



Image Courtesy Terry Carr

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Prime Minister Justin Trudeau
Hon. Jonathan Wilkinson, Minister of Environment and Climate Change
Hon. Bernadette Jordan, Minister of Fisheries, Oceans and the Canadian Coast Guard
Hon. Marc Garneau, Minister of Transport
Hon. Catherine McKenna, Minister of Infrastructure
Hon. Carla Qualtrough, Minister of Employment, Workforce Development and Disability Inclusion
Premier John Horgan
Hon. Rob Fleming, Minister of Transportation and Infrastructure
Hon. George Heyman, B.C. Minister of Environment and Climate Change

Ladies and Gentlemen:

Re: Global Container Terminals Inc. Application: Deltaport Expansion – Berth Four Project (DP4) - 81010

The Fraser estuary is the only major feeding area on the Canadian west coast for up to 5 million birds from at least 20 countries migrating on the Pacific Flyway which extends from South America to Alaska. It is also the most important wintering area in Canada for waterfowl, shorebirds and birds of prey, and is home to at least 102 species at risk. Over 80% of these globally significant wetlands have already been destroyed, and the destruction continues. Birdlife International, the world's leading bird conservation authority, has listed the Fraser Estuary as an Important Bird Area (IBA) in danger, writing in July 2019:

“The importance of the Fraser estuary is well known amongst the scientific community. It has been designated an [Important Bird and Biodiversity Area](#), a [Ramsar](#) Wetland of International Significance, and a [Western Hemisphere Shorebird Reserve](#) Site of Hemispheric Importance in an effort to ensure Canada provides the level of protection this site deserves. And in any other part of Canada, this would be enough to secure its position as a National Park. However, the delta mouth's strategic location - opening into the Pacific Ocean – has instead seen the estuary grow into a major transport and trading hub, and it is now known as Canada's 'Gateway to Asia'. 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](#)...The Roberts Bank Terminal 2 project is just one example of how Canada is putting the Fraser estuary at risk...”(birdlife.org/worldwide/news/canada-delta-danger-trading-port-expansion).

Yet despite its global significance that should require the creation of a National Wildlife Area and the attempted remediation of some of the lost habitat, in the last half century the governments of British Columbia and Canada have actively pursued the industrialization of this most important estuary, particularly port expansion with its accompanying widespread infrastructure and the resultant massive destruction of habitat. Even now in the face of global protests at this destruction of habitat in one of the richest nations in the world, Canada and B.C. continue to actively consider and promote three major projects that risk the final collapse of this globally significant ecosystem. The proposed Terminal 2 proposal at Roberts Bank, expansion of the Tilbury cement plant and the Fortis LNG terminal, and the completion of the Trans Mountain pipeline project are all under active consideration, threatening further destruction of the little remaining habitat and increasing the risk of spills that would have lethal effects on the Fraser River.

And now we have another industrial expansion proposal, Deltaport 4th Berth, encapsulating further habitat loss. Clearly we have a fundamental conflict between the frenzied approach to development that has been the mindset of the last few decades and our national commitment to many international conservation agreements: but if we enjoy the prestige of being a signatory to global conservation initiatives, we must honour the commitments. How can we consider four major industrial expansions concurrently in the most important – and completely unprotected - migratory bird habitat in Canada?

Canadian Wildlife Service wrote in 2006 regarding earlier Deltaport expansion,

“We are concerned that the "chain" of the Pacific Flyway could be broken for shorebirds at some point given the ongoing economic development in the Delta. This constitutes a major risk for Canada's environmental reputation and the economic and social benefits derived from wildlife”.

Since then major Port infrastructure (South Fraser Perimeter Road) and further Port expansion have been permitted, and now we have the four projects currently in purview. This ‘next incremental expansion’ as the Better Deltaport website puts it – which signifies long range plans for further expansion in the future - will continue the cumulative destruction of critical habitat for migratory birds, endangered or threatened fish and the highly endangered southern resident killer whales, as well as a myriad of other wildlife species already stressed and at risk.

