental Impact Statement (EIS) for RBT2 did not provide statistics for Vancouver ports so the public could only respond to the information on west coast container capacity and demand which naturally included the Port of Prince Rupert.

At the outset of the environmental assessment, public submissions questioned again and again why the container port was planned in the Fraser River estuary. Hundreds of submissions over the 6 years of assessment suggest that Prince Rupert is a better alternative:

> "Participants questioned PMV's demand forecasts and justification for additional container capacity on the West Coast of Canada. Some participants expressed interest in seeing additional capacity built in Prince Rupert or the use of short-sea shipping as an alternative to building a new terminal."[225]
>
> During multi-stakeholder meetings, participants also discussed the relationship between ports in BC, such as Prince Rupert, an interest in regional transportation planning as well…"[226]

4. Review Panel Announced Prince Rupert would not be assessed as an alternative to RBT2

Announcement of Review Panel, January 30, 2019

- As the alternative of Prince Rupert was addressed in the Environmental Impact Statement; and
- As the Purpose of RBT2 is identified as meeting west coast container business demand; and
- As the Port of Vancouver did not provide a business case for the Vancouver area; and
- As the Port's Ocean Shipping Consultants Reports addressed west coast container business and not specifically Vancouver container business; and
- As the Canadian Environmental Assessment Agency did not advise the Proponent and public for over 5 years about interpretation of *the Canadian Environmental Assessment Act (CEAA 2012)*; and
- As evidence has grown over the 6 years of the environmental assessment that the container business is growing faster at the Port of Prince Rupert;

Therefore, a public announcement by the Review Panel, 4 months prior to the Public Hearings, was a complete shock as it changed the scope of the Roberts Bank Terminal 2 Environmental Impact Assessment as required *under CEAA 2012.*

Almost 3 years after the start of their review on May 31, 2016, the Review Panel made a public statement limiting the interpretation of "need" and "alternatives" in the Environmental Assessment of Roberts Bank Terminal 2:

> "Now, the Panel would like to clarify a few points regarding its mandate. According to CEAA 2012 the Panel is required to look at the purpose of the project but not the need for the project. Its mandate is to examine a specific container terminal proposed by a proponent and evaluate its environmental effects and not where the B.C. West Coast requires the development of a container terminal."[227]

[225] RBT2, EIS, Document #1, Results of Public Information Meeting, September, 2012, Page 47/188
[226] RBT2, EIS, Document #1, Results of Public Information Meeting, September, 2012, Page 154/188
[227] RBT2, EIS, Information Session, Opening Comments, Document #1413, January 30, 2019, Page 4; Scrolled Page 7/181

The Boundary Bay Conservation Committee (BBCC) wrote a submission to the Review Panel stating this narrow interpretation was not supported in *CEAA 2012,* the Review Panel Mandate in the Terms of Reference or in the Environmental Impact Statement. The Panel based their restrictions on a CEAA document, 'Addressing "Purpose of" and "Alternative Means"'. However, the document states:

> "in the event of any inconsistency between this guide and CEAA 2012 or regulations, CEAA would prevail."[228]

The BBCC pointed out that introducing a narrow interpretation after 5 years of public input was inconsistent and unfair to the public and contravened international core values of public participation. BBCC wrote that while consideration of **'need'** is no longer a requirement of *CEAA 2012,* it does not necessarily follow that the Panel is prohibited from considering **'need'** when it is an obvious and logical component of the Purpose of a project.

This is the case with the RBT2 Project, especially as it is stated as the guiding principle of *Section 2.0, Project Overview*, of the RBT2 EIS. Purpose, objectives and context are included as subsections of the **'need'**.

> "This section describes the need for the proposed Roberts Bank Terminal 2 Project (RBT2 or the Project), including the purpose, objectives, and context of the Project, and summarises Project planning, development, and implementation phases. It also briefly describes Project-related opportunities and benefits".[229]

The statement contradicts the stated *Purpose* of RBT2:

> "*2.1 PROJECT PURPOSE AND OBJECTIVES*
>
> Metro Vancouver (PMV) proposes to build RBT2 to meet increasing forecasted demand for containerised trade on the west coast of Canada and to continue to maximise the potential economic and competitive benefits of the port."

In the EIS, the Vancouver Fraser Port Authority (VFPA) addresses Canada's west coast container capacity and forecasts which necessarily include the Prince Rupert Port Authority. It defies logic to turn around and be restricted to addressing only "a specific container terminal" i.e. Roberts Bank Terminal 2.

The BBCC also expressed concern with the second part of the statement by the Review Panel:

> "Its mandate is to examine a specific container terminal proposed by a proponent and evaluate its environmental effects and not where the B.C. West Coast requires the development of a container terminal."

