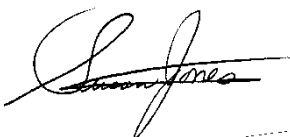


The Right Honourable Justin P. J. Trudeau, Prime Minister of Canada, [justin.trudeau@parl.gc.ca](mailto:justin.trudeau@parl.gc.ca)  
Honourable J. Wilkinson, Minister of Environment and Climate Change, [Jonathan.Wilkinson@parl.gc.ca](mailto:Jonathan.Wilkinson@parl.gc.ca)  
Chief Ken Baird and Tsawwassen Legislature, Tsawwassen First Nation  
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Members of the Legislative Assembly of British Columbia  
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Mayor and Council, Delta, B.C.  
Mayor and Council, Richmond, B.C.  
Board of Directors, Metro Vancouver, B.C.

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

The Boundary Bay Conservation Committee (BBCC) respectfully submits this letter outlining concerns about the ongoing federal/provincial environmental assessment of the proposed Roberts Bank Container Terminal 2 Project in the Fraser River Estuary.



Susan Jones  
Director: BBCC

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.

## **Evidence-based science warns of unmitigable, irreversible harm to the Fraser River Estuary from the proposed Roberts Bank Container Terminal Project (RBT2)**

The Boundary Bay Conservation Committee (BBCC) requests rejection of the Roberts Bank Terminal 2 Project (RBT2) because it will cause irreversible harm to the Fraser River estuary. The BBCC is concerned about the lack of due diligence in the ongoing federal/provincial environmental assessment of RBT2 which is failing to incorporate evidence-based science and failing to meet legal requirements.

After receipt of the Review Panel Report, March 27, 2020, The Honourable Jonathan Wilkinson, Minister of Environment and Climate Change Canada, wrote to the Proponent, the Port of Vancouver, requesting more specific information in response to Conclusions and Recommendations of the Review Panel Report:

“...taking into account mitigation measures, the Review Panel determined that significant adverse effects to fish and fish habitat, including species at risk, human health and current use of lands and resources for traditional purposes, among others were likely.”<sup>1</sup>

The Minister has requested further information on fish and fish habitat; Southern Resident Killer Whales; geomorphological assessments of salinity changes; effects on biofilm and migratory birds; and effects on Indigenous Peoples.

The Port of Vancouver has had eight years to present credible, substantive scientific information and mitigation measures and these have not materialized. It is disconcerting that the Port is being permitted to present yet another set of information and mitigation measures when submissions have clearly proven that the residual significant adverse environmental effects of RBT2 cannot be mitigated.

Unfortunately, the Minister is not equipped with full and correct information from the Review Panel Report which failed to report serious omissions in the EIS, and failed to incorporate evidence-based science from government and independent scientists on key components of the assessment. Submissions from the public were effectively ignored.

The Review Panel Report failed to incorporate ethical and legal commitments to legislation, designations, and agreements. Wetlands were not appropriately assessed omitting Canada’s commitments under the ‘*Federal policy on wetland conservation*’:

... Wetlands and wetland functions are inextricably linked to their surroundings, particularly aquatic ecosystems, and therefore wetland conservation must be pursued in the context of an integrated systems approach to environmental conservation and sustainable development...

...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.”<sup>2</sup>

The BBCC commends Canada’s new commitment, June 8, 2021, of \$647.1 million to the *Pacific Salmon Strategy Initiative*, an effort to “stop the declines now while helping rebuild populations over the long term.”<sup>3</sup> 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.

The BBCC submits the following information which documents some of the serious omissions and concerns in the environmental assessment and the unmitigable, residual significant adverse environmental effects of RBT2 that have not been appropriately reported.

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<sup>1</sup> CEEA 80054, RBT2, Document # 2067, August 24, 2020,

<sup>2</sup> Federal [Policy on wetland conservation](#), 1991, Pages 8 & 6.

<sup>3</sup> News Release, June 8, 2021, Canada launches transformative [effort to save the Pacific salmon](#)

## Summary of Concerns

1. Man-made island for containers in the Fraser estuary will destroy globally-significant habitats
2. Eight-year out-of-date Canada/B.C. Environmental Assessment continues under *CEAA 2012*
3. Failure to provide a cumulative environmental effects assessment of lower Fraser and estuary
4. Failure to incorporate Canadian laws, international designations, agreements, and commitments
5. RBT2 will cause serious changes to the structure and functions of the Fraser River estuary
6. Failure to recognize the domino effect of RBT2 on the food web which supports the ecosystem
7. Failure to assess all 50 species of shorebirds and their dependence on mudflat wetlands
8. RBT2 Assessment ignores decline in Western Sandpiper, listed as a species of High Concern
9. Review Panel Report Conclusions on biofilm and Western Sandpiper contravene legislation
10. Unproven claims that biofilm food web can be compensated elsewhere
11. Modeling limitations led to erroneous conclusions on fish, including endangered Chinook salmon
12. No cumulative effects assessment on fish and failure to incorporate Chinook salmon at risk
13. RBT2 threatens survival of 75 remaining endangered Southern Resident Killer Whales (SRKW)
14. Failure to assess subtidal wetlands and cumulative effects on wetlands and wetland functions
15. Failure to assess cumulative effects on coastal birds, and dismissal of residual adverse effects
16. Nineteen 'species at risk', including Barn Owl and Great Blue Heron, not assessed under *SARA*
17. Increased air, noise, and light pollution that threatens human health cannot be mitigated
18. Harm to lower Fraser River and estuary from RBT2 cannot be mitigated
19. RBT2 is not needed as the west coast container business will have capacity without RBT2
20. Do Canadians want to harm the Fraser River estuary for US-bound containers from Asia?
21. Only 10% of incoming containers are for Vancouver area; container laden exports are flat
22. Is a government agency Proponent, the Port of Vancouver, receiving preferential treatment?

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

## Abbreviations:

RBT2: Roberts Bank Container Terminal 2 Project

RBT2 EIS: Roberts Bank Terminal 2 Project Environmental Impact Statement

SRKW: Southern Resident Killer Whales

CEAA 2012: *Canadian Environmental Assessment Act, 2012* (replaced August 28, 2019 with the *Impact Assessment Act*)

SARA: *Species at Risk Act*

VPA: Vancouver Port Authority – previous name of Vancouver Fraser Port Authority (VFPA)

The common name Port of Vancouver is used in this document

The Port of Vancouver is an agency of the Government of Canada

DFO: Department of Fisheries and Oceans – previous name for Fisheries and Oceans Canada

## Outline

### **1. Man-made Island for containers in the Fraser estuary will destroy globally-significant habitats**

1.a RBT2 will irreparably harm and alter the Fraser River estuary ecosystem

1.b Eight-year out-of-date Canada/B.C. Environmental Assessment continues under *CEAA 2012*

1.c Failure to provide a cumulative effects assessment of lower Fraser and estuary

1.d RBT2 will cause serious changes to the structure and functions of the Fraser estuary

### **2. Failure to identify and appropriately assess threats to internationally-significant habitats**

2.a Canada's Most Important Bird Area, including Roberts Bank, is at risk

2.b RBT2 assessment fails responsibility to the *Migratory Birds Convention Act, 1994*

2.c RBT2 assessment fails to incorporate national & international significance and accountability

2.d Assessment disregards accountability to the Roberts Bank Wildlife Management Area (RBWMA)

2.e Failure to protect species identified in the RBWMA, including listed species

2.f Failure to include commitments to the Burns Bog Ecological Conservancy Area

### **3. Failure to assess how the Roberts Bank food web supports the Fraser River estuary ecosystem**

3.a Acceptance of conclusions based on limited modeling contravenes *CEAA 2012* and *SARA*

3.b Modeling limitations led to erroneous conclusions on ecosystem components and mitigation

3.c The Roberts Bank rich food web relies on essential fatty acids produced by biofilm

3.d The Roberts Bank biofilm food web cannot be duplicated

3.e Failure to accurately incorporate evidence on biofilm contravenes *CEAA 2012*

3.f The Review Panel Report states misleading and incorrect information on biofilm

### **4. Failure to assess shorebirds, shorebird habitat and the importance of biofilm to the food web**

4.a RBT2 EIS failed to assess all shorebirds and their dependence on mudflat wetlands

4.b Failure to incorporate the decline in shorebirds contravenes legislation

4.c RBT2 will exacerbate the ongoing decline of Western Sandpipers

4.d Critical issue of effects on biofilm and Western Sandpiper inappropriately called a disagreement

4.e Review Panel Report Conclusions on biofilm and Western Sandpiper contravene legislation

4.f Without evidence, the Port of Vancouver claims it can create biofilm elsewhere as mitigation

## **5. Destruction of habitat of will exacerbate the decline of Chinook salmon and endangered SRKW**

- [5.a](#) Fisheries and Oceans Canada confirms destruction and loss of fish habitat with RBT2
- [5.b](#) The EIS and Review Panel Report fail to appropriately assess Chinook salmon at risk
- [5.c](#) Unmitigable significant residual adverse environmental effects threaten survival of SRKW
- [5.d](#) RBT2 Environmental Impact Statement (EIS) claims low to negligible effects on SRKW
- [5.e](#) Review Panel Report on SRKW omits critical information, and contravenes legislation
- [5.f](#) RBT2 will push endangered Southern Resident Killer Whales towards extinction

## **6. Failure to assess subtidal wetlands and cumulative effects on wetlands and wetland functions**

- [6.a](#) Canada and B.C. have a responsibility to protect decreasing wetlands at Roberts Bank
- [6.b](#) The RBT2 EIS fails to assess subtidal wetlands and claims no residual effects on wetlands
- [6.c](#) Failure to assess subtidal wetlands contravenes legislation
- [6.d](#) RBT2 will cause unmitigable, irreversible, permanent residual effects on wetlands
- [6.e](#) EIS failed to assess cumulative effects on coastal birds and dismissed residual adverse effects
- [6.f](#) RBT2 EIS failed to assess bird ‘species at risk’ in compliance with legislation

## **7. Increased air, noise, and light pollution that threatens human health cannot be mitigated**

- [7.a](#) Serious threat to human health with air pollution from RBT2 is not appropriately reported
- [7.b](#) There will be residual significant adverse effects on human health from increased noise pollution
- [7.c](#) Effects on human health from a significant increase in light pollution are not reported

## **8. Harm to the Fraser River Estuary from RBT2 cannot be mitigated**

- [8.a](#) Residual significant adverse environmental effects cannot be mitigated
- [8.b](#) Loss of estuarine ecosystems and food webs cannot be mitigated
- [8.c](#) Loss of biodiversity cannot be mitigated
- [8.d](#) Unproven mitigation measures cannot be justified as risk to the Fraser River estuary is too great
- [8.e](#) Past mitigation and compensation measures have failed to protect the Fraser River Estuary
- [8.f](#) High cost to taxpayers with mitigation measures recommended by Review Panel Report

## **9. RBT2 is not needed as the west coast container business will have capacity without RBT2**

- [9.a](#) The RBT2 environmental assessment fails to disclose faster growth at Prince Rupert
- [9.b](#) The Port of Vancouver’s lowest container business forecasts are not being realized
- [9.c](#) The Port of Vancouver has enough container business capacity without RBT2
- [9.d](#) Canada’s west coast container business capacity demands can be met without RBT2
- [9.e](#) Only 10% of Vancouver’s import laden containers are for the Lower Mainland
- [9.f](#) Do Canadians want to harm the Fraser River estuary for US-bound containers from Asia?
- [9.g](#) RBT2 EIS fails to disclose that Vancouver container exports have been flat since 2011
- [9.h](#) RBT2 EIS fails to provide data or sufficient information to support a business case for RBT2

## **10. Is a government agency, the Port of Vancouver, receiving preferential treatment?**

**Appendix A:** Unmitigable significant residual adverse effects on SRKW

**Appendix B:** Significant residual adverse effects of RBT2 on Wetlands and Wetland Functions

**Appendix C:** EIS failed to assess cumulative effects on coastal birds and dismissed residual adverse effects

**Appendix D:** RBT2 is not needed as the west coast container business will have capacity without RBT2

# **Evidence-based science warns of unmitigable, irreversible harm to the Fraser River Estuary from the proposed Roberts Bank Container Terminal Project (RBT2)**

## **1. Man-made island for containers in the Fraser estuary will destroy globally-significant habitat**

### **1.a RBT2 will irreparably harm and alter the Fraser River estuary ecosystem**

Submissions from experts on the Roberts Bank Container Terminal Project (RBT2) confirm that dredging and filling 186 hectares (460 acres)<sup>4</sup> of the estuary for a widened causeway and man-made island the size of 250 football fields will alter the Fraser River estuarine processes. Subsequent changes in water flows, temperature, salinity, and turbidity will lead to the loss of nutrients and primary food sources. There will be a domino effect on the highly complex food web at Roberts Bank that links fish, shellfish, birds, and marine animals to the interactive, interdependent habitats of the river; the estuary; the adjacent agricultural lands; the Burns Bog Ecological Conservancy Area; the Strait of Georgia; the Salish Sea; and the Pacific Ocean.

Not only will dredging and filling 186 hectares irreversibly disrupt functions of the estuarine ecosystem, but also construction and operation of the container terminal, and shipping, will cause habitat loss and increasing habitat degradation with noise, air, light and water pollution, and the increase in toxins, particularly polychlorinated biphenyls (PCBs) and bioaccumulating toxins (PBTs).

“The Roberts Bank ecosystem is one of the most important tidal flats on the North American west coast for marine flora and fauna, of which Fraser River sockeye salmon (*Oncorhynchus nerka*) and shorebirds are some of the most familiar; and any alteration of the current ecosystem there would have severe consequences and repercussions throughout the entire food web - not just at the Fraser River Delta - if RBT2 was built.”<sup>5</sup>

### **1.b Eight-year out-of-date Canada/B.C. Environmental Assessment continues under CEEA 2012**

The environmental assessment of RBT2 was initiated in 2013 under the old *Canadian Environmental Assessment Act, 2012 (CEAA 2012)*. RBT2 was assessed under an appointed three-person Review Panel that submitted a report on March 27, 2020. The environmental assessment process is still ongoing with the Proponent, the Port of Vancouver, being allowed to submit further information, even after completion of the Review Panel process.

### **1.c Failure to provide a cumulative environmental effects assessment of lower Fraser and estuary**

In spite of 40 years of ongoing Port developments in the Fraser River estuary, there has never been a credible cumulative environmental effects assessment of past, current and planned projects as required under *CEAA 2012*. The RBT2 assessment fails to provide a cumulative effects assessment.

