

Boundary Bay Conservation Committee
Box 1251, Station A, Delta, B.C. V4M 3T3
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Cc: Honourable Members of Cabinet

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**Roberts Bank Container Terminal 2 (RBT2) will cause unmitigable, irreversible
destruction of globally-important habitat**

The Honourable Steven Guilbeault:

There is a pending decision by you, and presumably Cabinet, on the environmental assessment of the Roberts Bank Container Terminal 2 Project (RBT2)¹ in the Fraser River Estuary in Delta, B.C.

The Boundary Bay Conservation Committee (BBCC) is concerned that as the new Minister of Environment and Climate Change, you are not being provided with full and accurate information. The massive RBT2 Project involves dredging and filling the Fraser estuary to widen the causeway and build a man-made island the size of 250 football fields.

There is no justification for building the unnecessary Roberts Bank Terminal 2. The west coast container business demand can be met by current expansions at Vancouver Ports and at the Port of Prince Rupert. There is no justification for the unmitigable, irreparable destruction of the globally significant Fraser River Estuary and the life it supports throughout the watershed, from the Rocky Mountains to the Pacific.

¹ Roberts Bank Terminal 2 Project #80054, Impact Assessment Agency of Canada, Start Date November 8, 2013
[Roberts Bank Terminal 2 Project - Canada.ca \(iaac-aeic.gc.ca\)](http://Roberts-Bank-Terminal-2-Project-Canada.ca)

Critical information about RBT2 is not being seriously addressed by your Ministry:

1. There are serious omissions in the Environmental Assessment of RBT2. The 2021 Additional Information from the Port of Vancouver does not rectify the lack of credible, peer-reviewed science in the Environmental Impact Statement (EIS) and the failure to incorporate submitted evidence from both Government and independent scientists. The assessment still fails to provide a cumulative effects assessment of numerous species, their habitat, and effects on the ecosystem.
2. The document ‘Draft Potential Conditions’² is inappropriate. The conditions are not legitimate mitigation measures and do not comply with *CEAA 2012*. The title, preamble, definitions, and intent lack transparency.

The law requires mitigation measures to be technically and economically feasible and known to actually mitigate residual, significant adverse environmental effects. They must be identified in the environmental assessment process and evidence must be provided prior to approval. The Conditions appear to be an attempt to sidestep these requirements.

The document avoids presenting full, accurate, and legally-required information to the Minister of Environment.

3. There is no scientific evidence that the unspecific mitigation measures can eliminate, reduce or control the significant adverse effects of RBT2. The Precautionary Principle and the Purpose of *CEAA 2012*, the *Species at Risk Act*, the *Fisheries Act*, and the *Migratory Birds Convention Act, 1994*, have been ignored. *CEAA 2012* requires that there must be a high level of certainty that mitigation measures will work.
4. There will be irreplaceable loss of intertidal biofilm, a rich source of fatty acids which provides fuel for hundreds of thousands migratory shorebirds at Roberts Bank, Canada's major stopover of the Pacific Flyway. It is the estuarine processes that create higher fatty acid and organic content in biofilm during the spring migration of shorebirds, particularly the Western Sandpiper, listed as a Species of Concern due to declining numbers (23% decline 2009 to 2019).

² Draft Potential Conditions, Impact Assessment Agency of Canada on RBT2, Document 2086, December 15, 2021
[Draft Potential Conditions_RBT2_Nov182021 \(iaac-aeic.gc.ca\)](https://www.iaac-aeic.gc.ca)

The essential fatty acids in biofilm also move up the food chain providing nutrients for fish, mammals, and waterfowl underscoring the need for conservation of intertidal biofilm habitats at Roberts Bank,

Microscopic life triggers growth of the rich biofilm at precisely the right time due to estuarine processes. These processes cannot be duplicated elsewhere.

Both Government and independent experts have submitted evidence that the estuarine processes that create the rich biofilm at Roberts Bank cannot be mitigated with offset patches of biofilm elsewhere.

5. There will be residual significant adverse environmental effects from RBT2 on shorebirds; fish and fish habitat; endangered Southern Resident Killer Whales (SRKW); coastal birds; and species at risk. Both Government and independent scientists warn of unmitigable risks to the ecosystem.
6. The Environmental Assessment fails to assess subtidal wetlands and cumulative effects on wetlands and wetland functions.
7. Increased air, noise, and light pollution, that threaten both human and wildlife health, cannot be mitigated
8. The RBT2 Environmental Assessment fails to credibly address accountability and commitments to the globally-significant ecosystems of the Fraser River estuary.
9. The scope of the RBT2 Environmental Assessment was significantly enlarged on September 28, 2020, with the addition of the certain, and foreseeable, GCT Berth 4 proposal. The scope must now include cumulative effects of both proposals with the connected factors of spatial boundaries, site infrastructure, shipping, business markets, and valued components.
10. RBT2 is not justified as it doesn't make economic sense; current and ongoing expansions are providing ample future capacity for Canada's west coast container business. RBT2 will unnecessarily degrade the estuary; harm bulk shipping and other container business operations. It will increase congestion in the Lower Mainland and choke up Canada's supply chain with empty and USA-bound containers.

Evidence that RBT2 will cause Unmitigable Damage to the Fraser River Estuary

Outline

- [1.](#) There are serious omissions in the environmental assessment of RBT2.
- [2.](#) The document, 'Draft Potential Conditions' contravenes *CEAA 2012* and Ministry Mandates as it fails to provide legitimate mitigation measures
- [3.](#) Missing and unproven mitigation measures cannot be justified as there is a predictable, irreparable, and permanent risk to the globally-significant Fraser River estuary ecosystem.
 - [3.1](#) Past mitigation and compensation measures have failed to protect the Fraser River Estuary
- [4.](#) There will be unmitigable harm to the Roberts Bank food web which is critical to the survival of the globally-important Fraser River estuary ecosystems.
 - [4.1](#) The flawed modeling is incapable of representing the ecosystem
 - [4.2](#) RBT2 will cause serious changes to the structure and functions of the estuary
 - [4.3](#) Geomorphological Changes affect the Roberts Bank food web
 - [4.4](#) The Roberts Bank food web relies on essential fatty acids produced by biofilm
 - [4.5](#) The Roberts Bank biofilm food web cannot be duplicated and cannot be mitigated with offsetting patches of created biofilm
 - [4.6](#) Additional Information and the Review Panel Report state misleading and incorrect information on biofilm
- [5.](#) There will be significant residual adverse effects from RBT2 on shorebirds; fish and fish habitat; endangered Southern Resident Killer Whales (SRKW); coastal birds; and species at risk.
 - [5.1](#) RBT2 EIS failed to assess all shorebirds and their dependence on mudflat wetlands
 - [5.2](#) RBT2 will exacerbate the ongoing decline of Western Sandpiper
 - [5.3](#) RBT2 will cause destruction and loss of fish and fish habitat that cannot be mitigated
 - [5.4](#) The EIS and Review Panel Report fail to appropriately assess Chinook salmon at risk
 - [5.5](#) Unmitigable significant residual adverse environmental effects threaten survival of endangered Southern Resident Killer Whales (SRKW)
 - [5.6](#) The RBT2 EIS failed to assess cumulative effects on Coastal Birds and dismissed concerns of residual adverse effects
 - [5.7](#) RBT2 EIS failed to assess bird 'species at risk' in compliance with legislation

6. The Environmental Assessment fails to assess subtidal wetlands and cumulative effects on wetlands and wetland functions.

 - 6.1 Canada and B.C. have a responsibility to protect decreasing wetlands at Roberts Bank
 - 6.2 The RBT2 EIS fails to assess subtidal wetlands and claims no residual effects on wetlands
7. Increased air, noise, and light pollution, that threaten human and wildlife health, cannot be mitigated

 - 7.1 Serious threat to human health with air pollution from RBT2 is not appropriately reported
 - 7.2 There will be residual significant adverse effects on human health from increased noise pollution
 - 7.3 Effects on human health from a significant increase in light pollution are not reported
8. The RBT2 Environmental Assessment fails to honestly address accountability and commitments to the globally-significant ecosystems of the Fraser River estuary.

 - 8.1 Canada's Most Important Bird Area, which includes Roberts Bank, is at risk
 - 8.2 RBT2 assessment fails responsibility to the *Migratory Birds Convention Act, 1994*
 - 8.3 RBT2 assessment fails to incorporate national & international significance and accountability
 - 8.4 RBT2 assessment disregards accountability to the Roberts Bank Wildlife Management Area (RBWMA)
 - 8.5 Failure to protect species identified in the RBWMA, including listed species
 - 8.6 Failure to include commitments to the Burns Bog Ecological Conservancy Area
- 9.0 The Scope of the RBT2 environmental assessment is insufficient. Additionally, piecemeal and irregular rulings on the scope have prevented a proper assessment
10. RBT2 is not needed as the west coast container business will have capacity without RBT2

 - 10.1 The RBT2 environmental assessment fails to provide a transparent, proven business case with data.

[10.2](#) RBT2 environmental assessment process refuses to incorporate information on the options for expansion of Canada's west coast container business

[10.3](#) Speakers were muzzled at the Public Hearing, May, 2019

[10.4](#) Only 10% of Vancouver's import laden containers are for the Lower Mainland

[10.5](#) There is no economic need for RBT2 and it cannot be justified

[10.6](#) Bulk shipping, Port tenants, and Vancouver businesses are hurting because container shipping is very lucrative for the Port of Vancouver

[Appendix A:](#) The RBT2 modeling is incapable of representing the ecosystem

[Appendix B:](#) RBT2 will cause serious changes to the structure and functions of the estuary

[Appendix C:](#) Flawed and Incomplete Science on Biofilm

[Appendix D:](#) Additional Information and the Review Panel Report state misleading and incorrect information on biofilm

[Appendix E:](#) Government and independent scientists advised of unmitigable, significant residual adverse effects of RBT2 on shorebirds

[Appendix F:](#) Unmitigable significant residual adverse effects on Southern Resident Killer Whales (SRKW)

[Appendix G:](#) Key Findings and Conclusions of the Review Panel Report omit critical information and contravene legislation

[Appendix H:](#) Residual Significant Adverse Environmental Effects on Coastal Birds

[Appendix I:](#) The failure to assess subtidal wetland

Submitted by the Boundary Bay Conservation Committee

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.

1. There are serious omissions in the environmental assessment of RBT2.

The Environmental Impact Statement (EIS) and assessment process is compartmentalized and fails to assess the interactive, interdependent estuarine processes and habitats and how they collectively and cumulatively create the unique Fraser River ecosystem. Chipping away at the ecosystem with ongoing projects and piecemeal assessments is destroying and degrading the estuary and the life it supports.

The 2021 Additional Information from the Port of Vancouver does not rectify the fragmentation, serious omissions, and errors of the assessment. The Draft Potential Conditions of approval are unscientific mitigation measures that do not meet legal requirements.

Serious omissions in the Roberts Bank Container Terminal 2 environmental assessment:

- a. Fails to provide scientifically proven mitigation measures
- b. Fails to incorporate an ecosystem approach
- c. Fails to address how nutrients from estuarine biofilm are critical to the entire food web at Roberts Bank and, in particular, declining numbers of juvenile salmon and migratory shorebirds
- d. Fails to provide a cumulative effects assessment of all 50 species of shorebirds and their reliance on the nutrients in estuary
- e. Fails to acknowledge declining numbers of Western Sandpiper; flagging by the Committee on the Status of Endangered Species in Canada (COSEWIC); and warnings from scientists that effects of RBT2 on biofilm and Western Sandpiper are: “potentially high in magnitude, permanent, irreversible, and continuous”
- f. Fails to flag and incorporate the fact that Birdlife International has found Canada’s #1 Important Bird Area, “In Danger.” It is the Fraser River Estuary.
- g. Fails to produce a cumulative environmental effects assessment of Marine Fish and Marine Habitat
- h. Fails to identify significant residual adverse effects on Chinook salmon that are at risk and in decline
- i. Fails to address the fact that Southern Resident Killer Whales (SRKW) are endangered and there are legal requirements for their protection
- j. Fails to assess intertidal habitats
- k. Fails to produce a cumulative effects assessment for red-listed marsh communities
- l. Fails to assess Wetlands and Wetland Functions

- m. Fails to assess cumulative effects on coastal birds and dismisses concerns of residual adverse effects
- n. Fails to assess species at risk
- o. Fails to meet requirements of *CEAA 2012*, *Species at Risk Act*, *Fisheries Act*, and the *Migratory Bird Act*.
- p. Fails to honour and comply with signed protection agreements
- q. Fails to incorporate scientific information and conclusions of significant residual adverse environmental effects from Government and independent scientists
- r. Fails to provide an accurate Scope for the environmental assessment
- s. Fails to incorporate information that the Project is not needed
- t. Fails to meet Ministry mandates and ethical codes of conduct.

These serious omissions are addressed in this document.

2. The document, ‘Draft Potential Conditions’ contravenes *CEAA 2012* and Ministry Mandates as it fails to provide legitimate mitigation measures

The document ‘Draft Potential Conditions’³ is irrational; the conditions are not legitimate mitigation measures and do not comply with *CEAA 2012*. The document contravenes the Mandates of the Impact Assessment Agency of Canada and the Ministry Environment and Climate Change.

The title, preamble, definitions, and intent lack transparency. It appears these are conditions for approval of RBT2 under *Section 53 of CEAA 2012*, “significant adverse effects are *likely but justified in the circumstances*.” This Section of *CEAA 2012* is not appropriately disclosed in the introductory summary of the document.

The ‘Draft Potential Conditions’ appear to be an attempt to sidestep the requirement of the RBT2 Assessment to present legitimate mitigation measures as required by law. It avoids presenting full and accurate information to the Minister of Environment.

The document fails to address the requirement of compliance with *CEAA 2012* when considering mitigation measures. *CEAA* requires that the responsible authority have a high level of certainty that mitigation measures will in fact work.

³ Draft Potential Conditions, Impact Assessment Agency of Canada on RBT2, Document 2086, December 15, 2021 [Draft Potential Conditions_RBT2_Nov182021 \(iaac-aeic.gc.ca\)](https://www25.international.gc.ca/iaac-aeic/iaac-aeic.gc.ca)

CEAA 2012 Section 2(1) Definitions

“mitigation measures means measures for the elimination, reduction or control of the adverse environmental effects of a designated project, and includes restitution for any damage to the environment caused by those effects through replacement, restoration, compensation or any other means.”⁴

The definition of “mitigation” makes it clear that to comply with the Purposes of *CEAA*, a measure must be known to actually eliminate, reduce or control adverse environmental effects. The measures cannot be “potential”.

It is the duty of federal authorities to ensure mitigation measures protect the environment and human health and apply the precautionary principle. The measures must comply with the Purposes of *CEAA* and the Mandate of the federal authorities:

“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;

...

(g) to ensure that projects, as defined in section 66, that are to be carried out on federal lands, or those that are outside Canada and that are to be carried out or financially supported by a federal authority, 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.

⁴ CEAA 2012, Section 2(1) [SC 2012, c 19, s 52 | Canadian Environmental Assessment Act, 2012 | CanLII](#)

All federal authorities are mandated required to protect the environment and apply the precautionary principle:

- **Mandate**
(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.

Mitigation measures must be technically and economically feasible, and known to actually mitigate residual significant adverse environmental effects. They must be known to work and must be implementable. They must be identified in the environmental assessment process and all relevant particulars must be known prior to approval of RBT2.

The measures outlined in the ‘Draft Potential Conditions’ do not qualify as legitimate mitigation measures. The Port of Vancouver has had 8 years to provide scientifically-proven mitigation measures that can assure compliance with CEAA 2012. They have failed because it is not possible to mitigate the residual significant adverse environmental effects of RBT2.

3. Missing and unproven mitigation measures cannot be justified as there is a predictable, irreparable, and permanent risk to the globally-significant Fraser River estuary ecosystem.

The Impact Assessment Statement (IAS); the Review Panel Report; the 2021 Additional Information; and the Draft Potential Conditions of approval fail to meaningfully incorporate a high level of public concern and warnings by Government and independent scientists of unmitigable, residual, significant adverse environmental effects on:

- human health
- changes to the geomorphology of the Fraser River estuary with a domino effect throughout the Fraser delta and the Salish Sea
- fatty acids of biofilm which provide the rich marine food web at Roberts Bank:

“Courts have been clear that “vague hopes for future technology” to address effects do not constitute mitigation measures.”⁵

- endangered Southern Resident Killer Whales and their critical habitat. The purpose of the *Species at Risk Act (SARA)* is to not only prevent extinction, but also promote recovery of species

⁵ Ecojustice, CEAA 80054, RBT2, [Document # 1605](#), Volume 1, Par. 39, Scrolled Page 17/72

- endangered Chinook Salmon and their critical habitat
- Western Sandpiper - species of high concern
- 19 species at risk including Great Blue Heron and Barn Owl
- direct and indirect loss of critical habitat
- effects on Wetlands and Wetland Functions
- 50 species of shorebirds
- An ecosystem so important that it has national and international designations and signed agreements for the purpose of protection

There is definitively no scientific evidence the mitigation measures can eliminate, reduce or control the significant adverse effects of RBT2. The Precautionary Principle and the Purpose of *CEAA 2012*, the *Species at Risk Act*, the *Fisheries Act*, and the *Migratory Birds Convention Act, 1994*, have been ignored and the measures place implementation on government agencies at a high cost to taxpayers.

Most of the mitigations measures:

- are not proven to be either technically feasible or economically feasible
- are not definitive, identifiable measures with scientific evidence
- do not provide peer-reviewed, objective science proving they can eliminate, reduce or control adverse effects of RBT2
- do not provide specific and scientifically proven measures for listed wildlife species which constitutes destruction of legally protected critical habitat.
- are plans to make future plans and actions; adaptive management plans are not considered legal mitigation measures
- have not applied the Precautionary Principle so the federal authority has failed to apply a “careful and precautionary manner to avoid significant adverse environmental effects;”⁶
- are so vague there is nothing substantial for the public to review
- lack scientific certainty which the Federal Court has ruled, “should not be used as a reason for postponing measures to prevent environmental degradation.”⁷
- place future planning and implementation on government agencies at a high cost to taxpayers
- do not meet the Purpose of *CEAA 2012*, “to protect the environment from significant adverse environment effects caused by a designated project.”⁸

⁶ *Canadian Environmental Assessment Act, 2012 (CEAA 2012)*, Purposes 4.

⁷ Ecojustice, Precautionary Principle [Stronger Part of Canadian Law](#), Sept. 7, 2015

⁸ *Canadian Environmental Assessment Act, 2012 (CEAA 2012)*, Purposes 4.

The environmental assessment has failed to appropriately assess all factors and their cumulative effects. As a result, there are no mitigation measures for residual significant adverse environmental effects on coastal birds, loss of wetland habitats, species at risk, 50 species of shorebirds, human health and cumulative effects on these factors, as well as the Fraser River ecosystem and the life it supports.