This statement cannot be confirmed and does not appear in the Review Panel's Mandate in the Terms of Reference.

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[228] RBT2, EIS, Boundary Bay Conservation Committee, Document #1425, February 5,2019

[229] Roberts Bank Terminal 2 Project-Environmental Impact Statement, Volume 1, Section 2.0, Project Overview, page 16/206 https://www.ceaa-acee.gc.ca/050/documents/p80054/101388E.pdf

In another submission, the BBCC challenged the Review Panel's statement:

> "According to CEAA 2012 the Panel is required to look at the purpose of the project but not the need for the project."

The Boundary Bay Conservation Committee (BBCC) wrote:

- "This statement is not from the *Canadian Environmental Assessment Act 2012*.
- It is an interpretation of the Act and the source was not provided.
- There is no definitive evidence in CEAA 2012, the RBT2 EIS, or the TOR that the public was restricted by law to this narrow sense of the meaning of "alternatives" or "purpose"."[230]

Most importantly, this narrow interpretation was not made clear to the public in the Terms of Reference or the Environmental Impact Statement.

5. Public Banned from speaking at the Public Hearing on the topic of Alternative Means

At the Public Hearings in May, 2019, the Review Panel held a topic session on Alternative Means. The BBCC sent in a submission expressing the concerns about the Panel's interpretation of Alternative Means and requested to speak at the topic session.

On May 30, 2019, the BBCC received a letter from the Review Panel Secretariat informing the BBCC that the Panel would not allow an oral presentation of the submission:

> "…On May 28, 2019, you provided the Panel with a presentation to be presented on May 31, 2019 at the topic specific session on alternative means. The Panel has reviewed your presentation and is of the view that it is largely argument on the proper interpretation of section 19(1)(g) of CEAA 2012 and on the environmental assessment process.
>
> I am writing to advise that the Panel will not allow the presentation during the topic-specific session as is given it is in the nature of argument, not evidence or information with respect to alternative means to carrying out the designated project that are technically and economically feasible. The Panel advises that, notwithstanding the foregoing, you may file your presentation as part of or in support of your closing remarks (i.e., as closing argument)."[231]

The BBCC submitted a letter expressing concern that the Review Panel would not allow an oral presentation on the interpretation of Alternative Means in *CEAA 2012*.[232]

Another speaker went through the same experience and was not permitted to make an oral presentation on the interpretation of Alternative Means.

6. The Canadian Environmental Assessment Agency should have advised the Proponent and the public from the outset if the Port of Prince Rupert was not going to be assessed as an alternative

The Canadian Environmental Assessment Agency failed due public process by not ensuring clarity at the outset of the environmental assessment. It is clear from submissions to the environmental assessment that the public's interpretation of the EIS definitely addressed the Port of Prince Rupert as an alternative option. The EIS definitely includes Prince Rupert as an alternative and bases RBT2 justification on the container business at Prince Rupert.

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[230] RBT2 Environmental Assessment, Document #1759, May 30, 2019
[231] RBT2 Environmental Assessment, Document #1849 , May 30, 2019
[232] RBT2 Environmental Assessment, , Document #1858, May 30, 2019

7. Review Panel Report on Alternative Means

The Review Panel Report reiterates the position it announced on January 30, 2019:

> "The Panel concludes that it was not necessary for the Proponent to have considered additional capacity at Prince Rupert as an alternative means of carrying out the Project, because Prince Rupert is not within the Proponent's jurisdiction but within the jurisdiction of the Prince Rupert Port Authority. The designated project is a container terminal "located at Roberts Bank". Having regard to this, the Panel rejects the argument constructing a terminal at Prince Rupert is an alternative means of carrying out the Project."
> …
> The Panel does not believe that a designated project can be de-linked from the Proponent which proposes it…
> …The Panel considers the evaluation of alternative means appropriate and accepts the Proponent's rationale that components of the proposed Project must be under the Proponent's jurisdiction.
> Conclusion
>
> The Panel concludes that the Proponent's assessment of alternative means of carrying out the Project was appropriate."[233]

The Review Panel Report does not address some issues on Alternative Means:

- the fact that the Port of Prince Rupert was addressed as an alternative in the Environmental Impact Statement (EIS)
- the fact that the business case presented by the Port of Vancouver is based on west coast statistics which automatically include the Port of Prince Rupert
- the fact that the Port of Vancouver did not provide statistics for the Vancouver area and, therefore, did not present a business case for the Vancouver area
- the fact that the public and the Proponent submitted documents indicating their understanding that the Port of Prince Rupert is an Alternative Means of realizing the RBT2 Purpose of meeting west coast container business demand

The Review Panel Report fails to advise Governments that public opinion was strongly in favour of exploring the Port of Prince Rupert as a more sensible and more viable option to meet Canada's west coast container business demand.

