

Save the Fraser River Delta *from* Mega Projects



Boundary Bay Conservation Committee
April 22, 2016

Executive Summary

The Fraser River estuary and rich delta is a globally important centre of diversity:

“The Fraser estuary supports the highest concentration of migratory birds in Canada, up to 1.4 million during peak migration times. More than two billion juvenile salmon spend weeks or months in the estuary before beginning their ocean migration, making the Fraser the greatest salmon producing river on earth...” (*Estuaries in B.C. March, 2006, B.C. Ministry of Environment*)

The cumulative effects of port and industrial development in the Fraser estuary over past years, together with the accelerating loss of agricultural land throughout the Fraser delta, have seriously damaged this ecosystem. This has put the survival of international migratory bird populations at critical risk, and caused population declines of fish and wildlife, including Fraser salmon, and endangered southern resident killer whales.

“Who is looking after the Fraser River’s estuary?” queries Author and Naturalist, Anne Murray, in the Vancouver Georgia Straight, Mar. 1, 2016? (*Article in Appendix 2*)

“Without independent oversight, these amazing assets are at risk of extinction.”

The process of destruction has accelerated in the past decade. The Governments of Canada and British Columbia have inappropriately promoted mega projects in the Fraser delta/ estuary without valid business cases, credible environmental assessments, or due process.

The former Conservative Government, under Stephen Harper, dismantled Canada’s protective environmental legislation and inappropriately authorized federal authority to Port Vancouver. This contravenes the principle of nondelegation which directs that a branch of government must not authorize another entity to exercise the power or function which it is constitutionally authorized to exercise itself.

Election promises by the new Liberal Government, 2015 are key to protecting the health of the largest estuary on the Pacific coast of North America as five imminent mega Projects threaten the residual ecosystem.

Immediate action is required to:

- restore and strengthen Canadian legislation
- terminate the mandate of the Port of Vancouver and ensure federal accountability
- place a moratorium on the mega projects in the Fraser River delta/estuary
- initiate a cumulative environmental effects assessment of port, industrial and land developments in the Fraser River delta/estuary as required under the *Canadian Environmental Assessment Act*
- develop a plan and legislation to protect the health of the Fraser River delta in perpetuity

Fisheries Biologist, Otto Langer, has sent a plan to Ottawa outlining threats and actions, copied in Appendix 5.

“An Urgent Action Plan for the New Trudeau Government”

“Presently a series of projects are proposed when Canada has greatly diminished laws to properly assess these projects and protect the environment”

The Canadian Government has the authority to terminate the federal Projects: Roberts Bank Terminal 2; Jet Fuel on the River; and Coal Export from Fraser Surrey Docks because Transport Canada is the proponent of these projects and public assets (*represented by Port Vancouver and the Vancouver Airport*). The LNG export Project on the Fraser needs to be terminated due to public safety and threats to the Fraser River ecosystem.

The B.C. Government plans to build a very high bridge, near the estuary, to facilitate supertankers and Aframax freighters carrying jet fuel, as well as LNG vessels, on the Fraser River for the first time in history. As shipping lanes on the Fraser and through the Gulf Islands are narrow, appropriate hazard zones are not possible to provide safety of the public, salmon, migratory birds and orcas. If it is made clear that these vessels will not be permitted on the Fraser River and estuary, then the over-priced, over-sized bridge will not be necessary, making way for practical alternatives to address traffic congestion.

In August 2018, Vancouver will host the International Ornithological Conference, a gathering of 2,000 of the world’s top bird scientists from 100 countries, and their guests. This is a unique opportunity to show the world the steps B.C. and Canada have taken to protect the integrity of the world-famous Fraser River estuary.

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Nature Guides BC
Fraser River Coalition
Against Port Expansion
Communities and Coal
Fraser Voices
VAPOR – Opposed to transport of Jet Fuel on the Fraser
Voters Taking Action against Climate Change (VTAAC)
Burns Bog Conservation Society
BC Great Blue Heron Society
Navigator Communications
Wilderness Committee
Council of Canadians, Delta-Richmond Chapter
Stephen Rees's Blog

***Thanks to the work of dedicated advocates for
Recognition and Protection of the Fraser River Delta and Estuary***

*Please keep writing letters and speaking up for legislation to protect the lower Fraser delta and estuary.
Without your voice, this world-famous ecosystem will continue to be degraded until....*

If a man fails to honour the rivers, he shall not gain the life from them. (Anonymous)

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.

The Ecosystem of the Fraser River Delta is in deep trouble. Nine mega Projects on the South Arm of the Fraser River threaten the survival of the Ecosystem. Four projects have been completed with five more planned. What they all have in common is the lack of due process and compromised environmental assessments. The four completed Projects tell a tale of legally flawed processes and lip service to the internationally significant Fraser River ecosystem.

With past and ongoing environmental assessments, the Canadian Government has failed to provide credible cumulative environmental effects assessment of past, current and planned projects on the lower Fraser and estuary as required under the *Canadian Environmental Assessment Act*. The new Liberal Government has promised change but is there the political will to act before it's too late?

Save the Fraser River Delta from Mega Projects

A Compilation of Information, Articles and Commentary on Mega Projects in the Fraser Delta

PART ONE – Five Imminent Projects Need to Be Stopped

The Canadian Government has the authority to terminate four of these Projects.

- **Roberts Bank Terminal 2** – a new container terminal with 3 shipping berths in the Fraser Estuary threatening internationally-significant migratory birds, salmon and endangered orcas.
- **WesPac Tilbury Marine Jetty Project** – A Terminal to export LNG from Tilbury Island, 21 kilometres up the Fraser. This will bring LNG carriers in the Fraser River for the first time in history threatening public health and safety and the survival of the Fraser River Ecosystem.
- **Direct Transfer Coal Facility at Fraser Surrey Docks** – plans to ship up to 9 million metric tonnes of American thermal coal through B.C. Why would Canada want to waste this prime industrial site by shipping dirty US thermal coal through B.C.?
- **Vancouver Airport Fuel Delivery Project** – plans to bring supertankers up the Fraser River in order to import offshore jet fuel for the airport.

George Massey Tunnel Replacement Project - The B.C. Government plans to build a very high bridge near the estuary to facilitate supertankers and Aframax freighters carrying jet fuel and LNG in the Fraser River for the first time in history. As shipping lanes on the Fraser and through the Gulf Islands are narrow, appropriate hazard zones are not possible to provide safety of the public, salmon, migratory birds and orcas. The Canadian Government needs to inform B.C. that the high bridge is not necessary as these vessels will not be permitted on the River

PART TWO – Four Projects Completed – significant loss of habitat

Four Projects have been built without credible environmental assessments or due process. These were pushed through with dismantled federal legislation and flawed processes at the provincial and the federal level. Environmental values have been disregarded with the loss of hundreds of hectares of forests, waterways, irreplaceable wetlands and fish habitat in the Fraser.