Safeguarding critically important habitat must be the priority of a nation: the location of the Port facilities at Roberts Bank was a catastrophic error in judgment made almost 70 years ago. In 2008 the federal government report on the Asia Pacific Gateway and Corridor Initiative recommended increases in Prince Rupert capacity as a priority (Roger Emsley): and *independent* reports confirm there is already plenty of west coast capacity – without any further expansion of Roberts Bank Terminal 2 (RBT2) and Deltaport 4th Berth - to satisfy Canada’s trading needs beyond 2050, with Prince Rupert’s substantial expansions of almost 3 million TEUs by 2028 and efficiency improvements at Vancouver area terminals. Unlike expansion at Roberts Bank, Prince Rupert boasts a minimum of environmental damage and local disruption, thus enjoying widespread public support while it strengthens the northern B.C. economy. Prince Rupert is generally a cheaper option for shippers as it is two sailing days closer to Asia than Vancouver with uncongested access to a continental rail service, unlike the congested Lower Mainland route that makes it way up the Fraser Canyon.

The time is long overdue when we must as a nation abandon any further development proposals for the Fraser estuary and create a national Wildlife Area to protect what remains. If the governments of BC and Canada do not act now, we face the certainty of the collapse of our Fraser River ecosystem, causing the collapse of the Pacific Flyway and revealing our nation as an international hypocrite.

Shorebirds:

As well as producing additional and cumulative noise and light pollution (which has deleterious effects on birds, particularly during migration), Deltaport’s proposed 4th Berth, like RBT2, will require widening the causeway through the mudflats, destroying more critical habitat for birds who depend on feeding at Roberts Bank. The government is actively contemplating RBT2 with its resultant changes in currents, temperature and salinity that would destroy the crucial mudflats biofilm. Environment Canada scientists have warned that the impacts of RBT2 to Western Sandpipers would be “potentially high in magnitude, permanent, irreversible, and continuous.”¹, and that

“... predicted Project-induced changes to Roberts Bank constitute an unmitigable species-level risk to Western Sandpipers, and shorebirds more generally.”².

¹ <https://iaac-aeic.gc.ca/050/documents/p80054/121632E.pdf>, page 14/16.

² (<https://iaac-aeic.gc.ca/050/documents/p80054/129348E.pdf>) page 58/115.

The RBT2 Federal Review Panel (hereafter referred to as the Panel) noted “...it is evident that the marine ecosystem of the Fraser River estuary is increasingly being threatened by the cumulative effects of development and human activities”, and noted that “ECCC advised that the loss of wetlands in the Fraser River estuary had reached critical levels.” (Report, p.157). Yet the Panel then goes on to make 71 suggestions for unworkable mitigation measures for RBT2 instead of dealing with the fundamental issue: we must have no more development in the most important migratory bird habitat in Canada.

Southern Resident Killer Whales (SRKW):

The Trans Mountain pipeline is still being constructed, despite an acknowledgement from the National Energy Board that its 700% increase in vessels³ will increase ship strike risk and devastating underwater noise levels, as well as the profound risk of an oil spill that would inevitably spell the extinction of the southern resident killer whales. The Tilbury LNG plant poses a dire risk of spill in the Fraser River as LNG tankers and pipelines transect critical salmon habitat, risking spills in the River or its tributaries and wetlands, the estuary or the Strait of Georgia. There is no safe time of the year for spills as salmon and other fish are always in the area incubating eggs and embryos, overwintering as juveniles and then appearing as migratory adults, all eventually squeezing through the lower Fraser River; a fuel or toxic substance spill during the migration of an endangered species could spell its extinction (Save the Fraser River Delta Ecosystem from Mega Projects, April 2016, page 28, 36-45).

RBT2 and this proposed Deltaport expansion would continue to heighten the risk of **extinction of the** endangered Southern Resident Killer Whale (SRKW) population by violating their designated (under Species at Risk Act) Critical Habitat through:

- prey decline (chinook salmon)
- increasing levels of underwater noise
- risk of ship strikes and physical disruption
- major effects of anchorages
- toxic fuel spills

Prey decline (Chinook salmon): Deltaport 4th Berth expansion would be built in the heart of supposedly protected critical habitat for the world’s entire population of 74 remaining Southern Resident Killer Whales. The entire population of SRKW feed off Roberts Bank, and spend much of the year in ‘Orca Pass’ the channel between Washington’s San Juan Islands and the Canadian Gulf Islands, which is the entrance and exit route to Deltaport. Five SRKW have died since 2016, mostly from starvation due to huge declines in Chinook salmon, exacerbated by increases in marine toxins, ship traffic and underwater noise.