3.1 Past mitigation and compensation measures have failed to protect the Fraser River Estuary

Over the past 40 years, compensation and mitigation measures in the Fraser River estuary have not been carried out with credible scientific evidence or transparency. It is senseless that they are after-the-fact measures. Once damage is done, critical habitat for plant and animal species is gone.

A 2016 study on mitigation and compensation measures on wetlands and riparian habitats in the Fraser River estuary stated;

“Since the 1980’s habitat managers have been trying to establish no-net-loss (NNL) of impacted habitat in the Fraser River Estuary but have been unsuccessful. This study found that 2/3rds of compensation sites did not achieve NNL. Studies in Canada, the United States, and across the world have found similar results, that created wetlands are not functioning as well as natural wetlands.”⁹

A Freedom of Information Request confirmed the Deltaport Third Berth Project was continuing the ongoing pattern of habitat loss at Roberts Bank. A provincial government expert wrote:

“News of the abandonment of efforts to attempt to stabilize the ever-increasing areas of the dendritic channel network the intercauseway is of major concern to us. Notwithstanding the parameters related to mitigating the impacts of the DP3 project, this continuing habitat loss and erosion of mudflat, biofilm and eelgrass features are a defacto port-development artefact...

...with respect to the dendritic channels, we realize it has been agreed that historic port development accountability has been discounted and cumulative effects generally of all port developments apparently seem to be of similar prospect...”

“reporting of fish and wildlife elements in the DP3 Project Reporting Updates from...continues to be grossly incomplete (despite repeated input over the last two years)”¹⁰

⁹ ‘[Assessing Habitat Compensation](#) and Examining Limitations to Native Plant Establishment’, Megan Lievesley, Daniel Stewart, Rob Knight, & Brad Mason, March, 2016, Scrolled page 56/63

¹⁰ FOI emails, March 2010.

The Deltaport Third Berth on-site compensation for the intercauseway was not implemented leading to the continuing loss and erosion of mudflat, biofilm and eelgrass features caused by ongoing port activities.

When it came to implementing the “Plan”, the Agencies concluded that the compensation/mitigation plans for the intercauseway between the Tsawwassen Ferry Terminal and Deltaport might not be successful. As a result, the plan was abandoned. It was replaced with a last-minute scramble for offsite compensation which was a totally different set of interactive environmental processes and habitat. This is the result of not making certain mitigation measures are scientifically proven and will work.

Some, or all, of the \$1.5 million compensation money for loss of fish habitat at Deltaport was given to Ducks Unlimited to improve habitat that is owned and protected by Nature Trust and the B.C. Government. It appears it was used to dig out channels on islands in the estuary that are used for hunting.

The loss of habitat at Roberts Bank at the mouth of the Fraser River is irreplaceable and it is unconscionable that off-site habitat compensation was not a duplicate of the lost habitat.

Now we are hearing the same unscientific, empty commitments with RBT2, even with evidence that RBT2 can’t be built without unmitigable, irreversible harm to the Fraser River estuarine ecosystem.

4. There will be unmitigable harm to the Roberts Bank food web which is critical to the survival of the globally-important Fraser River estuary ecosystems.

The new information¹¹, 2021, from the Port of Vancouver, currently under review, lacks scientific validity as it is based on subjective testing, faulty modelling and assumptions. The information is paid-for science which has not been peer reviewed. Important information from Government scientists is being withheld and disallowed by bureaucrats in Ottawa.

Unfortunately, when the previous Minister of Environment and Climate Change, the Honourable Jonathan Wilkinson, agreed to a request by the Port of Vancouver for additional time to present yet more information¹², he was not equipped with full and correct information. He was not informed that the Review Panel Report failed to document serious misinformation in the Environmental Impact Statement (EIS) and failed

¹¹ Port of Vancouver, Roberts Bank Terminal 2 Project:, From Vancouver Fraser Port Authority to Impact Assessment Agency of Canada re: Response to Information Requests, Dated Sept. 24, 2021, Document 2083 <https://iaac-aeic.gc.ca/050/evaluations/document/141453?culture=en-CA>

¹² Letter from Vice President, Environment, Community and Government Affairs, Port of Vancouver to the Honourable Jonathan Wilkinson, federal Minister of Minister of Environment and Climate Change, August 19, 2020, Document 2068, RBT2 Environmental Assessment. <https://iaac-aeic.gc.ca/050/documents/p80054/135882E.pdf>

to incorporate evidence-based science from government and independent scientists. The Review Panel and the Environmental Impact Statement (EIS) failed to honestly incorporate public concern and submissions by experts.

In a letter, dated June 14, 2021, the Boundary Bay Conservation Committee submitted a letter to the Prime Minister, Minister of Environment and Climate Change, and several Members of Parliament.¹³ The letter, which has been summarily ignored, documents scientific evidence of unmitigable, irreversible damage that RBT2 will cause to the ecosystems of the Fraser River estuary and the Salish Sea.

4.1 The flawed modeling is incapable of representing the ecosystem

Modeling is a tool used in science but the results from modeling only represent results from specific data fed into a model. It is not possible to accurately model the complexity of the Fraser River estuary and the interactive, interdependent multiple factors that create this amazing, unique ecosystem that supports world-renowned habitat and species.

Important assertions and conclusions of the Environmental Impact Statement (EIS); the Review Panel Report; and the new reports from the Port of Vancouver and the Impact Assessment Agency are based on flawed ecosystem modeling and assumptions.

[Appendix A](#) documents information from experts citing uncertainties and false assumptions based on the flawed Roberts Bank ecosystem modeling. The model is not capable of representing the complex, interactive, interdependent estuarine habitats.

The Review Panel acknowledged the limitations of the ecosystem modeling but ignored the implications and accepted the flawed assumptions of the EIS. The Review Panel proceeded to inappropriately recommend unproven, future planning measures which cannot possibly mitigate the residual, significant adverse environmental effects of RBT2 on the interactive, interdependent processes that provide the unique food web of the Fraser River estuary ecosystem.

The failure to incorporate the serious limitations of the modeling triggered a domino effect of erroneous conclusions and mitigation measures in the EIS, the Review Panel Report, and currently, the new information from the Port and the Impact Assessment Agency. Consequently, the requests from the Minister of Environment and Climate Change Canada to Robin Silvester (President and Chief Executive Officer of the Port of Vancouver) in the undated letter, submitted on August 19, 2020¹⁴, cannot be met with scientific evidence.

¹³ Evidence-based science warns of unmitigable, irreversible harm to the Fraser River Estuary from the proposed Roberts Bank Container Terminal Project (RBT2), June 14, 2021.

https://ecosocialistsvancouver.org/sites/default/files/irreversible_harm_to_fraser_estuary.pdf

¹⁴ RBT2 Environmental Assessment, Letter from Minister of Environment to Robin Silvester, President and CEO of the Port of Vancouver, August, 2020, Document#2067 <https://iaac-aeic.gc.ca/050/documents/p80054/135827E.pdf>

One of the requests from the Minister of Environment and Climate Change, was for geomorphological assessments to determine changes in salinity regime; changes in coastal processes; erosion; deposition – all the ecosystem interactive, interdependent processes that the modeling cannot accurately measure.

The past and new reports from the Port of Vancouver, based on the flawed modeling and assumed values, cannot be presented as credible science to determine potential environmental effects and effective mitigation measures. The health and survival of the entire estuarine ecosystem is at risk. Acceptance of assumptions and flawed science contravenes the Precautionary Principle in the *Canadian Environment Assessment Act, 2012*,¹⁵ to ensure compliance with the Purposes of the act.

4.2 RBT2 will cause serious changes to the structure and functions of the estuary

Several hundred public submissions have voiced concern of effects of RBT2 on interactive, interdependent estuarine ecosystem processes and the life they support. Experts advise that RBT2 will lead to changes in salinity and the processes that support the complex, rich ecosystem – the geomorphology of the estuary.

Government scientists advised that the geomorphological changes from RBT2 will affect salinity regime, scour, water circulation and interactive processes leading to irreversible loss and alteration of marine habitats vital to the ecological integrity of the estuary. This in turn will lead to the loss of biodiversity throughout the Fraser River and the Salish Sea.

[Appendix B](#) documents the concerns of government and independent scientists on geomorphological changes that RBT2 will cause and how the changes will trigger the loss and damage of loss of irreplaceable marine habitat. The estuarine habitats are vital to Canada's top location for migratory birds; famous salmon runs; and declining populations of resident orcas, as well as humpback whales and other marine animals. Hundreds of wildlife species rely on the interactive processes of this rich estuary.

The Port of Vancouver, the Review Panel, and the Impact Agency of Canada failed to incorporate an ecosystem approach in the environmental assessment. They failed 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.

¹⁵ *Canadian Environmental Assessment Act, 2012, Section 4, Purposes*
<https://www.canlii.org/en/ca/laws/stat/sc-2012-c-19-s-52/latest/sc-2012-c-19-s-52.html>

4.3 Geomorphological Changes affect the Roberts Bank food web

Changes in the salinity regime affect the distribution of nutrients throughout the Roberts Bank food web. One vital nutrient is biofilm, an organic layer coating intertidal mudflats.

The biofilm provides essential fatty acids (polyunsaturated fatty acids, PUFA) that are consumed by numerous species from tiny organisms up the food web to invertebrates, coastal water birds, fish (including endangered salmon) and migrating shorebirds (particularly Western Sandpiper). The diatoms and the endangered Chinook salmon at Roberts Bank also provide food for the endangered Southern Resident Killer Whales. (SRKW).

The Kahiltna Research Group, on behalf of B.C. Nature, advised that biofilm at Roberts Bank is unique and crucial to the Roberts Bank food web:

“The biofilm at Roberts Bank exist in the abundance and species assemblages at Roberts Bank only because of the unique combination of geophysical structure and abiotic factors that come together to make Roberts Bank ideal for marine biofilm blooming. They have a narrow range of abiotic factors they need in order to bloom. These conditions are present at Roberts Bank in the Fraser River delta area - and not elsewhere...

...VPA did not mention the importance of Q-3 fatty acids in their EIS.”¹⁶

Environment and Climate Change Canada advised that changes in the salinity regime will trigger far-reaching effects:

...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.¹⁷

“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.”¹⁸

¹⁶ Kahiltna Research Group on behalf of B.C. Nature, [Document #609](#), October 25, 2016 Page 25/113

¹⁷ RBT2 Environment Assessment, ECCC, [Document 1775](#), May 18, 2019, Pages 17&19/23

¹⁸ RBT2 Environment Assessment, ECCC, [Document 1146](#), February 12, 2018, Page 14/16

4.4 The Roberts Bank food web relies on essential fatty acids produced by biofilm

Fisheries and Oceans Canada advised that Roberts Bank biofilm is critical to juvenile salmon and migratory 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.”¹⁹

Environment and Climate Change Canada (ECCC) has repeatedly emphasized the importance of fatty acids in biofilm as vital nutrients for migrating shorebirds. Their published research shows that this rich food source is produced under very specific conditions which should not be altered:

“Given the importance of fatty acids as fuel for migrating birds (McWilliams et al. 2004), the capacity of Roberts Bank to furnish these essential nutrients is directly tied to its importance as a stopover site.”

“Fatty acids provide a high energy, low weight source of fuel for sandpipers engaging in long-distance migratory flights.”

“However, the biofilm that produces fatty acids important to Western Sandpipers exists only in narrow intertidal habitats at critical periods (Kuwae et al. 2008) and under specific salinity tolerances (Schwenk et al. 2013). Reliable predictions of potential Project effects require an understanding of the species-specific conditions under which the diatoms produce fatty acids during the period shorebirds are present at the site.”

“ECCC finds that the Project would disrupt or remove the salinity trigger responsible for initiating fatty acid production in biofilm on Roberts Bank.”

“The Project would likely compromise the ecological mechanisms responsible for biofilm producing fatty acids required by migrating shorebirds.”²⁰

¹⁹ Fisheries and Oceans Canada, [Document #1102](#), November 14, 2017, Scrolled page 11/47

²⁰ ECCC, RBT2 EA, Document [# 1637](#), April 15, 2019, Scrolled pages 32, 69, 70, 34, 36/115

4.5 The Roberts Bank biofilm food web cannot be duplicated and cannot be mitigated with offsetting patches of created biofilm

Specific estuarine processes at Roberts Bank result in a greater abundance of richer biofilm than found anywhere else in the Fraser River estuary.

The Environmental Impact Statement erroneously concluded RBT2 would not adversely affect biofilm and would have negligible residual effects on the Western Sandpiper. However, having concluded negligible effects, the Port of Vancouver committed to the preparation of a biofilm habitat creation manual with the idea of creating biofilm elsewhere.

Government and independent scientists submitted evidence that geomorphological processes that lead to the highly complex food web at Roberts Bank cannot be duplicated.

The new 2021 information from the Port of Vancouver lacks credibility as it is paid-for science that has not been peer-reviewed. It is also based on subjective testing and flawed modeling as discussed above.

Loss of the biofilm food web cannot be mitigated. Even if biofilm can be established elsewhere, it cannot replace the interactive processes at Roberts Bank. It cannot duplicate the myriad of factors that bring in millions of shorebirds. It cannot duplicate the unique estuarine processes at Roberts Bank that benefit a number of species of the food web.

[Appendix C](#) documents the evidence submitted by Government and independent scientists on the flawed science on biofilm in the RBT2 EIS; and the impossibility of mitigating the Roberts Bank biofilm food web.

4.6 Additional Information and the Review Panel Report state misleading and incorrect information on biofilm

The Additional Information²¹ from the Port of Vancouver continues to provide flawed science on predicted changes to geomorphological conditions from RBT2. The Port has duplicated the errors of the initial Environmental Impact Statement (EIS).

²¹ Port of Vancouver, Roberts Bank Terminal 2 Project: Executive Summary, From Vancouver Fraser Port Authority to Impact Assessment Agency of Canada re: Response to Information Requests, Dated Sept. 24, 2021, Document 2083 Scrolled page 9/12
<https://iaac-aeic.gc.ca/050/documents/p80054/141462E.pdf>

Important information from Government and independent experts is still not incorporated. The failures EIS and the Review Panel Report have not been rectified:

- A. The Review Panel Report failed to correctly report information from Fisheries and Oceans (DFO) on salinity changes.
- B. The Review Panel Report incorrectly infers that Environment and Climate Change Canada (ECCC) agrees the Project would not adversely affect biofilm productivity.
- C. The Review Panel Report fails to report that the RBT2 Environmental Impact Statement (EIS) did not include the importance of essential fatty acids from marine biofilm, and how this is crucial to for the entire food web at Roberts Bank.
- D. The Report fails to fails to report significant residual adverse cumulative environmental effects as identified by government and independent scientists.
- E. The Report fails to report that the RBT2 EIS is incorrect in stating there will be no effect on biofilm.
- F. The Review Panel makes recommendations that contravene *CEAA 2012* and the Review Panel's stated approach in accordance with their Mandate.

This information is documented in [Appendix D](#).

5. There will be significant residual adverse effects from RBT2 on shorebirds; fish and fish habitat; endangered Southern Resident Killer Whales (SRKW); coastal birds; and species at risk.

5.1 RBT2 EIS failed to assess all shorebirds and their dependence on mudflat wetlands

The RBT2 Environmental Impact Statement (EIS) did not assess effects on shorebirds with the exception of the Western Sandpiper and Pacific dunlin. The RBT2 EIS, the Review Panel Report, and the 2021 additional information from the Port of Vancouver fail to identify and incorporate:

- 40% decline of shorebirds in Canada since 1970²²
- Lack of cumulative effects assessment on all 50 species of shorebirds
- Urgent action is required to address the widespread declines in shorebird populations²³

²² The State of Canada's Birds, 2019, The North American Bird Conservation Initiative, Scrolled page 6/12 NABCI Canada

<http://nabci.net/resources/state-of-canadas-birds-2019/>

²³ Conservation Action, Western Hemisphere Shorebird Reserve Network, <https://whsrn.org/about-shorebirds/conservation-action/>

- Commitment of Canada to no net loss of wetlands under the ‘*Federal Policy on Wetland Conservation*’
- Legal requirements under *CEAA 2012*, *Migratory Birds Convention Act*, and *Species at Risk Act*.

A Report on the State of Canada’s Birds reports many vital areas for shorebirds are being lost to coastal developments. The Report recommends conservation actions:

“Protect and restore migration stopover and wintering sites for shorebirds, such as Important Bird and Biodiversity Areas and Western Hemisphere Shorebird Reserve Network sites.”²⁴

This is precisely what Roberts Bank is, a migratory stopover and wintering site for shorebirds smack in the middle of a designated Western Hemisphere Shorebird Reserve Network Site: Canada’s Number One Important Bird Area; a Ramsar Wetland of International Significance; and the Roberts Bank Wildlife Management Area. Just because all levels of government don’t recognize that the Roberts Bank ecosystem is central to these designations, it doesn’t lessen the fact that the food web of Roberts Bank is vital to the survival of the wildlife that qualifies this region for these important designations.

Birdlife International has alerted Governments to the fact that they have found Canada’s #1 Important Bird Area **“IN DANGER”**. It is the Fraser River Estuary. This is not flagged in the environmental assessment.²⁵

Boundary Bay - Roberts Bank - Sturgeon Bank (Fraser River Estuary) This is an IBA in danger!

Government and independent scientists advised of unmitigable, significant residual adverse effects of RBT2 on shorebirds. These are documented in [Appendix E](#).

The RBT2 EIS, Review Panel Report, and the Additional 2021 Report have failed to identify and incorporate this important information on shorebirds. They have failed to assess intertidal habitats and coastal birds in general, including all the shorebirds.

²⁴ The State of Canada’s Birds, 2019, The North American Bird Conservation Initiative, Scrolled page 6/12 NABCI Canada <http://nabci.net/resources/state-of-canadas-birds-2019/>

²⁵ BirdLife International, Data Zone, Boundary Bay-Roberts Bank-Sturgeon Bank (Fraser River Estuary) [http://datazone.birdlife.org/site/factsheet/boundary-bay--roberts-bank--sturgeon-bank-\(fraser-river-estuary\)-iba-canada/map](http://datazone.birdlife.org/site/factsheet/boundary-bay--roberts-bank--sturgeon-bank-(fraser-river-estuary)-iba-canada/map)

It was incumbent upon the Review Panel to report the failure of the RBT2 EIS to disclose the serious limitations of the Proponent's modeling that led to unfounded and misleading conclusions. It was incumbent upon the Panel to report the failure of the RBT2 EIS to assess intertidal habitats and coastal birds in general, including shorebirds. The Review Panel Report did not include any Key Findings, Conclusions or Recommendations on the effects of RBT2 on shorebirds, with the exception of Western Sandpipers.