It would be appropriate for the Review Panel Report to advise Governments that alternative means should be examined as the Panel cannot justify RBT2 without evidence that it is the best means to meet the Project's Purpose of meeting west coast container business demand.

[233] RBT2 Environmental Assessment, Review Panel Report, March, 2020, Pages 55-57; Scrolled 69-71/627

Attachment P:

Failure to appropriately advise Governments of inadmissible Cumulative Effects Assessment

1. The Review Panel Report offers no Conclusions on the failed Cumulative Effects of the Roberts Bank Terminal 2 Project (RBT2)
2. The Review Panel's Analysis exposes unacceptable omissions and errors in the Proponent's Cumulative Effects Assessment of RBT2
3. The Recommendations for future measures are Beyond the Mandate of the Review Panel
4. The Review Panel Report fails to disclose that the Cumulative Effects Assessment of RBT2 fails to meet the requirements of *CEAA 2012* and the *Species at Risk Act (SARA)*

1. The Review Panel Report offers no Conclusions on the failed Cumulative Effects Assessment of the Roberts Bank Terminal 2 Project (RBT2).

In spite of documenting the importance of an effective Cumulative Effects Assessment, and in spite of documenting unacceptable omissions and errors in the Proponent's Cumulative Effects Assessment, the Review Panel Report offers no Conclusions on Cumulative Effects of the Roberts Bank Terminal 2 Project (RBT2) on the marine ecosystem of the Fraser River Estuary.

The lack of Conclusions fails to alert Government to the evidence of irreversible, permanent, significant residual environmental and cumulative effects of RBT2.

The Review Panel Report recognizes the importance of a proper Cumulative Effects Assessment:

- "it is evident that the marine ecosystem of the Fraser River estuary is increasingly being threatened by the cumulative effects of development and human activities
- The Panel recognizes the importance of addressing the cumulative effects of successive actions in the context of a project environmental assessment, however the approach taken to evaluate such effects requires a holistic evaluation of the combined effects of developments, human activities and natural processes on the environment

…

- The Panel agrees with participants and considers that a proper cumulative effects assessment for the Project is crucial given the series of developments in the area that have occurred over the past decades.
- The Panel appreciates that a cumulative effects assessment must take into account the effects of past, existing, and future projects and activities in combination with the residual effects of the Project even if project effects are minor and not significant

…

- In its request for additional information the Agency explained that, regardless of whether effects from future projects and activities were expected to occur or not, the total cumulative effects of the Project needed to take into account the effects from past and existing projects and activities if they might interact with residual effects from the Project.
- Further, during the sufficiency review of the EIS, the Panel asked the Proponent to reconsider its assessment for several environmental components to evaluate the potential for residual effects and cumulative effects."[234]

[234] RBT2 Environmental Assessment, Review Panel Report, March, 2020, Pages 465& 466; Scrolled Pages 479& 480/627

2. The Review Panel's Analysis exposes unacceptable omissions and errors in the Proponent's Cumulative Effects Assessment of RBT2

These are not just shortcoming and insufficiencies. These are calamitous omissions and errors that reveal the failure of the RBT2 Cumulative Effects Assessment. The environmental assessment process of RBT2 has failed to identify significant residual adverse environmental and cumulative effects on individual and collective valued components of the Fraser River Estuary. The Review Panel reports:

> "…the Proponent did not describe past projects and activities contributing to the current state of those environmental components for which there were no residual effects predicted.
>
> The Panel is of the view that if the Proponent had re-evaluated all environmental components as requested, the Proponent would have identified more residual effects and appropriate mitigation measures could have been applied.
>
> Further, the use of a temporal baseline to characterize residual effects would have allowed the Panel to assess measurable changes compared to the baseline conditions or other applicable standards, guidelines or objectives
>
> The Panel notes that cumulative effects for Indigenous communities may have a regional or historic context and may extend to aspects of cultural heritage, socio-economics, health and other matters tied to their history and connection to the landscape.
>
> The Panel is of the view that the Proponent often determined there was no residual effect despite uncertainty regarding the effectiveness of mitigation, which is neither conservative nor does it conform to its approach to assess the Project effects in a precautionary manner. For a residual effect to be reduced to zero, the mitigation measures would have to be fully effective so that no effect remains.
>
> The Panel heard from the Proponent that undetectable and unmeasurable are synonymous terms that were used to describe residual effects that are of very low consequence; ones that the Proponent was unable to clearly characterize the magnitude, frequency, duration, and extent of the residual effect. The Panel does not accept that a residual effect, no matter how small, should be excluded from a cumulative effect assessment, nor does the Panel accept that a residual effect needs to be characterized in order for a cumulative effects assessment to be carried out.
>
> The Panel heard from the Proponent that good quantitative data to prepare its cumulative effects assessment was often limited or not available, particularly in marine environments…
> ……the absence of good quantitative data cannot be used to justify the avoidance of doing a cumulative effects assessment
>
> The Panel is of the opinion that an evaluation of the baseline conditions and context needs to be carried out early in the environmental assessment process, by both proponents and governments.
>
> …the Cumulative Effects of Marine Shipping initiative under the OPP is limited to shipping activities. A regional environmental assessment is needed and should favour a broader ecosystem approach."[235]