### **1.d. RBT2 will cause serious changes to the structure and functions of the Fraser estuary**

The Roberts Bank Terminal 2 Project (RBT2) will cause changes to the structure of the Fraser River estuary and processes that support the complex rich, ecosystem – the geomorphology of the estuary. Warnings of irreversible significant residual adverse effects on the estuary from geomorphological changes were documented in submissions by Fisheries and Oceans Canada (DFO), Environment and Climate Change Canada (ECCC), BC Ministry of Forests, Lands, and Natural Resources (FLNRORD), and independent experts. Several hundred public submissions have voiced concern of effects of RBT2 on interactive, interdependent estuarine ecosystem processes and the life they support.

<sup>4</sup> RBT2 EIS, Table 4-1, Volume 1, Section 1, [Document # 181](#), Scrolled page 54/206

<sup>5</sup> Kahiltna Research Group on Behalf of B.C. Nature, Document [#609](#), October 25, 2016, Scrolled page 17/113

They advise that RBT2 will alter geomorphological processes leading to changes in salinity thereby impacting estuarine habitats.

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.”<sup>6</sup>

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.”<sup>7</sup>

Environment and Climate Change Canada (ECCC):

“Due to what ECCC believes to be high and unmitigable risks to an entire species of migratory shorebird, ECCC advises that only a Project redesign would avoid geomorphological processes on Roberts Bank impacting biofilm and shorebirds.”<sup>8</sup>

“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.”<sup>9</sup>

“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.”<sup>10</sup>

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.”<sup>11</sup>

...RBT2 should not be constructed because doing so would probably irreversibly and negatively alter a vital marine area’s ecology”<sup>12</sup>

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<sup>6</sup> CEAA 80054, Fisheries and Oceans Canada, Document [#1630](#), April 15, 2019, Scrolled Page 74/207

<sup>7</sup> British Columbia Ministry of Forests, Lands, Natural Resources Operations and Rural Development (FLNRORD), [Document #1751](#), May 22, 2019, Page 4/8

<sup>8</sup> RBT2 Environmental Assessment, ECCC, [Document #1637](#), April 15, 2019, Scrolled Page 37/115

<sup>9</sup> RBT2 Environmental Assessment, ECCC, [Document 1766](#), May 18, 2019, Slide 26/35

<sup>10</sup> RBT2 Environmental Assessment, ECCC, [Document 1454](#), February 8, 2019, Scrolled Page 22/40

<sup>11</sup> Kahiltna Group on Behalf of B.C. Nature, Document [#609](#), Scrolled page 75/113

<sup>12</sup> Kahiltna Group, [Document #1604](#), April 15, 2019, Scrolled Page 8/15

The Review Panel Report does not document or incorporate these concerns in the assessment of geomorphological changes. This contravenes the Mandate of the Review Panel and accountability to the *Canadian Environmental Assessment Act, 2012 (CEAA 2012)* which require the Review Panel to take cumulative effects into account and the significance of the effects:

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...

...

(g) to ensure that projects... are considered in a careful and precautionary manner to avoid significant adverse environmental effects;<sup>13</sup>

The Review Panel Report refers to concerns that past project have caused historical and ongoing changes to Roberts Bank geomorphology but the Report does not address how the current Project would affect the ongoing changes.

No reason is provided for omitting to incorporate explicit concerns and a high level of uncertainty identified by scientists, and the public, with respect to the domino effect to the Roberts Bank ecosystem from geomorphological changes that will occur with the Project.

This serious omission means that the Review Panel Report fails to provide credible information on how RBT2 will affect interactive, interdependent estuarine processes causing cumulative effects on all functional processes and species groups of the Fraser River estuary ecosystem including vegetation, fish, and other aquatic species, as well as resident and migratory birds.

## **2. Failure to identify and appropriately assess threats to internationally-significant habitats**

### **2.a Canada's Most Important Bird Area, which includes Roberts Bank, is at risk**

RBT2 will impact millions of birds that migrate over 3 continents. As documented above, 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."<sup>14</sup>

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<sup>13</sup> *Canadian Environmental Assessment Act, 2012 (CEAA 2012)*, Purposes 4.

<sup>14</sup> 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](https://doi.org/10.1126/science.aaw1313). *Science* 366, 120–124. doi: 10.1126/science.aaw1313



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."<sup>15</sup>

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 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."<sup>16</sup>

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!**

## **2.b 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.

Environment Canada and Fisheries and Oceans have documented concerns about an increase in high levels of contaminants such as polychlorinated biphenyls (PCBs) and bioaccumulating toxins (PBTs) from RBT2 that:

"has the potential to make critical habitat areas uninhabitable for an extended period of time."

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

<sup>15</sup> CBC News, Emily Chung, [North America has lost 3 billion birds since 1970](#), September 19, 2019

<sup>16</sup> BirdLife International, [Canada delta in danger from trading port expansion](#), July 10, 2019

## 2.c 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) or the Review Panel Report. 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.<sup>17</sup>

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."<sup>18</sup>

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.*

As outlined in Section 1 of this document, the ecosystem approach is not properly applied to the RBT2 assessment. 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."<sup>19</sup>

Canada also has a pledge with Britain and the EU to stop 'catastrophic' biodiversity loss.<sup>20</sup>

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.

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<sup>17</sup> [North American Waterfowl Management Plan](#)

<sup>18</sup> Kahiltna Research Group on behalf of B.C. Nature, Document #609, October 25, 2016 Scrolled Pages 17 & 31/113

<sup>19</sup> *Convention of Biological Diversity*, Canada – [National Targets](#)

<sup>20</sup> Canada, Britain, EU pledge to protect 30% of land, sea by 2030 to [stop 'catastrophic' biodiversity loss](#), Sept. 29, 2020

## **2.d 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.”<sup>21</sup>

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

A recent Report by the B.C. Auditor General, Michael Pickup, ‘*Management of the Conservation Lands Program*’,<sup>22</sup> 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.”<sup>23</sup>

## **2.e 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,”<sup>24</sup> 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 communities<sup>25</sup> 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.

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<sup>21</sup> B.C. [Roberts Bank Wildlife Management Area](#).

<sup>22</sup> [Management of the Conservation Lands Program](#), B.C. Government, Office of the Auditor General of B.C. May 2021

<sup>23</sup> [Review Panel Report](#), RBT2, Document #2062, March 27, 2020, Scrolled Page 174/627

<sup>24</sup> Ibid, Scrolled Page 176/627

<sup>25</sup> Ibid, Scrolled page 176/627

## **2.f 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.”<sup>26</sup>

## **3. Failure to assess how the Roberts Bank food web supports the Fraser River estuary ecosystem**

### **3.a Acceptance of conclusions based on limited modeling contravenes *CEAA 2012* and *SARA***

The Review Panel contravenes its Mandate and *CEAA 2012* in failing to appropriately incorporate the limitations and uncertainties of the ecosystem modeling in the Conclusions and Recommendations.

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

“The Proponent adopted an ecosystem approach as a common foundation upon which to evaluate the direct and indirect effects of the Project on the productivity of the Roberts Bank 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....<sup>27</sup>

“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 extent to which the model adequately represents the ‘real’ ecosystem of Roberts Bank, as opposed to comparisons of model results with and without the Project, is unclear as a number of basic diagnostics are not presented...

...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.<sup>28</sup>

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.”<sup>29</sup>

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<sup>26</sup> CEAA 80054, Environment and Climate Change Canada, [Document #1091](#), Nov. 10, 2017, Scrolled page 14/22

<sup>27</sup> CEAA 80054, Fisheries and Oceans Canada, Document [#1630](#), April 15, 2019, Scrolled pages 19 & 74/207

<sup>28</sup> Fisheries and Oceans Canada, [Technical Review](#) of Roberts Bank Terminal 2 Environmental Assessment, Scrolled pages 19 & 20//23

<sup>29</sup> Kahiltna Research Group on behalf of B.C. Nature, [Document #609](#), October 25, 2016 Pages 42 & 51/113

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

“Overall, there are many sources of uncertainty and significant assumptions in the ecosystem model which limit its ability to adequately predict the effects of the project on juvenile Chinook salmon. Due to these significant uncertainties, it is my conclusion that the results of the ecosystem model should not be used as a line of evidence when evaluating the potential adverse effects of the project on juvenile Chinook salmon.”<sup>30</sup>

Without evidence, the Review Panel Report stated:

“The Panel accepts the Proponent’s model performance as appropriate for the assessment of Project effects.”<sup>31</sup>

The Review Panel rationalized:

“The Panel acknowledges DFO’s concerns and considers that the Proponent’s modelling is subject to moderate and unavoidable uncertainty because of the dynamic and complex nature of the Roberts Bank area.”<sup>32</sup>

It is precisely the complex nature of the Roberts Bank ecosystem that scientists claim will be adversely impacted by RBT2. 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;**<sup>33</sup>

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.”<sup>34</sup>

The Review Panel Report Conclusion on Coastal Geomorphology confirms the uncertainty:

**Conclusion: “The Panel concludes that the follow-up program proposed by the Proponent is required to address the Proponent’s modelling uncertainties and be developed and managed in collaboration with Fisheries and Oceans Canada and Natural Resources Canada.”<sup>35</sup>**

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<sup>30</sup> 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 page 95/671

<sup>31</sup> Review Panel Report, [Document #2062](#), March 27, 2020, Scrolled Page 113/627

<sup>32</sup> Ibid; Scrolled Page 113/627

<sup>33</sup> *Canadian Environmental Assessment Act, 2012 (CEAA 2012)*, Purposes 4.

<sup>34</sup> Ecojustice, Precautionary Principle [Stronger Part of Canadian Law](#), Sept. 7, 2015

<sup>35</sup> Review Panel Report, [Document #2062](#), March 27, 2020, Scrolled Page 114/627

Instead of appropriately concluding that the modeling is unreliable in assessing effects of geomorphological changes on the Fraser River estuary, the Review Panel Report made an inappropriate recommendation that Fisheries and Oceans Canada and Natural Resources Canada collaborate with the Port of Vancouver to remedy the modeling uncertainties. How is this scientifically possible? This does not qualify as technically feasible mitigation under *CEAA 2012*.

The failure of the Review Panel to appropriately report the limitations of the modeling means that RBT2 EIS conclusions and mitigation measures, based on the modeling, are not reliable. **This renders most segments of the Environmental Impact Statement invalid, including conclusions on species at risk which are subject to the *Species at Risk Act*. The Review Panel Report fails to provide this critical information.**

### **3.b Modeling limitations led to erroneous conclusions on ecosystem components and mitigation**

Ecojustice on behalf of the David Suzuki Foundation, Georgia Strait Alliance, Raincoast Conservation Foundation, and Wilderness Committee advised:

"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 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."<sup>36</sup>

"...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."<sup>37</sup>

The Scott Report of Ecojustice states that in answers to specific questions by government agencies on the EwE model, the Proponent advised that:

"... 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."<sup>38</sup>

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."

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<sup>36</sup> Ecojustice on behalf of David Suzuki Foundation, Georgia Strait Alliance, Raincoast Conservation Foundation and Wilderness Committee, [Document #1605](#), Volume 2, April 15, 2019, Scrolled pages 92-93/671

<sup>37</sup> 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 92-93/671

<sup>38</sup> ECCC 80054, [Document #547](#), September 8, 2016, Scrolled Page 106/230

Fisheries and Oceans Canada also reported that the modeling was applied to functional groups:

...the stated objective of the Roberts Bank ecosystem 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. However, results were presented as comparisons by species/functional group with and without the Project, and not as potential changes in total ecosystem productivity."<sup>39</sup>

Not only was the modeling used for functional groups, it was also used to calculate offsetting for mitigation:

"The Proponent identified the biomass of various functional groups as an appropriate equivalency metric for the determination of losses and gains associated with the Project and offsetting measures. Using the Roberts Bank ecosystem model, the change in metric values associated with indirect and direct effects of the Project are predicted, and the changes in biomass associated with the offsetting measures are estimated."<sup>40</sup>

Fisheries and Oceans commented on the contradiction:

"The Proponent's statement that "the ecosystem model was used to forecast longer term changes in the productive potential of each functional group that may result from terminal and causeway footprints by incorporating ecosystem considerations...

... is not quite what the Proponent had written in...Document #984. In that document, the Proponent stated that "It is important to note that the objective of the RB model is not to provide an assessment of Project impacts for each functional group at a fine temporal scale (i.e., a specific migratory window), but to estimate changes in productive potential, with and without the Project, at the ecosystem level"<sup>41</sup>

This raises serious concerns about the validity of the scientific evidence applied to the assessment of environmental effects and mitigation measures in the Environmental Impact Statement (EIS). It also raises serious questions about the omissions in the Review Panel Report. This does not meet the requirements of the Purposes of *CEAA 2012* to protect components of the environment and to ensure the federal authority is carried out in a "careful and precautionary manner to avoid significant adverse environmental effects."<sup>42</sup>

### **3.c. The Roberts Bank rich food web relies on essential fatty acids produced by biofilm**

"VPA did not mention the importance of Q-3 fatty acids in their EIS."<sup>43</sup>

Biofilm is an organic layer of nutrients coating intertidal mudflats. It is formed when diatoms, a microscopic form of algae, photosynthesize under a combination of specific conditions. 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 Sandpipers). The diatoms and the endangered Chinook salmon at Roberts Bank also provide food for the endangered Southern Resident Killer Whales. (SRKW)

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<sup>39</sup> Fisheries and Oceans Canada, [Technical Review](#) of Roberts Bank Terminal 2 Environmental Assessment, Scrolled page 14/23

<sup>40</sup> Fisheries and Oceans Canada, [Document #1423](#), February 4, 2019, Scrolled Page 6/28

<sup>41</sup> Ibid; Scrolled Page 9/28

<sup>42</sup> *Canadian Environmental Assessment Act, 2012 (CEAA 2012)*, Purposes 4.

<sup>43</sup> Kahiltna Research Group on behalf of B.C. Nature, [Document #609](#), October 25, 2016 Page 39/113

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...

...Biofilm are the drivers of the rich marine food web at Roberts Bank. They are the keystone element that allows the food web to exist. They produce  $\Omega$ -3 fatty acids in large numbers in the spring and this essential nutrient is what attracts marine life to Roberts Bank. Diatoms are consumed by heterotrophs and the  $\Omega$ -3 fatty acids are passed up the food web.”<sup>44</sup>

Fisheries and Oceans Canada also 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.”<sup>45</sup>

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.”<sup>46</sup>

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<sup>44</sup> Ibid, Scrolled page 25/113

<sup>45</sup> Fisheries and Oceans Canada, [Document #1102](#), November 14, 2017, Scrolled page 11/47

<sup>46</sup> ECCC, RBT2 EA, Document [# 1637](#), April 15, 2019, Scrolled pages 32, 69, 70, 34, 36/115



### 3.d The Roberts Bank biofilm food web cannot be duplicated

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)<sup>47</sup>

“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.”<sup>48</sup>

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.”