- **Golden Ears Bridge**
- **Port Mann Bridge/Highway 1 Project**
- **Deltaport Third Berth**
- **South Fraser Perimeter Road**

Even the good news story of the establishment of the **Burns Bog Ecological Conservancy Area** avoided due process with the resulting subdivision of bog properties for developers. Also the South Fraser Perimeter Road was constructed through valued bog areas with the loss of bog edges and important habitats. This edge destruction continues.

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Appendix 2: Article summarizing impacts on Fraser River Ecosystem

Appendix 3: Plans for new bridge will impact agricultural and environmental values

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Appendix 5: An Urgent Action Plan for the Trudeau Government

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1.0 Introduction

There are only 20% of the marsh, mudflats, eelgrass, and river habitats remaining along the Lower Fraser River that existed 100 years ago

It is essential that we act now to ensure their protection in perpetuity

The cumulative effects of port and industrial development in the Fraser estuary, together with the accelerating loss of agricultural land throughout the Fraser delta, have put the survival of international migratory bird populations at critical risk, and caused population declines of many other fish and wildlife, including Fraser salmon, and endangered southern resident killer orcas.

80% of the Lower Fraser River wetlands have been destroyed

Fishing in the salmon-rich watershed is a multi-million dollar industry, while agriculture in the Fraser Valley drives the regional economy.

Fraser River Delta and Estuary



Global Significance and Designations

Western Hemispheric Shorebird Reserve Network Site

Ramsar Site as a Wetland of International Significance

Canada's Major Stopover for Migratory Birds of the Pacific Flyway

Canada's Most Important Bird Area and listed under Birdlife International as "in danger"

1.1 2015 – Liberal Government Promises for Real Change

<https://www.liberal.ca/files/2015/10/New-plan-for-a-strong-middle-class.pdf> Pages 42-44)

“... Stephen Harper’s changes to the Fisheries Act, and his elimination of the Navigable Waters Protection Act, have weakened environmental protections. We will review these changes, restore lost protections, and incorporate more modern safeguards...”

... We will immediately review Canada’s environmental assessment processes and introduce new, fair processes that will... ensure that decisions are based on science, facts, and evidence, and serve the public’s interest;...

... We will also do more to protect Canada’s endangered species. We will respond more quickly to the advice and requests of scientists, and will complete robust species-at-risk recovery plans...

... To protect these valuable natural resources, we will deliver more robust and credible environmental assessments for all projects that could impact our freshwater and oceans...

... We will use scientific evidence and the precautionary principle, and take into account climate change, when making decisions affecting fish stocks and ecosystem management.”

Immediate action is needed on these promises because...

Estuaries make up only 2.5% of the total coastline habitat in B.C.

The Fraser River is in the top 50 Heritage Rivers in the world.

The Fraser River has the largest estuary on North America’s Pacific Coast.

The Fraser River is the longest river in B.C. It begins in the Rocky Mountains and flows for 1,375 km (854 miles) to the Strait of Georgia. Together with the rivers and streams that flow into it, the Fraser drains 25% of the province... The Fraser River delta has a variety of habitats, from sandy beaches, mud flats and eelgrass meadows to marshes, bogs, farmland, and woodlands. These habitats, together with all the plants and animals that live in them, form an ecosystem unlike any other place on Earth.

(Victoria, B.C Museum: information on the Fraser River delta)

Currently, the greatest threats to the ecological health of the Fraser River delta, estuary, and narrow shipping lanes to the Pacific are the numerous mega projects that are being inappropriately approved and pushed through without valid cost/benefit analyses, credible environmental assessments or due process. Laws and regulations are being ignored while lip service is paid to the irreversible, adverse environmental impacts of each project. Tragically, the federal government has failed to assess the cumulative impacts of all the projects as required under the *Canadian Environmental Assessment Act*.

Junk science and rhetoric are being used to permit implausible adaptive management strategies, mitigation measures, and compensation plans for Projects on the Fraser River. Compensation money (*not put out to tender*) goes to government -friendly organizations with unproven, unpublished results. Some government scientists are compromised with promotions or appointments to prized locations. Non-government scientists can be compromised with lucrative contracts or research funding from proponents. Ethical scientists are often ignored or misquoted by bureaucrats and politicians who claim to be balancing economy and environment in the public interest. Far from being assets to our economy, these mega projects are scams whereby precious tax dollars are exploited to benefit vested interests.

People are fooled into thinking these projects are for the public benefit offering jobs and improved quality of life. In fact these projects fulfill an agenda of vested interests, aided and abetted by unethical scientists, bureaucrats and politicians.

The public is deceived into thinking these projects are all about the economy and jobs. To the contrary, tax dollars are going to contracts and long-term benefits to a special consortium of business interests with strong ties to governments in terms of donations, contracts and appointments to boards, as well as contrived planning organizations and biased advisory committees. Long-term contracts and partnerships are awarded to government-friendly companies who are assured of income for 20 to 30 years.

These wasted tax dollars could be better spent on long-term jobs such as ongoing transit projects with construction, followed by maintenance and operation jobs for the general public, not for contracted government associates. Upgrading existing roads, sewage, and storm water management provide sustainable jobs. Improved systems of monitoring air and water quality, with transparent reports that can be understood by the general public, could provide meaningful jobs. The public deserves credible infrastructure projects that are not tied to long-term contracts for insiders, land development and rezoning for “other agendas”.

It is unacceptable to do project-splitting and piecemeal environmental assessments of projects in the lower Fraser River delta and estuary, especially considering there has been an overall Gateway Plan to industrialize the lower Fraser delta and estuary. The Greater Vancouver Gateway Council was set up in 1994 by an industry-led organization of senior executives from seaports, airport, carriers and transportation businesses. The federal and provincial governments collaborated and funded the Gateway Plans but the public was never consulted. No credible business case or cumulative, environmental impact assessment has been provided for the use of over \$10 billion tax dollars on the projects and infrastructure with another \$25 billion of private/public spending still planned. Additionally, there are long-term commitments for billions of dollars for the B.C. mega projects; these costs are not transparent to the public.

1.2 Gateway - 34 Infrastructure Projects & 16 Supply Chain Initiatives

Thirty-four Infrastructure Projects and 16 Supply Chain Initiative were planned in 2006

https://www.th.gov.bc.ca/PacificGateway/documents/PGS_Action_Plan_043006.pdf

Many of these Gateway infrastructure projects are completed such as the Deltaport Third Berth, the South Fraser Perimeter Road, the Port Mann Bridge and Highway upgrades, the Golden Ears Bridge, railway upgrades, and YVR upgrades. Currently plans and/or construction are underway for YVR Jet Fuel Delivery; Tilbury LNG; export of US Thermal Coal from Fraser Surrey Docks; Roberts Bank Terminal 2; George Massey Tunnel Replacement Project, and Fraser River Channel Deepening.