The failure to assess effects of RBT2 on shorebirds contravenes of the *Migratory Birds Convention Act, 1994*,²⁶ which prohibits depositing harmful substances in places that will affect migratory birds. Also, as the Proponent did not assess shorebirds, the environmental assessment fails to meet requirements of a cumulative effects assessment; the application of the Precautionary Principle; and requirements of technically feasible mitigation measures under the *Canadian Environmental Assessment Act, 2012 (CEAA 2012)*.²⁷

5.2 RBT2 will exacerbate the ongoing decline of Western Sandpiper

The additional information from the Port of Vancouver, 2021; the RBT2 Environmental Impact Statement (EIS); and the Review Panel Report fail to incorporate the fact that populations of Western Sandpiper are declining. A recent study confirms the warnings submitted to the RBT2 environmental assessment:

23% decline in populations of Western Sandpiper

The study reports a 23% decline in Western Sandpiper from 2009 to 2019.²⁸

Western Sandpiper flagged as a species of High Concern – A 2019 classification has flagged Western Sandpiper as a priority for the Committee on the Status of Endangered Species in Canada (COSEWIC):

A 2019 Research Paper, *Shorebirds of conservation concern in Canada-2019*, reports that due to steeply declining populations, as well as loss of breeding and non-breeding ranges, the Western Sandpiper has been re-categorized from a species of 'Moderate Concern' to 'High Concern'. This category means multiple threats exist to the Western Sandpiper and it should be a priority for COSEWIC.²⁹

²⁶ *Migratory Birds Convention Act, 1994*, Section 5

²⁷ [CEAA 2012](#), Section 4 (1) and Section 19 (1) (a) & (d)

²⁸ Ecology and Evolution, [Sandpipers go with the flow](#): Correlations between estuarine conditions and shorebird abundance at an important stopover on the Pacific Flyway, R. Canham, S.A. Flemming, D. Hope, M. Drever, February 28, 2021, Abstract

²⁹ [Shorebirds of conservation concern in Canada](#), 2019, D. Hope, C. Pekarik, M. Drever, and P. Smith

Environment and Climate Change Canada (ECCC) advises:

“...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...”³⁰

“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”³¹

Applying criteria under *CEAA 2012* for determining significant, residual adverse environmental and cumulative effects, ECCC concluded:

Effects of RBT2 on biofilm and Western Sandpipers³²

Magnitude	High
Extent	Local/National
Duration	Permanent
Reversibility	Irreversible
Frequency	Continuous

Dr. P. Baird, on behalf of B.C. Nature submitted:

“Roberts bank is the preferred sub-area of this complex tidal flats because western sandpipers are marine biofilm grazers when at this final stop before their spring migration flight to Alaska, and partake of the availability of their marine biofilm prey, which is more available at Roberts Bank than elsewhere and which has a greater density there than in other parts of the Fraser River - Boundary Bay complex.”³³

According to the Review Panel Report, the RBT2 EIS concluded negligible residual effects on the Western Sandpiper:

“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.”³⁴

³⁰ ECCC, [Document #581](#), October 14, 2016, Scrolled Page 8/70

³¹ ECCC, [Document # 1775](#), May 18, 2019, Slide 18/23

³² ECCC, [Document # 1775](#), May 18, 2019, Slide 22/23

³³ Kahiltna Research Group on behalf of B.C. Nature, [Document #609](#), October 25, 2016, Scrolled Page 20/113

³⁴ [The Review Panel Report](#), RBT2, Document #2062, March 27, 2020, Scrolled Page 247/627

The text of the Review Panel Report notes declining numbers of Western Sandpipers and references the *Migratory Bird Convention Act, 1994*, which mandates a “highly precautionary approach”. However, this information is left hanging. It is not incorporated into the Key Findings, Conclusions or Recommendations for shorebirds or the Western Sandpiper.

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 does not incorporate the concerns into Conclusions and Recommendations. There is no conclusion of accountability to legislation and the Review Panel Report fails to incorporate submitted evidence of irreversible effects on shorebirds, particularly Western Sandpipers:

“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.”³⁵

The Review Panel’s conclusions of uncertainty on the ecosystem modeling, and on biofilm contravenes *CEAA 2012*. Uncertainty is the reason for the Precautionary Principle in the *Canadian Environmental Assessment Act (CEAA 2012)* to ensure compliance with the Purpose of the 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;**³⁶

Uncertainty 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 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.”³⁷

³⁵ Ibid; Scrolled Page 257/627

³⁶ *Canadian Environmental Assessment Act, 2012 (CEAA 2012)*, Purposes 4.

³⁷ Ecojustice, Precautionary Principle [Stronger Part of Canadian Law](#), Sept. 7, 2015

5.3 RBT2 will cause destruction and loss of fish and fish habitat that cannot be mitigated

A 1978 Study reported 70% of the Fraser River estuarine ecosystem had already been destroyed.³⁸

How much more has been destroyed since 1978?

The Fraser River estuary is a crucial rearing ground for over 300 species of invertebrates and over 80 species of fish and shellfish.³⁹ These in turn nourish fish, birds, and mammals throughout the vast interdependent habitats that stretch thousands of kilometers from high in the Rocky Mountains, through the Fraser River watershed, estuary, and Salish Sea to the Pacific Ocean.

RBT2 will cause a chain of adverse effects on these habitats and the species they support.

“The Conservation Coalition shares the concerns expressed by witnesses that the expansion of the terminal will generally degrade the estuary and adversely affect the movement of many endangered but not yet federally protected fish species such as Sturgeon, Eulachon, and salmon. Given the importance of the Fraser River estuary as habitat for fish and marine mammals, and the endangered status of many of these species, the Conservation Coalition considers these adverse effects to be significant. This includes effects on endangered Chinook salmon, and the resulting effects on prey availability for the SARA listed Southern Residents, whose survival is already jeopardized by a shortage of prey.”⁴⁰

Hundreds of millions of juvenile Chinook, chum and pink salmon feed and grow in the estuary before migrating to sea.

Ecojustice advises that the RBT2 Project will 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 natural 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.”⁴¹

³⁸ [Fraser River Estuary Study](#), August, 1978, Summary, Governments of Canada and B.C. Scrolled Page 41/177

³⁹ [Aquatic Values and Concerns](#) Regarding Habitat in the Fraser River Estuary Associated with Human Activity and Development, Dr. Marvin Rosenau, Presentation for Fall Parkfest, 2012, Slide 6/69

⁴⁰ Ecojustice on behalf of David Suzuki Foundation, Georgia Strait Alliance, Raincoast Conservation Foundation and Wilderness Committee, [Document #2036](#), August 26, 2019, Scrolled page 9/38

⁴¹ Ecojustice on behalf of David Suzuki Foundation, Georgia Strait Alliance, Raincoast Conservation Foundation and Wilderness Committee, [Document #1605](#), Volume 1, April 15, 2019, Scrolled pages 11 & 12/72

Fisheries and Oceans advised the Review Panel that RBT2 Project alterations and their effects will be significant, even with mitigation:

"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...

..... even with mitigation, unavoidable death of fish is anticipated.

...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....⁴²

Ecojustice advised unproven mitigation cannot assure functional fish habitat:

".... the Proponent's experience with habitat compensation projects illustrates 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."⁴³

Importantly, the RBT2 EIS failed to produce a cumulative effects assessment of RBT2 on Marine Fish and Marine Habitat. This was not appropriately flagged by the Review Panel or by the Impact Assessment Agency. It has not been addressed in the additional information.

The proposed offsetting and habitat banks far from the RBT2 site are unproven mitigation/compensation measures. They do not address the interactive, interdependent processes that make Roberts Bank a key site for migrating salmon. How can you possibly mitigate for changes to water circulation, salinity, and sediment transport?

⁴² Fisheries and Oceans Canada, [Document #1630](#), April 15, 2019, Scrolled Pages 74 & 75/207

⁴³ Ecojustice on behalf of David Suzuki Foundation, Georgia Strait Alliance, Raincoast Conservation Foundation and Wilderness Committee, [Document #2036](#), August 26, 2019, Scrolled page 14/38

In addition, the EIS, Review Panel, and the additional information from the Port of Vancouver fail to sufficiently address the major obstacle RBT2 and widened causeway present to migrating juvenile salmon on their route to deep water. While there are discussions around causeway breaches, there is no evidence this will happen or will be successful.

Avoidance measures are empty, meaningless promises. The stated light and noise management plans are best practices but not mitigation. The massive increase in light and noise for RBT2 is a necessity for port operations. Of course, best practices will be applied. That is common sense but nothing can mitigate the noise of a container terminal and massive increase in lighting in an otherwise habitat of dark skies at night.

These are not feasible, technically-proven, effective mitigation measures – just promises.

The Government of Canada is to be commended for the announcement of June 8, 2021, committing \$647.1 million to the *Pacific Salmon Strategy Initiative*, an effort to “stop the declines now while helping rebuild populations over the long term.”⁴⁴ However, it is clear that this initiative is a direct contradiction of RBT2 which will irreparably destroy and alter critical habitat of endangered Pacific salmon in the Fraser River estuary. Does the federal government seriously plan to approve willful fragmentation and destruction of habitat in the Fraser River Estuary and then use tax dollars for more planning and vague action to protect the salmon?

5.4 The EIS and Review Panel Report fail to appropriately assess Chinook salmon at risk

The Committee on Endangered Wildlife in Canada (COSEWIC) has listed 12 out of 13 populations of Fraser River Chinook Salmon at risk:

...Twelve populations of Fraser River Chinook Salmon has been determined to be at risk by COSEWIC – 7 Endangered, 4 Threatened and 1 Special Concern.”⁴⁵

The RBT2 Environmental Impact Statement (EIS) stated negligible effects on Chinook salmon; failed to undertake a cumulative effects assessment; and offered mitigation of future, unproven management and offsetting plans.

⁴⁴ News Release, June 8, 2021, Canada launches transformative [effort to save the Pacific salmon](#)

⁴⁵ Fisheries and Oceans Canada, [Document #1630](#), April 15, 2019, Scrolled Pages 75/207

The Review Panel stated a residual adverse effect on Chinook salmon that would be, “high in magnitude, local in extent, permanent in duration, and irreversible.”⁴⁶ Their Conclusion states:

“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.”⁴⁷

However, the Review Panel did not appropriately flag the serious omission of a cumulative effects assessment of Marine Fish and Fish Habitat.

In their Key Findings, Conclusions and Recommendations, the Review Panel did not include the fact that 12/13 populations of Fraser River Chinook salmon have been listed by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) because they are at risk of extinction. These facts alone should have led to a recommendation against approving the RBT2 Project. Instead, the Review Panel Report inappropriately recommended future planning for mitigation.

Ecojustice on behalf of the David Suzuki Foundation, Georgia Strait Alliance, Raincoast Conservation Foundation and Wilderness Committee (the “Conservation Coalition”) raised concerns about the failure of the RBT2 EIS to identify significant residual adverse effects on Chinook salmon and they advised that listed Chinook are at risk and in decline:

“The Project’s adverse effects on already vulnerable Fraser River Chinook include: large scale destruction of estuarine habitat through terminal expansion, further alteration and fragmentation of salmon habitat in the estuary, and obstruction of migration of salmon transitioning through estuary habitat. It is also likely that the estuary will be further contaminated by the routine operation of the terminal. An accidental release of fuel or hazardous cargo in the estuary could contaminate both salmon and their habitat.”⁴⁸

Ecojustice considered the Proponent’s conclusions about negligible effects to Chinook salmon to be scientifically indefensible as they did not address limitations in the ecosystem model for migratory species...

...Ecojustice advised that losses of Chinook salmon habitat needed to be considered in the context of the entire Fraser estuary...

...Ecojustice argued that Chinook salmon was subject to potential effects of the project, especially since some of the populations were classified as at-risk by COSEWIC.⁴⁹

⁴⁶ [Review Panel Report](#), RBT2, Document #2062, March 27, 2020, Scrolled Page 201/627

⁴⁷ [Ibid](#); Scrolled Page 202/627

⁴⁸ Ecojustice on behalf of David Suzuki Foundation, Georgia Strait Alliance, Raincoast Conservation Foundation and Wilderness Committee, [Document #2036](#), August 26, 2019, Scrolled page 13/38

⁴⁹ [Review Panel Report](#), RBT2, Document #2062, March 27, 2020, Scrolled Page 199/627

Ecojustice provided further evidence of unproven mitigation measures:

“.... the Proponent’s experience with habitat compensation projects illustrates 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.”⁵⁰

The Additional Information from the Port of Vancouver, 2021, does not address the fact that the Chinook salmon are at risk. Nor has the Port undertaken a cumulative effects assessment of RBT2 on Marine Fish and Fish Habitat.

The Port has described plans for offset projects which means the estuarine habitat will be lost at Roberts Bank. There are no specifics about the offset plans but to date the Port of Vancouver has been placing so-called new habitat on top of existing habitat so the offset plans will add up to a net loss of habitat.

There is no evidence that the compensation plans are technically feasible.

5.5 Unmitigable significant residual adverse environmental effects threaten survival of SRKW

The large-scale destruction of fish habitat will have adverse effects on endangered Chinook salmon which will cause loss of prey availability for endangered Southern Resident Killer Whales. This will be in contravention of the [*Species at Risk Act*](#), SARA.

“...reductions in prey availability due to adverse impacts of the Project on Chinook may also destroy critical habitat, contrary to s. 58 of SARA.”⁵¹

Southern Resident Killer Whales (SRKW) are suffering from loss of food supply and pollution. Recent losses of seemingly healthy individuals have reduced their numbers to 74. Their survival is in question as they slowly decline towards extinction.⁵²

Government and independent scientists, as well as the public, have raised concerns of habitat loss and significant adverse effects on endangered SRKW that cannot be mitigated.

⁵⁰ Ecojustice on behalf of David Suzuki Foundation, Georgia Strait Alliance, Raincoast Conservation Foundation and Wilderness Committee, [Document #2036](#), August 26, 2019, Scrolled page 14/38

⁵¹ Ecojustice on behalf of David Suzuki Foundation, Georgia Strait Alliance, Raincoast Conservation Foundation and Wilderness Committee, [Document #2036](#), August 26, 2019, Scrolled page 17/38

⁵² Ecojustice on behalf of David Suzuki Foundation, Georgia Strait Alliance, Raincoast Conservation Foundation and Wilderness Committee, [Document # 1605](#), April 15, 2019, Scrolled page 30/72

Significant adverse effects from Roberts Bank Terminal 2 Project will exacerbate threats to their survival:

- a. The Roberts Bank Terminal 2 Project, RBT2 will be built on critical habitat of SRKW
- b. RBT2 will destroy critical habitat for Chinook salmon, a vital, primary food source for SRKW
- c. Effects of shipping will add to adverse effects on SRKW from larger ships and port operations
- d. Noise from RBT2 will cause significant residual adverse effects on SRKW
- e. Contaminants from RBT2 will cause significant residual adverse effects on SRKW
- f. An accidental fuel spill could destroy critical habitat
- g. There will be significant residual adverse cumulative effects on endangered SRKW

As these significant adverse effects cannot be mitigated, the effects will be residual.

Evidence of unmitigable significant residual adverse effects on SRKW are documented in [Appendix F](#).

The Environmental Impact Statement stated that past projects have had a significant adverse effect on SRKW and the cumulative effects was expected to remain significant.⁵³ However, no specific, technically-proven mitigation measures were offered. The Port of Vancouver stated it would continue to support initiatives and programs with recovery objectives for the SRKW.

The Review Panel Report concluded significant adverse cumulative effects from RBT2 but failed to flag that the SRKW are endangered and there are legal requirements for their protection.

Having found an irreversible residual adverse effect on Chinook salmon, it was incumbent on the Review Panel Report to disclose that significant adverse effects on listed Chinook salmon impact endangered Southern Resident Killer Whales and cannot be justified under the *Canadian Environmental Assessment Act 2012*, (CEAA 2012), and the *Species at Risk Act*.

Key Findings and Conclusions of the Review Panel Report omit critical information and contravene legislation. There are documented in [Appendix G](#).

The Review Panel Report recommended unproven mitigation measures, plans, and reviews; these are beyond the Mandate of the Review Panel.

⁵³ Ibid: Page 221/627

The condition of the endangered Southern Resident Killer Whales is so crucial 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."⁵⁴

Based on the 2018 study, the Minister of Fisheries and Oceans and the Minister of Environment and Climate Change Canada recommended that the Governor in Council make an emergency order for SRKW. This was declined.

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."⁵⁵

Ecojustice advised:

"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."⁵⁶

⁵⁴ Government of Canada, Southern Resident Killer Whale: [Imminent Threat Assessment](#), Conclusions, May 24, 2018

Copied in Ecojustice [Document #1605, Volume 2](#), Page 494/671

⁵⁵ Ecojustice on behalf of David Suzuki Foundation, Georgia Strait Alliance, Raincoast Conservation Foundation and Wilderness Committee, [Document #2036](#), August 26, 2019, Scrolled pages 29-31/38

⁵⁶ Ibid: Scrolled Page 8/38

The Additional Information from the Port, 2021, and the Draft Potential Conditions promise to monitor and devise measures for SRKW but they remain vague practices that can't mitigate the significant, residual adverse environmental effects of RBT2.

5.6 The RBT2 EIS failed to assess cumulative effects on Coastal Birds and dismissed concerns of residual adverse effects

The Environmental Impact Statement (EIS) failed to fully assess loss of habitat and effects of RBT2 on all coastal birds and their habitats. The Review Panel requested that the Proponent, the Port of Vancouver, perform a cumulative effects assessment for coastal bird subcomponents but the Port failed to comply.

Considering that RBT2 will impact millions of coastal birds and more than 250 species, including 19 species at risk, the failure to provide a cumulative effects assessment is ethically and legally unacceptable. It contravenes the purpose and legal requirements of *CEAA 2012*, the *Migratory Bird Convention Act*, and the *Species at Risk Act*. The *Species at Risk Act*⁵⁷ prohibits destruction of any part of critical habitat.

The Proponent, the Port of Vancouver, identified a direct loss of critical habitat; alteration of coastal processes; as well as noise and light pollution. The Port claims the effects on coastal birds can be mitigated with terminal design, an offset plan, and a promised future Marine Species Management Plan. These mitigation measures will not prevent damage and loss as required under *CEAA 2012*⁵⁸.

The Port concluded that RBT2 would have a negligible impact on coastal birds, with the exception of diving birds and the barn owl. The Port claimed the predicted residual effects on diving birds, with mitigation, was negligible. The Port claimed there was a large amount of habitat elsewhere so effects would be negligible on coastal birds, or so small as not to be measurable.⁵⁹

Considering there was no cumulative effects assessment; considering the effects on complex estuarine processes; and considering warnings from Bird Studies Canada (supported by evidence from Environment and Climate Change Canada)⁶⁰ that important bird habitat of the Fraser River estuary is on the edge of collapse from ongoing industrialization⁶¹, this is an unscientific, unacceptable dismissal of ethical and legal accountability.