“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...

... 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.”<sup>49</sup>

- 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.
- Nowhere in this entire greater Fraser River delta -Boundary estuary are marine diatoms as concentrated and available as they are in Roberts Bank.”<sup>50</sup>

“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.”<sup>51</sup>

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<sup>47</sup> RBT2 Environment Assessment, ECCC, [Document 1775](#), May 18, 2019, Page 15/23

<sup>48</sup> ECCC, [Document #1091](#), November 10, 2017, Scrolled Page 15/22

<sup>49</sup> Kahiltna Research Group on behalf of B.C. Nature, [Document #609](#), October 25, 2016 Scrolled Pages 17 &6/113

<sup>50</sup> Kahiltna Research Group on behalf of B.C. Nature, [Document #609](#), October 25, 2016, Scrolled Pages 13-14/113

<sup>51</sup> Kahiltna Research Group on behalf of B.C. Nature, [Document #609](#), October 25, 2016, Scrolled Page 15/113

### 3.e Failure to accurately incorporate evidence on biofilm contravenes *CEAA 2012*

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.”<sup>52</sup>

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.”<sup>53</sup>

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  $\Omega$ -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.”<sup>54</sup>

The Review Panel Report references Dr. Baird’s information on the importance of biofilm supplying fatty acids:

“Dr. Baird noted that the biofilm on Roberts Bank mudflats provided PUFAs, especially EPA and DHA, in high concentrations unavailable elsewhere for shorebird migration.”<sup>55</sup>

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<sup>52</sup> ECCC, RBT2 EA, Document # 1637, April 15, 2019, Scrolled page 37/115

<sup>53</sup> Critique of ‘Biofilm Dynamics during 2018 Northward Migration, Prof. Peter G. Beninger, U. of Nantes, France, Document #1740, May 16, 2019.

<sup>54</sup> Kahiltna Research Group on behalf of B.C. Nature, Document #609, October 25, 2016 Scrolled Pages 6, 7, & 15/113

<sup>55</sup> Review Panel Report, RBT2, Document #2062, March 27, 2020, Scrolled Page 162/627

However, the Review Panel Report fails to credibly incorporate the evidence from multiple experts about RBT2 triggering loss of biodiversity in the Fraser River estuary due to predictable adverse effects on the biofilm food web. The two conclusions in the Review Panel Report fail to incorporate the submitted evidence:

- The Panel concludes that the Project would not result in an adverse effect on biofilm productivity or composition and diatom assemblages at Roberts Bank.
- The Panel is unable to conclude with certainty that the Project would result in an adverse effect on polyunsaturated fatty acid production by biofilm.

The Review Panel inappropriately sidestepped the issue with a claim of uncertainty. This contravenes legal process as uncertainty requires application of the Precautionary Principle under *CEAA 2012*. As mentioned above, uncertainty cannot be used to adopt lax decisions where there is a serious threat of irreversible damage as has been identified with the effects of RBT2 on the Roberts Bank food web.

The Review Panel's conclusions on biofilm also contravene the Purpose of *CEAA 2102* to protect the environment from significant adverse environmental effects.

Furthermore, the Review Panel ignored the following advice from Environment and Climate Change Canada (ECCC):

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

This is a serious failure of the Review Panel process. There was ample time for the Review Panel to hire outside experts to comment on the accuracy of the RBT2 EIS, as advised by ECCC.

### **3.f The Review Panel Report states 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."<sup>56</sup>

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."<sup>57</sup>

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<sup>56</sup> [The Review Panel Report](#), RBT2 Environmental Assessment, Document #2062, March 27, 2020, Scrolled Page 163/627

<sup>57</sup> RBT2 Environment Assessment, Fisheries and Oceans, [Document 1211](#), July 3, 2018, Page 3/7

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...”<sup>58</sup>

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.”<sup>59</sup>

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.”<sup>60</sup>

“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.”<sup>61</sup>

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.”<sup>62</sup>

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

<sup>58</sup> RBT2 Environment Assessment, Fisheries and Oceans, [Document 1630](#), April 15, 2019, Page 25/207

<sup>59</sup> [The Review Panel Report](#), RBT2 Environmental Assessment, Document #2062, March 27, 2020, Scrolled Page 163/627

<sup>60</sup> RBT2 Environment Assessment, ECCC, [Document 1454](#), February 8, 2019, Page 22/40

<sup>61</sup> RBT2 Environment Assessment, ECCC, [Document 1775](#), May 18, 2019, Pages 17&19/23

<sup>62</sup> RBT2 Environment Assessment, ECCC, [Document 1146](#), February 12, 2018, Page 14/16

- 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.<sup>63</sup>

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.

#### **4. Failure to assess shorebirds, shorebird habitat and the importance of biofilm to the food web**

##### **4.a 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 and the Review Panel Report failed to identify and address:

- 40% decline of shorebirds in Canada since 1970<sup>64</sup>
- Lack of cumulative effects assessment on all 50 species of shorebirds
- Evidence-based science that warns, “the need for shorebird conservation efforts remains urgent”
- 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*.

As discussed in Sections 3.c to 3.f of this document, the RBT2 EIS and the Review Panel Report fail to incorporate evidence-based science of the importance of essential fatty acids from marine biofilm and how this is crucial to the entire food web at Roberts Bank. Nor does the Report disclose the evidence that specific estuarine processes at Roberts Bank result in a greater abundance of richer biofilm than found anywhere else in the Fraser River estuary system.

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<sup>63</sup> [The Review Panel Report](#) , RBT2 Environmental Assessment, Document #2062, March 27, 2020, Scrolled Page 40/627

<sup>64</sup> [The State of Canada’s Birds](#), 2019, The North American Bird Conservation Initiative, NABCI Canada

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.”<sup>65</sup>

“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.”<sup>66</sup>

“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.”<sup>67</sup>

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.”<sup>68</sup>

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.”<sup>69</sup>

“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...”<sup>70</sup>

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”<sup>71</sup>

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.<sup>72</sup>

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.

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<sup>65</sup> ECCC, [Document # 1775](#), May 18, 2019, Slide 17/23

<sup>66</sup> Ibid: Slide 18/23

<sup>67</sup> Ibid; Slide 19/23

<sup>68</sup> Fisheries and Oceans Canada, Document #1102, November 14, 2017, Scrolled page 11/47

<sup>69</sup> [The Review Panel Report](#), RBT2, Document #2062, March 27, 2020, Scrolled Page 162/627

<sup>70</sup> Kahiltna Research Group on behalf of B.C. Nature, [Document #609](#), October 25, 2016 Page 37/113

<sup>71</sup> Fisheries and Oceans Canada, Document #1102, November 14, 2017, Scrolled page 7/47

<sup>72</sup> Kahiltna Research Group on behalf of B.C. Nature, [Document #609](#), October 25, 2016 Page 42/113

#### 4.b Failure to assess the decline in shorebirds contravenes legislation

The failure to assess effects of RBT2 on shorebirds contravenes of the *Migratory Birds Convention Act, 1994*,<sup>73</sup> 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)*.<sup>74</sup>

#### 4.c RBT2 will exacerbate the ongoing decline of Western Sandpipers

The RBT2 Environmental Impact Statement (EIS) and the Review Panel Report fail to incorporate into their findings 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.<sup>75</sup>

**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.<sup>76</sup>

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..."<sup>77</sup>

"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"<sup>78</sup>

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

##### Effects of RBT2 on biofilm and Western Sandpipers<sup>79</sup>

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

<sup>73</sup> *Migratory Birds Convention Act, 1994*, Section 5

<sup>74</sup> *CEAA 2012*, Section 4 (1) and Section 19 (1) (a) & (d)

<sup>75</sup> 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

<sup>76</sup> [Shorebirds of conservation concern in Canada](#), 2019, D. Hope, C. Pekarik, M. Drever, and P. Smith

<sup>77</sup> ECCC, [Document #581](#), October 14, 2016, Scrolled Page 8/70

<sup>78</sup> ECCC, [Document # 1775](#), May 18, 2019, Slide 18/23

<sup>79</sup> ECCC, [Document # 1775](#), May 18, 2019, Slide 22/23

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.”<sup>80</sup>

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.”<sup>81</sup>

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.”<sup>82</sup>

As stated in earlier in this document in reference to the Review Panel’s conclusions of uncertainty on the ecosystem modeling, and on biofilm, claiming uncertainty to avoid a decision contravenes *CEAA 2012*.

#### **4.d Critical issue of effects on biofilm and Western Sandpiper inappropriately called a disagreement**

Instead of following up on advice from Environment and Climate Change Canada to consult independent experts, the Review Panel Report characterizes the critical issue of biofilm, and its role in the Roberts Bank ecosystem, as a disagreement between the Proponent, the Port of Vancouver, versus government and independent scientists. The Review Panel failed to acknowledge that the science from the Port of Vancouver was in-house, paid science that was not appropriately peer-reviewed. In contrast, government and independent scientists provided published, peer-reviewed, science-based evidence from experts, as referenced throughout this document. Submitted concerns from hundreds of public submissions were ignored.

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<sup>80</sup> Kahiltna Research Group on behalf of B.C. Nature, [Document #609](#), October 25, 2016, Scrolled Page 20/113

<sup>81</sup> [The Review Panel Report](#), RBT2, Document #2062, March 27, 2020, Scrolled Page 247/627

<sup>82</sup> Ibid; Scrolled Page 257/627



#### **4.e Review Panel Report Conclusions on biofilm and Western Sandpiper contravene legislation**

The Review Panel Report provides the same convoluted and inappropriate Conclusion for Western Sandpiper as was concluded for the ecosystem modeling and biofilm. The Review Panel concluded uncertainty about the RBT2 ecosystem modeling and RBT2 effects on biofilm and Western Sandpiper.

With the effects of RBT2 threatening the survival of hundreds of thousands of Western Sandpipers and millions of shorebirds from the alteration of estuarine processes breaking down the Roberts Bank food web, identifying scientific evidence as a “disagreement” trivializes a serious issue.

RBT2 construction and operations will destroy, alter, and affect migratory bird habitat in contravention of the *Migratory Birds Convention Act, 1994*.

Avoiding an issue by claiming uncertainty contravenes the Purpose of *CEAA 2012* which is to protect the environment in a careful and precautionary manner to avoid significant adverse effects. The Federal Court has found:

“The precautionary principle recognizes, that as a matter of sound public policy the lack of complete scientific certainty should not be used as a basis for avoiding or postponing measures to protect the environment, as there are inherent limits in being able to predict environmental harm.”<sup>83</sup>

#### **4.f Without evidence, Port of Vancouver claims it can create biofilm elsewhere as mitigation**

Mixed messages are being sent out by the Proponent of RBT2, the Port of Vancouver.

In the first place, the RBT2 Environmental Impact Statement (EIS) did not provide assessments of subtidal wetlands and coastal birds. Secondly, the EIS 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.

“The Vancouver Fraser Port Authority (VFPA), which is behind the bid to build the massive Terminal 2 expansion, believes it can and is developing a manual on how to create the biofilm similar to that found at the Fraser River estuary adjacent to the project.”<sup>84</sup>

This claim ignores the scientific evidence submitted to the environmental assessment process advising that the highly complex food web at Roberts Bank cannot be duplicated. (Addressed above in section [3.d.](#)). It is improper that 8 years into an environmental assessment of RBT2, the Port of Vancouver is being permitted to continue submitting new information in an attempt to rebut irrefutable scientific evidence from government and independent scientists.

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<sup>83</sup> [Precautionary principle stronger part of Canadian law](#), SISKINDS the Law firm, August 31, 2015

<sup>84</sup> [Terminal 2 biofilm restoration recipe gets mixed reviews](#), Chuck Chiang, Business in Vancouver, March 19, 2021

The Review Panel Report inappropriately uses uncertainty as a means of side stepping the scientific evidence of significant residual adverse environmental and cumulative effects on millions of shorebirds and, in particular, Western Sandpipers. The Report fails to advise that there are no proven mitigation measures.

Dr. Patricia Baird, Kahiltna Research Group, advises of the importance and uniqueness of the biofilm food web at Roberts Bank and why effects from RBT2 cannot be mitigated:

- **“Roberts Bank is a unique ecosystem among other similar nearby wetlands in the Vancouver Lower Mainland and adjacent areas**
- **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.**
- **Roberts Bank supports the greatest number of migrating birds because of its unique marine biofilm-based food web (biofilm is mainly marine diatoms**
- **Roberts Bank is also important at other times of the year besides the spring. It supports thousands of migrating or overwintering waterfowl, gulls, terns, and shorebirds at various times of the year, mainly migratory shorebirds and waterfowl**
- **Loss or degradation of the critical mudflat/diatom productivity at Roberts Bank is almost certain to occur with the expanded Roberts Bank terminal, and this fact is acknowledged in the Environmental Impact Study (EIS) released by the Vancouver Fraser Port Authority (VFPA)**
- **This degradation of the Roberts Bank ecosystem will have negative cascading effects on the entire marine food web at Roberts Bank, including birds and salmon, and these effects might be irreversible.**
- **Nowhere in this entire greater Fraser River delta -Boundary estuary are marine diatoms as concentrated and available as they are in Roberts Bank.”<sup>85</sup>**

**“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.”<sup>86</sup>**

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<sup>85</sup> Kahiltna Research Group on behalf of B.C. Nature, [Document #609](#), October 25, 2016, Scrolled Pages 13-14/113

<sup>86</sup> Kahiltna Research Group on behalf of B.C. Nature, [Document #609](#), October 25, 2016, Scrolled Page 15/113

**“Proposed Mitigation Measures are not likely to be effective**

- In addition to the direct loss of 2.5 ha of intertidal mudflats from widening of the causeway, indirect effects would affect up to 558 ha of intertidal flats
- ECCC View: Large-scale re-creation of biofilm that supports shorebirds has no precedent, and currently ... no way exists to create high quality biofilm habitat (fatty acid rich) ...
- Proposed location of mudflat offset is not an area with high numbers of shorebirds, and proximity of location to causeway may result in low use due to predator avoidance... ..
- The Proponent’s proposed Follow-up monitoring program is not a sufficient way to address the risk to shorebird populations
- While the follow-up program would provide monitoring data, the predicted Project effects on biofilm would be immediate, irreversible and are not mitigable... ..
- Disruption or removal of salinity trigger for fatty acid production by microalgae on Roberts Bank are predicted to have species-level consequences for Western Sandpipers
- Best available scientific evidence does not support Proponent’s statement that biofilm at Roberts Bank would continue to be capable of supporting migrating Western Sandpipers with the Project in ...place...
- ECCC maintains that predicted Project-induced changes to Roberts Bank constitute an unmitigable species-level risk to Western Sandpipers, and shorebirds more generally, due to the predicted disruption to the salinity regime that supports fatty acid production from biofilm
- ECCC advises that only a Project redesign would avoid geomorphological processes on Roberts Bank impacting biofilm and shorebirds<sup>87</sup>

“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.”<sup>88</sup>

As discussed earlier in section 3.e, Professor Peter Beninger, an expert on mudflats, found flawed sampling in the Proponent’s 2018 Report on Biofilm leading to the impossibility of calculating statistics on fatty acids. He found:

“...The report’s statistical treatment and interpretation are inadequate/inappropriate at multiple levels.”<sup>89</sup>

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<sup>87</sup> ECCC, [Document # 1775](#), May 18, 2019, Slides 15-19/23

<sup>88</sup> ECCC, [Document #1091](#), November 10, 2017, Page 15/22

<sup>89</sup> Critique of ‘Biofilm Dynamics during 2018 Northward Migration, Prof. Peter G. Beninger, U. of Nantes, France, [Document #1740](#), May 16, 2019.