Several of the Supply Chain Initiatives are completed such as: amendments to the Canada Marine Act and the Transportation Act; reduction in port property taxes and decrease in waterlot property assessments; increased funding for port infrastructure; reduction in port stipends to the federal government; amendments to speed up and gloss over provincial/federal environmental assessments; and land acquisitions. Plans include a Free Trade Zone and public funding for ongoing dredging.

These Projects and Initiatives have been, and continue to be, systematically approved without proper environmental assessments and without credible consideration of public input.

Since 2004, the Canadian Environmental Assessment Agency (CEAA), Environment Canada (EC), and the Department of Fisheries and Oceans (DF) and Health Canada have been politicized. As the responsible agency for environmental assessments, CEAA collaborates with proponents allowing them to make endless amendments to submissions. CEAA presents flawed, incomplete Terms of Reference, Applications, and Studies to the public for comment. The public is expected to review thousands of pages of information to ferret out omissions, flaws, inconsistencies, and junk science. Even when these are submitted to CEAA, they are ignored unless there is the possibility of a legal challenge.

Government agencies used to submit substantive reports based on laws and scientific knowledge. They used to include their names and signatures on their reports. These days most reports are minimal, imprecise, and anecdotal, with unidentified authors. They skim over policies and legal accountability.

The latest scam is “Habitat Banking”, where the Port of Vancouver (*officially Vancouver Fraser Port Authority*) is permitted to interfere with existing habits on crown lands or other public assets in the Fraser River Delta. It is called “enhancement” but the activities such as log removal and clearing areas are not the best management of existing habitats and are not based on credible science. The Port of Vancouver claims these questionable activities offset habitat impacts from future development projects. Anyone who can do basic math recognizes this as a net loss of significant habitats.

“It has to be appreciated that we now only have remnant marsh and habitats remaining along the river. Only about 20 percent of what existed over 100 years ago remains. Why would the federal government design a program that will nibble away at this last 20 percent? ...

...Port Metro Vancouver and the Department of Fisheries and Oceans are indeed taking us and the habitat that still supports world class populations of wildlife and salmon down a slippery slope.”

(Otto Langer retired Senior Biologist, DFO, March 14, 2014)

The Stephen Harper Conservative Government, with unethical Omnibus Bills, 2012-2014, gutted *the Fisheries Act*, the *Canadian Environmental Assessment Act*, the *Navigable Waters Protection Act*, and the *Species at Risk Act*. As a result, development proposals have been approved without any regard for protection of vital fish and wildlife habitat areas. This is particularly evident in the lower Fraser River and estuary where several projects have proceeded despite previous rejections and designations that recognize habitat values that require protection. International, National, and Provincial Designations are listed and described in Appendix 1.

Roberts Bank in the Fraser estuary, which has global significance for salmon, migratory birds and Southern Resident Killer Whales, has been removed, or omitted, from protective designations to facilitate ongoing massive port expansions, along with the widening of road and rail access.

Policies, Canada/ US agreements, Species Recovery Strategies, as well as numerous municipal, provincial and federal protective practices are being altered, terminated, or ignored.

Until March 2013, the world-renowned cooperative environmental management model, namely the Fraser River Estuary Management Program (FREMP), brought together agencies of all three levels of government responsible for setting and enforcing environmental legislation and policy. Under FREMP, agencies responsible for land and water management, conducted environmental reviews of development projects along the Fraser River and in its Estuary.

Without consulting the provincial and local governments, the Harper Conservative Government withdrew funding and closed the FREMP office in March, 2013. The main developer on the Fraser River, Port Metro Vancouver (PMV) (*now wants to be called Port of Vancouver*) took over as the Lead Agency from FREMP for a “transition period”. But PMV is still handling all developments, including its own, in the Fraser River Estuary. This is an outrageous conflict of interest and an international embarrassment in terms of stewardship of the globally significant habitats in this ecosystem.

PART ONE – Five Imminent Projects Need to Be Stopped

Roberts Bank Terminal 2 – a new container terminal with 3 shipping berths in the Fraser Estuary threatening internationally-significant migratory birds, salmon and endangered orcas.

WesPac Tilbury Marine Jetty Project – A Terminal to export LNG from Tilbury Island 21 kilometres up the Fraser. This will bring LNG carriers in the Fraser River for the first time in history threatening public health and safety and the survival of the Fraser River Ecosystem.

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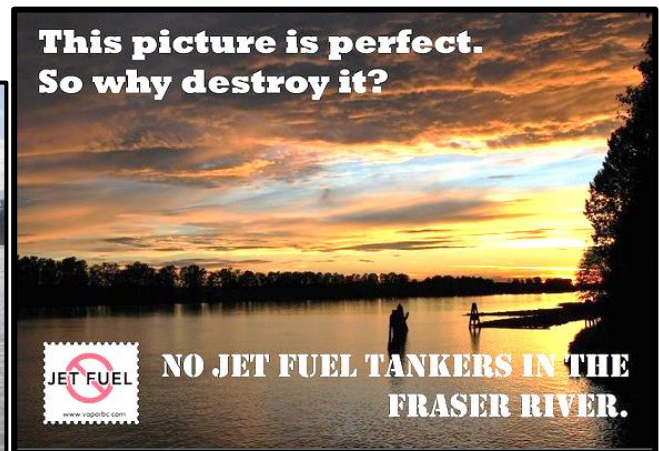
Coho Salmon from Tidal Fraser River



Trumpeter Swans on Delta Farmland



Fraser River White Sturgeon



2.0 Roberts Bank Terminal 2 Project

CEAA Project # 80054 – Review Panel and substitution for BC Environmental Assessment

A federal environmental assessment was started November 8, 2013 for a second container terminal, with 3 new berths, at Roberts Bank in the Fraser Estuary. On January 7, 2014, it was announced that the environmental assessment would be a Review Panel process. The B.C. environmental assessment is included under a process of substitution adopted by the Harper Conservative Government.

The port at Roberts Bank already accommodates 3 container berths and a coal terminal in spite of plans in 1961 to protect 27,200 acres under the Roberts Bank Wildlife Management Area. Since that time, 5,105 acres were removed from planned protection and the Roberts Bank Wildlife Management Area, declared in September, 2011, was reduced to 21,670 acres. Not only was there a loss of protection, but the projects built on 5,105 acres of environmentally-sensitive habitat are fragmenting and negatively impacting the Fraser estuary, delta and narrow shipping channels through the Strait of Georgia to the Pacific:

1980s expansion	890 acres (360 ha)
Deltaport Third Berth	2,851 acres (1154 ha) – formerly crown provincial – now federal
Proposed Terminal 2	445 acres (180 ha)
TFN granted crown	<u>919 acres (372 ha)</u>
TOTAL	5,105 acres (2,066 ha)

The Proponent, the Vancouver Fraser Port Authority, known as Port Metro Vancouver, (*Port Vancouver as of April, 2016*) proposes to build the Roberts Bank Terminal 2 Project, a man-made island and expanded causeway filling in 445 acres of waterlot in the estuary to double container capacity.