⁵⁷ [Species at Risk Act](#), Section 58

⁵⁸ [CEAA 2012](#), Section 4 (1) and Section 19 (1) (a) & (d)

⁵⁹ [Review Panel Report](#), RBT2, Document #2062, March 27, 2020, Scrolled Page 243/627

⁶⁰ ECCC, Document #1766, May 24, 2019, Scrolled Page 7/35

⁶¹ RBT2 Environment Assessment, Bird Studies Canada, [Document 2029](#), August 24, 2019, Page 3/3

The Review Panel Report did not provide any Conclusions or Recommendations on the lack of a ‘cumulative effects assessment’ of coastal birds. The Report concluded residual adverse effects and adverse cumulative effects on diving birds but, without evidence, found them insignificant. The Review Panel Report did not address the issue of significant residual adverse effects on coastal birds in general and failed to advise decision makers of legal requirements to coastal birds under the *Migratory Bird Conventions Act, 1994*, the *Species at Risk Act*, and *CEAA 2012*.

Submissions from Environment and Climate Change Canada and Bird Studies Canada on residual significant adverse environmental effects on Coastal Birds are documented in [Appendix H](#).

Experts from Environment and Climate Change Canada (ECCC) repudiated the claims of the Port of Vancouver:

- a. 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.
- b. All coastal birds assessed by the Proponent are reliant on wetland habitats within the Local Assessment Area (LAA) for at least of a portion of their life requisites.
- c. 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.
- d. The primary mitigation proposed to offset these effects are less than the Project’s predicted direct habitat losses.
- e. 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.
- f. ECCC is of the view that the Proponent's description of potential adverse effects and proposed mitigation measures are not appropriate.
- g. 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).
- h. 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
- i. ECCC notes there is potential for prolonged effects to marine birds from shipping activities including a heavy fuel spill event.
- j. 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.

5.7 RBT2 EIS failed to assess bird ‘species at risk’ in compliance with legislation

RBT2 will impact 19 bird species listed on the Species at Risk Act or designated by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC). These species were not individually assessed. The RBT2 EIS assessed representative species including Barn Owl and Great Blue Heron.

Barn Owl: ‘Threatened’ under *Species at Risk Act*

The RBT2 EIS fails to meet legal requirements in the assessment of the Barn Owl which is listed as ‘Threatened’ under the *Species at Risk Act* (SARA).

Without evidence, the RBT2 EIS and the Review Panel Report state that, with mitigation, the residual effects on Barn Owl would not be significant. The Review Panel Report referenced the *Species at Risk Act* (SARA) but did not disclose how the environmental assessment does not comply with the legislation which requires assessment of any change the Project may cause to a listed species, their residence or critical habitat, and prohibits destruction of any part of the critical habitat.⁶²

The limited scope of the RBT2 EIS prevented an appropriate assessment of the critical habitat for Barn Owl. Furthermore, there was not an appropriate assessment of the Barn Owl habitat due to the lack of a cumulative effects assessment on coastal birds.

The lack of an appropriate environmental assessment, and the application of unproven mitigation measures also contravene the Purpose of *CEAA 2012* and the Precautionary Principle of ensuring assessments are carried out in a careful and precautionary manner to avoid significant adverse effects.

Environment and Climate Change Canada (ECCC) advised there would be a loss of the endangered Barn Owl. This will be in contravention of SARA which prohibits destruction of endangered species and their habitat:

“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.”⁶³

Bird Studies Canada (BSC) explained that the restricted geographic boundaries of the assessment (the Scope 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. 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 Local Assessment Area (LAA).⁶⁴

⁶² [Species at Risk Act](#), SARA, Sections 58 & 92

⁶³ RBT2 Environment Assessment, ECCC, [Document 1146](#), February 12, 2018, Page 5/16

⁶⁴ [The Review Panel Report](#), RBT2, Document #2062, March 27, 2020, Scrolled Pages 254 & Page 250/627

Great Blue Heron: listed species of ‘Special Concern’

The Review Panel Report stated:

“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.”⁶⁵

The Conclusion in the Review Panel Report is incoherent and inappropriate:

“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.” ⁶⁶

Having reported that the Proponent, the Port of Vancouver, offered no specific mitigation measures, how can the Review Panel comment on them? Furthermore, there is no evidence of any technical and feasible mitigation measures as required by *CEAA 2012* and the *Species at Risk Act*.

Having identified residual adverse effects on the Great Blue Heron, it was incumbent on the Review Panel to identify residual effects on a species at risk and warn that legislation prohibits change or destruction of critical habitat to listed species.

Environment and Climate Change Canada advised that the proposed mitigation is inadequate and reiterated that cumulative effects of RBT2 will potentially cause adverse effects on the complex food web that supports the Great Blue Herons and other listed species:

“...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 up listed as a result of not only one sole factor, but rather due to the cumulative effects of several anthropogenic or environmental stressors...

...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...

... 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. ”⁶⁷

⁶⁵ [The Review Panel Report](#) , RBT2, Document #2062, March 27, 2020, Scrolled Page 258/627

⁶⁶ [The Review Panel Report](#) , RBT2, Document #2062, March 27, 2020, Scrolled Page 258/627

⁶⁷ RBT2 Environment Assessment, ECCC, [Document 1146](#), February 12, 2018, Scrolled Page 10 & 7/16

The Key Findings, Conclusions and Recommendation of the Review Panel Report fail to advise that the environmental assessment did not include all the provincially-listed species. As noted above, the assessments of Barn Owl and Great Blue Heron were insufficient.

The environmental assessment fails to inform government that provincially-listed species, when found on federal lands, should be assessed under the *Species at Risk Act*, which is the case at Roberts Bank:

“The Act also has a provision to protect species designated as endangered or threatened by a provincial or territorial government when found on federal lands.”⁶⁸

Additionally, the Review Panel Report failed to incorporate accountability to the federal provincial *National Accord for the Protection of Species at Risk*:

“Federal, provincial and territorial Ministers responsible for wildlife commit to a national approach for the protection of species at risk...

...iii) h. consider the needs of species at risk as part of environmental assessment processes.”⁶⁹

Also missing is in the environmental assessment is accountability to the *Canada-British Agreement on Species at Risk*:

“2.8 Ecosystem, landscape and multi-species approaches will be used when appropriate for the protection and recovery of species at risk...

ii) the conservation of species at risk is a key component of the Canadian Biodiversity Strategy, which aims to conserve biological diversity in Canada...

vi) Lack of full scientific certainty must not be used as a reason to delay measures to avoid or minimize threats to species at risk...

...h. consider the needs of species at risk as part of environmental assessment processes;”⁷⁰

The environmental assessment has not applied legal requirements of protection for the affected listed species under *CEAA 2012*, the *Species at Risk Act (SARA)* and the *Migratory Birds Convention Act, 1994*.

⁶⁸ ‘A guide to your [responsibilities](#) under the Species at Risk Act

⁶⁹ National Accord for the [Protection of Species at Risk](#), Page 1/1

⁷⁰ [Canada-British Columbia Agreement](#) on Species at Risk, April 11, 2005, Scrolled Pages 2, 13, 7 14/14

6. The Environmental Assessment fails to assess subtidal wetlands and cumulative effects on wetlands and wetland functions.

6.1 Canada and B.C. have a responsibility to protect decreasing wetlands at Roberts Bank

Federal policy on Wetland Conservation

According to the ‘*Federal policy on Wetland Conservation*’, 70% of the Pacific estuary marshes are already gone or degraded. The policy commits the Government of Canada to the goal of ‘no net loss of wetland functions’ on federal lands and waters. It also commits to securement of wetlands of significance to Canadians.⁷¹

Accountability to the ‘*Federal Policy on Wetland Conservation*,’ was mentioned but it was not applied or incorporated into the RBT2 EIS or the Review Panel Report. Even though the Review Panel Report stated RBT2 would contribute to wetland losses and degradation, the commitment to ‘no net loss of wetland functions’ was not incorporated into Conclusions and Recommendations.

Ramsar Treaty

As a signatory to the Ramsar treaty on conservation of wetlands of international importance, Canada is committed to wetland conservation policies that protect both Canadian and transboundary critical wetlands:

“Wetlands are critical to federal responsibilities for maintaining the quality of the environment, migratory bird populations, inland and ocean fisheries, and international or transboundary resources such as water and wildlife...

... Canada has a special responsibility to provide leadership in international wetland conservation efforts, through the management of transboundary resources such as water and wildlife in North America, encouragement of global wetland conservation, and active participation in international treaties, conventions and forums...

...Support protection of critical wetlands of significance to Canadians by federal or other mechanisms wherever feasible.”⁷²

According to Ramsar, wetlands include intertidal mudflats, marshes, eelgrass beds, and marine areas no deeper than six metres at low tide.⁷³ The Ramsar Treaty was not included, or incorporated, into the Conclusions and Recommendations of the Review Panel on Wetlands and Wetland Functions.

⁷¹ [Federal Policy on Wetland Conservation](#), Scrolled Pages 4 & 7/15

⁷² [Federal Policy on Wetland Conservation](#), Government of Canada, 1991, Scrolled Page 6,9, & 10/15

⁷³ [An Introduction to the Ramsar Convention on Wetlands](#), 2016, Scrolled Page 2/110

6.2 The RBT2 EIS fails to assess subtidal wetlands and claims no residual effects on wetlands

The RBT2 EIS did not assess the shallow subtidal areas claiming they were not wetlands. Without credible scientific evidence, and without an assessment, the RBT2 EIS claimed direct losses of marsh habitat would be counterbalanced by gains that would turn up elsewhere as a result of RBT2. The Proponent, the Port of Vancouver, concluded eight provincially listed estuarine wetland species occurred elsewhere so would not be eliminated.⁷⁴

[Appendix I](#) documents: The failure to assess wetlands:

- a) Erroneous claims of no residual effects on wetlands
- b) Failure to assess subtidal wetlands contravenes legislation
- c) Evidence from government scientists of unmitigable, irreversible, permanent, significant residual adverse environmental effects on wetlands

The Review Panel Report fails to appropriately and correctly report the serious omission of assessing the subtidal wetlands and the consequences to related interdependent factors of assessment in the RBT2 EIS such as coastal birds, vegetation, the role of biofilm, fish species and effects up the food web.

The lack of data, scientific evidence, and cumulative effects on intertidal wetlands also means there was not sufficient scientific information to assess the effects on the Fraser River estuary.

The Review Panel Report states the RBT2 environmental assessment of wetlands and wetland functions:

- 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
- did not provide technically and economically feasible mitigation measures

⁷⁴ [Review Panel Report](#), RBT2, Document #2062, March 27, 2020, Scrolled Page 169/627

These findings are not incorporated into the Recommendations which are for subsequent unproven measures which are not acceptable under *CEAA 2012* and are beyond the Review Panel Mandate.

Mitigation under *CEAA 2012*:⁷⁵ 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.

Mandate of the Review Panel:⁷⁶ 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.

Considering the failure of the RBT2 Environmental Impact Statement (EIS) and the Review Panel Report to legally assess effects on the globally-significant wetlands of the Fraser River estuary, issuing permits would contravene due diligence to process.

The failure to undertake a cumulative effects assessment on intertidal wetlands and coastal birds contravenes legislation and invalidates the RBT2 EIS and Conclusions and Recommendations of the Review Panel Report. The 2021 Additional Information from the Port of Vancouver did not remedy the failures.

7. Increased air, noise, and light pollution, that threaten human and wildlife health, cannot be mitigated

7.1 Serious threat to human health with air pollution from RBT2 is not appropriately reported

The assessment of effects of RBT2 on air quality and human health is not appropriately reported. Air quality effects were addressed in different sections of the EIS and not appropriately summarized in a comprehensible manner.

Both Health Canada and the B.C. Ministry of Health reported that the RBT2 Environmental Impact Statement on Air Quality was insufficient.

RBT2 will not meet air quality standards and will cause an increase in toxic nitrogen oxide (NO₂); fine particulate matter (PM_{2.5}); and ozone, all dangerous to human health as they damage the lungs and respiratory systems. It is disconcerting that the Conclusions of the Review Panel Report refer to toxic contaminants as “respiratory irritants”. They are more than that as they settle in the lungs causing respiratory diseases that kill people.

⁷⁵ [CEAA 2012](#), Section 4 (1) and Section 19 (1) (a) & (d)

⁷⁶ Roberts Bank Terminal 2 Environmental Assessment, [Terms of Reference](#), Document #1680, Amended April 2019

The Review Panel concluded exceedances in air quality standards and increases in contaminants. However, the Review Panel Report fails to mention that the effects on air quality will be **residual** as they cannot be mitigated.

The Review Panel concludes:

"The Panel concludes that construction and operations of the Project would result in exceedances of applicable air quality standards and guidelines for NO₂, PM_{2.5}, and contribute to exceedances of ozone."⁷⁷

"The Panel concludes that the construction phase of the Project would result in a residual adverse effect on human health due to chronic exposure of annual-average NO₂. The effect would be significant."⁷⁸

"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 NO₂ and respiratory irritants."⁷⁹

"The Panel concludes that the operational phase of the Project would result in a significant adverse cumulative effect on human health based on predicted exposures to 1-hour average NO₂ and respiratory irritants."⁸⁰

The Recommendation in the Review Panel Report is insufficient and meaningless as it fails to advise Governments of the serious adverse effects on human health from the effects of RBT2 on air pollution:

"Recommendation 57: The Panel recommends that the Proponent during construction and operations be required to comply with the most stringent applicable air quality standards and exposure limits."⁸¹

As to effects on air quality from marine shipping, the Review Panel expressed uncertainty and should have applied accountability to the Precautionary Principle of *CEAA 2012*. It is common knowledge that marine emissions from shipping do not follow standards. Dirty fuels are burned at night when people can't see the emissions. Many ships are not outfitted with the ability to reduce toxic emissions.

⁷⁷ [The Review Panel Report](#), RBT2, Document #2062, March 27, 2020, Scrolled Page 92/627

⁷⁸ Ibid; Scrolled Page 404/627

⁷⁹ Ibid; Scrolled Page 404/627

⁸⁰ Ibid; Scrolled Page 405/627

⁸¹ Ibid; Scrolled Page 404/627

7.2 There will be residual significant adverse effects on human health from increased noise pollution

There is already unacceptable noise pollution from the port operations at Roberts Bank.

The Review Panel Report states that:

“cumulative health effects due to noise from the Project would be high in magnitude since the Project would be adding to an already severely degraded environment with exceedances of several different human health thresholds across a large portion of the upland LAA, irreversible (for operations), long-term in duration, and continuous. Therefore, the cumulative effects on human health would be significant.”⁸²

The Review Panel Report concludes:

“The Panel concludes that the Project would result in a significant adverse cumulative effect on human health due to noise.”⁸³

The Review Panel Report fails to advise that the significant adverse effects of increased noise on human health will be **residual** as they cannot be mitigated.

7.3 Effects on human health from a significant increase in light pollution are not reported

With expansions and added large gantry cranes, there has definitely been increased light pollution from port operations at Roberts Bank. The Review Panel Reports states there will be increased light pollution with RBT2. However, the Review Panel Report states an impossible Conclusion:

“The Panel concludes that without the implementation of effective mitigation measures and management plans the Project would result in further degradation of the light environment.”⁸⁴

It is not possible to build a massive man-made island and double the container business at Robert Bank without a very significant increase in light pollution. Add to that larger container ships and massive gantry cranes, the increase in light pollution will be extensive. These effects cannot be mitigated. There will be devastating **residual** significant adverse environmental effects on human and wildlife health.

⁸² [The Review Panel Report](#), RBT2, Document #2062, March 27, 2020, Scrolled Page 415/627

⁸³ Ibid; Scrolled page 415/627

⁸⁴ Ibid; Scrolled page 101/627

8. The RBT2 Environmental Assessment fails to honestly address accountability and commitments to the globally-significant ecosystems of the Fraser River estuary.

8.1 Canada's Most Important Bird Area, which includes Roberts Bank, is at risk

RBT2 will impact millions of birds that migrate over 3 continents. The Roberts Bank unique rich ecosystem is vital to their survival. Roberts Bank is the last stop for many shorebirds on their journey to the Alaskan breeding grounds.

The RBT2 environmental assessment fails to incorporate the international and national importance of Roberts Bank in the Fraser River estuary to migratory birds, and Canada's commitments under designations and agreements to conserve the ecosystem habitats. Hundreds of submissions to the environmental assessment process reinforce how important this is to Canadians. This is not sufficiently addressed, or incorporated, in the RBT2 EIS or the Review Panel Report.

A recent study, '*Decline of the North American avifauna*', estimates that the birds of North America have suffered a net loss approaching 3 billion birds since 1970:

"...declines are not restricted to rare and threatened species – those once considered common and wide-spread are also diminished. These results have major implications for ecosystem integrity, the conservation of wildlife more broadly, and policies associated with the protection of birds and native ecosystems on which they depend...

This loss of abundance signals an urgent need to address threats to avert future avifaunal collapse and associated loss of ecosystem integrity, function and services." ⁸⁵

A CBC article, referencing this study, confirms the urgent need for increased conservation and changes in policies:

"Canada, and in particular Arctic Canada, is the breeding range for a lot of North America's shorebirds. So really Canada has a huge responsibility for the conservation of these birds...
... we also need to take action on the ground with increased conservation efforts and behaviour changes and in the halls of government, with changes in policy and regulations and even an increase in funding support: simply lamenting the loss of our biodiversity will not cause anything to change."⁸⁶

⁸⁵ Rosenberg, K. V., Dokter, A. M., Blancher, P. J., Sauer, J. R., Smith, A. C., Smith, P. A., et al. (2019). [Decline of the North American avifauna](#). *Science* 366, 120–124. doi: 10.1126/science. aaw1313

⁸⁶ CBC News, Emily Chung, [North America has lost 3 billion birds since 1970](#), September 19, 2019

Many individuals and groups are taking action by advising the Governments of Canada and B.C. that the Roberts Bank Terminal 2 Project will immeasurably exacerbate the ongoing losses of Fraser River estuarine habitats and the tragic decline in migratory shorebirds. BirdLife International reports that almost 80% of the Fraser River natural habitat is gone and warns of ecological collapse:

“The pressure on the remaining habitats is now immense, with piecemeal development occurring across the entire estuary with no overarching legal framework to protect it. The warning signs of ecological collapse of are there for all to see: populations of several birds are declining, and along the coast local Killer Whale populations are on the borderline of functional extinction. Further up the river, even the wild salmon populations are now threatened. And the situation may soon get even more desperate. A massive container port expansion is being proposed that would sit smack in the middle of the estuary: the Robert’s Bank Terminal 2 project.”⁸⁷

As a result of the ongoing decline of bird populations and the increasing industrialization of the Fraser River estuary, Birdlife International has alerted Governments to the fact that they have found Canada’s #1 Important Bird Area **“IN DANGER”**.

Boundary Bay - Roberts Bank - Sturgeon Bank (Fraser River Estuary) This is an IBA in danger!

8.2 RBT2 assessment fails responsibility to the *Migratory Birds Convention Act, 1994*

The *Migratory Bird Convention Act, 1994*, prohibits depositing harmful substances in places from which they may enter areas harmful to migratory birds. Dredging and filling 186 hectares in the estuary will destroy migratory bird habitat and will impact adjacent habitat. Additionally, construction and operation, as well as shipping, will pollute the water and air. Pollutants will spread into the estuarine habitats. A fuel spill could cause an international disaster.