A recent study confirms the complexities of estuarine processes that produce the biofilm at Roberts Bank:

... a high-energy food source for at least 21 additional species of shorebirds, including sandpipers, shanks, and plovers (Kuwae et al., 2012), has precipitated the need for a greater ecosystem-level understanding of mudflats and estuaries (Mathot et al., 2018), as biofilm also provides food for benthic invertebrates that are in turn consumed by shorebirds (Cheverie et al., 2014; Hamilton et al., 2006).

Our finding that shorebird abundance in the Fraser River Delta was affected by both marine and riverine processes highlights the complexity of estuaries, wherein the Fraser River interacts with the mudflat system at Roberts Bank resulting in larger ecological effects on shorebird migration.<sup>90</sup>

The RBT2 EIS and the Review Panel Report ignore evidence-based science on the complexities of the Fraser River estuary ecosystem and its importance to the survival of migrating shorebirds, particularly Western Sandpiper.

While sampling and ongoing research by the Proponent of RBT2, the Port of Vancouver, adds to the increasing collection of data on the Fraser River estuary, there is no proven science on duplicating complex ecosystems.

Dr. Baird advises that the risks to the Roberts Bank ecosystem are high:

“Most of the dunlin and western sandpipers which breed in Alaska pass through Roberts Bank and thus it is a key link in the migratory chain, and if this link is broken, migration could stop...

...As mentioned previously, diatoms produce  $\Omega$ -3 fatty acids which prepare sandpipers' flight muscles for endurance flight. If the diatom community is changed, or if it disappears, many of the other shorebird populations that migrate from South and Central America to Alaska through Roberts Bank could also be severely and negatively impacted. Restructuring another, or building a new, wetland in another area of the Fraser River delta will not attract the assemblage of diatoms critical for shorebird migration. There is no mitigation for destruction of the Roberts Bank tidal flats simply because geophysical and abiotic parameters there are perfect for diatom blooming, and these are found nowhere else in the area as widespread as at Roberts Bank...

...In summary, the risk to alter the ecosystem is too great to go ahead with Vancouver Fraser Port Authority's Terminal 2 option at Roberts Bank.”<sup>91</sup>

Science and legislation, as well as policies, agreements, and commitments, should protect the Fraser River estuary and prevent the Governments of Canada and B.C. from approving the Roberts Bank Terminal 2 Project. The risks to the ecosystem and the life it supports are too great.

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<sup>90</sup> 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, Introduction

<sup>91</sup> Kahiltna Research Group on behalf of B.C. Nature, [Document #609](#), October 25, 2016, Scrolled Pages 44 & 45/113

## 5. Destruction of habitat of will exacerbate the decline of Chinook salmon and endangered SRKW

### 5.a Fisheries and Oceans Canada confirms destruction and loss of fish habitat with RBT2

A 1978 Study reported 70% of the Fraser River estuarine ecosystem had already been destroyed.<sup>92</sup> 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.<sup>93</sup> 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.”<sup>94</sup>

The rich assemblage of marine biofilm at Roberts Bank, formed from diatoms (*a microscopic form of algae*), produces essential fatty acids for not only the highest concentration of migratory birds in Canada, but also for hundreds of millions of migrating juvenile salmon that feed in the estuary before setting out to sea.<sup>95</sup>

“Biofilm are the drivers of the rich marine food web at Roberts Bank. They are the keystone element that allows the food web to exist...”

...The diatoms at Roberts Bank produce LCEFA for the entire food Web at Roberts Bank including endangered Fraser River sockeye salmon and migrating shorebirds.”<sup>96</sup>  
(LCEFA- long-chained essential fatty acids)

Salmon smolt exit the Fraser River in the spring to spend their time at sea, and here they eat zooplankton which have fed on diatoms. Without fatty acids, salmon are predicted to not develop as well as those that have consumed prey filled with fatty acids.”<sup>97</sup>

Hundreds of millions of juvenile Chinook, chum and pink salmon feed and grow in the estuary before migrating to sea. The decline of endangered Chinook salmon directly impacts the remaining 75 endangered Southern Resident Killer Whales (SRKW) that rely on adult Chinook as a primary food source.

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<sup>92</sup> [Fraser River Estuary Study](#), August, 1978, Summary, Governments of Canada and B.C. Scrolled Page 41/177

<sup>93</sup> [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

<sup>94</sup> 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

<sup>95</sup> Kahiltna Research Group on behalf of B.C. Nature, [Document #609](#), October 25, 2016, Scrolled Pages 14/113

<sup>96</sup> Ibid; Pages 25 & 50/113

<sup>97</sup> Ibid; Page 14/113

The Government of Canada recognizes that Chinook salmon are at risk:

"Fraser River chinook salmon are struggling to survive Despite significant fishing reductions, these populations have continued on a steep decline as they face a number of factors including habitat destruction and climate change. The loss of these chinook populations would be disastrous not just for wildlife that depend on them as a food source, but also for the many First Nations and communities whose ways of life and jobs depend on Fraser chinook salmon..."

...For 2021, conservation measures to address conservation concerns for at-risk Southern BC chinook stocks are expected to remain in effect for many southern BC waters."<sup>98</sup>

*"Ottawa announces 'unprecedented action' to protect Fraser River chinook'*

Terry Beech, parliamentary secretary to the fisheries minister... ...says they're taking the unprecedented action because of historic low populations of chinook salmon, which are the favoured food of endangered southern resident killer whales."<sup>99</sup>

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."<sup>100</sup>

Fisheries and Oceans advised the Review Panel that RBT2 Project alterations and their effects will be significant, even with mitigation, and will impact 12 COSEWIC listed species of Chinook salmon that are dependent on the Fraser River estuary habitat.

"The proposed Roberts Bank Terminal 2 Project will significantly alter the existing Roberts Bank ecosystem resulting in the loss of a large area of marine fish habitats and changes to water circulation and sediment transport processes.

Destruction or alteration of approximately 176 ha of tidal and sub-tidal habitats is anticipated as a result of construction of the marine terminal, causeway widening, and dredging to expand the tug boat basin and deepen the berth pocket. The types of marine habitat that would be impacted as a result of the Project include tidal and sub-tidal sand, mudflat, eelgrass, and marsh...

..... 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....

...Twelve populations of Fraser River Chinook Salmon has been determined to be at risk by COSEWIC – 7 Endangered, 4 Threatened and 1 Special Concern."<sup>101</sup>

In contrast, 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.

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<sup>98</sup> Government of Canada website, [Conservation Measures for Fraser River chinook](#)

<sup>99</sup> CBC News, Ottawa announces ['unprecedented action' to protect Fraser River chinook](#), June 19, 2020

<sup>100</sup> 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

<sup>101</sup> Fisheries and Oceans Canada, [Document #1630](#). April 15, 2019, Scrolled Pages 75 & 76/207

## 5.b The EIS and Review Panel Report fail to appropriately assess Chinook salmon at risk

The Review Panel states a residual adverse effect on Chinook salmon that would be, “high in magnitude, local in extent, permanent in duration, and irreversible.”<sup>102</sup> 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.”<sup>103</sup>

However, the Review Panel does 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 does not include the fact that 12/13 species 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 recommends 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.”<sup>104</sup>

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.<sup>105</sup>

Fisheries and Oceans advised the Review Panel of uncertainty of success of mitigation measures:

“if we are impacting on Chinook habitat, then from our point of view there is going to be the destruction of critical habitat.”<sup>106</sup>

“In concluding, in terms of fish and fish habitat, and again, due to large-scale destruction of fish habitat, the high degree and uncertainty and predictions of incidental benefits, and a small scale proposed off-site concepts, DFO’s view is that the ongoing productivity of fisheries will not be achieved through creation of proposed offsetting without additional offsetting or reduction of project impacts.”<sup>107</sup>

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<sup>102</sup> [Review Panel Report](#), RBT2, Document #2062, March 27, 2020, Scrolled Page 201/627

<sup>103</sup> Ibid; Scrolled Page 202/627

<sup>104</sup> 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

<sup>105</sup> [Review Panel Report](#), RBT2, Document #2062, March 27, 2020, Scrolled Page 199/627

<sup>106</sup> Ecojustice on behalf of David Suzuki Foundation, Georgia Strait Alliance, Raincoast Conservation Foundation and Wilderness Committee, [Document #2036](#), August 26, 2019, Comment 49, Scrolled page 17/38

<sup>107</sup> RBT2 CEAA 80054, [Document #1797](#), Hearing Transcript, Volume 7, May 22, 2019, Document Page 1590, Scrolled page 115/344

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."<sup>108</sup>

### **5.c Unmitigable significant residual adverse environmental effects threaten survival of SRKW**

The large-scale destruction of fish habitat, documented above, 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."<sup>109</sup>

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 75. Their survival is in question as they slowly decline towards extinction.<sup>110</sup>

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

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.

Evidence of these adverse effects on SRKW are documented in [Appendix A](#).

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<sup>108</sup> 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

<sup>109</sup> 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

<sup>110</sup> 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



## 5.d RBT2 Environmental Impact Statement (EIS) claims low to negligible effects on SRKW

In contrast to concerns submitted by experts, the RBT2 EIS failed to report significant adverse environmental and cumulative effects and did not provide technically feasible mitigation measures.

The RBT2 EIS stated that:

- RBT2 would not limit the survival or recovery of endangered SRKW<sup>111</sup>
- SRKW would not be affected by lack of prey availability and loss of critical habitat from RBT2<sup>112</sup>
- Contamination from RBT2 would be negligible<sup>113</sup>
- Vessel strikes would be low in magnitude<sup>114</sup>
- Effects of underwater noise would be moderate
- There would be effects on SRKW from marine shipping

The EIS did not propose any mitigation measures to reduce underwater noise.<sup>115</sup>

The EIS stated that past projects have had a significant adverse effect on SRKW and the cumulative effects was expected to remain significant.<sup>116</sup> 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.

## 5.e Review Panel Report on SRKW omits critical information, and contravenes 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.”<sup>117</sup>

### 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.’<sup>118</sup>

### 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.”<sup>119</sup>

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<sup>111</sup> [Review Panel Report](#), RBT2, Document #2062, March 27, 2020, Scrolled Page 219/627

<sup>112</sup> Ibid; Scrolled Pages 218& 219/627

<sup>113</sup> Ibid; Scrolled Page 219/627

<sup>114</sup> Ibid; Scrolled Page 218/627

<sup>115</sup> Ibid; Scrolled Pages 217, 218, 220 & 221/627

<sup>116</sup> Ibid; Page 221/627

<sup>117</sup> [Review Panel Report](#), RBT2, Document #2062, March 27, 2020, Scrolled Page 16/627

<sup>118</sup> Ibid; Page 230/627

<sup>119</sup> Ibid; page 231/627

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
- 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.<sup>120</sup>
- 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.

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<sup>120</sup> 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

## 5.f RBT2 will push endangered Southern Resident Killer Whales towards extinction

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.”<sup>121</sup>

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.<sup>122</sup>

Ecojustice advises:

“If the Review Panel finds that there will be significant adverse effects on a listed wildlife species that cannot be avoided or lessened then it must recommend against proceeding with the Project.”<sup>123</sup>

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<sup>121</sup> Government of Canada, Southern Resident Killer Whale: [Imminent Threat Assessment](#), Conclusions, May 24, 2018  
Copied in Ecojustice [Document #1605, Volume 2](#), Page 494/671

<sup>122</sup> 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

<sup>123</sup> Ibid: Scrolled Page 8/38

## **6. Failure to assess subtidal wetlands and cumulative effects on wetlands and wetland functions**

### **6.a 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.<sup>124</sup>

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.”<sup>125</sup>

According to Ramsar, wetlands include intertidal mudflats, marshes, eelgrass beds, and marine areas no deeper than six metres at low tide.<sup>126</sup> The Ramsar Treaty was not included, or incorporated, into the Conclusions and Recommendations of the Review Panel on Wetlands and Wetland Functions.

### **6.b 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.<sup>127</sup>

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.<sup>128</sup> 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.”<sup>129</sup>

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<sup>124</sup> [Federal Policy on Wetland Conservation](#), Scrolled Pages 4 & 7/15

<sup>125</sup> [Federal Policy on Wetland Conservation](#), Government of Canada, 1991, Scrolled Page 6,9, & 10/15

<sup>126</sup> [An Introduction to the Ramsar Convention on Wetlands](#), 2016, Scrolled Page 2/110

<sup>127</sup> [Review Panel Report](#), RBT2, Document #2062, March 27, 2020, Scrolled Page 169/627

<sup>128</sup> [Review Panel Report](#), RBT2, Document #2062, March 27, 2020, Scrolled Page 169/627

<sup>129</sup> *Ibid*; Scrolled Page 176/627

The Review Panel agrees 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."<sup>130</sup>**

This is inappropriate considering the omission of assessment; the flawed conclusions by the Proponent on geomorphic changes (Section [1.d](#)) 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."<sup>131</sup>**

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.

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."<sup>132</sup>**

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."<sup>133</sup>**

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."<sup>134</sup>**

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."<sup>135</sup>**

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 Rive estuary.

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<sup>130</sup> Ibid; Scrolled Page 175/627

<sup>131</sup> Ibid; Scrolled pages 175 and 176/627

<sup>132</sup> Ibid; Scrolled Page 176/627

<sup>133</sup> Ibid; Scrolled Page 176/627

<sup>134</sup> [Review Panel Report](#), RBT2, Document #2062, March 27, 2020, Scrolled Page 176/627

<sup>135</sup> Ibid; Scrolled Page 156/627

## 6.c 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.<sup>136</sup>

- 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.<sup>137</sup> 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 Act<sup>138</sup>; 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.<sup>139</sup>

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

*Federal Policy on Wetland Conservation*.<sup>140</sup> 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. 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.