2.1 Environmental Impacts

2.1.1. International and National Significance

The Environmental Impact Assessment Statement (EIS) fails to credibly recognize and document the international significance of Roberts Bank as a vital feeding area for migratory birds of the Pacific Flyway, more than two billion juvenile salmon, and endangered Southern Resident Killer Whales (Orcas). Sockeye salmon are not even included as a representative species. The EIS ignores the fact that the existing port and proposed island obstruct the movement of migrating fish with a loss of near-shore feeding and greater exposure to predators.

The EIS fails to disclose that clean fill for the 445 acres cannot be found as all potential sources are laden with PCBs (Polychlorinated Biphenyls) which will contaminate these fragile ecosystems and spread up the food chain.

The Environmental Impact Statement (EIS) fails to effectively include transboundary agreements and the Salish Sea shared with the US. Lip service is given to *Species at Risk*, such as White Sturgeon, Eulachon, and Resident Killer Whales (Orcas). There is no disclosure of accountability to at least twenty Canadian, B.C. and US initiatives and cooperative agreements. Recommendations of the federal 2012 *Cohen Commission into the Decline of Sockeye Salmon in the Fraser River* are ignored.

International and National Recognition of the Roberts Bank area and Fraser Estuary are also ignored:

(Information on Designations in Appendix 1)

- BirdLife International's Important Bird Area (IBA) designation in 2001 for the Fraser River Estuary: Boundary Bay, Roberts Bank and Sturgeon Bank; the Estuary is the most significant IBA out of 597 sites in Canada.
- In 2004, the Western Hemisphere Shorebird Reserve Network (WHSRN) gave the Estuary its highest designation as a Hemispheric WHSRN Site.
- In 2011, Roberts Bank, the vital central link in this chain of inter-connected and protected estuary habitats, was finally declared a Wildlife Management Area.
- In 2012, 20,682 hectares of the lower Fraser River Delta (*excluding the Roberts Bank Wildlife Management Area*) was declared a Ramsar site by the International Convention on Wetlands. The Ramsar Site includes: Burns Bog; Wildlife Management Areas: Sturgeon Bank, South Arm Marshes and Boundary Bay; Serpentine; and Alaksen Ramsar Site.
- The Fraser is a Canadian Heritage River
- The Fraser River has the largest estuary on North America's Pacific Coast.
- The Fraser River has the most productive salmon fishery in the world.

Proactive measures for protection are needed. *Appendix 4* is a proposal by the B.C. Great Blue Heron Society for a Fraser River Delta National Wildlife Area.

A 1979 Federal Environment Assessment Panel Review rejected an application for an expanded coal port facility at Roberts Bank with warnings of potential adverse environmental effects:

“From the point of view of estuarine ecology, the Panel has concluded that the potential impacts on the Fraser River estuary, of which Roberts Bank is part, are too great to recommend that the port expansion be approved as proposed. The extent and ecological significance of the Fraser River estuary, particularly its use by fish and wildlife, make it unique in North America. A major salmon fishery depends on its preservation as do hundreds of thousands of migratory birds.”

(Report of the Environmental Assessment Panel, Roberts Bank Expansion, March, 1979)

In 2005, in response to the Deltaport Third Berth Proposal at Roberts Bank, Environment Canada stated:

“Given the international significance of Roberts Bank for migratory birds, and fish and wildlife generally, EC urges caution, and recommends a more detailed understanding of ecological impacts of past, present, and future planned projects, before any further changes are made to the system... 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.”

(Deltaport Third Berth Project - Environment Assessment Application, Environment Canada, Technical Comments, April, 27, 2005, Page 25)

In spite of concerns, the Vancouver Port Authority (now Port Metro Vancouver) went ahead with numerous developments on Roberts Bank.

2.1.2 Tiny algae could block Roberts Bank container expansion

Migrating sandpipers depend on biofilm secreted by microscopic diatoms for fuel

by Larry Pynn, Vancouver Sun March 21, 2016 10:05 PM

The Vancouver Sun article refers to a published paper: *Intertidal biofilm distribution underpins differential tide-following behavior of two sandpiper species (Calidris mauri and Calidris alpina) during northward migration*, A. Jimenez, R.W. Elnor, C. Favaro, K. Rickards, R.C. Ydenberg. March 20, 2015

This research indicates that the concerns expressed in 1979 and 2005 were well-founded as the mudflats at Roberts Bank provide a unique feeding area for upwards of 600,000 migrating sandpipers and 200,000 dunlin. These small shorebirds rely on the rich nutrients found in biofilm in the mudflats at Roberts Bank. The area is unparalleled due to the perfect mix of reduced salinity, nutrients from the Fraser River, low tides, and warmer spring temperature which provide the perfect conditions for tiny diatoms to produce omega-3 fatty acids just as the sandpipers migrate through this area.

One of the scientists, Dr. Robert Elnor, is quoted in the Vancouver Sun article:

“What we’ve found is very important and very complex and one should be cautious about interfering with a system that is so critical until you really understand the consequences ... “

“The majority of western sandpipers and other shorebirds are feeding at Roberts Bank. They are drawn to that particular biofilm”

“That was the big breakthrough,” Elnor said. “Without these essential fatty acids, they’re not migratory birds. They’re birds that aren’t going to go very far.”



Western Sandpipers

Another recent paper, *Biofilm Consumption and Variable Diet Composition of Western Sandpipers (Calidris mauri) during Migratory Stopover*, C.B.Jardine, A.L.Bond, P.J.A. Davidson, R.W. Butler, and Tomohiro. April 14, 2015, finds that while biofilm is found in other locations in the Fraser delta, the other sources do not provide the same amount of nutrients as Roberts Bank.

The creation of a new island for Terminal 2 will impact the balance of fresh and salt water that creates this habitat. Also, Port Metro Vancouver plans to widen the Deltaport causeway to access the planned new island. Rich mudflats run parallel to the causeway and the sandpipers can be seen feeding right at this location during their spring migration. This area will be destroyed by the widened causeway with consequences that cannot be mitigated or compensated. This will likely have devastating impacts on the sandpipers and other species that depend on this rich source of omega-3.

The “precautionary principle” should apply to port plans to ensure development does not alter the specific conditions that make Roberts Bank so productive for the sandpipers...”

(Dr. Robert Elnor, Vancouver Sun, March 21, 2016)

2.1.3 No Justification or Rationale for the Project

The Terminal 2 Project for containers will cause irreversible environmental damage to world-renowned ecosystems. The irony is that Port Vancouver has never presented a credible feasibility study or cost/benefit analysis. Over the past ten years Port Vancouver has published four reports claiming the need for more capacity. Actual container business has failed to achieve even the lowest business forecasts.