DFO has indicated that VFPA “may have underestimated the significance of effects [of RBT2] on fish and fish habitat, specifically effects on Chinook salmon.... construction of the Project would impact Chinook salmon habitat ... this would constitute destruction of critical habitat for SRKW.” (Report p. 209-10). The Committee on the Status of Endangered Wildlife in Canada (COSEWIC) warned that 12 of the 13 chinook runs in the Fraser River are at risk (with 7 endangered). Greater disturbance caused by new construction and marine traffic from RBT2 and Deltaport 4th Berth will reduce the ability of SRKW

³ Stand.earth.org

to forage, particularly in years with low prey availability, causing the whales to abandon critical habitat and suffer reduced survival and recovery rates.

DFO stated that the SRKW are “facing an imminent threat to their survival and recovery.” DFO stated the Project would require issuance of a SARA (Species at Risk Act) permit for the “authorization for the destruction of SRKW critical habitat. Prior to issuing a permit, SARA requires that the Minister be of the opinion that section 73(3) preconditions could be met, including that the activity would not jeopardize the survival or recovery of SRKW.” However, the DFO noted that “they were uncertain that the section 73(3) preconditions could be met.” This concern would almost certainly apply as well to Deltaport Berth 4.

Increasing Levels of Underwater Noise - Anthropogenic underwater noise also has a deleterious effect on SRKW, hindering acoustic communication and potentially causing avoidance behaviour which can include displacement from habitat. The Panel agreed with public concerns that there is an already unacceptably high noise level in the Salish Sea and any more noise is unsustainable, and agreed with DFO that vessel noise “in and of itself” constitutes “destruction of critical habitat”. These concerns would also apply to the 4th Berth project, as more vessels would create more noise and physical risk and disturbance.

Shipping noise has been identified in the Recovery Strategies for both the Northern and SRKW as likely to cause critical habitat destruction, and given the malnutrition of the remaining SRKW, an increase in noise that will further hamper hunting abilities increases the risk of starvation. The DFO noted that the lost foraging opportunities that have already occurred due to existing noise in the Salish Sea constitute ongoing destruction of Critical Habitat.

Vancouver Fraser Port Authority (VFPA) has couched the impact of RBT2 on SRKW as negligible, suggesting that RBT2’s additional noise will be a “relatively small incremental contribution” to the existing high levels of vessel traffic and underwater noise levels. However, any suggestion that mitigation programs to reduce noise would be sufficient to allow the introduction of RBT2’s and Deltaport 4th Berth’s new noise fails to acknowledge that the existing levels are so high that SRKW are dying. Clearly, there needs to be a significant drop in noise from existing conditions, which will be difficult enough given the current level and vessel traffic increases projected for the Salish Sea, even without RBT2 or Deltaport 4th Berth.

Dr. Mary Taitt of the Boundary Bay Conservation Committee noted:

“All the commercial shipping vessels coming to and from Roberts Bank and all other PMV’s ports come through “Orca Pass” emitting sounds in the range of 160 to 210 dbs. ...The Orcas spend much time traveling, feeding and resting along the western shore of San Juan Island. The USA has a sanctuary area here for the Orcas that exclude powered whale-watching vessels from this important area. But I have seen sound pressure waves mapped for a large commercial ship in Haro Strait. Such a vessel sends continuous, loud sounds to the east through the sanctuary to the shoreline of San Juan Island and various other San Juan Islands and west to the shores of Vancouver Island and the Gulf Islands of the Canadian National Park. Further, when more than one vessel is in the area, we understand that the sound can be additive.”⁴

⁴ Boundary Bay Conservation Committee letter to Panel February 15, 2015, Dr. Mary Taitt).