An increase in high levels of contaminants such as polychlorinated biphenyls (PCBs) and bioaccumulating toxins (PBTs) from RBT2 have the potential to make critical habitat areas uninhabitable for extended periods of time.

Legal and ethical accountability to the protection of migratory birds is not incorporated into the RBT2 Environmental Impact Statement (EIS); the Key Findings, Conclusions, and Recommendations of the Review Panel Report; or the 2021 Additional Information from the Port of Vancouver.

⁸⁷ BirdLife International, [Canada delta in danger from trading port expansion](#), July 10, 2019

8.3 RBT2 assessment fails to incorporate national & international significance and accountability

Supporting a wealth of biodiversity, the Fraser River estuary is designated as Canada's top Important Bird Area (IBA); a Ramsar Wetland of International Significance (RAMSAR); and a Western Hemisphere Shorebird Reserve Network (WHSRN) site. Provincially it is designated a B.C. Wildlife Management area in recognition of its importance in Canada for biodiversity and shorebirds.

The significance of these designations is not properly incorporated in the RBT2 Environmental Impact Statement (EIS); Review Panel Report; 2021 Additional Information; or Draft Potential Conditions. There is no cumulative effects assessment of the ecosystem and its local, national and international significance. There is no reference to the interdependent estuarine processes interacting synergistically to generate the Roberts Bank food web, which, in turn, supports a wealth of biodiversity. Roberts Bank's global significance warrants environmental protection, not industrialization.

The RBT2 environmental assessment fails to incorporate the *North American Waterfowl Management Plan* which commits to an international plan to conserve waterfowl and migratory birds in North America.⁸⁸

The RBT2 assessment does not include effects of RBT2 on shared and adjacent US ecosystems:

“Nutrients and prey from Roberts Bank are exported far and wide by currents and thus the Roberts Bank marine ecosystem affects the marine biology of Georgia Strait and beyond, even influencing habitat in United States' waters.... any negative changes in the Roberts Bank ecosystem will influence adjacent US ecosystems.”⁸⁹

Canada has commitments under international treaties and agreements: *The Pacific Salmon Treaty*; *The Trilateral Committee for Wildlife and Ecosystem Conservation and Management Treaty*; *The Convention on Biological Diversity*; *The Ramsar Convention on Wetlands of International Importance*; *The North American Bird Conservation Initiative (NABCI Canada)*; *U.S.-Canada Cooperation in the Salish Sea*; and others.

⁸⁸ [*North American Waterfowl Management Plan*](#)

⁸⁹ Kahiltna Research Group on behalf of B.C. Nature, Document #609, Oct. 25, 2016 Scrolled Pages 17 & 31/113

The assessment does not incorporate Canada's Target of an ecosystem approach under the *Convention of Biological Diversity*:

"Goal A: By 2020, Canada's lands and waters are planned and managed using an ecosystem approach to support diversity conservation outcomes at local, regional and national scales."⁹⁰

Canada also has a pledge with Britain and the EU to stop 'catastrophic' biodiversity loss.⁹¹

The RBT2 environmental assessment doesn't incorporate information that RBT2 threatens cumulative biodiversity loss and that, nationally and internationally, Canada has committed to stop the damage. Canada's commitments do not correlate with the documented damage that will occur to the Fraser River estuary with RBT2.

Canada's ethical and legal responsibilities to these designations and agreements are not included in the RBT2 Environmental Impact Statement (EIS) or the Review Panel Report.

8.4 RBT2 assessment disregards accountability to the Roberts Bank Wildlife Management Area

The B.C. Roberts Bank Wildlife Management Area (RBWMA) is designated to manage critical habitat for fish, waterfowl, shorebirds, raptors and other species (including listed species). The designation recognizes accountability for providing critical wintering grounds for migratory waterfowl and shorebirds and:

"The WMA is also a main entry channel into the Fraser River for one of the largest salmon runs in the world, where more than 800 million Sockeye, Chum, Chinook, Pink and other salmon migrate through each year, using the tidal marshes for food, shelter and acclimatization to salt water. Other fish drawn to Roberts Bank include White Sturgeon, Green Sturgeon, Steelhead and anadromous Cutthroat trout. Visiting herring, eulachon, flounders and sculpins are a food source for diving and wading birds. Sea mammals such as endangered Killer Whales, Harbour Seals, California Sea-lions, Muskrat and Beaver, and terrestrial mammals such as Creeping Vole, Townsend's Vole, Eastern Cottontail, Striped Skunk and Coyotes also frequent the WMA."⁹²

Provincial accountability to all this estuarine habitat is ignored in the RBT2 EIS.

⁹⁰ *Convention of Biological Diversity*, Canada – [National Targets](#)

⁹¹ Canada, Britain, EU pledge to protect 30% of land, sea by 2030 to [stop 'catastrophic' biodiversity loss](#), Sept. 29, 2020

⁹² B.C. [Roberts Bank Wildlife Management Area](#).

A recent Report by the B.C. Auditor General, Michael Pickup, '*Management of the Conservation Lands Program*',⁹³ announced the failure of the B.C Government to effectively manage Wildlife Management Areas. B.C. conservation areas are not being protected due to lack of up-to-date management plans, strategies, enforcement, and monitoring. This lack of attention and protection are carried over into the RBT2 EIS and the Review Panel Report which disregard the Roberts Bank Wildlife Management Area.

The B.C. Government has accountability in the Fraser River estuary under three Wildlife Management Areas, including the Roberts Bank Wildlife Management Area, as confirmed in a submission by the B.C. Ministry of Forests, Lands, Natural Resource Operations and Rural Development (FLNRORD):

"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."⁹⁴

8.5 Failure to protect species identified in the RBWMA, including listed species

The RBT2 EIS did not acknowledge accountability to the Roberts Bank Wildlife Management Area. The Review Panel Report notes, "that the potential effects on wetlands could adversely affect the WMA,"⁹⁵ but fails to incorporate accountability to the RBWMA in Key Findings, and Conclusions and Recommendations.

The Review Panel concluded expansion of the causeway would result in significant adverse effects on provincially red-listed marsh communities⁹⁶ but did not assess effects of RBT2 on the habitats and listed species throughout the Roberts Bank Wildlife Management Area. This piecemeal assessment is insufficient.

This alone should convince the B.C. Government of the inadequacy of the environmental assessment.

⁹³ [*Management of the Conservation Lands Program*](#), B.C. Government, Office of the Auditor General of B.C. May 2021

⁹⁴ [Review Panel Report](#), RBT2, Document #2062, March 27, 2020, Scrolled Page 174/627

⁹⁵ Ibid, Scrolled Page 176/627

⁹⁶ Ibid, Scrolled page 176/627

8.6 Failure to include commitments to the Burns Bog Ecological Conservancy Area

Many species found in Burns Bog rely on the food web of the Fraser River estuarine ecosystem:

"The Burns Bog Ecological Conservancy Area is also relevant. It is designated as an Ecological Conservancy Area within the Metro Vancouver Regional Parks System, and is protected through a legally binding conservation covenant, held by ECCC, which limits activities and ensures that the ecological integrity of the Bog is conserved."⁹⁷

9. The Scope of the RBT2 environmental assessment is insufficient. Additionally, piecemeal and irregular rulings on the scope have prevented a proper assessment.

RBT2 will significantly affect the Fraser River Basin which drains one quarter of B.C. The watershed stretches from the Rocky Mountains, through the estuary and the Salish Sea to the Pacific. The estuary provides a rich food web that supports life throughout this magnificent ecosystem. The Scope of the RBT2 environmental assessment fails to recognize the far-reaching effects and the interactive, interdependent processes of the ecosystem. The result is piecemeal, fragmented information which fails to identify domino and cumulative effects of RBT2.

The Shipping Addendum was an add-on to the Scope and is not sufficiently incorporated into the cumulative effects.

The scope of the RBT2 Environmental Assessment was significantly enlarged on September 28, 2020, with the addition of the certain, and foreseeable, GCT Berth 4 proposal. The scope should now include cumulative effects of both proposals with the connected factors of spatial boundaries, site infrastructure, shipping, business markets, and valued components.

The Scope was altered in January, 2018 with an announcement by the Review Panel that the assessment would not incorporate the need of the Project or information on the Port of Prince Rupert as an alternative option to RBT2:

"...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."⁹⁸

Consequently, this assessment is not considering the business case options, or the needs of Canada's west coast container business.

⁹⁷ CEAA 80054, Environment and Climate Change Canada, [Document #1091](#), Nov. 10, 2017, Scrolled page 14/22

⁹⁸ (Review Panel, Roberts Bank Terminal 2 Project, Public Meeting, January 30, 2019, Announcement by Chair, Jocelyn Beaudet, page 7/181, [Document #1413](#))

The fragmented identification of Scope has led to a compartmentalized environmental assessment with layer upon layer of disconnected information which fails to assess the cumulative effects on the Fraser River ecosystem and the life it supports.

10. RBT2 is not needed as the west coast container business will have capacity without RBT2

RBT2 is not justified as it doesn't make economic sense; current and ongoing expansions are providing ample capacity for Canada's west coast container business. RBT2 will unnecessarily degrade the estuary; harm bulk shipping and other container business operations. It will increase congestion in the Lower Mainland and choke up Canada's supply chain with empty and USA-bound containers.

10.1 The RBT2 environmental assessment fails to provide a transparent, proven business case with data.

The Port of Vancouver has failed to provide a transparent business case for RBT2 yet there is a big push in Ottawa to get approval for the Project. It is extraordinary that the Impact Assessment Agency and our governments are allowing the Port to submit reports that fail to provide real data tables, clear graphs, or specific references to support their claims. These are not good business practices to promote a \$3.5 billion Project which may have to come out of tax dollars. Taxpayers have already paid out more than \$1.4 billion on west coast container infrastructure.⁹⁹

The Environmental Impact Statement (EIS) and subsequent information from the Port of Vancouver have failed to provide meaningful, accurate statistics to prove their inflated forecasts. Since the assessment began in 2013, the Port has failed to achieve even their lowest case forecasts.

They have also failed to honestly disclose their container business capacity. Again, no professional tables with properly referenced data.

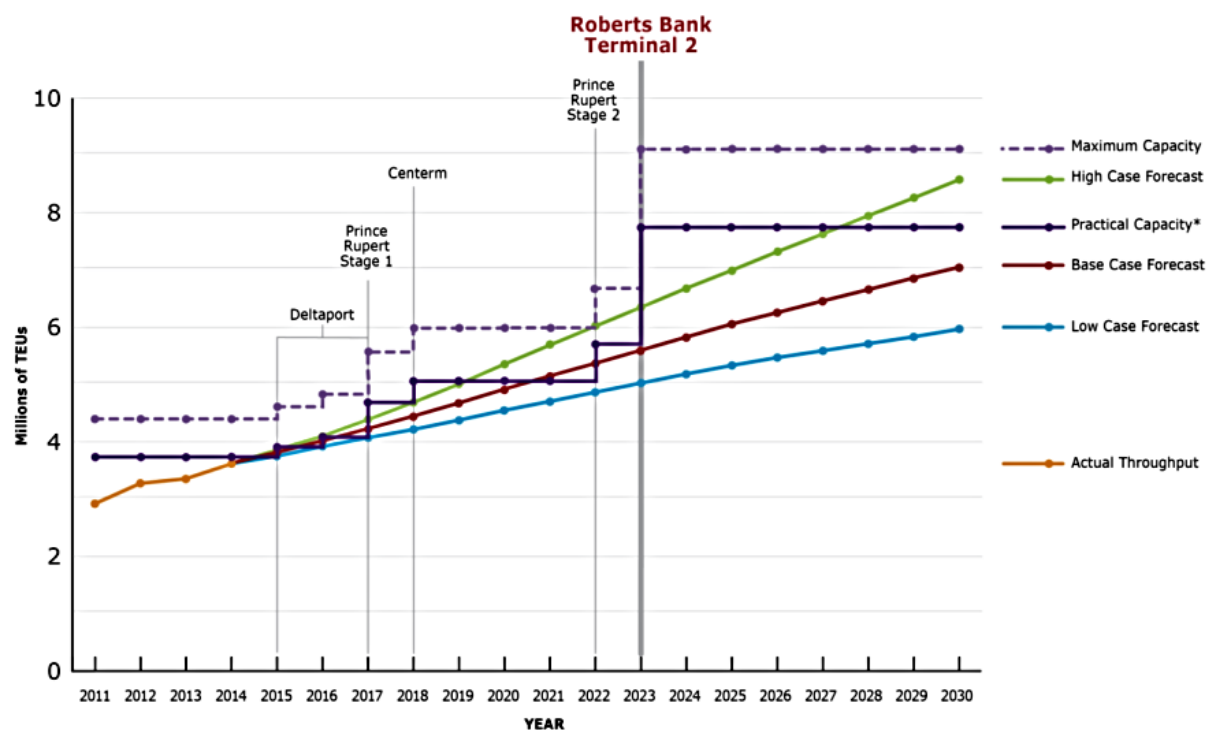
The Roberts Bank Container Terminal 2 (RBT2) Environmental Impact Statement (EIS) presents unreadable graphs with large increments and tiny print. There are no proper data tables and non-specific references are supposed to provide evidence of a reason to build RBT2.¹⁰⁰

⁹⁹ Feds invest in Asia-Pacific Gateway infrastructure, July 29, 2015

<https://www.insidelogistics.ca/infrastructure/feds-invest-in-asia-pacific-gateway-infrastructure-141294/>

¹⁰⁰ Roberts Bank Terminal 2, Environmental Impact Statement, Volume 1, Document #183, Scrolled page 28/206
<https://www.ceaa-acee.gc.ca/050/evaluations/document/101482?culture=en-CA>

Figure 2-4 Canadian West Coast Container Traffic Forecast (2014) and Planned Capacity Increases to 2030



Source: Ocean Shipping Consultants, 2014

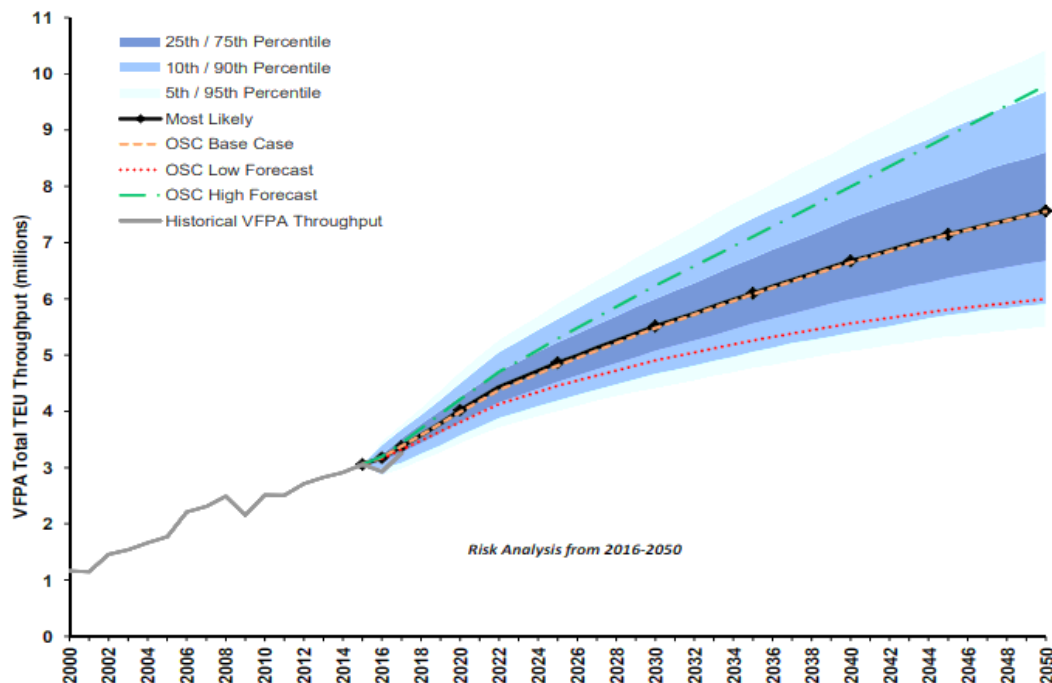
*Practical capacity is calculated as 85% of maximum capacity, above which terminals begin to lose efficiency.

80054/126255E.pdf

OSC base case in order to be able to ascertain probabilities of alternative volumes. The Port of Vancouver agreed to this and as described below, we implemented the risk based analysis. The risk augmented methodology is built around the core forecasting methodology used by OSC for its base case as a complement to its existing analysis. This approach allows for a greater range of risk factors that could influence the expected results, and simulates 10,000 possible scenarios. Augmenting the OSC forecast, we see that the OSC high case and low case fall within the 10th to 90th percentile of likely outcomes. The following figure graphically depicts the risk augmented forecast. I observe:

InterVISTAS' Risk Analysis of OSC Forecast for VFPA TEUs

25 May 2018



Review of OSC Port of Vancouver Container Forecast

Report of 17 August 2018

There has been no feasibility study or cost-benefit analysis. In eight years, they have failed to present a professional, valid business case.

¹⁰¹ Review of OSC's Container Traffic Forecast Study of 2016, Port of Vancouver, November 30, 2018, Document #1364, Scrolled page 7/33

[From the Vancouver Fraser Port Authority to the Review Panel re: Review of 2016 Container Traffic Forecast Study by InterVISTAS \(See Reference Document #897\) \(iaac-aeic.gc.ca\)](#)

10.2 RBT2 environmental assessment process refuses to incorporate information on the options for expansion of Canada's west coast container business

The RBT2 Environmental Impact Statement (EIS) presented the Project as a need for the west coast container business.

"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."¹⁰²

"2.1.2 Objectives Port Metro Vancouver has five main objectives with respect to the Project:
1. Meet demand for containerised trade growth on behalf of Canada and Canadians. Additional container capacity will be required on Canada's west coast by the mid-2020s."¹⁰³

"Need for the Roberts Bank Terminal 2 Project
... even with recent, current, and proposed improvements to infrastructure at container terminals within PMV jurisdiction, and the planned expansion at the Fairview Container Terminal in Prince Rupert, demand forecasts indicate Canada's west coast will need additional container capacity by the early to mid-2020s"¹⁰⁴

As the Ports of Vancouver and Prince Rupert are Canada's main west coast container ports, it is reasonable to discuss options for expansions at both locations. Numerous submissions to the RBT2 assessment process addressed the fact that the Port of Prince is a preferable option because it is already expanding rapidly; is one sailing day closer to Asian markets; is less congested than Vancouver; and has a smoother rail time to eastern centres due to less rail congestion.

Five years into the environmental assessment, there was an extraordinary public announcement from the Review Panel that dramatically changed the scope of the assessment stating the assessment would not incorporate information on the Port of Prince Rupert:

"...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."¹⁰⁵

Consequently, this assessment is not considering the business case options, or the needs, of Canada's west coast container business.