At the Port of Vancouver, laden import containers bound for Canada are decreasing. Current growth is for US-bound containers which do not bring much economic benefit to Canadians. It is lucrative for Port Vancouver and associates, but not for the Canadian public. Why should taxpayers pay for infrastructure so that Port Vancouver can unnecessarily dredge and fill the globally-significant Fraser Estuary in order to funnel US-bound containers through a second container terminal on Roberts Bank adjacent to the existing Deltaport?

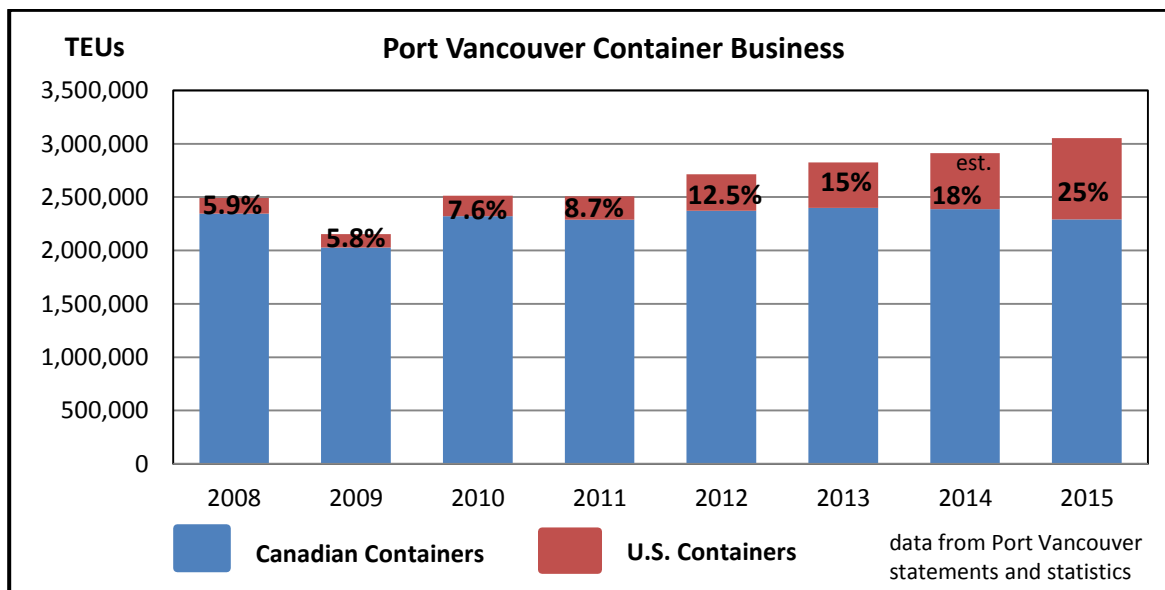


Table Showing US container volumes through PMV									
TEUs	2007	2008	2009	2010	2011	2012	2013	2014	2015
Canadian Traffic	2,163,800	2,344,400	2,028,700	2,322,800	2,288,000	2,372,900	2,399,075	2,388,601	2,290,851
USA Traffic	143,500	147,700	123,800	191,500	219,000	340,300	426,400	524,327	763,616
Total Traffic	2,307,300	2,492,100	2,152,500	2,514,300	2,507,000	2,713,200	2,825,475	2,912,928	3,054,467
US % Share	6.2%	5.9%	5.8%	7.6%	8.7%	12.5%	15.1%	18.0%	25.0%

(Estimate)

Sources: OSC 2014 Report, Table 8.1 (2007-2013 data)

PMV, CEO, Robin Silvester: "Port's stats indicate solid growth", Delta Optimist, Aug, 26, (2015 US share)

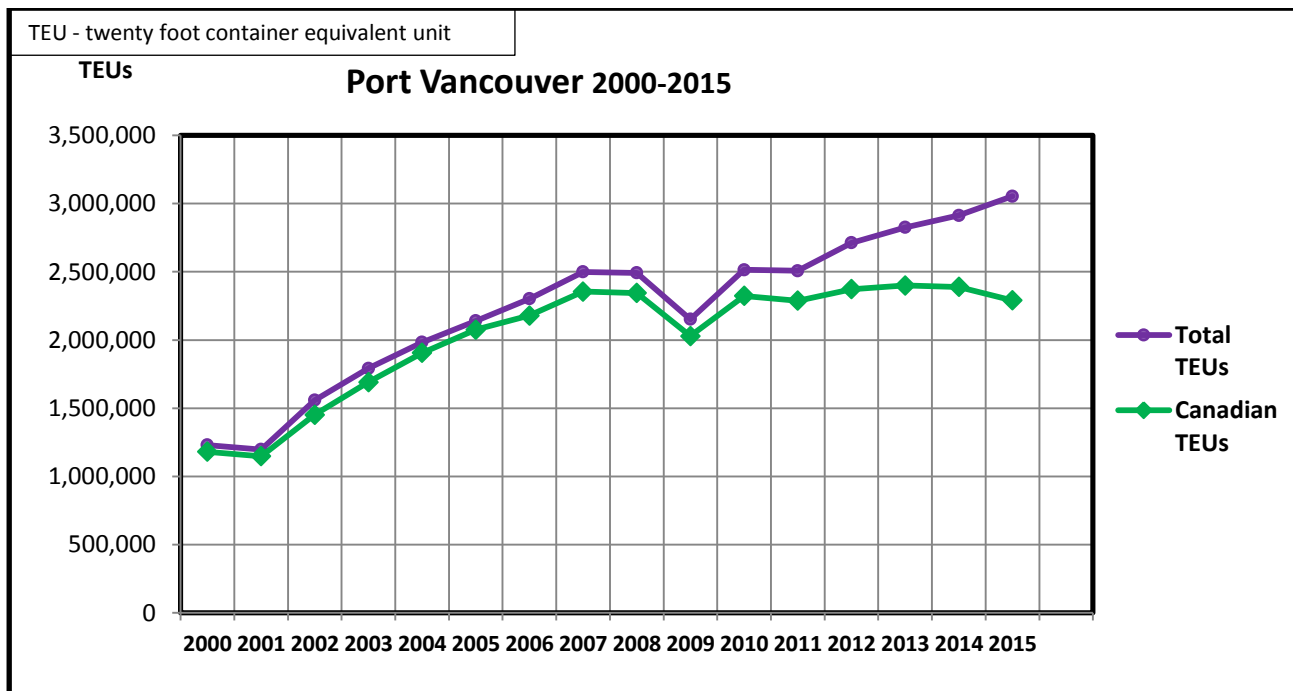
PMV: Statistics Overview 2015

Financial Post, August 18, 2015, K.Owram

<http://business.financialpost.com/news/port-metro-vancouver-expects-to-retain-business-following-u-s-ports-labour-dispute>

Financial Post, August 18, 2015: Port Metro Vancouver expects to retain business following U.S. ports labour dispute:

"For planning purposes, Port Metro Vancouver assumes that approximately 15 per cent of its container business is destined for the U.S., but that number is currently closer to 25 per cent and CEO, Robin Silvester suspects 20 per cent may be a more accurate assumption going forward." (Aug, 18, 2015)



Port Vancouver consistently understates actual port capacity and overestimates forecast growth. The information on the port website as of April, 2016, is out of date (2014) and incorrect.