DFO scientists caution that there is a high uncertainty about the health consequences of noise that may have long-term consequences for individual SRKW and their remaining pod members. Given the critical levels of prey scarcity, we can only imagine the devastating effects of noise on the sensitive, malnourished, toxin-laden bodies of the remaining SRKW families, when every 21 minutes, on average, a vessel moves through their Critical Habitat or the waters adjoining their Critical Habitat.

“DFO stated that with respect to synergistic effects on SRKW, responses to different threats, such as reduced prey availability, noise and physical disturbance and contaminants could lead the animal to a more rapid decline than would occur if each threat was taken as an individual impact. Ecojustice stated that each of these combined threats act synergistically to produce an even greater negative impact...DFO further noted that in the projected state of continued salmon declines, noise would become more of an issue and could lead to greater effects on the catch per unit effort of the population. Ecojustice stated that the Proponent erred by looking at effects in isolation and as a result had underrepresented the Project’s effects on SRKW. Ecojustice stated that the combined effect of the masking calls, acoustic interference, and the physical disturbance of displacing SRKW from their foraging activities, all interact synergistically and exacerbate the problem of reduced prey availability because they both reduce foraging time for a population that is already nutritionally stressed.... [the Panel agreed] the Proponent did not consider the synergistic effects of the Project.” (Report p. 213 -216)

Any noise reduction or pollution abatement programs should be pursued, but will never be a valid pre-condition to allowing more noise or pollution. The suggestion that monitoring noise, compliance and non-compliant public reports on voluntary measures, partnerships with stakeholders, pamphlets, data analysis, etc., could allow more noise to be introduced is untenable. If we cleaned up a toxic waste site, we wouldn’t then suggest there was now room for more toxic waste!

Risk of Ship strikes and physical disruption - VFPA reports that at least six known or suspected vessel strikes to west coast killer whales have occurred since 2002, and the World Wildlife Fund warns that ship strikes are a major cause of death in vulnerable or endangered whale populations.

Deltaport’ proposed expansion will increase traffic through the Salish Sea, where ship transits numbers have been steadily increasing for decades, including increased numbers of container ships, bulk carriers, oil tankers, ferries, pleasure craft, cruise ships, etc.

The Panel wrote, “DFO stated that vessel strikes on SRKW could be lethal and affect population viability or recovery, and loss of a single individual could result in population level consequences. DFO advised that the likelihood of collisions between project-related vessels and SRKW ranged from low near the proposed terminal to medium and high in areas such as Boundary Pass or on Swiftsure Bank. DFO noted that the Proponent’s conclusion that the high agility of SRKW would result in a low risk of ship collisions was not supported, since pathology reports mentioned blunt force trauma as the most probable cause of death of two individual SRKW in 2014 and 2016.[Report p.211]... The Panel notes that vessel strikes are considered to be an emerging threat as outlined in the Recovery Strategy for SRKW.” (Report p. 215)

But even the mere presence of marine traffic – whether small or large vessels - is disruptive to these vulnerable killer whales, affecting surfacing, resting, feeding, nurturing calves, etc. The Panel noted,

“... SRKW could exhibit low-severity behavioral responses up to 20.29 km away from an approaching container ship and up to 29.20 km away from a container ship while berthing. Moderate-severity responses could occur up 6.37 km away during approach and 8.43 km away during berthing (Report p. 203).

We must consider these distances in the context of the relatively narrow confines of the Salish Sea. The stress of RBT2’s additional 260 gigantic container ships – 1.5 more vessel movements per day through the marine shipping area – will be a further violation of Critical Habitat and a further assault on a malnourished and declining population. Deltaport’s 4th Berth will also introduce more vessels into the SRKW Critical Habitat, similarly posing a violation.

Major deleterious effects of Anchorages - There are 33 or 34 anchorages in the South Coast area, either within SRKW Critical Habitat or generally reached by traversing waters in proximity to this Critical Habitat. The average wait in the Gulf Islands anchorages is 8.6 days, and there are well over a thousand days of anchorage every year for the Gulf Islands anchorages alone, and tens of thousands of days for the South Coast overall (this does not include the 28 anchorages in English Bay, Inner Harbour and Indian Arm). but if 25 anchorages are used more or less continuously all year round by one ship per anchorage, that is an additional 9,125 vessels (25 per day x 365 days) annually producing emissions, light and noise around the clock; in what was a few years ago a much darker, quieter, less polluted environment for wildlife and people.