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<sup>136</sup> [CEAA 2012](#), Section 4 (1) and Section 19 (1) (a) & (d)

<sup>137</sup> [Migratory Birds Convention Act, 1994](#), Section 5.

<sup>138</sup> [Species at Risk Act](#), Sections 6, 79,

<sup>139</sup> [A Guide to the Species at Risk Act](#), Page 1/4

<sup>140</sup> [Federal Policy on Wetland Conservation](#), Scrolled Pages 4 & 7/15

#### **6.d RBT2 will cause unmitigable, irreversible, permanent residual 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. Evidence from Government scientists is documented in [Appendix B](#).

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; and
- did not provide technically and economically feasible mitigation measures

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*:<sup>141</sup> 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:<sup>142</sup> 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.

#### **6.e EIS failed to assess cumulative effects on coastal birds and dismissed 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*<sup>143</sup> 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 are not proven to be technically or economically feasible as required under *CEAA 2012*<sup>144</sup>.

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.<sup>145</sup>

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<sup>141</sup> [CEAA 2012](#), Section 4 (1) and Section 19 (1) (a) & (d)

<sup>142</sup> Roberts Bank Terminal 2 Environmental Assessment, [Terms of Reference](#), Document #1680, Amended April 2019

<sup>143</sup> [Species at Risk Act](#), Section 58

<sup>144</sup> [CEAA 2012](#), Section 4 (1) and Section 19 (1) (a) & (d)

<sup>145</sup> [Review Panel Report](#), RBT2, Document #2062, March 27, 2020, Scrolled Page 243/627

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)<sup>146</sup> that important bird habitat of the Fraser River estuary is on the edge of collapse from ongoing industrialization<sup>147</sup>, this is an unscientific, unacceptable dismissal of ethical and legal accountability.

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 C](#).

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

- 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.
- 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.
- 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.
- 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 is of the view that the Proponent's description of potential adverse effects and proposed mitigation measures are not appropriate.
- 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).
- 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
- ECCC notes there is potential for prolonged effects to marine birds from shipping activities including a heavy fuel spill event.
- 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.

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<sup>146</sup> ECCC, Document [#1766](#), May 24, 2019, Scrolled Page 7/35

<sup>147</sup> RBT2 Environment Assessment, Bird Studies Canada, [Document 2029](#), August 24, 2019, Page 3/3



## 6.f 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.<sup>148</sup>

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.”<sup>149</sup>

Bird Studies Canada (BSC) explained that the restricted geographic boundaries of the assessment undermined the conclusions and did not allow for a proper evaluation of the majority of area where Barn Owls and the Project would interact. 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).<sup>150</sup>

### 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.”<sup>151</sup>

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<sup>148</sup> [Species at Risk Act](#), *SARA*, Sections 58 & 92

<sup>149</sup> RBT2 Environment Assessment, ECCC, [Document 1146](#), February 12, 2018, Page 5/16

<sup>150</sup> [The Review Panel Report](#), RBT2, Document #2062, March 27, 2020, Scrolled Pages 254 & Page 250/627

<sup>151</sup> [The Review Panel Report](#), RBT2, Document #2062, March 27, 2020, Scrolled Page 258/627

The Conclusion in the Review Panel Report is unclear 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."** <sup>152</sup>

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.** <sup>153</sup>

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."** <sup>154</sup>

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."** <sup>155</sup>

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<sup>152</sup> [The Review Panel Report](#), RBT2, Document #2062, March 27, 2020, Scrolled Page 258/627

<sup>153</sup> RBT2 Environment Assessment, ECCC, [Document 1146](#), February 12, 2018, Scrolled Page 10 & 7/16

<sup>154</sup> 'A guide to your [responsibilities](#) under the Species at Risk Act

<sup>155</sup> National Accord for the [Protection of Species at Risk](#), Page 1/1

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;”<sup>156</sup>

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*.

The failure to undertake a cumulative effects assessment on intertidal wetlands and coastal birds also contravenes legislation and invalidates the RBT2 EIS and Conclusions and Recommendations of the Review Panel Report.

## **7. Increased air, noise, and light pollution that threatens human health cannot be mitigated**

### **7.a 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 (NO<sub>2</sub>); fine particulate matter (PM<sub>2.5</sub>); 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.

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 NO<sub>2</sub>, PM<sub>2.5</sub>, and contribute to exceedances of ozone.”<sup>157</sup>

“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 NO<sub>2</sub>. The effect would be significant.”<sup>158</sup>

“The Panel concludes that the operational phase of the Project would result in a significant adverse effect on human health based on predicted exposures to 1-hour average NO<sub>2</sub> and respiratory irritants.”<sup>159</sup>

“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 NO<sub>2</sub> and respiratory irritants.”<sup>160</sup>

<sup>156</sup> [Canada-British Columbia Agreement](#) on Species at Risk, April 11, 2005, Scrolled Pages 2, 13, 7 14/14

<sup>157</sup> [The Review Panel Report](#), RBT2, Document #2062, March 27, 2020, Scrolled Page 92/627

<sup>158</sup> Ibid; Scrolled Page 404/627

<sup>159</sup> Ibid; Scrolled Page 404/627

<sup>160</sup> Ibid; Scrolled Page 405/627

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.”<sup>161</sup>**

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.

### **7.b 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.”<sup>162</sup>**

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.”<sup>163</sup>**

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.c 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.”<sup>164</sup>**

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.

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<sup>161</sup> Ibid: Scrolled Page 404/627

<sup>162</sup> [The Review Panel Report](#), RBT2, Document #2062, March 27, 2020, Scrolled Page 415/627

<sup>163</sup> Ibid: Scrolled page 415/627

<sup>164</sup> Ibid; Scrolled page 101/627

## 8. Harm to lower Fraser River and estuary from RBT2 cannot be mitigated

### 8.a Residual significant adverse environmental effects cannot be mitigated

As documented above, the Review Panel Report failed to appropriately advise governments of evidence-based science verifying significant **residual** adverse environmental effects on components of the RBT2 environmental assessment that cannot be sufficiently mitigated:

- human health ([Section 7](#))
- changes to the geomorphology of the Fraser River estuary ([Section 1.d](#))
- fatty acids of biofilm which provide the rich marine food web at Roberts Bank ([Section 3.c](#))

“Courts have been clear that “vague hopes for future technology” to address effects do not constitute mitigation measures.”<sup>165</sup>
- endangered Southern Resident Killer Whales and their critical habitat ([Section 5.c](#))

the purpose of SARA is to not only prevent extinction, but also promote recovery of species
- endangered Chinook Salmon and their critical habitat ([Section 5. a](#))
- Western Sandpiper - species of high concern ([Section 4.c](#))
- 19 species at risk including Great Blue Heron and Barn Owl ([Section 6. f](#))
- direct and indirect loss of critical habitat (*All Sections*)

Due to no assessment of certain components; a failure to provide cumulative effects assessments; and limitations of the ecosystem modeling; scientists and experts advise of likely significant **residual** adverse environmental effects on:

- wetlands and wetland functions ([Section 6.c](#) and [Appendix B](#))
- subtidal wetlands ([Sections 6.b-6. d](#) & [Appendix B](#))
- intertidal wetlands ([Sections 6.b-6. d](#) & [Appendix B](#))
- coastal birds ([Section 6.e](#) & [6.f](#) & [Appendices B](#) & [C](#))
- red-listed marsh communities ([Section 6.b](#); [6.c](#) & [Appendix B](#))
- 12 populations of Chinook Salmon listed by COSEWIC ([Section 5. a-5.c](#))
- 50 species of shorebirds ([Section 4. a](#); [4.b](#); [4.f](#))
- fish and fish habitat ([Sections 2.d](#); [5. a-5.c](#) & [Appendix B](#))
- species of the Roberts Bank Wildlife Management Area ([Sections 2.d](#); [2.e](#); [section 6](#) & [Appendix B](#))

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<sup>165</sup> Ecojustice, CEAA 80054, RBT2, [Document # 1605](#), Volume 1, Par. 39, Scrolled Page 17/72

## 8.b Loss of estuarine ecosystems and food webs cannot be mitigated

Experts submitted documented scientific evidence confirming that the complex, interactive, interdependent processes of the Fraser River estuary (that will be significantly altered by RBT2) cannot be duplicated. As documented in section [1.d.](#), not just components, but the entire Fraser River estuary, and beyond, will be impacted:

**“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.”<sup>166</sup>**

**...RBT2 should not be constructed because doing so would probably irreversibly and negatively alter a vital marine area’s ecology”<sup>167</sup>**

**“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.”<sup>168</sup>**

**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.”<sup>169</sup>**

**“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.”<sup>170</sup>**

Explicit concerns of impacts to the geomorphology of the estuary were not appropriately considered or incorporated in the Conclusions and Recommendations of the Review Panel Report.

## 8.c Loss of biodiversity cannot be mitigated

As documented in section [2.](#), recent studies and reports warn of biodiversity loss globally, nationally, and locally. Canada has commitments under legislation, designations and agreements to work for the protection of estuaries and the life they support.

**“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.”<sup>171</sup>**

Canada’s commitments to conservation of the Fraser River estuary were not incorporated into the environmental assessment.

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<sup>166</sup> RBT2 Environmental Assessment, ECCC, [Document 1454](#), February 8, 2019, Scrolled Page 22/40

<sup>167</sup> Kahiltna Group, [Document #1604](#), April 15, 2019, Scrolled Page 8/15

<sup>168</sup> British Columbia Ministry of Forests, Lands, Natural Resources Operations and Rural Development (FLNRORD), [Document #1751](#), May 22, 2019, Page 4/8

<sup>169</sup> CEAA 80054, Fisheries and Oceans Canada, Document [#1630](#), April 15, 2019, Scrolled Page 74/207

<sup>170</sup> CEAA 80054, ECCC, [Document # 1091](#), Nov. 10, 2017, Scrolled page 15/22

<sup>171</sup> *Convention of Biological Diversity*, Canada – [National Targets](#)

## 8.d Unproven mitigation measures cannot be justified as risk to the Fraser River estuary is too great

Mitigation Measures must be Technically and Economically Feasible

The *Canadian Environmental Assessment Act, 2012 (CEAA 2012)*, Section 19 (1) (d) states the environmental assessment must take into account:

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

Ecojustice:

“Mitigation measures are intended to be actual, identifiable measures which will eliminate, reduce, or control adverse effects of a project. Courts have been clear that “vague hopes for future technology” to address effects do not constitute mitigation measures. Vague assurances of adaptive management, further study, and conceptual and unproven ideas do not constitute mitigation measures.”<sup>172</sup>

“Vague assurances of adaptive management, further study, and conceptual and unproven ideas do not constitute mitigation measures.”<sup>173</sup>

Most of the mitigations measures recommended in the Review Panel Report:

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

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

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

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

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

Unproven mitigation measures fail to apply the Precautionary Principle and fail to fulfill accountability to *CEAA 2012*, the *Species At Risk Act*, and the *Migratory Birds Convention Act, 1994*, in a manner that protects the environment.

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<sup>172</sup> <sup>172</sup> Ecojustice on behalf of David Suzuki Foundation, Georgia Strait Alliance, Raincoast Conservation Foundation and Wilderness Committee, [Document # 1605](#), April 15, 2019, Para. 39, Scrolled page 17/72

<sup>173</sup> Ibid; Scrolled Page 1/72

## **8.e 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.

Ongoing industrialization has caused incremental losses of globally-valued habitats at Roberts Bank – a decline in fish, mammal, and bird populations. Adaptive Management Strategies are proving to be ineffective window-dressing. You can't build a project the size of RBT2 without residual significant adverse environmental and cumulative effects, as documented above.

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."**<sup>174</sup>

The BBC made inquiries about implementation of compensation and mitigation for the Deltaport Third Berth Project at Roberts Bank. 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)"**<sup>175</sup>

The 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.

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<sup>174</sup> '[Assessing Habitat Compensation](#) and Examining Limitations to Native Plant Establishment', Megan Lievesley, Daniel Stewart, Rob Knight, & Brad Mason, March, 2016, Scrolled page 56/63

<sup>175</sup> FOI emails, March 2010.



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.

## **8.f High cost to taxpayers with mitigation measures recommended by Review Panel Report**

Nearly all of the 71 recommendations<sup>176</sup> of the Review Panel Report require significant work from government agencies to mitigate the effects of RBT2. The cost in time and money to try and repair far-reaching residual significant adverse environmental effects raises serious questions??

It is ironic that if RBT2 is approved, government agencies, that have advised of residual significant adverse environmental effects, will be required to collaborate with the Port of Vancouver to implement unproven mitigation measures and find ways to mitigate degradation of the Fraser River estuary.

It is ironic that although Birdlife International has warned of [ecological collapse](#) of the Fraser River estuary ecosystem, the Review Panel Report recommends that, if RBT2 is approved, Bird Studies Canada collaborate with the development of conservation measures.<sup>177</sup> Surely this will be a case of 'closing the barn door after the horse has bolted.'

## **9. RBT2 is not needed as the west coast container business will have capacity without RBT2**

[Appendix D](#) documents statistics and information demonstrating that the west coast container business demand can be met for decades without RBT2. The following are excerpts from Appendix D

### **9.a The RBT2 environmental assessment fails to disclose faster growth at Prince Rupert**

The west coast container business is expanding more rapidly at the Port of Prince Rupert than at the Port of Vancouver. Prince Rupert container business has grown at a Compound Annual Growth Rate (CAGR) of 8% over the past 5 years compared to a CAGR of 2.6% at the Port of Vancouver. The Port of Prince Rupert is one sailing day closer to Asian markets; is less congested than Vancouver; and has a shorter rail time to eastern centres due to less rail congestion

### **9.b The Port of Vancouver's lowest container business forecasts are not being realized**

Even the lowest container business forecasts by the Port of Vancouver are not being realized. Over the 8 years of environmental assessment, the Port of Vancouver has downgraded their forecasts several times while the Port of Prince Rupert has scrambled to build capacity to meet demand.

In 2006, the Port of Vancouver's lowest forecast for 2020 was 4.7 million TEUs. The actual for 2020 was 3.47 million TEUs (*2019 was 3.40*). So, the lowest forecast for 2020 was out by 1.2 million TEUs. That is half of the 2.4 million TEUs the Port claims it needs with RBT2.