[235] RBT2 Environmental Assessment, Review Panel Report, Document # , Page

3. The Recommendations for future measures are Beyond the Mandate of the Review Panel

"Recommendation 69 - The Panel recommends that the Cumulative Effects of Marine Shipping initiative of the Oceans Protection Plan be pursued with appropriate budgets.

Recommendation 70 - The Panel recommends the Government of Canada undertake two regional environmental assessments for the Fraser River estuary and the Salish Sea to establish an environmental baseline, identify environmental and cumulative effects of the areas, and mitigation and followup requirements. The regional assessment should be used to develop and implement Intergovernmental Management Programs of the Fraser River estuary and the Salish Sea (See Recommendation 68)."

Although the *CEAA 2012, Section 43.(1)(d) (i)* states the duties of the Review Panel include recommending mitigation measures and follow-up program, they are with respect to the environmental assessment, not subsequent regulatory review and additional information that has not been included in the environmental assessment process with the opportunity for public input:

(d) prepare a report with respect to the environmental assessment that sets out

(i) the review panel's rationale, conclusions and recommendations, including any mitigation measures and follow-up program, …

The Review Panel Terms of Reference, Section 4.28, qualify that the recommendations include information received through the process which, if implemented, would avoid or mitigate the environmental effects of the Project.

"The Report shall include:

10. the rationale, conclusions and recommendations of the Review Panel on the environmental assessment of the project including any mitigation measures and follow up programs;
…
15. an identification of recommended mitigation measures and follow up programs that relate to the environmental effects of the project defined in section 5 of CEAA 2012, including, as appropriate, any commitments identified by the proponent in the EIS or during the review panel process;…"[236]

Therefore, recommending subsequent unproven mitigation measures, plans, and regulatory reviews that have not been included in the environmental assessment process, and have not been provided to the public for comment, are inappropriate and beyond the mandate of the Review Panel.

4. **The Review Panel Report fails to disclose that the Cumulative Effects Assessment of RBT2 fails to meet the requirements of CEAA 2102 and the Species at Risk Act.**

In failing to appropriately identify significant residual adverse environmental and cumulative effects of RBT2 on individual and collective valued components of the Fraser River Estuary, the Proponent has not met the legal requirements of *CEAA 2012*. Nor has the Proponent sufficiently identified the significant residual effects on species at risk under the *Species at Risk Act (SARA)*. The Review Panel Report fails to disclose this information to Governments in their Conclusions and Recommendations. Also, the Panel's Analysis on Cumulative Effects does not address legal requirements and the failure to meet these requirements.

Under Section 19(1) of C*EAA 2012*), and the Terms of Reference, it is the duty of the Review Panel to assess the cumulative effects of RBT2 in combination with other activities in the region; the Panel is also required to assess the significance of these cumulative effects and take into account comments from the public.

[236] RBT2 Environmental Assessment, Terms of Reference

Under Section 4(1), it is the duty of the Review Panel to meet the Purpose of *CEAA 2012* to protect the valued components of the environment from significant adverse effects. Acting as a federal authority, the Review Panel is tasked with ensuring the requirements under *CEAA 2012* are met in a "careful and precautionary manner to avoid significant adverse environmental effects."[237]

As documented above, the Review Panel Report outlines some of the failings of the Proponent's Cumulative Effects Assessment but does not incorporate this information into Conclusions and Recommendations to inform and advise Governments. Additionally the Review Panel Report fails to advise Governments that legal requirements under *CEAA 2012* and *SARA* have not been met.