Consequently many large vessels travel back and forth from anchorages to various terminals in the south coastal waters of B.C. including Deltaport, some through narrow passages between Gulf Islands, as they load over a number of days. As well as causing noise and physical disturbance and pollution from continuously running engines, anchors used in shallow waters may be increasing the risk of re-suspension of seabed PCBS into the Salish Sea waters, increasing the absorption of this toxic chemical by SRKW either directly, or indirectly through consumption of chinook salmon which are likely to be also taking up PCBs. Tidal actions redistribute toxic chemicals from DeltaPort and other Fraser River industrial sites out into the Strait of Georgia, where DFO is recording many extremely high levels of PCBs well above safe levels for SRKW. Thus anchorages, completely omitted from past Deltaport expansion reviews may be causing a significantly dangerous cumulative effect to an already vulnerable and sick population of SRKW.

The SRKW are already the most polluted mammals in the world as a result of ingesting and accumulating persistent industrial chemicals. Federal marine waste sites off Point Grey continue to leach toxic chemicals: 10 million cubic metres of Cambie Street soils paved with asphalt containing PCBs were dumped into Georgia Strait without government oversight, relying on contractor compliance. Lethal chemicals continue to pour into the critical habitat from the Fraser River and its adjoining areas, including household contaminants from sewage and wastewater.⁵ SRKW must also endure airborne industrial pollution settling on the water.

1. ⁵ <http://www.focusonvictoria.ca/july-august-2018/vancouver-role-in-the-chinook-sewage-orca-death-spiral-r10/>

The Panel confirms “The Panel acknowledges that existing levels of PCB concentrations in SRKW already exceed thresholds for the onset of adverse health effects determined for other marine mammals, and that environmental contaminants pose a serious threat to killer whales, as highlighted in the Recovery Strategy” (Report p. 213).

Toxic Fuel Spills - In the Globe & Mail feature essay, Justine Hunter, September 14 2018, ‘We Have to Do Better: With or without Trans Mountain, an iconic West Coast species faces numerous Perils’ notes, “... [SRKW] are already in jeopardy: The Trans Mountain expansion project is regarded by whale researchers as a potential tipping point, an added pressure that the whales could not survive. ... Every year, an estimated 1,300 oil tankers, chemical carriers, articulated tug barges and oil barges travel east and west through the Strait of Juan de Fuca ... roughly seven billion litres of oil unloaded or loaded at Canadian ports on the West Coast in 2017. .. tens of thousands of large commercial ships travel every year to and from Canadian and U.S. ports through the Salish Sea ...that’s in addition to all the fishing and recreational vessels, tugs and barges, and passenger ferries.... the presence of tankers in an ever-changing vessel traffic mix places the area at risk for large oil spills.”

Vessel traffic through SRKW Critical Habitat is virtually unregulated, despite the congested confines of the Fraser River, Gulf Islands, Strait of Georgia and Salish Sea: and now we have the added prospect of the transport of jet fuel and huge increases in crude oil from the TMX Expansion, as well as Tilbury LNG moving through the narrow lower Fraser River and out the shipping routes to the Pacific Ocean, risking catastrophic spills as they traverse some of the most dangerous waters in the world, with powerful currents, strong winds and rocky shores. Risk analysis for disaster from tanker shipwrecks and spills and the cumulative effect and heightened risk to SRKW has not been done properly (Save the Fraser River Delta Ecosystem from Mega Projects, April 2016, page 28, 36-45).

Transport Canada’s commissioned risk assessment report found that an oil spill in B.C. waters was a certainty, with the southern tip of Vancouver Island as the area in Canada with the highest probability for an oil spill, and the southern coast of B.C. as the area in Canada with the potential for highest impact from a spill (Georgia Strait Alliance May 2018).