Port Vancouver downplays B.C.'s west coast capacity by claiming "effective capacity" means the port can operate at only 85% of capacity. There is no basis for this claim as terminals around the world, including Prince Rupert Port operate at 100% capacity, or close to.

The Port of Vancouver website states, B.C.'s west coast will have maximum capacity for 6 million TEUs (*a twenty-foot container equivalent*), by 2020. In fact, without building Roberts Bank Terminal 2, the container capacity for B.C.'s west coast will be 8 million TEUs, with planned upgrades and Prince Rupert Port expansions.

The total container business in 2015 for both ports was 3.8 million TEUs. So B.C.'s west coast will be able to handle more than double the current business which is enough capacity for several decades.

Port Vancouver, with current and planned upgrades (excluding Terminal 2) will be able to handle 5 to 5.5 million TEUs. Current business is around 3 million TEUs.

The Prince Rupert Port Authority, with current expansions, will be able to handle 1.3 million TEUs. Plans for a second terminal will increase capacity to 2.5 million TEUs.

In addition, in 2008, transportation experts, commissioned by the federal government, advised that:

"Policy makers develop container capacity in Prince Rupert before making investments in Vancouver."

(*Strategic Advisors Report, Asia Pacific Gateway and Corridor Initiative Report and Recommendations, 2008; Burghardt, DeFehr and Turner*)

2.1.4 Alternatives and Solutions for land requirements for Vancouver container business

2.1.4.1 Prince Rupert Port Authority

The Prince Rupert Port Authority, with the advantages of cheaper industrial land, is expanding and will be able to handle 2.5 million TEUs in the future if there is the demand.

Prince Rupert Port was granted a Port Award by Colliers International in 2013 in recognition of being the only port in the Pacific Northwest with a direct railway connection (Canadian National) to the Port of Mobile, the deepest port along the Gulf Coast. Prince Rupert Port also has the advantage of being two sailing days closer to Asia.

2.1.4.2 Ashcroft Terminals (AT)

The inland Ashcroft Terminal offers a cheaper, more practical transloading and storage option for the handling of containers. The Ashcroft terminal is an ideal location because it's already zoned industrial. It is unique because it is located where the CN and Canadian Pacific railways cross paths before branching off on their respective tracks on either side of the river. This means Ashcroft is the last location westbound and the first eastbound at which mainline traffic can stop on the way to or from Metro Vancouver.

The site has several tracks for trains that can be loaded and unloaded according to need. The site also has industrial land away from residential and commercial areas. As about 90% of import containers leave the Vancouver area, it makes common sense to transload in Ashcroft. It is a cheaper, more practical, and will alleviate some of the truck traffic congestion in the Vancouver area. Ashcroft provides jobs in an affordable community.

Do we really want to use Canada's best farmland and scarce Vancouver-area properties to store empty containers and transload containers to send across Canada and into the US which together account for 73% of Vancouver's container business? This is illogical considering B.C. has Ashcroft Terminal and the Prince Rupert Port.

Sending containers directly to Ashcroft for transloading offers some solutions for container truck traffic congestion in Metro Vancouver and reduces the need for valuable land to store empty containers.

2.1.5 Purpose of Terminal 2 Project is Land Acquisition

A second container terminal is not needed at Roberts Bank. If allowed to proceed, it will add unnecessary pressure on land use in Metro Vancouver. Land acquisition has become the operative goal of the Port of Vancouver since it received a mandate from the Conservative Government, under Stephen Harper, in 2008, to borrow large sums of money and accumulate properties. In addition, the Port was given powers to assess, approve, and licence its own projects. As expressed by Geoscientist, Patrick Johnstone, in his blog of January 22, 2014:

“They will continue to build warehouses that can quickly return lease money, and rely on infrastructure built by others (after all, you and I pay for those roads and bridges, the Port doesn't even have to pay property tax). Instead of using their infrastructure investment money to improve the livability of our community and the efficiency of goods movement through the Port, they continue to buy up farmland (or create new land in the sea) so that they can lease that out to logistics and operations companies for a handsome profit. This is why I say the Port is no longer in the goods movement business; they are in the real estate development business.”

The Port Vancouver Annual Reports show accumulated assets expanding at a Compound Annual Growth Rate (CAGR) of almost 9% from 2008-2013. Total Comprehensive Income grew at a CAGR of 18% each year. Salaries for Key Management grew at a CAGR of just under 14% per year. The shipping business did not grow at that rate with a CAGR of just over 3%. Payments in Lieu of Taxes decreased 3% every year.

Our ports used to be about efficient shipping. Now they are about land acquisitions and business spin-offs that don't consider the best shipping options for Canadians. As Mr. Johnstone wrote about the changes in 2008 with the amalgamation of three ports and the new unfettered, unaccountable mandate:

“With the amalgamation came another change. The Port People and Ships Captains were out. The Port Authority is now going to be run by business types. The CEO is not a former stevedore, he is a former jet turbine engineer who instead worked his way up the corporate ladder through Mergers and Acquisitions, for businesses that make chemicals and steel or developing real estate. The only thing he knows about Ports is he bought one once. Makes sense, though, as his job is not to facilitate the movement of goods on and off of ships, but to “leverage positions” and “deliver value” for his “capital-intensive, asset- and service-focused large corporate customers”. His job is not to move goods. It is to use the movement of goods as the tool to create a high return on investment for his shareholders.”

That is why the Port of Vancouver is lobbying and advertising its so-called “need” for industrial land.

“There are almost no pieces of vacant land big enough for major logistics centres that sort and store thousands of containers that come through Vancouver’s ports – one of the major drivers of the region’s economy.” (*The Globe and Mail, April 15, 2016*)

At the same time the Port of Vancouver is complaining about the lack of industrial land, the Port is planning to funnel US thermal coal through one of its ports, the Fraser Surrey Docks. This plan will provide very few jobs and little economic benefit to Canadians – just pollution. If there is such a shortage of port lands, why would Port Vancouver even consider using this valuable asset for such a senseless plan which will negatively impact society and the Fraser delta? The Fraser Surrey Docks is the largest modern, multi-purpose marine terminal on the West Coast of North America.

Already several acres of Metro Vancouver’s industrial land are piled high with empty containers. Each new property being stacked with empty containers brings an increase in container trucks on already congested roads and highways. This isn't the true productive use of industrial land for making products; it is warehousing and sorting of containers that needs to occur away from Metro Vancouver on cheaper land. As most containers are shipped out of the Vancouver, it is a practical, cheaper, sensible alternative.