¹⁰² Roberts Bank Terminal 2 Project – Environmental Impact Statement, Volume 1, Section 1, Introduction, Scrolled page 1, 206

<https://www.ceaa-acee.gc.ca/050/documents/p80054/101388E.pdf>

¹⁰³ Ibid; Scrolled Page 17/206

¹⁰⁴ Ibid; Scrolled Page 29/206

¹⁰⁵ (Review Panel, Roberts Bank Terminal 2 Project, Public Meeting, January 30, 2019, Announcement by Chair, Jocelyn Beaudet, page 7/181, [Document #1413](#))

10.3 Speakers were muzzled at the Public Hearing, May, 2019

Many of the public submissions state the Port of Prince Rupert is a more reasonable location for any expanding container business as the Vancouver area is congested and the Fraser River estuary is a globally-significant ecosystem that will be destroyed.

It makes no sense that the Environmental Assessment of RBT2 refused to incorporate information on the Port of Prince Rupert, especially considering three transportation experts advised the federal Minister of Transport 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.”¹⁰⁶

At the public hearing for RBT2 held in May, June, 2019, speakers were advised they were not allowed to speak specifically about Prince Rupert as an alternative means:

“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).”¹⁰⁷

10.4 Only 10% of Vancouver’s import laden containers are for the Lower Mainland

“The nature of the business is that it is about 10% stays local and 90% goes elsewhere.”¹⁰⁸

10.5 There is no economic need for RBT2 and it cannot be justified

Even the lowest case forecasts of container growth at the Port of Vancouver are not being realized. There has been a Compound Annual Growth (CAGR) of 3.05 % since 2008. The recent growth is for imports bound for the USA. Container exports have been flat for years and are now going down.

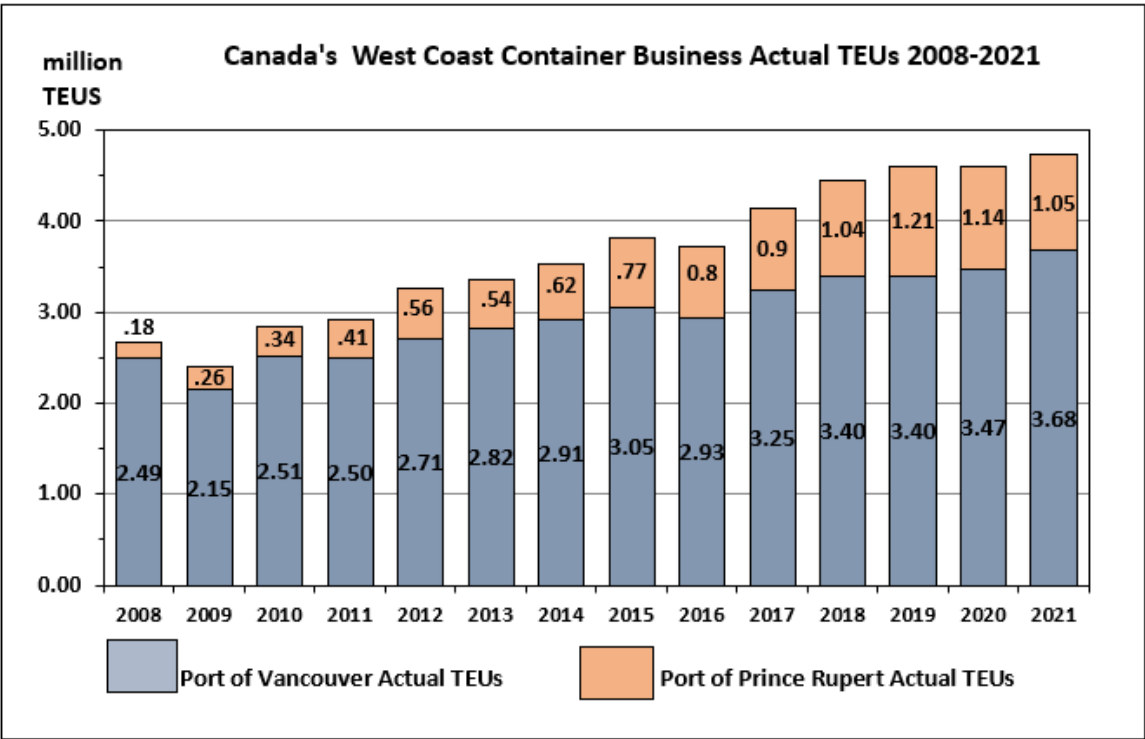
¹⁰⁶ Asia Pacific Gateway and Corridor Initiative Report, Advisors Report, 2008, Burghardt, De Fehr & Turner https://www.againstportexpansion.org/downloads/strategic_advisor_report.pdf

¹⁰⁷ From the Review Panel Secretariat to Susan Jones re: Participation in the Alternative Means topic specific session on May 31, 2019, May 30, 2019, Document #1849 [130077E.pdf \(iaac-aeic.gc.ca\)](#)

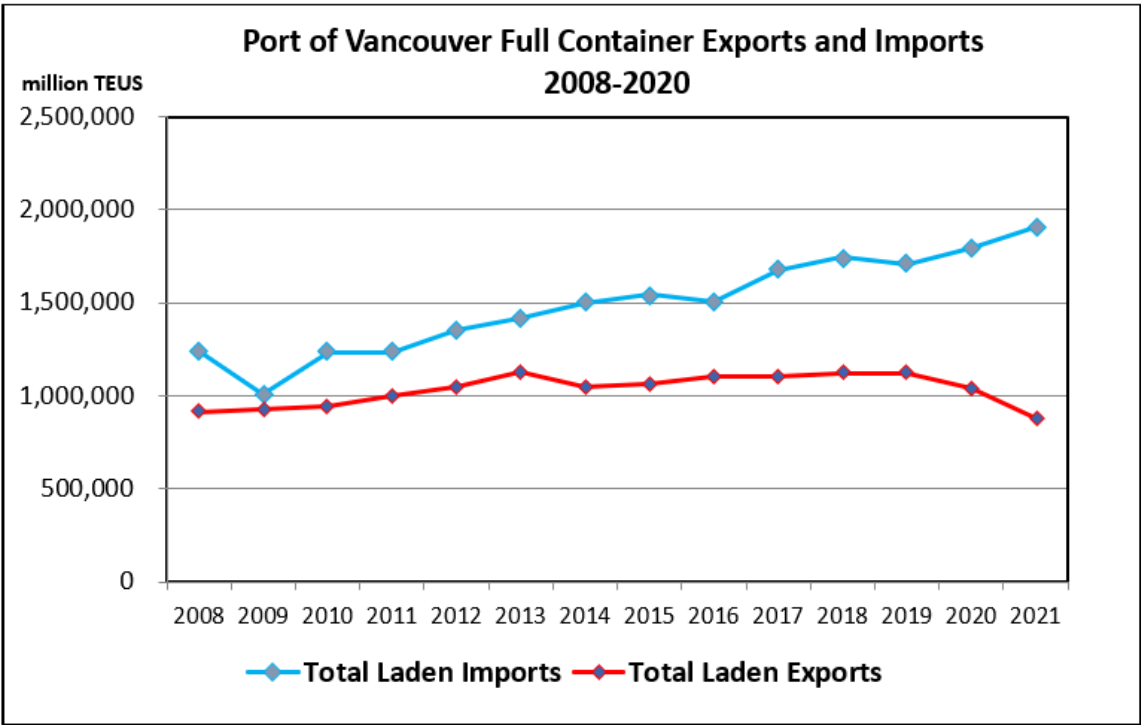
¹⁰⁸ Port of Vancouver [Public Consultation](#), Deltaport Terminal Road and Rail Project, (DTRRIP), Dec.10, 2011, Page 6

Growth in the container business at the Port of Prince Rupert is much faster and there are ongoing expansions to readily handle Canada’s west coast container business.

A TEU is a twenty-foot container equivalent. Statistics are from websites and news releases of the Port of Vancouver and the Port of Prince Rupert.



Vancouver container exports were flat and are now going down.



Port of Vancouver Laden Imports and Exports 2008-2021

A TEU is a twenty-foot container equivalent

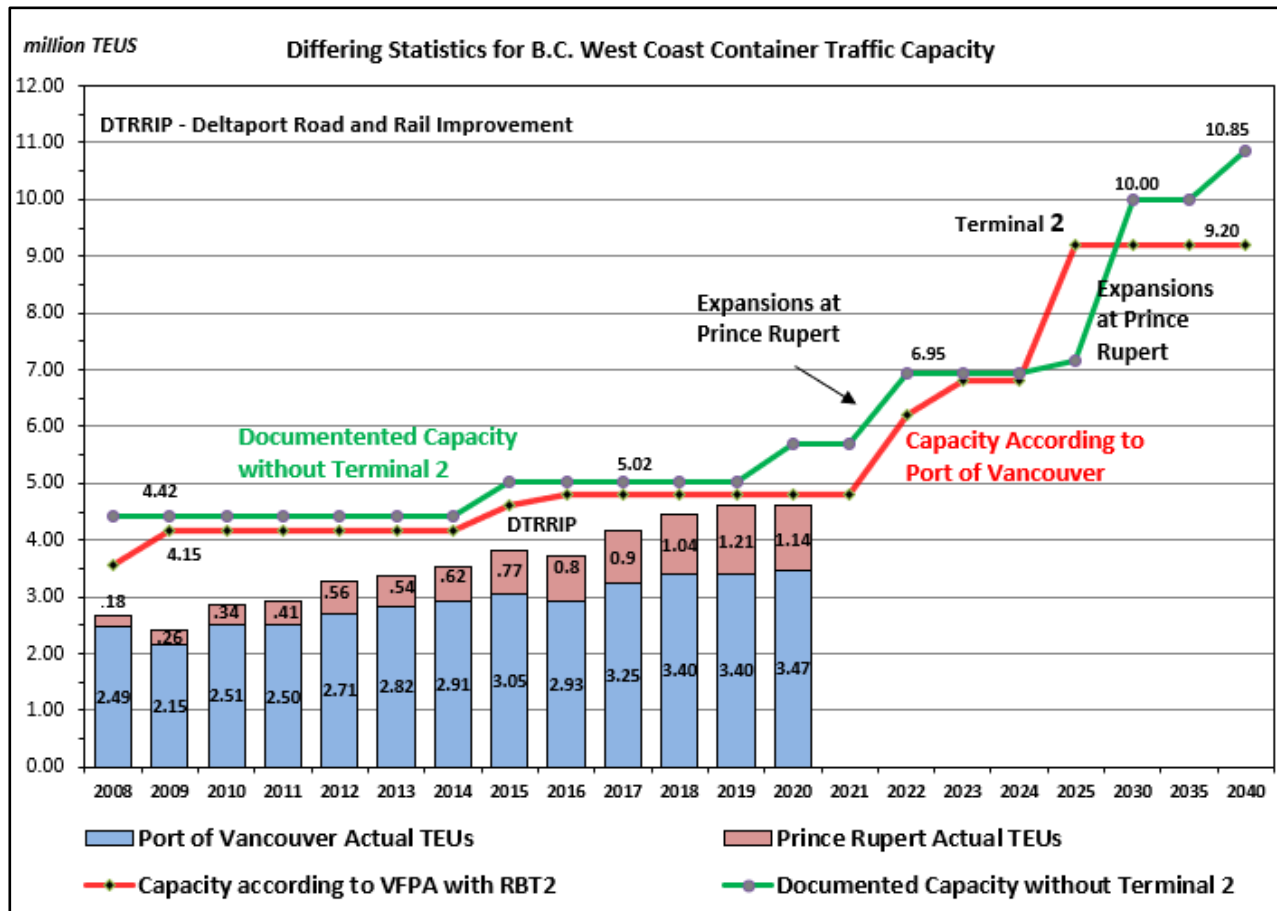
Year	Laden Exports TEUs	Laden Imports TEUs
2008	915,465	1,238,350
2009	925,411	1,007,304
2010	940,921	1,233,051
2011	999,725	1,234,585
2012	1,048,824	1,349,375
2013	1,125,619	1,418,527
2014	1,045,676	1,499,507
2015	1,066,034	1,542,388
2016	1,100,686	1,505,942
2017	1,101,645	1,677,800
2018	1,119,590	1,743,399
2019	1,121,973	1,709,398
2020	1,043,069	1,797,582
2021	878,426	1,909,972

Port of Vancouver website:

Reporting, Statistics and Resources

<https://www.portvancouver.com/about-us/statistics/>

Ongoing expansions can meet Canada's west coast container capacity demand.



Documented Information on Canada's West Coast Container Capacity Without RBT2

TEUs in millions

TEU is a twenty-foot container equivalent unit

Year	2010 Capacity	2015 Capacity	2020 Capacity	2022 Capacity	2025 Capacity	2030 Capacity	2040 Capacity
Added Capacity	Third Berth added 600,000 TEUs	Phase One DTRRIP added 200,000 TEUs	DTRRIP added 200,000 TEUs Centerm increased efficiencies	DTRRIP Added 200,000 TEUs Centerm Expansion	Deltaport increased efficiencies	Deltaport increased efficiencies	
	TEUs	TEUs	TEUs	TEUs	TEUs	TEUs	TEUs
Port							
Deltaport	2.10	2.30	2.50	2.70	2.70	3.00	3.20
Vanterm	0.84	0.84	0.84	1.05	1.05	1.05	1.05
Centerm	0.88	0.88	0.90	1.50	1.50	1.50	1.50
FSD	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Total Vancouver	3.92	4.12	4.34	5.35	5.35	5.65	5.85
P.R. Fairview	0.50	0.90	1.35	1.60	1.80	1.80	2.00
South Kaien						2.50	3.00
Total Prince Rupert	0.50	0.90	1.35	1.60	1.80	4.35	5.00
Total TEUs	4.42	5.02	5.69	6.95	7.15	10.00	10.85

DTRRIP is the Deltaport Terminal Road and Rail Improvement Project to increase capacity at Deltaport by 600,000 TEUs by 2017 (actually taking longer)

In 2021, the Port of Vancouver handled 3.68 TEUs (twenty-foot container equivalent). Fraser Surrey Docks is handling more container business than is being disclosed. So, with ongoing expansions and improved efficiencies, there will be enough capacity in the Vancouver region to handle at least another million TEUs. Beyond that, the Vancouver area infrastructure cannot handle more containers.

Even now, the Vancouver area is overly congested with container trucks, container storage, and transloading sites. The residual significant adverse effects are loss of industrial land, growing truck traffic, congestion and pollution.

There is no justification to further congest and pollute the Vancouver region for RBT2 when there is container business capacity in the province and, as advised by transportation experts, Prince Rupert should be developed first and there should be overall planning.

10.6 Bulk shipping, Port tenants, and Vancouver businesses are hurting because container shipping is very lucrative for the Port of Vancouver

Canada's economy relies on bulk shipping to export Canadian resources overseas. This should be a priority. Instead, the Port of Vancouver is unnecessarily setting up competition for its own container terminal tenants and squeezing out tenants on port lands for container space.

The Port appears to be more invested in real estate than managing port lands for Canada's trade. The Port is continually buying up real estate and profits by utilizing taxpayers' assets of 1,500 hectares of land and 16,000 hectares of water lots.

47%¹⁰⁹ of the Port's very lucrative business income is from the container business so the Port exaggerates the need for more container capacity and gets rid of export tenants with higher rents (30% in one year) and threats of not renewing leases

“Basically, it's containers at the expense of agriculture in the (port's) south shore (and) everything that we support on the south shore,”¹¹⁰

Robin Silvester, President and CEO of the Port of Vancouver, claims it's about “expanding needs for international trade,”¹¹¹ but the container business is about a lucrative income from funneling USA-bound import containers through Vancouver and the Fraser River estuary.

Statistics 2015-2018 show that 23.5% of Vancouver container imports are US bound.¹¹² Recent news claims it is as high as 35% which accounts for all container business increases.¹¹³

¹⁰⁹ Vancouver Fraser Port Authority 2018 Financial Report, Scrolled Page 21/58

https://www.portvancouver.com/wp-content/uploads/2019/05/2018_FinancialReport.pdf

¹¹⁰ Bullying tenants: Container Plans put [pressure on Port of Vancouver tenants](#), neighbours, Vancouver Sun, Derrick Penner, February 19, 2021.

¹¹¹ Ibid;

¹¹² RBT2, EIS, Analysis of BC Ports Container Volume by Origin/Destination Mercator Report, Mar., 2019, Pg 6 [Mercator Report onf BC Ports March 2019.pdf](#)

¹¹³ GCT: Port Authority's proposed Roberts Bank expansion costly and misguided, Delta Optimist, May 18, 2021 <https://www.delta-optimist.com/sponsored/gct-port-authoritys-proposed-roberts-bank-expansion-costly-and-misguided-3788700>

Appendix A

The RBT2 modeling is incapable of representing the ecosystem

Fisheries and Oceans advised the Review Panel that the ecosystem modeling was limited and was not sufficient to represent the ecosystem:

"... There are uncertainties and limitations associated with the use of the model and uncertainties remain regarding potential effects to fish and invertebrate species that inhabit Roberts Bank and the Roberts Bank ecosystem....

"In summary, the starting point for this modelling analysis matters. It is not just about a comparison between results with and without the Project. The model has to be considered a sufficient representation of the ecosystem. The Proponent has not yet sufficiently validated the model...

...Biotic factors (e.g., nutrients), which are particularly important for biofilm and other lower trophic level taxa, are not included in this model. The model is therefore unable to assess the potential development of eutrophication and benthic organic enrichment events, which may affect fish habitats in the study area...

...the EwE model is not capable of, and is not designed to, represent nutritional and food quality variations in prey functional groups, and how these may impact highly migratory predators such as birds, with and without the Project. " ¹¹⁴

Science presented by Ecojustice on behalf of the David Suzuki Foundation; Georgia Strait Alliance; Raincoast Conservation Foundation; and Wilderness Committee found the modeling insufficient to assess effects on endangered Chinook salmon:

"224. The ecosystem productivity model is inappropriate to accurately characterize the potential effects of the Project on juvenile Chinook, as it is unable to incorporate several factors which have the potential to cause adverse effects. The potential effects of the Project resulting from construction activities, noise, lighting and changes to migration pathways are only assessed qualitatively by the Proponent, despite their potential to impact juvenile Chinook. Due to these significant uncertainties, the Scott Report concludes that the results of the ecosystem productivity model should not be used as a line of evidence when evaluating the potential adverse effects of the project on juvenile Chinook

¹¹⁴ Fisheries and Oceans Canada, Technical Review of Roberts Bank Terminal 2 Environmental Assessment, Scrolled pages 19 & 20//23 [Technical review of Roberts Bank Terminal 2 environmental assessment: section 10.3 – assessing ecosystem productivity \(dfo-mpo.gc.ca\)](#)

salmon. The ecosystem productivity model is inappropriately used as a line of evidence to conclude lack of potential effects.”