Consider the spread of an oil spill moving into the Fraser estuary –www.salishseaspillmap.org. As much as 80% of SRKW critical habitat could be impacted (Suzuki). Even a relatively small oil spill in the Salish Sea could extinguish the endangered SRKW and the transient orca populations as well as critical salmon runs. Twenty-six years after the Exxon Valdez spill, the 2 pods of Orca who surfaced in the spill have been essentially extinguished. The transient pod of 22 is down to 7, likely from oil ingestion or the loss of seal prey, and with no fertile females left, the pod will soon cease to exist. The resident orcas have not recovered from losing almost half their members to the spill, down to 22 from 36. Even indirect exposure to oil chemicals adversely affects fish and animals for long periods of time: only 10% of the spilled oil was ever recovered and oil remains in the beach sand. ⁶

The Globe and Mail reported that Det Norske Veritas, who did the technical assessment for Kinder Morgan, determined the high numbers of vessels and ferry traffic off Roberts Bank, including the procession of Trans Mountain Pipeline tankers that traverse directly through Critical Habitat, made this

⁶ <https://www.nationalgeographic.com/news/2016/01/160126-Exxon-Valdez-oil-spill-killer-whales-Chugach-transients/>
<https://davidsuzuki.org/story/oil-spills-pose-unacceptable-threats-marine-life/>

the area where a collision was most likely to occur, precisely where the Port's safety restrictions are reduced.⁷

The RBT2 review was also flawed as a result of the insufficient and last minute (March 8 2019) inclusion of waters within the 12 mile limit to the Terms of Reference. The Friends of Ecological Reserves noted, "Critical Habitat of SRKW whales extends beyond the 12 nautical miles imposed as the limits of these hearings.... well out to the 200 nautical mile area off southwestern Vancouver Island and dilbit tankers traverse waters listed as critical habitat. We supported the motion to expand the area covered by these hearing to include the EEZ [Economic Exclusion Zone]." (Friends of Ecological Reserves Direct Evidence Report, TMX hearings, December 5 2018)

Increasing the traffic through this perilous stretch of congested water is not only a violation of SRKW Critical Habitat; it is a risk to the entire Fraser River ecosystem. Deltaport 4th Berth will increase vessel traffic, heightening risks to SRKW.

Cumulative Effects

There has never been a credible cumulative effects assessment for the Salish Sea and Fraser River ecosystem, The Panel noted, "Comox Valley Nature stated that the degraded existing conditions of the Salish Sea at Roberts Bank should not constitute the baseline to assess cumulative effects. The question should not be what impact the Project would have on the current state of the ecological environment, but what the Project impact represents within a trajectory of progressive degradation over the past two centuries. Bird Studies Canada recommended that any cumulative effects assessment in the Fraser River estuary must establish a historical baseline that predates recent industrial expansion across the estuary." (Report p. 463)

Moreover, the Panel who oversaw the T2 review did not adequately fulfil the requirements of the Canadian Environmental Assessment Act (CEAA) to require the Proponent to undertake a comprehensive cumulative effects (combined effects of all past, present and potential future activities in the same area) assessment for the project within the context of the Salish Sea and Fraser River. As the Boundary Bay Conservation Committee noted, this RBT2 Review didn't consider the previous actions of the VFPA, when, in defiance of a 1979 Federal Environment Assessment Panel Review that warned "full expansion of the port would present an unacceptable threat to the Roberts Bank ecosystem", it widened the causeway, dredged a ship-turning basin and built two container terminals. The VFPA destroyed the habitat specifically earmarked as out of bounds by that previous Review Panel, destroying vital inter-causeway habitats.

There has never been a serious study of both the greenhouse gases generated by all this habitat destruction (mindful of Canada's and B.C.'s commitment to lower greenhouse gases) and the proposed continuation of industrial projects; nor a comprehensive assessment of the effects of climate change - with warming oceans and rivers, increasing ocean acidity and the appearance of alien salmon predators - on the Salish Sea ecosystem. Neither has there been sufficient review of the Port's

⁷ <https://www.theglobeandmail.com/news/british-columbia/kinder-morgan-trans-mountain-pipeline-bc-coast/article35043172/is>

disingenuous claim of successful habitat restoration and compensation, which have in reality suffered a very high failure rate.