The Port of Vancouver, vested interests, and large publicly-traded US companies, benefit from land acquisitions and the container logistics businesses situated in, or close to, Metro Vancouver. So the Port resists alternative, cheaper business options – such as using warehouses outside the Lower Mainland in other B.C. towns – that would reduce Metro Vancouver truck traffic, free up industrial land, and provide jobs in B.C.

Unfortunately, B.C. ports operate in competition with each other so that prevents an efficient shipping business plan for B.C. If the B.C. ports were appropriately managed by Transport Canada, this destructive waste of public assets could be corrected.

2.1.6 Impacts of speculation on Agricultural Land Reserve

Although the Roberts Bank Terminal 2 is not needed for container shipping, it is needed to meet the land acquisition goals of the Port of Vancouver, B.C. Rail, and developers who have been buying up and optioning properties in the Agricultural Land Reserve (ALR) for the past 7 years.

In 2009, B.C. Rail Corporation (BCRC) bought 50 acres (20 hectares) in the Agricultural Land Reserve (*subdividing small parcels from 9 properties*) to create a wide corridor adjacent to the registered Right of Way along Deltaport. Then B.C.R.C. purchased another 4 or 5 properties for a total of about 160 acres (65 hectares) along the corridor. B.C.R.C. spent about \$15 million. Their mandate at that time stated:

“BCRC’s primary mandate is to support and facilitate the British Columbia Ports Strategy (“BC Ports Strategy”) and Pacific Gateway Strategy, by providing consulting advice, acquiring and holding railway corridor and strategic port lands, and making related infrastructure investments for the Province.” (BCRC 2009 Annual Report, pg. iii)

There were some strange land deals. These properties were crown properties of the Roberts Bank Backup Lands that were expropriated by the province in 1968 and 1969 for port development. Then they were sold back to the farmers in the late 1990s for very reasonable prices. Then in 2009, B.C. Rail Corporation bought some back at much higher prices. In some cases the government paid more 6 times their sale price of less than 10 years ago.

Then the B.C. Government paid B.C.R.C. \$50 million to use the corridor as part of the Deltaport Terminal Road and Rail Improvement Program (DTRRIP)

Beginning in 2010, Lamington Heights Investments (Emerson Real Estate Group) signed options to purchase 739 acres (300 hectares) of farmland in the Agricultural Land Reserve near the BC Rail properties. In total, 11 properties were optioned, for a sum of \$98-million. Some of the options were renewed until 2016 and may be renewed again with developers pushing for approval of the Roberts Bank Terminal 2.

“Hundreds of acres of prime farmland in South Delta are still threatened by industrial land speculation, according to MLA Vicki Huntington... ..It was three years ago when Huntington first revealed that Vancouver industrial developer Ron Emerson, of Emerson Group Realty, had options to purchase 739 acres for nearly \$100 million. Emerson's plans, she noted, included removing the land from the ALR to develop a large intermodal yard and up to five million square feet of warehouse space.” *Delta Optimist, January 21, 2015, Sandor Gyarmati, Options Renewed on Delta Farmland as industrial speculation continues)*

Also, a non-profit organization (*that receives Port contracts*) owns four properties in the Agricultural Land Reserve (ALR) along the Deltaport Way corridor.

In 2009, Port Vancouver purchased a 220-acre (89 hectares) property (*the Gilmore Farm on No.8 Road*) in the Agricultural Land Reserve in Richmond with the clear intention of using it for container logistics in the future. This has raised the ire of the public, Richmond Council, and many municipalities of Metro Vancouver.

The Port of Vancouver is relentless in pushing forward with its agenda to build Roberts Bank Terminal 2 and to use Agricultural Land Reserve properties to provide logistics centres.

“Metro Vancouver politicians are up in arms after Port Metro Vancouver CEO Robin Silvester told them more Agricultural Land Reserve farmland should be sacrificed to make way for more port expansion and the jobs that will bring.”

(Port's hunger for farmland a 'declaration of war', Jeff Nagel / Richmond Review, January 26, 2012)
<http://www.richmond-news.com/news/port-s-hunger-for-farmland-a-declaration-of-war-1.1912429>

Mr. Silvester is quoted in B.C. Business online, October 6, 2011:

“It’s critically important that the Regional Growth Strategy and the municipalities recognize industrial land must be preserved. Otherwise, the economy will, over time, wither,” Silvester says. “Agriculture is emotionally important, but economically [of] relatively low importance to the Lower Mainland. And in terms of food security, [it] is almost meaningless for the Lower Mainland.”

<http://www.bcbusiness.ca/people/robin-silvester-port-metro-vancouver>

One further disturbing point is the apparent power of the Port of Vancouver to use the properties in the Agricultural Land Reserve for non-farm uses without permission of the Agricultural Land Commission. Apparently, the mandate of Port Vancouver overrides the provincial legislation.

2.2 Legally Flawed Process

As Canadian Environmental Assessment Agency (CEAA) has not insisted on complete, inclusive scoping with credible science at the early stages, the Environmental Impact Statement (EIS) is turning into a complex, hodgepodge of information without appropriate guidance and legal process. CEAA keeps changing the goal posts with new information as the legal flaws in the process become evident.

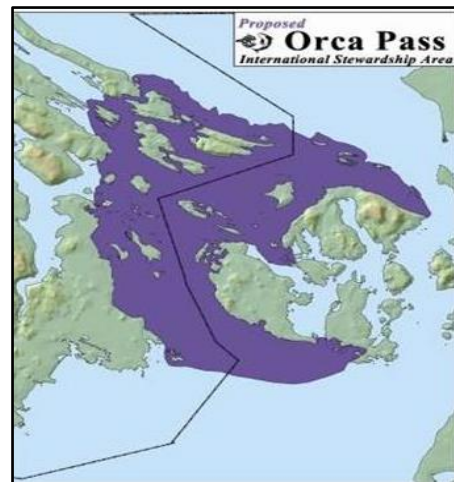
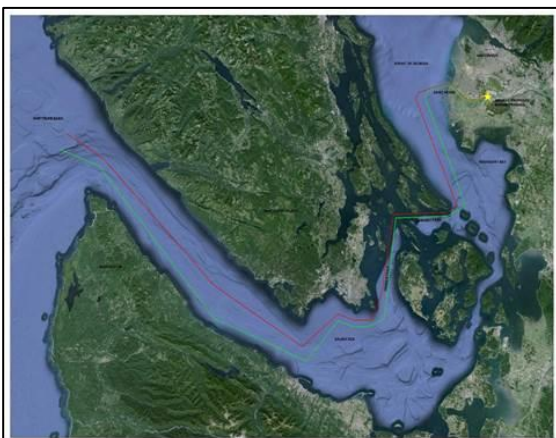
2.2.1 CEAA Disclaimer Contravenes Legislation

Numerous documented concerns are not being addressed as CEAA is allowing Port Metro Vancouver (the Proponent) to claim the port is not accountable beyond the project footprint. Despite legal submissions advising that this contravenes the *Canadian Environmental Assessment Act* (2012), CEAA supports a disclaimer in the Terms of Reference stating the **effects of the Project on marine shipping are not environmental effects of the Project and will not be included in the Minister of Transport’s decision on the Project.**

There will be far-reaching effects beyond the project footprint as the container ships will be traveling in the ecologically sensitive estuary and narrow shipping channels to the Pacific. This route, Orca Pass, is also the route of the endangered Southern Resident Killer Whales. Large ships emit sounds in the range of 160 to 210 decibels (dB). The Recovery Strategy for the endangered Southern Resident Orcas says: "sounds in excess of 160 dB have the potential to disrupt marine mammal behaviour, and sounds in excess of 180 decibels may cause physical injury".