> "The Review Panel is tasked with conducting an environmental assessment of the Project in accordance with the requirements of CEAA 2012 and the Terms of Reference. As the Project is likely to affect federally listed wildlife species and their critical habitat, the additional mandatory provisions of s. 79 of SARA are engaged…
> …
> Generally, the Review Panel must evaluate whether the Project is likely to result in adverse environmental effect, and taking into account available mitigation conclude whether the adverse effects will be significant. Additionally, in the context of SARA listed species, the Review Panel must identify all adverse effects on all those species, and ensure that if the Project is carried out measures are taken to avoid or lessen those effects and to monitor them."[238]

Although it is the Minister of Environment and Climate Change Canada, and likely the federal Cabinet, who will make the federal decision, it is the Review Panel's Report that will provide the information required to make that decision. The Review Panel Report will also provide the information for the B.C. Government's decision on the Project.

Unfortunately, the Review Panel Report on one of the most important topics of the environmental assessment, Cumulative Effects Assessment, does not provide Conclusions and Recommendations to correctly inform Governments. In fact, there are no Conclusions in spite of the Panel's Analysis exposing critical flaws in the Proponent's Assessment. And the Recommendations do not address the environmental assessment but just suggest government future actions beyond the Mandate of the Review Panel.
Furthermore, the legal requirements are not even addressed. With no Conclusions and Recommendations that do not address the environmental assessment, the Review Panel Report fails the purpose of CEAA 2012:

> **4 (1)** The purposes of this Act are
>
> **(a)** to protect the components of the environment that are within the legislative authority of Parliament from significant adverse environmental effects caused by a designated project;
>
> **(b)** to ensure that designated projects that require the exercise of a power or performance of a duty or function by a federal authority under any Act of Parliament other than this Act to be carried out, are considered in a careful and precautionary manner to avoid significant adverse environmental effects;…
>
> **(h)** to encourage federal authorities to take actions that promote sustainable development in order to achieve or maintain a healthy environment and a healthy economy; and
>
> **(i)** to encourage the study of the cumulative effects of physical activities in a region and the consideration of those study results in environmental assessments.

[237] CEAA 2012
[238] RBT2 Environmental Assessment, Ecojustice, Document #

In the Cumulative Effects Assessment, the Review Panel has not addressed the Species at Risk affected by the Project. This fails to meet the requirements of the Species at Risk Act which requires:

> "48. Because the Project will affect SARA-listed species, including the Southern Residents, section 79(2) of SARA imports additional requirements into the environmental assessment and imposes additional, heightened legal obligations on the Review Panel. Specifically, pursuant to s. 79(2) of SARA, the Review Panel must also ensure measures to avoid or lessen the Project's adverse effects on the species that the Agency has identified as likely to be affected by the Project. The Review Panel must meet these obligations to lawfully complete the environmental assessment.
>
> 49. The Conservation Coalition submits that these requirements further constrain the Review Panel's recommendations to the Minister, if the adverse effects of the Project cannot be effectively mitigated. Further, the Review Panel cannot recommend the Project if its adverse effects will further jeopardize survival and recovery of a SARA-listed species….
>
> …52. The content of the s. 79(2) duty is clear on the plain language of the provision. Section 79(2) of SARA applies when a project that is being reviewed under CEAA 2012 is likely to affect a listed species or its critical habitat. These requirements apply for all federally protected species that are likely to be affected by the Project, including, but not limited to, the Southern Residents. Section 79(2) establishes:
>
> a. a requirement for the Review Panel to ensure that the environmental assessment identifies all adverse effects of the Project on a listed wildlife species and its critical habitat, and, if the Project is carried out, further requirements to ensure that those effects are both mitigated and monitored;
>
> b. a requirement for the Review Panel to ensure that measures are taken to avoid or lessen all "adverse effects" of the Project on listed wildlife species and critical habitat, regardless of the significance of those effects; and
>
> c. a requirement that, if a recovery strategy or action plan exists for the species, the measures must be taken in a way that is consistent with that recovery strategy or action plan."[239]

Fisheries and Oceans have advised the Review Panel that permits and authorizations will be required if the Roberts Bank Terminal 2 Project proceeds. They informed the Panel that this might not be possible in terms of legal requirements for the protection of Species at Risk.

> "54. Further, under SARA, no agreements, permits, or authorizations can issue for the harming of a listed species or its critical habitat that would the jeopardize survival and recovery of the species."[240]

As the Review Panel Report has not provided complete and accurate information on the Cumulative Effects Assessment, and as there are no Conclusions or Recommendations to guide Governments, legal requirements of the environmental assessment have not been met.

[239] RBT2 Environmental Assessment, Document # Ecojustice, Date, Pages 13&14, Scrolled 20&21/72
[240] RBT2 Environmental Assessment, Document # Ecojustice, Date, Page 15, Scrolled 22//72