225. Further, the Proponent’s flawed field studies were used in the ecosystem model. As stated above, the data generated by these studies is insufficient...¹¹⁵

“...the ecosystem productivity model should not be used as a line of evidence to conclude potential effects. However, based on EIS Section Table 13-12, it would appear that the ecosystem model is considered equal to other lines of evidence in the final conclusion.”¹¹⁶

In answers to specific questions by government agencies on the EwE model, the Port of Vancouver stated:

“.... the objective of the RB model was not to provide an assessment of Project impacts for each functional group at a fine temporal scale, but to estimate changes in productive potential, with and without the Project, at the ecosystem level.”¹¹⁷

As quoted above, the Scott Report states that, contrary to that statement, it appears the EIS does include use of the model for assessment of functional groups:

“However, based on EIS Section Table 13-12, it would appear that the ecosystem model is considered equal to other lines of evidence in the final conclusion.”

The Kahiltna Research Group, on behalf of B.C. Nature, advised that the modeling included key computational aspects in summary form which is of questionable value as it is not data. Furthermore, the modeling included assumptions for information which is not known:

...To simply assume values for all of these, based on other systems, only exacerbates any errors that are in the assumptions, since not much is known or understood about this ecosystem at Roberts Bank. Some of these parameters also do not even apply to Roberts Bank...

...the EwE and foraging models are inappropriate and meaningless to use for this EIS.”¹¹⁸

¹¹⁵ Ecojustice on behalf of David Suzuki Foundation, Georgia Strait Alliance, Raincoast Conservation Foundation and Wilderness Committee, [Document #1605](#), Volume 1, April 15, 2019, Scrolled page 67/72
<https://iaac-aeic.gc.ca/050/documents/p80054/129297E.pdf>

¹¹⁶ Ecojustice on behalf of David Suzuki Foundation, Georgia Strait Alliance, Raincoast Conservation Foundation and Wilderness Committee, [Document #1605](#), Volume 2, B, April 15, 2019, Scrolled pages 93/671

¹¹⁷ ECCC, RBT2, #80054, [Document #547](#), September 8, 2016, Scrolled Page 106/230

¹¹⁸ Kahiltna Research Group on behalf of B.C. Nature, [Document #609](#), October 25, 2016 Pages 42 & 51/113

Appendix B

RBT2 will cause serious changes to the structure and functions of the estuary

Fisheries and Oceans Canada:

"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...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.

The infilling and dredging activities that are required to construct the Project will result in death of fish... ..even with mitigation, unavoidable death of fish is anticipated." ¹¹⁹

Environment and Climate Change Canada

"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."

"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."

"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." ¹²⁰

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

"Impacts from this project are anticipated to degrade the ecological integrity of the area and contribute to cumulative negative effects of development throughout the Fraser River estuary." ¹²¹

¹¹⁹ CEAA 80054, Fisheries and Oceans Canada, Document [#1630](#), April 15, 2019, Scrolled Page 74/207

¹²⁰ RT2 Environmental Assessment, ECCC, [Document 1454](#), February 8, 2019, Scrolled Page 22/40

¹²¹ British Columbia Ministry of Forests, Lands, Natural Resources Operations and Rural Development (FLNRORD), [Document #1751](#), May 22, 2019, Page 4/8

The Kahiltna Research Group:

"If Roberts Bank is thus taken out of the migratory scenario as a diatom-provider, it is probable that what happened on the East Asian-Australian Flyway, the collapse of migratory shorebird populations due to irreversible alterations of the tidal flats they use as stopover sites, could indeed happen on the Pacific Flyway (Jones 2016). Migration could cease.

...RBT2 should not be constructed because doing so would probably irreversibly and negatively alter a vital marine area's ecology" ¹²²

¹²² Kahiltna Group, [Document #1604](#), April 15, 2019, Scrolled Page 8/15

Flawed and Incomplete Science on Biofilm

Professor Peter G. Beninger on behalf of B.C. Nature submitted a scientific critique of the Proponent's 2018 report on biofilm. He reported flawed sampling leading to the impossibility of calculating statistics on fatty acids. As an expert on mudflats, he advised that due to the flawed report by the Proponent, and due to lack of scientific knowledge on mudflats, the 2018 report on biofilm cannot predict, 'no significant biofilm impact':

"...The sampling procedure was not predicated upon adequate knowledge of the spatial distribution of the organisms, nor upon that of temporal succession...
...The report's statistical treatment and interpretation are inadequate/inappropriate at multiple levels."¹²³

Dr. Baird, on behalf of B.C. Nature, advised that the RBT2 EIS failed to sufficiently assess the importance of biofilm to the Roberts Bank food web:

"VFPA did not discuss the importance of the LCEFA that marine biofilm produces and how this nutrient is critical for the entire food web at Roberts Bank. (*LCEFA= long-chained essential fatty acids*)

Often VFPA did not sample at the correct time or place to get the information that they needed on marine biofilm, and in so doing, misinterpreted how the ecosystem works at Roberts Bank.

VFPA did not address the negative impacts of RBT2 construction on the entire food web at Roberts Bank – from zooplankton to migratory birds and Fraser River salmon, based on the importance of marine biofilm to these groups.

The unique productivity of diatoms, the effect of Ω -3 fatty acids on the food web, the substitution of bulk carbon for quality of carbon (e.g., fatty acids vs. chlorophyll a) were all neglected by the VFPA's EIS.

This neglect by VFPA is sufficient to deny this project to be able to proceed."¹²⁴

¹²³ Critique of 'Biofilm Dynamics during 2018 Northward Migration, Prof. Peter G. Beninger, U. of Nantes, France, [Document #1740](#), May 16, 2019.

¹²⁴ Kahiltna Research Group on behalf of B.C. Nature, [Document #609](#), October 25, 2016 Scrolled Pages 6, 7, & 15/113

Impossibility of mitigating the Roberts Bank biofilm food web

Environment and Climate Change Canada strongly advised that RBT2 will have unmitigable residual significant adverse environmental effects on biofilm:

“While the proposed follow-up program would provide monitoring and data, ECCC does not support the Proponents proposed Follow-up Monitoring Program because the predicted Project effects on biofilm are not mitigatable. ECCC finds that Project effects on biofilm would likely be immediate and irreversible.

Further to ECCC’s previous advice, 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.”¹²⁵

Environment and Climate Change Canada (ECCC) advised:

“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)”¹²⁶

“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.”¹²⁷

¹²⁵ ECCC, RBT2 EA, Document [#1637](#), April 15, 2019, Scrolled page 37/115

¹²⁶ RBT2 Environment Assessment, ECCC, [Document 1775](#), May 18, 2019, Page 15/23

¹²⁷ ECCC, [Document #1091](#), November 10, 2017, Scrolled Page 15/22

Kahiltna Research Group, on behalf of B.C. Nature, advised:

"This rich food web at Roberts Bank is a direct result of a greater density of marine biofilm (marine diatoms) there than in any other mudflat in the area."¹²⁸

"Because of the greatest abundance of marine diatoms is at Roberts Bank and nowhere else in such large numbers in the greater Fraser River estuary system, and because of the vital importance of omega-three fatty acids for the entire food web there."¹²⁹

"Roberts Bank stands out as a unique ecosystem, and the conditions there cannot be replicated anywhere else in the Lower Mainland even if mitigation was attempted. "The water currents, salinity, temperatures, nutrients, turbidity, and many other abiotic factors present at Roberts Bank only exist there because of the free outflow of the Fraser River and the concomitant free circulation of seawater in the particular area."¹³⁰

"Spring abiotic conditions are unique at Roberts Bank because of the salinity, turbidity, water flow, temperature, light, and other abiotic factors that are a juxtaposition of the Fraser River and oceanic conditions at that time."¹³¹

'Nowhere in this entire greater Fraser River delta -Boundary estuary are marine diatoms as concentrated and available as they are in Roberts Bank."¹³²

"Nutrients and prey from Roberts Bank are exported far and wide by currents and thus Roberts Bank ecosystem affects the marine biology of Georgia Strait and beyond, even influencing habitat in the United States' waters."¹³³

"Finally, if there was another site in the Lower Mainland that was such a rich food source for migratory birds as is Roberts Bank, the birds would already have found it and would stage there in large numbers. There is no such alternate site."¹³⁴

¹²⁸ Kahiltna Research Group on behalf of B.C. Nature, [Document #609](#), October 25, 2016 Scrolled Page 17/113

¹²⁹ Ibid: Scrolled page 6/113

¹³⁰ Ibid: Scrolled page 6/113

¹³¹ Ibid: Scrolled page 13/113

¹³² Ibid: Scrolled page 17/113

¹³³ Ibid: Scrolled page 17/113

¹³⁴ Ibid: Scrolled page 15/113

Appendix D

Additional Information and the Review Panel Report state misleading and incorrect information on biofilm

A. The Review Panel Report failed to correctly report information from Fisheries and Oceans (DFO) on salinity changes:

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."¹³⁵

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."¹³⁶

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..."¹³⁷

¹³⁵ [The Review Panel Report](#), RBT2 Environmental Assessment, Document #2062, March 27, 2020, Scrolled Page 163/627

¹³⁶ RBT2 Environment Assessment, Fisheries and Oceans, [Document 1211](#), July 3, 2018, Page 3/7

¹³⁷ RBT2 Environment Assessment, Fisheries and Oceans, [Document 1630](#), April 15, 2019, Page 25/207

B. The Review Panel Report incorrectly infers that Environment and Climate Change Canada (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."¹³⁸

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." ¹³⁹

"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.¹⁴⁰

The following information from ECCC was completely ignored:

"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."¹⁴¹

¹³⁸ [The Review Panel Report](#) , RBT2 Environmental Assessment, Document #2062, March 27, 2020, Scrolled Page 163/627

¹³⁹ RBT2 Environment Assessment, ECCC, [Document 1454](#), February 8, 2019, Page 22/40

¹⁴⁰ RBT2 Environment Assessment, ECCC, [Document 1775](#), May 18, 2019, Pages 17&19/23

¹⁴¹ RBT2 Environment Assessment, ECCC, [Document 1146](#), February 12, 2018, Page 14/16

- C. The Review Panel Report fails to report that the RBT2 Environmental Impact Statement (EIS) did not include the importance of essential fatty acids from marine biofilm, and how this is crucial to for the entire food web at Roberts Bank
- D. The Report fails to fails to report significant residual adverse cumulative environmental effects as identified by government and independent scientists
- E. The Report fails to report that the RBT2 EIS is incorrect in stating there will be no effect on biofilm
- F. The Review Panel makes recommendations that contravene *CEAA 2012* and the Review Panel's stated approach in accordance with their Mandate:

"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."¹⁴²

In spite of this statement in their report, the Review Panel contradicted their own policy and made inappropriate recommendations of future monitoring and adaptive management measures.

C: Additional Information from the Port of Vancouver, 2021

The additional information on biofilm describes further work using the flawed modelling so the information on potential changes on the physical processes at Roberts Bank cannot be scientifically validated. The Port continues to submit paid-for science that is not peer-reviewed. There are no comments from Government experts.

The conclusion of the Port's report repeats their claims in the RBT2 Environmental Impact Statement (EIS) that:" ...salinity changes resulting from the project will not adversely affect biofilm and shorebirds,"¹⁴³

This information does not correlate with published papers and submissions by Government and independent experts. The risks are too great to accept the information from a vested interest without due scientific objective testing and unbiased analysis. The information from the Port of Vancouver cannot be accepted as credible scientific evidence.

¹⁴² [The Review Panel Report](#) , RBT2 Environmental Assessment, Document #2062, March 27, 2020, Scrolled Page 40/627

¹⁴³ RBT2, Environmental Assessment, IR2020-4 Biofilm and Effects to Migratory Birds, Port of Vancouver, Additional Information, 2021, Scrolled Page 26/27 <https://iaac-aeic.gc.ca/050/documents/p80054/141576E.pdf>

Appendix E

Government and independent scientists advised of unmitigable, significant residual adverse effects of RBT2 on shorebirds

Environment and Climate Change Canada (ECCC) advised:

“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.”¹⁴⁴

“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.”¹⁴⁵

“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.”¹⁴⁶

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

“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...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.”¹⁴⁷

Dr. Patricia Baird, Kahiltna Research, on behalf of B.C. Nature:

“Dr. Baird noted that the biofilm on Roberts Bank mudflats provided PUFAs, especially EPA and DHA, in high concentrations unavailable elsewhere for shorebird migration.”¹⁴⁸

“If the community of diatoms that has regularly been at Roberts Bank during spring migration is altered, this alteration would negatively affect the migratory birds passing through the Roberts Bank ecosystem and could impact their ability to migrate northward beyond Roberts Bank. Runge et al. (2014, 2015) state that threats in any one part of the annual cycle of a migratory species can affect the entire population...”¹⁴⁹

¹⁴⁴ ECCC, [Document # 1775](#), May 18, 2019, Slide 17/23

¹⁴⁵ Ibid: Slide 18/23

¹⁴⁶ Ibid; Slide 19/23

¹⁴⁷ Fisheries and Oceans Canada, Document #1102, November 14, 2017, Scrolled page 11/47

¹⁴⁸ [The Review Panel Report](#), RBT2, Document #2062, March 27, 2020, Scrolled Page 162/627

¹⁴⁹ Kahiltna Research Group on behalf of B.C. Nature, [Document #609](#), October 25, 2016 Page 37/113

ECCC and Fisheries and Oceans Canada advised that RBT2 EIS information was flawed as the modeling by the Proponent did not use the appropriate model for predicting changes to coastal morphology and forecasting effects on individual functional groups. Fisheries and Oceans Canada advised:

“...In particular, the RB EwE model is not appropriate to represent highly migratory functional groups”¹⁵⁰

Dr. Baird, on behalf of BC Nature, reported that the RBT2 EwE model was not the correct model to use for changes in the ecosystem at Roberts Bank due to too many unknown variables.¹⁵¹

¹⁵⁰ Fisheries and Oceans Canada, Document #1102, November 14, 2017, Scrolled page 7/47

¹⁵¹ ¹⁵¹ Kahiltna Research Group on behalf of B.C. Nature, [Document #609](#), October 25, 2016 Page 42/113

Appendix F

Unmitigable significant residual adverse effects on Southern Resident Killer Whales (SRKW)

1. The Roberts Bank Terminal 2 Project, RBT2 will be built on critical habitat of SRKW
2. RBT2 will destroy critical habitat for Chinook salmon, a vital, primary food source for SRKW
3. Effects of shipping will add to adverse effects on SRKW from larger ships and port operations
4. Noise from RBT2 will cause significant residual adverse effects on SRKW
5. Contaminants from RBT2 will cause significant residual adverse effects on SRKW
6. An accidental fuel spill could destroy critical habitat
7. There will be significant residual adverse cumulative effects on endangered SRKW

As these significant adverse effects cannot be mitigated, the effects will be residual.

1. The Roberts Bank Terminal 2 Project, RBT2 will be built on critical habitat of SRKW Fisheries and Oceans (DFO):

“DFO notes that the Southern Residents spend more time in certain parts of critical habitat, and that this includes the Project site...

...DFO noted that in a nutritionally-stressed population such as the SRKW, additional loss of foraging opportunity or decreases in foraging success were detrimental to survival and recovery...¹⁵²

Ecojustice:

“The Robert’s Bank terminal, which is within Southern Resident critical habitat, will be entrenched as core commercial infrastructure operating indefinitely, with more vessels calling at this location as opposed to other locations that are not in critical habitat;¹⁵³

¹⁵² Ecojustice on behalf of David Suzuki Foundation, Georgia Strait Alliance, Raincoast Conservation Foundation and Wilderness Committee, [Document # 1605](#), April 15, 2019, Scrolled pages 36 &37/72

¹⁵³ Ecojustice on behalf of David Suzuki Foundation, Georgia Strait Alliance, Raincoast Conservation Foundation and Wilderness Committee, [Document #2036](#), August 26, 2019, Scrolled page 15/38

2. RBT2 will destroy critical habitat for Chinook salmon, a vital, primary food source for SRKW

Ecojustice:

"Inadequate availability of the Southern Residents' primary prey, Chinook salmon, is one of the three major threats to the Southern Residents and their critical habitat...

.... Southern Residents' primary prey, Chinook salmon, are declining and are additionally threatened by the Project." ¹⁵⁴

"In 2018, COSEWIC assessed 13 Chinook populations to be declining, including 12 Fraser River populations. Eight are "endangered" (including all of the assessed Fraser River spring conservation units of Chinook), four are "threatened", and one is of "special concern", for the purposes of potential listing under SARA. Only one Fraser River conservation unit that COSEWIC assessed was not at risk." ¹⁵⁵

"...important estuarine habitat for the Southern Resident's most important prey, Chinook salmon, will be lost;" ¹⁵⁶

"DFO stated that reduced prey availability was the main factor affecting SRKW survival and recovery. DFO indicated that the Proponent may have underestimated the significance of effects on fish and fish habitat, specifically effects on Chinook salmon.

"The Project's effects on salmon, and the resulting effects on the Southern Residents, will not be adequately mitigated."

"The Project's effects on the Southern Residents amounts to critical habitat destruction." ¹⁵⁷

3. Effects of shipping will add to adverse effects on SRKW from larger ships and port operations

Ecojustice:

"Operation of the terminal will bring light, noise, air and water pollution of the estuary and may adversely affect sensitive marine habitat features such as biofilm. Marine shipping can affect marine species in several ways, including acoustic and physical disturbance, vessel strikes, and pollution, including through a spill of fuel or dangerous cargo. Marine shipping is also a globally significant source and under-regulated source of green-house gas emissions...

¹⁵⁴ Ecojustice on behalf of David Suzuki Foundation, Georgia Strait Alliance, Raincoast Conservation Foundation and Wilderness Committee, [Document # 1605](#), April 15, 2019, Scrolled pages 38/72

¹⁵⁵ Ibid; Scrolled pages 39/72

¹⁵⁶ Ecojustice on behalf of David Suzuki Foundation, Georgia Strait Alliance, Raincoast Conservation Foundation and Wilderness Committee, [Document #2036](#), August 26, 2019, Scrolled page 15/38

¹⁵⁷ Ibid: Scrolled Page 5/38

...larger ships will have greater impacts per ship on the Southern Residents”¹⁵⁸

“The Project Related Shipping’s effects on the Southern Residents will not be mitigated at all.”¹⁵⁹

“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.” ¹⁶⁰

“Because the Proponent considered vessel strikes unlikely to have effects on Southern Residents, it failed to include vessel strikes in an analysis of cumulative effects on Southern Residents. It also failed to propose mitigation.” ¹⁶¹

4. Noise from RBT2 will cause significant residual adverse effects on SRKW

Ecojustice:

“Acoustic disturbance has been recognized for years as one of the main threats to the Southern Residents...