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<sup>176</sup> Ibid: Scrolled pages 596-624

<sup>177</sup> [The Review Panel Report](#), RBT2, Document #2062, March 27, 2020, Recommendation 35: Scrolled Page 610/627

### **9.c The Port of Vancouver has enough container business capacity without RBT2**

As expansions are planned and underway at Vanterm and Centerm container terminals; and as upgrades are continuing at Deltaport, there will be sufficient capacity for the Vancouver area container business for the next two decades. Vancouver container capacity can reach 5.85 million TEUs without RBT2. At the current Compound Annual Growth Rate (CAGR) of 2.6%, it will take the Port of Vancouver 20 years to reach that capacity. At that point, if it is ever reached, it is doubtful if the congested Vancouver area could handle any more containers.

### **9.d Canada's west coast container business capacity demands can be met without RBT2**

This is documented in [Appendix D](#), section 4.

### **9.e 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."<sup>178</sup>

### **9.f Do Canadians want to harm the Fraser River estuary for US-bound containers from Asia?**

The main growth in Vancouver's container business is to funnel import containers from Asia, through Canada, to the United States. Statistics 2015-2018 show that 23.5% of Vancouver container imports are US bound. Recent news claims it is as high as 35% which accounts for all business increases.

### **9.g RBT2 EIS fails to disclose that Vancouver container exports have been flat since 2011**

The Port of Vancouver should be focusing on bulk shipping which is the real backbone of Canada's economy. Instead, the Port is squeezing out Vancouver businesses for container space.

### **9.h RBT2 EIS fails to provide data or sufficient information to support a business case for RBT2**

The Environmental Impact Statement (EIS) does not provide data, tables, or references on the Port of Vancouver container business. Four graphs purport to show forecasts and west coast container capacity but there are no data or tables. One graph, purporting to show that forecasts have proven accurate, uses an out-of-date report from 2001. There is reference to an Ocean Shipping Consultants Report, 2016, to support capacity numbers, but no specific page numbers or data are referenced

## **10. Is a government agency, the Port of Vancouver, receiving preferential treatment?**

The Impact Agency of Canada (IAC), formerly the Canadian Environmental Assessment Agency (CEAA) should have rejected the initial Environmental Impact Statement (RBT2 EIS) submitted by the Proponent, the Port of Vancouver, on the grounds of failure to assess important components; lack of cumulative environmental effects assessment of components; misleading conclusions on limited modeling; failure to provide feasible evidence-based mitigation; and failure to incorporate legislation, designations, and commitments to provincial, national and international agreements.

If the IAC had demanded a sufficient Environmental Impact Statement (EIS) in the first place, it would have saved taxpayer dollars and a lot of wasted time by government agencies and the public.

As it is now, there are 8 years of layered, fragmented information which is incomprehensible, and definitely insufficient.

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<sup>178</sup> Port of Vancouver [Public Consultation](#), Deltaport Terminal Road and Rail Project, (DTRRIP), Dec.10, 2011, Page 6

The Port of Vancouver has had eight years to present credible mitigation measures and these have not materialized. It is disconcerting that the Port is being permitted to present yet another set of mitigation measures when it has been clearly determined that the residual significant adverse environmental effects cannot be mitigated. The work of the Port over the past year is in-house paid science. This does not qualify as proven, peer-reviewed, published science.

Additionally, there has been interference from the government in Ottawa with alteration of reports submitted by government scientists and with an order forbidding government agencies from submitting closing remarks to the RBT2 environmental assessment process in August, 2019<sup>179</sup>.

The BBCC requests that due process be followed and that Governments respect and honour public concern, as well as scientific evidence, that RBT2 will irreparably harm the Fraser River estuary

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<sup>179</sup> [Political Interference](#) in the environmental assessment of Roberts Bank Container Terminal 2 (RBT2) spells disaster for the Fraser River Estuary,

**Appendix A Unmitigable significant residual adverse effects on 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...<sup>180</sup>

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;”<sup>181</sup>

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.”<sup>182</sup>

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<sup>180</sup> 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

<sup>181</sup> 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

"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."<sup>183</sup>

"...important estuarine habitat for the Southern Resident's most important prey, Chinook salmon, will be lost;<sup>184</sup>

"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."<sup>185</sup>

### 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...

...larger ships will have greater impacts per ship on the Southern Residents"<sup>186</sup>

"The Project Related Shipping's effects on the Southern Residents will not be mitigated at all."<sup>187</sup>

"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."<sup>188</sup>

"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."<sup>189</sup>

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<sup>182</sup> 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

<sup>183</sup> Ibid; Scrolled pages 39/72

<sup>184</sup> 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

<sup>185</sup> Ibid; Scrolled Page 5/38

<sup>186</sup> Ibid; Scrolled page 15/38

<sup>187</sup> Ibid; Scrolled Page 5/38

<sup>188</sup> Ibid; Scrolled pages 15 & 16/381

<sup>189</sup> 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

#### 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."<sup>190</sup>

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."<sup>191</sup>

"...vessel presence and noise can alter fish behavior and may make them less accessible to Southern Residents."<sup>192</sup>

"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."<sup>193</sup>

#### 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."<sup>194</sup>

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"<sup>195</sup>

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."<sup>196</sup>

"PCB concentrations in the supernatant discharge itself have not been estimated by the Proponent..."

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<sup>190</sup> 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

<sup>191</sup> Ibid; Scrolled page 36/72

<sup>192</sup> Ibid; Scrolled Page 40/72

<sup>193</sup> RBT2 Environment Assessment, 2018 Recovery Strategy for the N. and SRKW, [Document 1374](#), Dec.12,2018, Page 65/95

<sup>194</sup> RBT2 Environment Assessment, 2018 Recovery Strategy for the N. and SRKW, [Document 1374](#), Dec.12,2018, Page 65/95

<sup>195</sup> 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

<sup>196</sup> RBT2 Environment Assessment, ECCC, [Document 1091](#), Nov.10, 2017, Page 5/22

...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."<sup>197</sup>

"...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)."<sup>198</sup>

## 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."<sup>199</sup>

## 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."<sup>200</sup> ... "Underwater noise from marine shipping associated with the Project would contribute to cumulative adverse effects on SRKW"<sup>201</sup>

### 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."<sup>202</sup>

"...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."<sup>203</sup>

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<sup>197</sup> RBT2 Environment Assessment, ECCC, [Document 1454](#), February 8, 2019, Page 3/40

<sup>198</sup> RBT2 Environment Assessment, ECCC, [Document 1454](#), February 8, 2019, Page 2/40

<sup>199</sup> 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

<sup>200</sup> Ibid; Scrolled page 33/72

<sup>201</sup> RBT2 Environment Assessment, Fisheries and Oceans, [Document 1742](#), May 15, 2019, Pages 11-13/19

<sup>202</sup> 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

<sup>203</sup> 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.<sup>204</sup>

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<sup>204</sup> Ibid; Pages 15,16,20 &11



### Appendix B:

#### Significant residual adverse effects of RBT2 on Wetlands and Wetland Functions

##### 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.”<sup>205</sup>

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.”<sup>206</sup>

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*.

##### 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.”<sup>207</sup>

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”<sup>208</sup>

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...”<sup>209</sup>

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<sup>205</sup> RBT2 EIS, Fisheries and Oceans Canada, [Document #1742](#), May 15, 2019, Scrolled Page 7/22

<sup>206</sup> RBT2 EIS, Fisheries and Oceans Canada, [Document # 1630](#), April 15, 2019, Scrolled Pages 74 & 75/207

<sup>207</sup> RBT2 Environmental Assessment, ECCC, [Document 1454](#), February 8, 2019, Page 22/40

<sup>208</sup> RBT2 Environmental Assessment, ECCC, [Document 1766](#), May 24, 2019, Page 26/35

<sup>209</sup> [Review Panel Report](#), RBT2, Document #2062, March 27, 2020, Scrolled Page 171/627

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.<sup>210</sup>

### 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.”<sup>211</sup>

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.”<sup>212</sup>

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<sup>210</sup> RBT2 Environmental Assessment, ECCC, [Document 1766](#), May 24, 2019, Pages 31&32/35

<sup>211</sup> 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

<sup>212</sup> B.C. Forests, Land and Natural Resources Operations and Rural Development (FLNRORD), [Document #2015](#), Closing Remarks, August 20, 2019, Scrolled Page2/6

## Appendix C

### Coastal Birds

#### 6.e EIS failed to assess cumulative effects on coastal birds and dismissed residual adverse effects

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.<sup>213</sup>

#### Experts from ECCC repudiated the claims of the Port of Vancouver

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”<sup>214</sup>

“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.”<sup>215</sup>

“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).”<sup>216</sup>

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<sup>213</sup> [Review Panel Report](#), RBT2, Document #2062, March 27, 2020, Scrolled Page 243/627

<sup>214</sup> RBT2 Environment Assessment, ECCC, [Document 1454](#), February 8, 2019, Page 14/40

<sup>215</sup> RBT2 Environment Assessment, ECCC, [Document 1454](#), February 8, 2019, Pages 14& 15/40

<sup>216</sup> 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...”<sup>217</sup>

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.”<sup>218</sup>

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.”<sup>219</sup>

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.”<sup>220</sup>

“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.”<sup>221</sup>

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<sup>217</sup> RBT2 Environment Assessment, ECCC, [Document 1454](#), February 8, 2019, Pages 15/40

<sup>218</sup> RBT2 Environment Assessment, ECCC, [Document 1454](#), February 8, 2019, Pages 15/40

<sup>219</sup> Ibid; Pages 12;1;17&18

<sup>220</sup> RBT2 Environment Assessment, ECCC, [Document 1454](#), February 8, 2019, Pages 14/40

<sup>221</sup> [The Review Panel Report](#), RBT2, Document #2062, March 27, 2020, Scrolled Page 253/627

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.”<sup>222</sup>**

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<sup>222</sup> RBT2 Environment Assessment, Bird Studies Canada, [Document 2029](#), August 24, 2019, Page 3/3

**Appendix D: RBT2 is not needed**

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

It is not necessary to dredge and fill the Fraser River estuary for a man-made island the size of 250 football fields<sup>223</sup> for a new container terminal that will permanently disrupt the Fraser River ecosystem destroying globally-significant habitat for millions of migratory birds and endangered salmon, as well as endangered Southern Resident Killer Whales (SRKW).

It is not necessary to congest and pollute Vancouver, and the lower mainland of B.C., for the Roberts Bank Terminal 2 Project (RBT2) that will cause job losses at existing container terminals and squeeze out Vancouver's export businesses that rely on bulk shipping, not containers, to get Canada's exports to markets.

The Roberts Bank Terminal 2 Project (RBT2) is not in the public interest as it is of questionable value to Canada's economy and devastating to Canada's globally-significant Fraser River estuary. A highly flawed environmental assessment has been underway since 2013. Statistical evidence shows that Canada's west coast container business can grow for decades without RBT2.

The following topics outline the lack of correct and complete information in the Roberts Bank Environmental Assessment Statement (RBT2 EIS) and provide documented statistics and information proving that Canada's west coast container business demand can be met without RBT2.

1. The RBT2 environmental assessment fails to disclose faster growth at Prince Rupert
2. The Port of Vancouver's lowest container business forecasts are not being realized
3. The Port of Vancouver has enough container business capacity without RBT2
4. Canada's west coast container business capacity demands can be met without RBT2
5. Only 10% of Vancouver's import laden containers are for the Lower Mainland
6. Growth in the container business is import containers from Asia bound for the U.S.
7. RBT2 EIS fails to disclose that Vancouver container exports have been flat since 2011
8. RBT2 EIS fails to provide data or sufficient information to support a business case for RBT2
9. The Port of Vancouver is sending out misinformation
10. It is not true that Vancouver-bound containers will have to be re-routed through US Ports
11. Review Panel refused to consider container business capacity at the Port of Prince Rupert
12. Change in scope after 5 years negates public input, and censors important information
13. Review Panel process banned consideration of Report by transportation experts
14. There is no oversight on Port's claims
15. Insufficient information on economic impacts & concerns of significant job losses with RBT2
16. Port of Vancouver wants taxpayers to fund RBT2 and squeeze out the Port's own tenants
17. Cost to Taxpayers is \$3.5 billion and counting

## 1. The RBT2 environmental assessment fails to disclose faster growth at Prince Rupert

The west coast container business is expanding more rapidly at the Port of Prince Rupert than at the Port of Vancouver. Prince Rupert container business has grown at a Compound Annual Growth Rate (CAGR) of 8% over the past 5 years compared to a CAGR of 2.6% at the Port of Vancouver. The Port of Prince Rupert is one sailing day closer to Asian markets; is less congested than Vancouver; and has a shorter rail time to eastern centres due to less rail congestion.

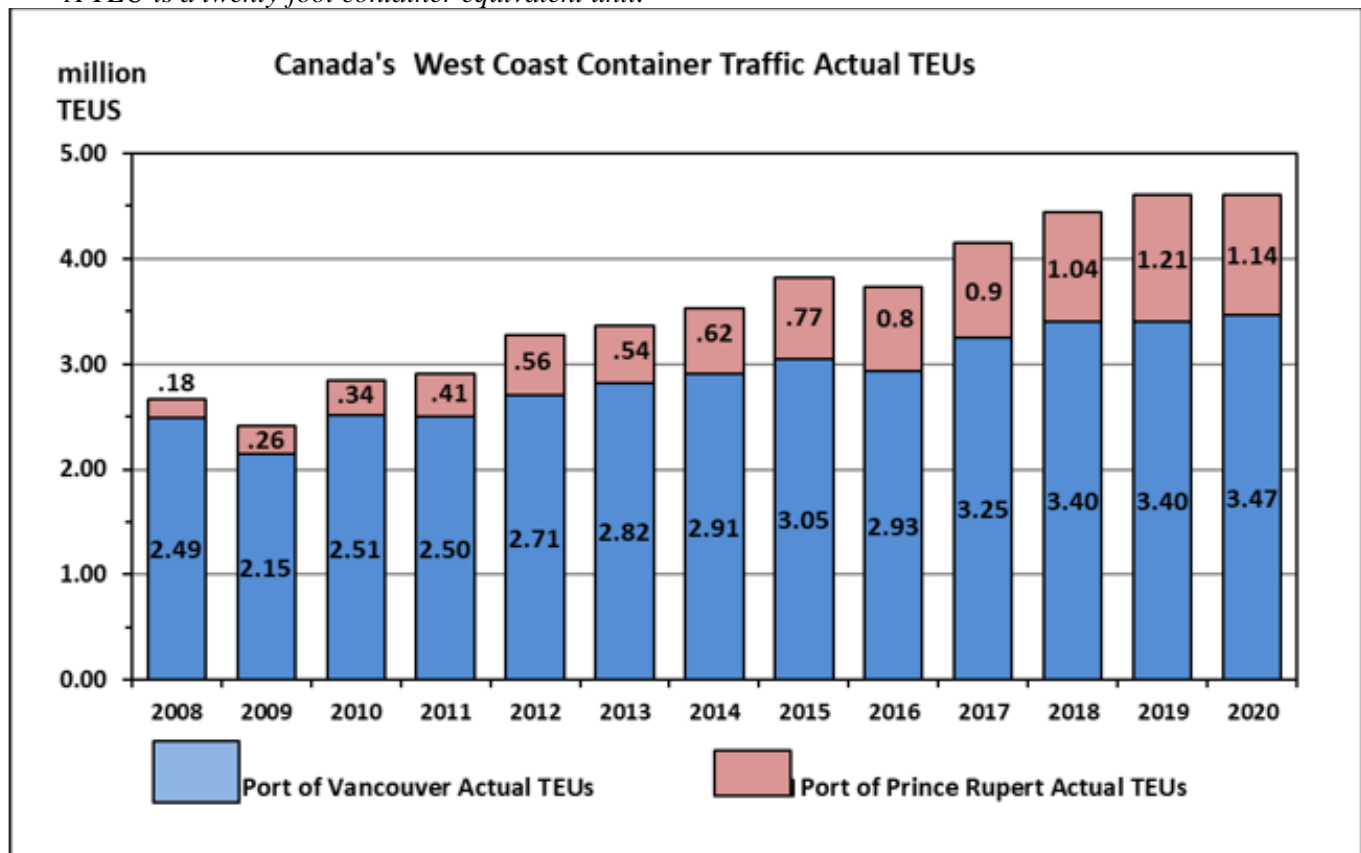
## 2. The Port of Vancouver's lowest container business forecasts are not being realized

Even the lowest container business forecasts by the Port of Vancouver are not being realized. Over the 8 years of environmental assessment, the Port of Vancouver has downgraded their forecasts several times while the Port of Prince Rupert has scrambled to build capacity to meet demand.