In the RBT2 public review, B.C. Ministry of Forests, Lands, Natural Resource Operations and Rural Development wrote,

“FLNRORD has concerns that the EIS is insufficient in i) its assessment of the indirect effects of the project on Roberts Bank WMA, which largely overlaps with the LAA, and ii) its consideration of cumulative effects of this project in concert with those of other projects that have been constructed, are proposed or are part of ongoing management activities (detailed comments are provided as Attachment 2)... Additionally, the EIS is insufficient in its consideration of cumulative effects of the Project in concert with other projects and activities that have been carried out in the vicinity. The ecology of Roberts Bank, Sturgeon Bank and South Arm Marshes WMAs have been impacted by a number of past projects (e.g. BC Ferries Terminal, Roberts Bank Terminal, Fraser River training jetties, river diversion projects, dikes, draining of wetlands, agricultural development, urban development, YVR development, water treatment plants, etc.) and on-going management (e.g. extensive dredging of the Fraser River)... Significant loss of marsh habitat due to cumulative effects of projects within the Regional Assessment Area may already be occurring. Approximately 2.5 km² of brackish marshes within the Sturgeon Banks WMA and 0.4 km² of brackish marsh on Westham Island in Roberts Bank WMA converted to mudflat between 1989 and 2011 (S. Boyd unpubl. data). The cause of this loss of marsh habitat is unknown, but is under investigation. Reduced sediment delivery has been implicated in the marsh recession on Sturgeon Banks (Atkins et al. 2016. Sturgeon Bank, Fraser River Delta, BC, Canada: 150 Years of Human Influences on Salt Marsh Sedimentation. J. Coastal Research. Special Issue 75: 790-794). **The absence of accounting for these previous impacts means that the baseline against which the impacts of future projects, such as Roberts Bank T2, are judged is inaccurate and fails to consider possible, long-term effects.**” (Letter to Panel, FLNRORD, November 14, 2017)

The addition of a Deltaport 4th Berth into the queue of projects to be inflicted on an ecosystem already teetering on the precipice of collapse is completely unacceptable. The Canadian and British Columbian governments need to co-operate on the creation of a Fraser River Delta National Wildlife Area, and the restoration of as much of the ecosystem as is possible. Such designation will help restore the sustainable and lucrative salmon fishing industry. It will also secure the sustainable tourism industry. Destination BC statistics record that B.C. tourism paid over twice as much tax revenue in 2017 alone (\$1.1 billion) as RBT2 would do in its years of construction and its first four years of operation combined. In 2017 BC tourism contributed \$9 billion to BC’s GDP, more than RBT2’s years of construction and its first six operating years combined would generate.

Even as far back as 2004, ecotourism in the Salish Sea was a potent economic force. Raincoast.org notes, “In 2004, nearly one million tourists were already spending more than \$900 million through roughly 2,200 businesses that offered nature-based activities in British Columbia ... In the Salish Sea region, 27% of these businesses ... generate more than 20,000 person years of employment annually... broader valuations already show that nearshore natural capital provides 30-60 billion dollars in benefits to BC’s lower mainland (not covering the entire study area), annually (DSF 2012) ... As with many other forms of marine based nature tourism, sea kayaking has expanded rapidly over the last two decades (BC MSRM 2003). For American sea kayakers, BC is the number one Canadian destination (RRC 2007)... more than 50,000 annual clients and revenues of \$8.2 million in the BC portion of the Salish Sea. This

figure is considered conservative given that industry growth projections have not been applied. For the tourists that this industry draws, 70% stayed at least two nights in the community and more than half were specifically visiting for sea kayaking (Tourism BC 2007). ... Annually, some 184,000 Canadian and 635,000 US residents are motivated to visit BC because of the opportunity to see whales ... roughly 635,000 annual whale watchers in the Salish Sea generating direct expenditure of more than \$26 million and providing 412 jobs... BC bird-watching draws over 94,000 Canadian birding visitors and 322,000 US visitors (Tourism BC 2009).”⁸

Tourism offers up significantly higher returns to the economy than RBT2 or Deltaport 4th Berth will ever do; but tourists won't come to a B.C. without salmon and whales and wildlife, without clean coastal waters and air and beaches. Tourists who come to BC's coast make vital contributions to our national economy by spending on everything from surfing lessons and seafood dining to sports fishing and whale watching, and so much of the splendour tourists come to see depends on a healthy Fraser River, which nourishes the whole province.