.... The Southern Residents’ critical habitat is already too loud for the species, and recovery requires reducing current noise levels.”¹⁶²

Due to the current imperiled state of the SRKW, any additional noise from construction, port operations, and shipping would constitute a significant adverse effect

“DFO is critical of the Proponent’s failure to estimate the areas that will be permanently or temporarily degraded by acoustic disturbance during Project construction and operation.”¹⁶³

“...vessel presence and noise can alter fish behavior and may make them less accessible to Southern Residents.”¹⁶⁴

“DFO highlighted that shipping noise was identified as an activity likely to destroy critical habitat in the Recovery Strategy for the Northern and Southern Resident Killer Whales in Canada.”¹⁶⁵

¹⁵⁸ Ibid; Scrolled page 15/38

¹⁵⁹ Ibid; Scrolled Page 5/38

¹⁶⁰ Ibid; Scrolled pages 15 & 16/38l

¹⁶¹ Ecojustice on behalf of David Suzuki Foundation, Georgia Strait Alliance, Raincoast Conservation Foundation and Wilderness Committee, [Document # 1605](#), April 15, 2019, Scrolled pages 43/72

¹⁶² Ecojustice on behalf of David Suzuki Foundation, Georgia Strait Alliance, Raincoast Conservation Foundation and Wilderness Committee, [Document # 1605](#), April 15, 2019, Scrolled page 34/72

¹⁶³ Ibid; Scrolled page 36/72

¹⁶⁴ Ibid; Scrolled Page 40/72

¹⁶⁵ RBT2 Environment Assessment, 2018 Recovery Strategy for the N. and SRKW, [Document 1374](#), Dec.12,2018, Page 65/95

5. Contaminants from RBT2 will cause significant residual adverse effects on SRKW

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."¹⁶⁶

Ecojustice

"Contamination by toxic substances, including through bunker or diesel fuel spills, is one of the three main threats to the Southern Residents...

... Biological contaminants or pathogens are also a threat to the Southern Residents whose immune system is compromised through chemical contaminants and may be increasingly vulnerable to biological pollutants"¹⁶⁷

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."¹⁶⁸

"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."¹⁶⁹

"...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)."¹⁷⁰

¹⁶⁶ RBT2 Environment Assessment, 2018 Recovery Strategy for the N. and SRKW, [Document 1374](#), Dec.12,2018, Page 65/95

¹⁶⁷ Ecojustice on behalf of David Suzuki Foundation, Georgia Strait Alliance, Raincoast Conservation Foundation and Wilderness Committee, [Document # 1605](#), April 15, 2019, Scrolled Pages 40 & 41/72

¹⁶⁸ RBT2 Environment Assessment, ECCC, [Document 1091](#), Nov.10, 2017, Page 5/22

¹⁶⁹ RBT2 Environment Assessment, ECCC, [Document 1454](#), February 8, 2019, Page 3/40

¹⁷⁰ RBT2 Environment Assessment, ECCC, [Document 1454](#), February 8, 2019, Page 2/40

6. An accidental fuel spill could destroy critical habitat

Ecojustice

"Due to their small population size, and low numbers of breeding individuals, effects of a fuel oil spills on even an individual Southern Resident could have population-level consequences... a spill could affect multiple individuals at once...A spill could also affect prey availability."¹⁷¹

7. There will be significant residual adverse cumulative effects on endangered SRKW

Fisheries and Oceans Canada:

"...threats combined act synergistically to have an even greater negative impact. For example, vessel noise exacerbates the impacts of food scarcity caused by declining abundance of the Southern Residents' preferred prey, Chinook salmon. When nutritionally stressed whales metabolize fat, it releases toxins into their bodies which compromise immune function and make them more vulnerable to disease."¹⁷²... "Underwater noise from marine shipping associated with the Project would contribute to cumulative adverse effects on SRKW"¹⁷³

Ecojustice:

"The Conservation Coalition submits that the Proponent has erred by looking at effects in isolation and as a result has underrepresented the Project's effects on the Southern Residents...

...The Proponent has not addressed the synergistic nature of the cumulative effects."¹⁷⁴

"...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."¹⁷⁵

¹⁷¹ Ecojustice on behalf of David Suzuki Foundation, Georgia Strait Alliance, Raincoast Conservation Foundation and Wilderness Committee, [Document # 1605](#), April 15, 2019, Scrolled page 43/72

¹⁷² Ibid; Scrolled page 33/72

¹⁷³ RBT2 Environment Assessment, Fisheries and Oceans, [Document 1742](#), May 15, 2019, Pages 11-13/19

¹⁷⁴ Ecojustice on behalf of David Suzuki Foundation, Georgia Strait Alliance, Raincoast Conservation Foundation and Wilderness Committee, [Document # 1605](#), April 15, 2019, Scrolled page 45/72

¹⁷⁵ RBT2 Environment Assessment, Ecojustice, [Document 2036](#), August 26, 2019, Page 18/38

“...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.¹⁷⁶

¹⁷⁶ Ibid; Pages 15,16,20 &11

Key Findings and Conclusions of the Review Panel Report omit critical information and contravene legislation

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." ¹⁷⁷

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." ¹⁷⁸

Conclusion #2

"The Panel concludes that the Project and marine shipping associated with the Project would result in a significant adverse cumulative effect on the Southern Resident Killer Whale." ¹⁷⁹

In their Conclusions and Recommendations, the Review Panel does not flag that SRKW are endangered and there are legal requirements for their protection.

Having found an irreversible residual adverse effect on Chinook salmon, it was incumbent on the Review Panel Report to disclose that significant adverse effects on listed Chinook salmon impact endangered Southern Resident Killer Whales and cannot be justified under the *Canadian Environmental Assessment Act 2012*, (CEAA 2012), and the *Species at Risk Act*.

Key Findings and Conclusions on SRKW omit critical information, and contravene legislation:

- fail to advise the Project would require a permit under the *Fisheries Act* for destruction of critical habitat for Chinook salmon, a listed species at risk – a permit that would contravene the requirements of the *Species at Risk Act* (SARA) which prohibits destruction of critical habitat for endangered SRKW

¹⁷⁷ [Review Panel Report](#), RBT2, Document #2062, March 27, 2020, Scrolled Page 16/627

¹⁷⁸ Ibid; Page 230/627

¹⁷⁹ Ibid; page 231/627

- fail to advise that under the *Species at Risk Act (SARA)*, ...no agreements, permits, or authorizations can be issued for the harming of a listed species or its critical habitat that would jeopardize survival and recovery of the species...critical habitat is also protected under Canada's international agreements.¹⁸⁰
- fail to include effects from contaminants
- fail to address cumulative effects as required under *CEAA 2012*
- lack correlation as the Key Findings refer to loss of critical habitat but this is omitted in the Conclusions
- the Key Findings refer to a small loss of legally-defined critical habitat which is a qualifying statement without evidence and which contradicts information in the environmental assessment
- present contradictory information on prey availability which is described as a 'residual' adverse effect in the text of the Report but is not reported as 'residual' in the Conclusions
- fail to provide evidence that mitigation is proven and will be successful as required under *CEAA 2012* that requires application of the precautionary principle and mitigation measures that are technically feasible
- fail to report that mitigation must be identifiable measures proven to eliminate or control adverse effects; adaptive management, further study, and promised plans do not constitute legal mitigation measures
- fail to report that all adverse effects from RBT2 cannot meet requirements of the *Species at Risk Act* and the Recovery Strategy and, therefore, the Project should be rejected

The Five Recommendations in the Review Panel Report are for future plans and continuation of voluntary initiatives which do not constitute legal mitigation measures. They place responsibility and accountability on Government agencies at a cost to taxpayers. The Review Panel Report does not advise Governments that significant adverse effects cannot be effectively mitigated and the consequences from the RBT2 Project will exacerbate existing injurious conditions in the estuary for salmon and endangered SRKW.

Recommending subsequent unproven mitigation measures, plans, and regulatory reviews are inappropriate and beyond the mandate of the Review Panel.

¹⁸⁰ Ecojustice on behalf of David Suzuki Foundation, Georgia Strait Alliance, Raincoast Conservation Foundation and Wilderness Committee, [Document # 1605](#), April 15, 2019, Scrolled pages 21-23/72

Appendix H

Residual Significant Adverse Environmental Effects 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"¹⁸¹

"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 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."¹⁸²

"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)."¹⁸³

¹⁸¹ RBT2 Environment Assessment, ECCC, [Document 1454](#), February 8, 2019, Page 14/40

¹⁸² RBT2 Environment Assessment, ECCC, [Document 1454](#), February 8, 2019, Pages 14& 15/40

¹⁸³ RBT2 Environment Assessment, ECCC, [Document 1766](#), May 24, 2019, Page 31/35

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..."¹⁸⁴

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."¹⁸⁵

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."¹⁸⁶

¹⁸⁴ RBT2 Environment Assessment, ECCC, [Document 1454](#), February 8, 2019, Pages 15/40

¹⁸⁵ RBT2 Environment Assessment, ECCC, [Document 1454](#), February 8, 2019, Pages 15/40

¹⁸⁶ Ibid; Pages 12;1;17&18

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.”¹⁸⁷

“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.”¹⁸⁸

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.”¹⁸⁹

¹⁸⁷ RBT2 Environment Assessment, ECCC, [Document 1454](#), February 8, 2019, Pages 14/40

¹⁸⁸ [The Review Panel Report](#), RBT2, Document #2062, March 27, 2020, Scrolled Page 253/627

¹⁸⁹ RBT2 Environment Assessment, Bird Studies Canada, [Document 2029](#), August 24, 2019, Page 3/3

The failure to assess subtidal wetlands:

- a) Erroneous claims of no residual effects**
- b) Failure to assess subtidal wetlands contravenes legislation**
- c) Evidence from government scientists of unmitigable, irreversible, permanent, significant residual adverse environmental effects on wetlands.**

a) Erroneous claims of no residual effects on wetlands

The Proponent calculated that the widening of the causeway would result in the loss of 12.3 hectares of marsh habitat but the loss would be counterbalanced by gains from RBT2.¹⁹⁰ Furthermore, the Proponent claimed cumulative effects were not assessed and there would be no residual effects on wetlands. These were claims without credible scientific evidence.

“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.”¹⁹¹

The Review Panel agreed with part of the Proponent’s claims:

“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.”¹⁹²

This is inappropriate considering the omission of assessment; the flawed conclusions by the Proponent on geomorphic changes and the lack of credible scientific evidence.

The Review Panel Report concludes:

“a residual adverse effect on red-listed wetland communities from the widening of the causeway. Given that these communities are provincially endangered, the Panel concludes the residual effect is significant.”¹⁹³

However, the formal Conclusion omits the word ‘residual’ and the Recommendation is for future monitoring which does not qualify as a proven, technically- feasible mitigation measure.

¹⁹⁰ [Review Panel Report](#), RBT2, Document #2062, March 27, 2020, Scrolled Page 169/627

¹⁹¹ Ibid; Scrolled Page 176/627

¹⁹² Ibid; Scrolled Page 175/627

¹⁹³ Ibid; Scrolled pages 175 and 176/627

The Review Panel Report makes contradictory statements on the effects of RBT2 on wetlands and wetland functions.

The Review Panel Report states:

“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.”¹⁹⁴

However, the formal Conclusion is diminished by omitting the important term ‘residual’ and omitting ‘would not be fully mitigated’.

“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.”¹⁹⁵

A second formal Conclusion includes cumulative effects:

“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.”¹⁹⁶

In spite of stating the loss of wetlands cannot be fully mitigated, the Review Panel Report makes recommendations of future monitoring and future plans for offsets and offsite mitigation. These are vague, unproven measures which contradict the Review Panel’s conclusion on offset plans:

“The Panel concludes that the proposed offsetting plan, totaling 29 hectares, is not sufficient to compensate for the reduction in productivity associated with the habitat loss of 177 hectares at Roberts Bank.”¹⁹⁷

The Review Panel Report fails to appropriately and correctly report the serious omission of assessing the subtidal wetlands and the consequences to related interdependent factors of assessment in the RBT2 EIS such as coastal birds, vegetation, the role of biofilm, fish species and effects up the food web.

The lack of data, scientific evidence, and cumulative effects on intertidal wetlands also means there was not sufficient scientific information to assess the effects on the Fraser River estuary.

¹⁹⁴ Ibid; Scrolled Page 176/627

¹⁹⁵ Ibid; Scrolled Page 176/627

¹⁹⁶ [Review Panel Report](#), RBT2, Document #2062, March 27, 2020, Scrolled Page 176/627

¹⁹⁷ Ibid; Scrolled Page 156/627

b) Failure to assess subtidal wetlands contravenes legislation

The failure of the RBT2 EIS to provide data, scientific evidence and cumulative effects on wetlands and wetland functions contravenes legislation and policies:

CEAA 2012.¹⁹⁸

- Purpose to protect the environment; application of the precautionary principle to avoid significant adverse effects
- must take into account cumulative effects that are likely to result
- mitigation measures must be technically and economically feasible

Neither the RBT2 EIS or the Review Panel Report applied *CEAA 2012* to Wetlands and Wetland Functions.

Migratory Birds Convention Act, 1994.¹⁹⁹ prohibits depositing a substance in an area that will be harmful to migratory birds. This also prohibits depositing a harmful substance that may enter an area frequented by migratory birds.

As RBT2 will dredge; fill; build; and operate; harmful substances will be deposited into migratory bird habitat and will enter migratory bird habitat.

Neither the RBT2 or the Review Panel Report applied this legislation to Wetlands and Wetland Functions.

Species at Risk Act²⁰⁰: requires identification of listed species and prohibits destroying any part of critical habitat. The *Species at Risk Act* also has provisions to protect provincially listed-species if they are found on federal lands which is the case with RBT2.²⁰¹

Neither the RBT2 or the Review Panel Report applied this legislation to Wetlands and Wetland Functions.

Federal Policy on Wetland Conservation.²⁰² commits the Government of Canada to the goal of no net loss of wetland functions on federal lands and waters, or when an activity may impact wetlands.

The Federal Policy on Wetland Conservation was mentioned but not applied or incorporated into the Conclusions and Recommendations of the Review Panel Report.

¹⁹⁸ [CEAA 2012](#), Section 4 (1) and Section 19 (1) (a) & (d)

¹⁹⁹ [Migratory Birds Convention Act, 1994](#), Section 5.

²⁰⁰ [Species at Risk Act](#), Sections 6, 79,

²⁰¹ [A Guide to the Species at Risk Act](#), Page 1/4

²⁰² [Federal Policy on Wetland Conservation](#), Scrolled Pages 4 & 7/15

There was no mention of ‘no net loss of wetland functions’ and how that can be achieved with RBT2.

The Ministries of Environment and Climate Change Canada and Fisheries and Oceans Canada will be legally required to issue permits for destruction of wetlands and wetland habitats for RBT2.

Considering the failure of the RBT2 Environmental Impact Statement (EIS) and the Review Panel Report to legally assess effects on the globally-significant wetlands of the Fraser River estuary, issuing permits would contravene due process and due diligence.

c) Evidence from government scientists of unmitigable, irreversible, permanent, significant residual adverse environmental effects on wetlands.

Federal and B.C. Government scientists documented concerns of serious, unmitigable effects on wetlands. They advised RBT2 will cause large-scale habitat destruction; death of fish; change in geomorphological processes; ongoing loss of wetlands and wetland functions; degradation and fragmentation of vegetation; alteration of sedimentation; and impacts on listed species. They advised these effects could not be effectively mitigated as it is not technically feasible to recreate the subtidal habitat.

Fisheries and Oceans Canada

Fisheries and Oceans Canada (DFO) described how the complex intertidal and subtidal habitats of eelgrass beds, marsh and mudflats are productive feeding and rearing habitats for important fish and invertebrate species. DFO reported that RBT2 would cause a direct loss of 42 hectares of intertidal habitats and that dredging, filling, and construction:

“... would result in the death of fish and invertebrates and the permanent alteration and destruction of intertidal and subtidal habitats such as eelgrass, marsh and sand.”²⁰³

There is no science-based evidence that the harmful effects of RBT2 on wetlands and wetland functions can be credibly mitigated or compensated.

“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.”²⁰⁴

Any permits for RBT2 that lead to HADD, the harmful alteration, destruction or disruption of habitat, would contravene Section 35 of the *Canada Fisheries Act*.

²⁰³ RBT2 EIS, Fisheries and Oceans Canada, [Document #1742](#), May 15, 2019, Scrolled Page 7/22

²⁰⁴ RBT2 EIS, Fisheries and Oceans Canada, [Document # 1630](#), April 15, 2019, Scrolled Pages 74 & 75/207

Environment and Climate Change Canada (ECCC)

ECCC submitted that RBT2 would affect the complex processes of the estuary and impact wetland functions:

“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.”²⁰⁵

ECCC advised:

“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”²⁰⁶

ECCC raised concerns about the effects of wetland losses on ecosystems and species:

‘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...”²⁰⁷

ECCC advised that the proposed mitigation measures are not technically feasible:

- 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 ...
- 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.²⁰⁸

²⁰⁵ RBT2 Environmental Assessment, ECCC, [Document 1454](#), February 8, 2019, Page 22/40

²⁰⁶ RBT2 Environmental Assessment, ECCC, [Document 1766](#), May 24, 2019, Page 26/35

²⁰⁷ [Review Panel Report](#), RBT2, Document #2062, March 27, 2020, Scrolled Page 171/627

²⁰⁸ RBT2 Environmental Assessment, ECCC, [Document 1766](#), May 24, 2019, Pages 31&32/35

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

FLNRORD stated RBT2 would cause direct and indirect loss of habitat for eight species at risk and would affect wetland functions:

“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...

...In addition to past port development, the proposed port development may impair the ability of the tidal ecosystems of Roberts Bank to remain resilient with the predicted imminent increase in sea level...

...FLNRORD considers it important to evaluate impacts of the proposed Project on all eight red- and blue listed wetland communities identified in the local assessment area, not strictly those that spatially overlap the causeway footprint. Though direct removal of community occurrences through causeway widening is evidently detrimental, the potential for negative indirect effects should be recognized, as the expected alteration to sedimentation and salinity could influence a broader extent of the coastline...

...Potential effects on each community should be carefully examined, particularly given the foundational role of plant communities in ecosystems and that alterations may have adverse implications for the diversity of organisms they support...

...The conservation status ranks of these communities are based on aspects such as their extremely limited distributions along the B.C. coast and high threat level. This Project would contribute to the cumulative impacts of growing infrastructure development in the Fraser River estuary, noted as a prominent risk factor...

... FLNRORD views any decline in the extent of these communities or their integrity as harmful to their recovery.”²⁰⁹

FLNRORD noted the continuing degradation of the ecological integrity of the Fraser River estuary and the failure of mitigation and compensation measures.

“Fish habitat compensation in the Fraser River estuary has been largely unsuccessful at creating, restoring, or enhancing fish habitat. A 2016 report published by the Community Mapping Network found that only one third of sampled marsh habitat compensation sites created from 1983-2010 are acceptably compensating for habitat losses, even though No-Net-Loss was required by Fisheries and Oceans Canada at the time. It is clear that it is more difficult to create a tidal marsh than to ensure existing marshes continue to persist and are resilient.”²¹⁰

²⁰⁹ B.C. Forests, Land and Natural Resources Operations and Rural Development (FLNRORD), [Document #2015](#), Closing Remarks, August 20, 2019, Scrolled Pages 1,3 & 6/6

²¹⁰ B.C. Forests, Land and Natural Resources Operations and Rural Development (FLNRORD), [Document #2015](#), Closing Remarks, August 20, 2019, Scrolled Page2/6