In 2006, the Port of Vancouver's lowest forecast for 2020 was 4.7 million TEUs. The actual for 2020 was 3.47 million TEUs (2019 was 3.40). So, the lowest forecast for 2020 was out by 1.2 million TEUs. That is half of the 2.4 million TEUs the Port claims it needs with RBT2.

The following graph shows the faster growth rate at the Port of Prince Rupert. Statistics are from the ports' websites. (Referenced at the end of the document) <sup>i</sup>

*A TEU is a twenty-foot container equivalent unit.*

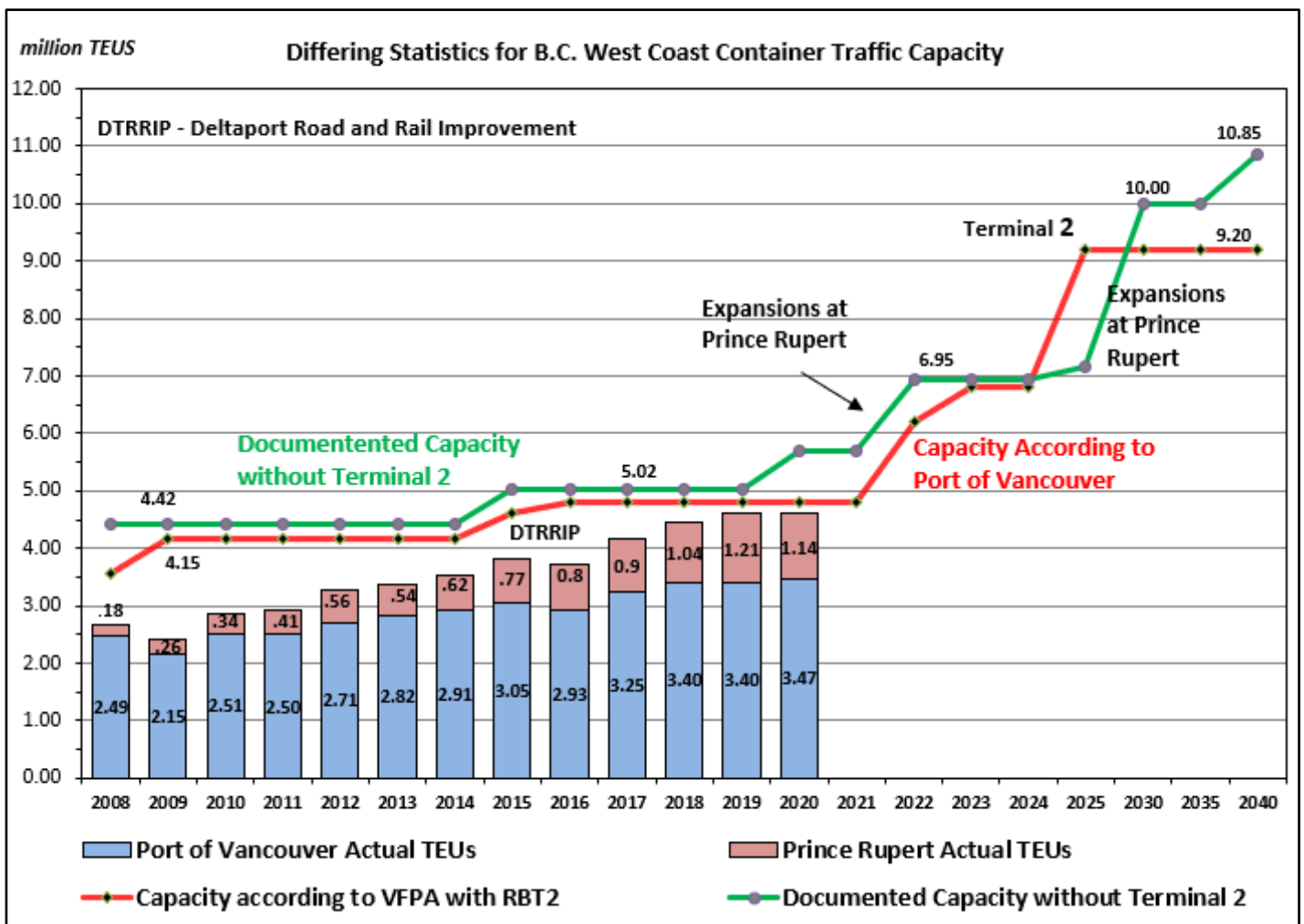


### 3. The Port of Vancouver has enough container business capacity without RBT2

As expansions are planned and underway at Vanterm and Centerm container terminals; and as upgrades are continuing at Deltaport, there will be sufficient capacity for the Vancouver area container business for the next two decades. Vancouver container capacity can reach 5.85 million TEUs without RBT2. At the current Compound Annual Growth Rate (CAGR) of 2.6%, it will take the Port of Vancouver 20 years to reach that capacity. At that point, if it is ever reached, it is doubtful if the congested Vancouver area could handle any more containers.

### 4. Canada’s west coast container business capacity demands can be met without RBT2

The following graph compares the Port of Vancouver’s statistics with published information on expansion projects planned to meet Canada’s west coast container capacity demand. It shows that ongoing and planned expansions can meet future capacity demand without dredging and filling the Fraser River Estuary for a massive, man-made island. The Roberts Bank Terminal 2 Project (RBT2) is a huge Project - costly not only in dollars (\$3.5 billion) but also in irreparable environmental damage to the Fraser River estuary. The Table for this graph is on the next page.



References:<sup>ii</sup>



## 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
<b>Port</b>							
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
<b>Total Vancouver</b>	<b>3.92</b>	<b>4.12</b>	<b>4.34</b>	<b>5.35</b>	<b>5.35</b>	<b>5.65</b>	<b>5.85</b>
P.R. Fairview	0.50	0.90	1.35	1.60	1.80	1.80	2.00
South Kaien						2.50	3.00
<b>Total Prince Rupert</b>	<b>0.50</b>	<b>0.90</b>	<b>1.35</b>	<b>1.60</b>	<b>1.80</b>	<b>4.35</b>	<b>5.00</b>
<b>Total TEUs</b>	<b>4.42</b>	<b>5.02</b>	<b>5.69</b>	<b>6.95</b>	<b>7.15</b>	<b>10.00</b>	<b>10.85</b>

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

### 5. Only 10% of Vancouver's import laden containers are for the Lower Mainland

The RBT2 Project is planned to accommodate import containers from Asia. Only 10% of the import containers are for Vancouver and the Lower Mainland.

"About 70% of the containers that leave Deltaport do it by rail. This expansion assumes that this will continue to be the case. If that ratio increases, we can handle that. The nature of the business is that of the 30% that leave by truck, there is a value-add in the Lower Mainland. That cargo is transloaded into 53-foot rail domestic containers. You can carry about three 40-foot containers worth of cargo in two 53-foot containers. Within 72 hours the transloaded containers leave the Lower Mainland by rail.

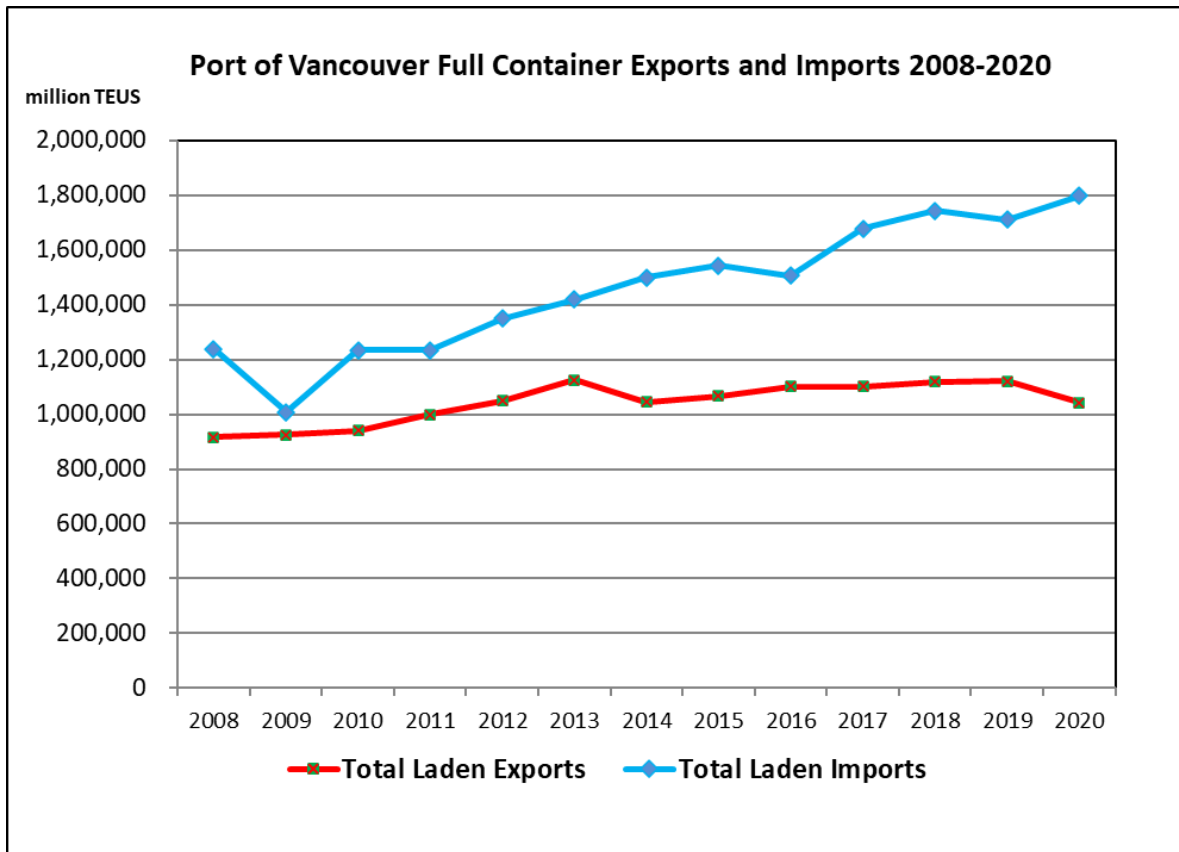
Effectively 90% of what comes in over the docks at Deltaport leaves by rail. If you drew a 40 km radius around Deltaport, 90% of the containers leave that by rail within 72 hours I don't think that you will get much more efficient than that. Certainly, if you were to take things into the interior, you would end up bringing some back.

The nature of the business is that it is about 10% stays local and 90% goes elsewhere" <sup>iii</sup>

### 6. Growth in the container business is import containers from Asia bound for the U.S.

The main growth in Vancouver's container business is to funnel import containers from Asia, through Canada, to the United States. Statistics 2015-2018 show that 23.5% of Vancouver container imports are US bound.<sup>iv</sup> Recent news claims it is as high as 35% which accounts for all business increases.<sup>v</sup>

7. RBT2 EIS fails to disclose that Vancouver container exports have been flat since 2011



**Port of Vancouver Full Container Exports and Imports 2008-2020**

	Laden Exports	Laden Imports
	TEUs	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

Source of Information; Port of Vancouver, Reports, Statistics and Resources, [Container-Statistics-Monthly-2008-2020](#)

## **8. RBT2 EIS fails to provide data or sufficient information to support a business case for RBT2**

The Environmental Impact Statement (EIS) does not provide data, tables or references on the Port of Vancouver container business. Four graphs purport to show forecasts and west coast container capacity but there are no data or tables. One graph, purporting to show that forecasts have proven accurate, uses an out-of-date report from 2001. There is reference to an Ocean Shipping Consultants Report, 2016, to support capacity numbers, but no specific page numbers or data are referenced.<sup>vi</sup>

## **9. The Port of Vancouver is sending out misinformation**

In the news and in a Newsletter, April, 2021,<sup>vii</sup> the Port of Vancouver states without RBT2, “farmers, producers and businesses will have difficulties shipping commodities.” This makes no sense as Vancouver’s container exports have been flat since 2011. The Port of Vancouver should be focusing on bulk shipping which is the real backbone of Canada’s economy. Instead, the Port is squeezing out Vancouver businesses for container space. The Port continually buys up real estate and profits by utilizing taxpayers’ assets of 1,500 hectares of land and 16,000 hectares of water lots.

47%<sup>viii</sup> of the Port’s very lucrative business income is from the container business so the Port exaggerates the need for more container capacity and bullies export tenants with higher rents and threats of not renewing leases.<sup>ix</sup>

The April Newsletter also contains misleading information with two extraordinary graphs purporting to show that the \$3.5 billion RBT2 Project is needed and that Canada’s west coast ports will run out of container capacity without RBT2. No statistics or specific references are provided.