Our Fraser fisheries industry used to be worth hundreds of millions of dollars. In their paper *The Economic Importance of the Lower Fraser River* July 2014, the Richmond Chamber of Commerce noted:

“The Pacific Salmon Commission indicated the 2012 Fraser River sockeye salmon run of 2.3 million fish was worth approximately \$25 million. The Fraser River's recreational fishery provides roughly 7500 jobs... “Sport fishing generates \$180 million a year....Not to be overlooked are the many social and cultural benefits the Fraser's fisheries provide.”

We need to rebuild our province's salmon runs to a state of sustainable plenty: we will not do that by continuing to destroy critical salmon habitat as past Port expansion has done and proposed RBT2 and Deltaport 4th Berth will do.

The VFPA and other industrial interests have never been required to produce an economic balance for the value of what is lost when we destroy natural ecosystems that clean water and air, maintain healthy salmon runs, productive farmland and natural wetlands, capture carbon and help prevent urban floods. The true economic losses that industrialization of natural areas and resulting climate change produce puts the purported economic benefits of development in perspective, and should have been included in any project discussion. In 2016 the Vancouver Sun reported that a major flood on the Fraser River could do well over \$30 billion worth of damage as Canada's most costly natural disaster⁹. The David Suzuki Foundation report, *Valuing the Aquatic Benefits of British Columbia's Lower Mainland Nearshore Natural Capital Valuation*, November 2012) reported:

⁸ (raincoast.org/wp-content/uploads/2015/04/Chapter-4-SalishSea)

⁹ vancouversun.com/news/local-news/b-c-floods-could-be-canadas-most-costly-natural-disaster-with-32-billion-in-losses-study

“The marine floor, salt marshes, eelgrass beds, estuaries, beaches, and rivers and lakes of the study area provide carbon sequestration to the residents of the Lower Mainland and globally. Anywhere from 1 billion to 19 billion tonnes of carbon are stored in these areas, yet they are increasingly being degraded, resulting in a release of stored carbon... between 1990 and 2008 B.C.’s CO2 emissions increased by 32% ...the value of carbon storage ... for the study area [was annually] at \$40 million to \$44 million.”

The Globe and Mail noted that climate change claims to insurers in Canada are well over \$1 billion annually: the Canada Infrastructure Report Card for 2016 estimated \$141 billion as the replacement value for existing assets requiring repair (Glen Hodgson, Globe & Mail May 15, 2018).

Overwhelming and abundant evidence was presented to the Panel by many ecological scientists and respected conservation organizations that RBT2 would cause sweeping and irreversibly catastrophic changes to what remains of the Fraser estuarine habitat. Clearly, mitigation is not feasible for the catastrophic changes RBT2 or Deltaport 4th Berth will bring to the Fraser estuary.

No further port development of any kind at Roberts Bank - neither RBT2 nor this next projected phase of Deltaport expansion - must be permitted. We need to be addressing the issue of too many vessels in the Critical Habitat of the SRKW, and there must be more accountability in the operations of the Vancouver Fraser Port Authority. Any further development at Roberts Bank will only continue the destruction of habitat in the Fraser estuary that we have pledged on the international stage to safeguard. It is sheer folly to be considering four major industrial projects - heaped on top of several recently completed major projects - in an internationally significant estuary when scientists already understand the tremendous danger of ecological collapse the estuary faces.

A Cherry Point, Washington coal project was recently rejected over concerns for fishing stocks and treaty protection: an Anacortes, Washington petrochemical export project was also cancelled over concerns for effects of pollution and additional shipping on SRKW. In honouring our international commitments, let us be inspired by Panama, which recently protected a 210 000 acre stretch of wetlands.

We thank you all for your attention to our concerns.

Yours very truly,
BC GREAT BLUE HERON SOCIETY

<Original signed by>

Gillian Anderson