The first graph shows that Canada’s west coast container business, without RBT2, is limited to a capacity of 6 million TEUs until 2060. (*A TEU is a twenty-foot container equivalent unit.*) The Port omits to include ongoing planned expansions in Vancouver and at Prince Rupert that will provide a capacity of 10 million TEUs by 2030, if needed, without destroying the Fraser River estuary for RBT2.

Both Port graphs show unrealistic, high forecasts which is astonishing considering that the Port of Vancouver’s lowest forecasts for the past 20 years have not been realized.

## **10. It is not true that Vancouver-bound containers will have to be re-routed through US Ports**

The Port of Vancouver repeatedly states that if RBT2 is not built, containers bound for the Port of Vancouver will have to be re-routed to the US West Coast due to shortage of capacity. This is not accurate, especially considering that the opposite is true. 23.5% of inbound containers at the Port of Vancouver are US bound. As documented above, the west coast container business will have sufficient container business capacity without RBT2.

## **11. Review Panel refused to consider container business capacity at the Port of Prince Rupert**

The Review Panel of the Roberts Bank Terminal 2 Environmental Assessment is on record as formally refusing to allow oral submissions to the Public Hearings on the Port of Prince Rupert.<sup>x</sup> The Review Panel would not consider evidence that the Roberts Bank Terminal 2 Project is not needed because the Port of Prince Rupert, combined with Port of Vancouver, has the capacity to handle significant growth in the west coast container business for decades.

From the outset of the environmental assessment of the Roberts Bank Terminal 2 Project (RBT2), it was the understanding of the public, and the Proponent, the Port of Vancouver, that the Port of Prince Rupert, as well as the Port of Vancouver, serve the purpose of meeting Canada's west coast container business demand.

The statistics provided in the RBT2 Environmental Impact Statement (EIS) address the west coast container business, not the container business of the Port of Vancouver. Furthermore, the RBT2 EIS stated 'Purpose', 'Rationale', 'Objectives' and "Alternative Means' are presented as meeting west coast container business demand, not Vancouver area demand.

Hundreds of submissions to the RBT2 proposal opined that the container business at the Port of Prince Rupert had shipping advantages over the Vancouver area; would not cause the same traffic congestion and pollution; would provide employment opportunities in an appropriate community; and would cause less environmental degradation.

## **12. Change in scope after 5 years negates public input, and censors important information**

After 5 years of environmental assessment, and 4 months prior to the Public Hearings, the Review Panel announced a convoluted interpretation of *CEAA 2012* and claimed it would not consider the option of the Port of Prince Rupert. Changing the scope after years of assessment is a wrongful act by the Impact Assessment Agency. It is illogical to assess RBT2 in terms of only the Lower Mainland when the EIS information and stated purpose of RBT2 is to meet the west coast container business demand.

## **13. Review Panel process banned consideration of Report by transportation experts**

By refusing to appropriately consider RBT2 in terms of container business capacity on Canada's west coast, the Review Panel assessment failed to consider a government-commissioned report from three independent transportation experts who advised that:

"...policy makers develop container capacity in Prince Rupert before making investments in Vancouver" ...and further that: "...a systematic approach be taken to achieve an understanding of port capacity before a conclusion is reached that a particular port must necessarily be larger."<sup>xi</sup>

## **14. There is no oversight on Port's claims**

The Port of Vancouver presents port operations as being limited to 85% of maximum capacity. This raises questions because engineering requires incorporation of limiting factors in the initial assessment of capacity, not after the port capacity has been calculated. If the Port of Vancouver cannot operate to capacity, then it is another reason to question the efficiency of Vancouver area ports. In 2015, the Fairview Container Terminal at the Port of Prince Rupert operated over capacity.

"Fairview's original capacity was 500,000 TEUs annually, although effective management and an efficient workforce enabled it to reach 776,412 TEUs in 2015"<sup>xii</sup>

There has not been an independent review of the Port of Vancouver's statistics on the viability of RBT2. In January, 2019, the Port made a presentation to the Review Panel claiming an independent review but it turned out the reviewing company and the company that authored the Port reports had the same owner.

As mentioned above, the Port of Vancouver has not submitted specific data, tables, and statistics. Furthermore, the RBT2 Environmental Impact Statement (EIS) did not provide a feasibility study or a cost/benefit analysis, a standard requirement of credible business proposals.

As the Port of Vancouver is a government agency, the Government of Canada should be demanding a higher level of assessment than it would for a private company. Unfortunately, this is not the case as expressed in numerous submissions from the public. In fact, submitted concerns about government agencies in Ottawa withholding information and reports are being ignored.<sup>xiii</sup>

### **15. Insufficient information on economic impacts & concerns of significant job losses with RBT2**

The International Longshore & Warehouse Union – Local 502 submitted concerns of job losses resulting in unemployment in the transport sector and revenue losses in local communities:

“...it is our submission that this will result in very significant job losses for longshore workers and hundreds of millions of dollars of lost wages and lost inputs for the community of Delta, in particular. This will be coupled with tens of millions of dollars of lost Federal, Provincial and municipal tax revenues.”

“We take this position RBT2 or any similar project that has the potential to cause serious economic harm to our workforce and to our community.”

The Union further stated insufficient information on the social and economic impacts and a lack of real data:

“We ask the panel to extend deliberations if you are unable to fully understand and quantify the economic and social impact of RBT2 until such time as you have sufficient and reliable data to fully determine whether or not RBT2 will have serious economic and social impacts on longshore workers and the community of Delta.

Simply put, RBT2 make no sense if on the one hand the construction of the project is found to be environmentally sound while the actual operation of the terminal causes significant job loss and harm to the community and the larger economy”<sup>xiv</sup>

### **16. Port of Vancouver wants taxpayers to fund RBT2 and squeeze out the Port’s own tenants**

Originally proposed in the early 2000s, to date there is no private sector company willing to bid on the \$3.5 billion RBT2 Project. RBT2 will be the costliest port expansion in Canadian history.<sup>xv</sup>

Instead of considering the best options for Canada’s west coast container business, the Port of Vancouver continues to promote RBT2, inferring this government agency will build RBT2 itself. As a result, the tenants of the Port of Vancouver will become the Port’s competitors disrupting Vancouver’s transportation operations and existing employment.

### **17. Cost to Taxpayers is \$3.5 billion and counting**

Taxpayers will be expected to pay the \$3.5 billion cost and let the Port of Vancouver utilize public assets. Even if foreign investment is secured, taxpayer dollars will be required to fund millions in related infrastructure and mitigation measures. Tax dollars will be required to fund road and rail upgrades which will cause further congestion and pollution in the lower mainland.

Taxpayers have been funding the Asia-Pacific Gateway and Corridor Initiative for decades. In 2015, the federal government announced \$16.5 million for transportation infrastructure projects in B.C:

“To date, the Government of Canada has invested close to \$1.4 billion in APGCI infrastructure projects.”<sup>xvi</sup>

The recent Deltaport Terminal Road and Rail Improvement Project and Truck Staging Project cost taxpayers \$18.3 million. Now the Port of Vancouver wants taxpayers to pay \$3.5 billion to destroy Fraser River estuary globally-significant habitat to funnel import containers from Asia, through Canada, to the U.S.

## References

<sup>i</sup> Actual TEUs for the Port of Vancouver: Port of Vancouver, Reports, Statistics and Resources, [Container-Statistics-Monthly-2008-2020](#)

Actual TEUs for the Port of Prince Rupert: reports and news items: Fairview Terminal Reaches [1 million TEU Milestone](#), Dec. 18, 2018. Port of Prince Rupert Delivers [Another Record Year](#); [Cargo Volumes](#).

<sup>ii</sup> Capacity According to the Port of Vancouver: [Ocean Shipping Consultants Report, 2016](#). Page 113. Increases for the Deltaport Terminal Road and Rail Improvement Project (DTRRIP) are shown a little later than forecasted as the Projects have taken longer than predicted. Capacity after 2020 is taken from the RBT2 EIS Statement, Figure 2.4. which references OSC 2016 but the graph is not in the report and is presumably calibrated from some information there. Tables and specific references were not provided.

Capacity According to the Documented Information: References are at the end of this document.

Actual TEUs for the Port of Vancouver: Port of Vancouver, Reports, Statistics and Resources, [Container-Statistics-Monthly-2008-2020](#)

Actual TEUs for the Port of Prince Rupert: reports and news items: Fairview Terminal Reaches [1 million TEU Milestone](#), Dec. 18, 2018. Port of Prince Rupert Delivers [Another Record Year](#); [Cargo Volumes](#).

References for statistics on west coast container business capacity

The Boundary Bay Conservation Committee submitted statistics and references to the Roberts Bank Terminal 2 Environmental Assessment, Document # 1421, February 3, 2019.

<https://www.ceaa-acee.gc.ca/050/documents/p80054/126685E.pdf>

Deltaport - While there has been conflicting statistics on Deltaport container capacity for decades, the bottom line for announced capacity is 3 million TEUs once the current upgrades of the *Deltaport Terminal Road and Rail Improvement Program (DTRRIP)*, 2012, are completed. The upgrades have occurred at a slower rate than planned.

The study for the Deltaport Road and Rail Improvement Project (DRRIP) confirms that Deltaport, without RBT2, can handle 3 million TEUs by 2020. The road and rail upgrades have added capacity of 600,000 TEUs and the associated upgrades will further increase capacity.

Projections of Vessel Calls and Movements at Deltaport and Westshore Terminals, Deltaport Terminal Road and Rail Improvement Project (DTRRIP), November 28, 2011, pages 21&22

<http://www.robertsbankterminal2.com/wp-content/uploads/Projections-of-Vessel-Calls-and-Movements-at-Deltaport-andWestshore-Terminals.pdf>

It appears further efficiencies could raise the capacity to 3.2 million TEUs.

Vanterm - New cranes arrive in Vancouver harbour for container terminal expansion, K. Chan, 11/26/2020

“GCT is spending \$160 million to densify and modernize GCT Vanterm, which will increase the terminal’s capacity by about 25% — from 835,000 TEUs to over one million TEUs annually.”

<https://dailyhive.com/vancouver/vanterm-terminal-container-expansion-new-cranes>

Centerm - **“The Vancouver Fraser Port Authority is pushing ahead with the construction of the Centerm Expansion Project, which will increase the port’s capacity from 900,000 TEUs to 1.5 million.”**

Centerm expansion project full steam ahead, Zlatan Hrvacevic, April 2, 2021,

<https://www.dredgingtoday.com/2021/04/02/centerm-expansion-project-full-steam-ahead/>

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## Fraser Surrey Docks, FSD

FSD has capacity for 600,000 TEUs but is handling about 100,000 TEUs per year.

In 2005, Fraser Surrey Docks spent \$190 million on expanding container capacity to 600,000 TEUS. Then its main customer transferred to another Vancouver Terminal.

Container docks in Surrey idle after \$190m expansion, Vancouver Sun, June 21, 2006

<http://www.canada.com/vancouversun/news/story.html?id=243c5a27-053e-49c4-8bde-f94f9ffef45d>

## Port of Prince Rupert, Fairview

“An anticipated \$2 billion in capital expansion projects starting in 2020 was expected to support further cargo growth, including DP World’s Fairview Terminal expansion project that will bring the terminal’s capacity up to 1.8 million TEUs by 2022.”, Business in Vancouver, Prince Rupert port plans cargo volume doubling by 2040, Jeremy Hainsworth, Oct. 27, 2020. <https://biv.com/article/2020/10/prince-rupert-port-plans-cargo-volume-doubling-2040>

## Port of Prince Rupert, South Kaien

“The Prince Rupert container terminal master plan released this week outlines projects that will potentially add 6-7 million TEU of capacity...A long-term project to build a second container terminal at South Kaien Island will add 2.5 million TEU of capacity, around the mid-2020s.”

Prince Rupert port plans to quadruple capacity, JOC.com, Bill Mongelluzzo, May 15, 2019

[https://www.joc.com/port-news/international-ports/port-prince-rupert/prince-rupert-port-quadruple-capacity\\_20190515.html](https://www.joc.com/port-news/international-ports/port-prince-rupert/prince-rupert-port-quadruple-capacity_20190515.html)

<sup>iii</sup> Port of Vancouver Public Consultation, Deltaport Terminal Road and Rail Project, (DTRRIP), Dec.10, 2011, Page 6

[https://www.portvancouver.com/wp-content/uploads/2015/03/9\\_-\\_Open\\_House\\_-\\_Delta\\_-\\_DTRRIP\\_Consultation\\_December\\_10\\_2011.pdf](https://www.portvancouver.com/wp-content/uploads/2015/03/9_-_Open_House_-_Delta_-_DTRRIP_Consultation_December_10_2011.pdf)

<sup>iv</sup> RBT2, EIS, Analysis of BC Ports Container Volume by Origin/Destination Mercator Report, March, 2019, Page 6,

[Mercator Report onf BC Ports March 2019.pdf](#)

<sup>v</sup> 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>

<sup>vi</sup> RBT2, EIS, CEAA 80054, [Container shipping and the Port of Vancouver](#), January 30, 2019, Document #1405, Slides 32,33,34 & 37/66.

<sup>vii</sup> Newsletter, April, 2021, Container traffic forecast. <https://www.robertsbankterminal2.com/news-updates/container-traffic-forecasts/container-traffic-forecast-2020/>

<sup>viii</sup> 47% of Port’s business income is from the container business

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

[https://www.portvancouver.com/wp-content/uploads/2019/05/2018\\_FinancialReport.pdf](https://www.portvancouver.com/wp-content/uploads/2019/05/2018_FinancialReport.pdf)

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- <sup>ix</sup> Bullying tenants: Container Plans put [pressure on Port of Vancouver tenants](#), neighbours, Vancouver Sun, Derrick Penner, February 19, 2021.
- <sup>x</sup> RBT2, EIS, *CEAA* 80054, May 30, 2019, Documents [#1843](#) and [#1849](#), From Review Panel Secretariat, re: Participation in the Alternative Means topic specific session on May 31, 2019
- <sup>xi</sup> Asia Pacific Gateway and Corridor Initiative Report, Advisors Report, 2008, Burghadt, De Fehr & Turner
- <sup>xii</sup> One million TEUs marks Prince Rupert container terminal milestone, November 18, 2019  
<https://canadiansailings.ca/one-million-teus-marks-prince-rupert-container-terminal-milestone/>
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<https://commonground.ca/government-interference-in-proposed-roberts-bank-container-terminal-2/>
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- <sup>xvi</sup> Feds invest in Asia-Pacific Gateway infrastructure, July 29, 2015  
<https://www.insidelogistics.ca/infrastructure/feds-invest-in-asia-pacific-gateway-infrastructure-141294/>