This intent to slip past due diligence should provide the new 2015 Liberal Government with a reason to terminate this flawed, illegal process under the *Canada Marine Act*, the *Canadian Environmental Assessment Act*, the *Species at Risk Act*, and the *Environmental Protection Act*.

Chart showing shipping routes from Sands Head through Boundary Pass and Haro Strait to the Strait of Juan de Fuca and out to the Pacific. This is the same route as Orca Pass



2.3 Immediate Action Needed

1. As the Proponent, the Port of Vancouver is a federal entity, and the environmental assessment is legally flawed and ethically challenged, the Project should be withdrawn.
2. As the process is legally flawed, and has the potential to be challenged in the courts due to the failure to include impacts of increased shipping in the Minister's decision, the Project should be withdrawn.
3. As there is the potential for irreversible, residual environmental effects to endangered species (*including the endangered Southern Resident Killer Whales*), the migratory birds, fish populations, and public health and safety, this Project should be withdrawn.
4. As the process has failed to include a risk analysis to address multiple uncertain residual effects, including effects of climate change, and fill with PCBs, the Project should be withdrawn.,
5. As the Precautionary Principle has not been credibly applied, the Project should be withdrawn.
6. As there has been an ongoing failure to credibly assess the cumulative impacts of past, current and future projects in the Fraser River Estuary, delta and narrow waterways to the Pacific, the Project should be withdrawn.
7. As the environmental assessment is failing the purpose of the Canadian Environmental Assessment Act to protect the environment from adverse effects, *Section 4 (1)* the Project should be withdrawn.
8. As there is no credible purpose or rationale for this Project, it should be withdrawn.
9. New directives, laws and policies should be provided to federal agencies so that they operate in good faith. They have not served the public well as they have not required credible scientific information or due process. Environment Canada (EC), the Department of Fisheries and Oceans (DFO), Transport Canada and Health Canada have skirted around this process. Health Canada addressed concerns for First Nations but submitted nothing for the health of all Canadians. EC and DFO used to submit substantive reports requesting specific, scientific-based evidence. Their reports to this process are less informative than many submissions from the public.
10. As the fragile ecosystems of the Fraser River estuary and narrow waterways to the Pacific are no longer protected by the *Navigable Waters Protection Act*, the Project should be withdrawn.

3.0 George Massey Tunnel Replacement Project

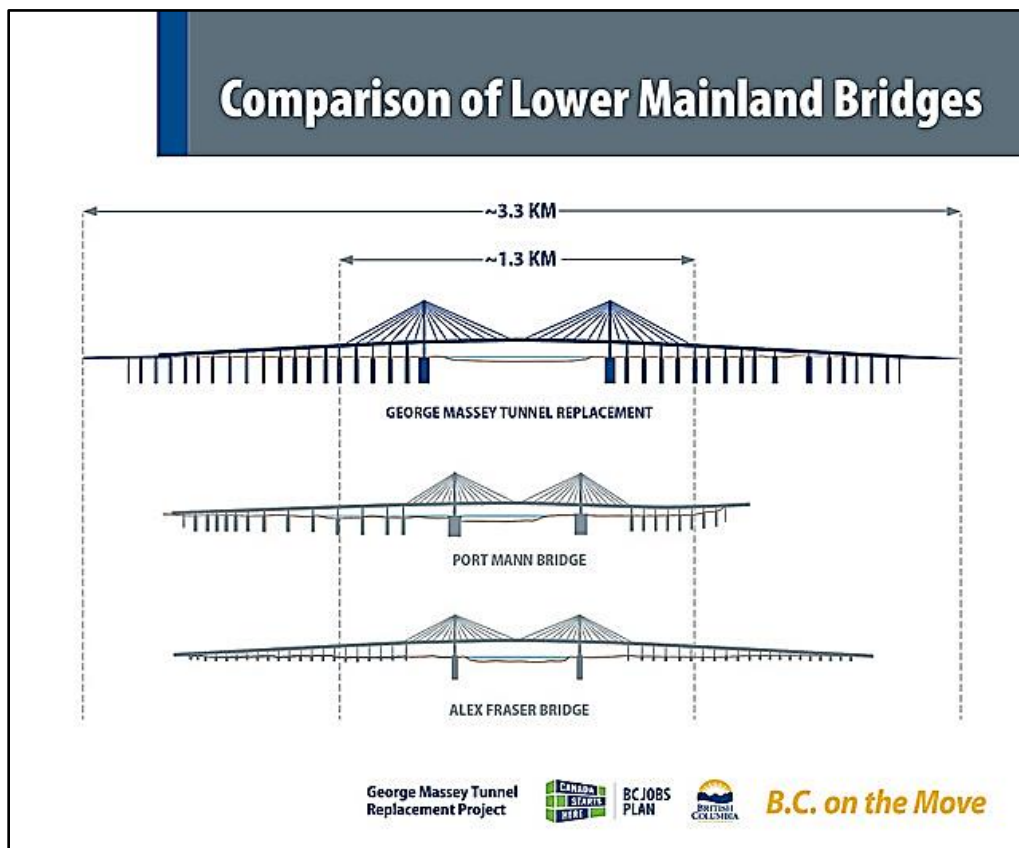
Provincial Environmental Assessment in progress but no federal environmental assessment to date, April, 2016

The B.C. Ministry of Transportation and Infrastructure (Proponent) proposes:

Replacing the George Massey Tunnel with a new 10-lane bridge spanning the South Arm of the Fraser River and Deas Island

- Decommission and removing the George Massey Tunnel, Deas Slough Bridge and related infrastructure
- Widening Highway 99 from Bridgeport Road in Richmond to Highway 91 in Delta
- Replacing the interchanges at Westminster Highway, Steveston Highway, and Highway 17A.

This will be the largest bridge ever built in B.C. with an estimated cost of \$3.5 billion. At 3 kilometres long, the cable-stay bridge will be 65% longer than the recently completed Port Mann Bridge.



The interchanges in Richmond and Delta will be 3 levels high.

3.1 Environmental Impacts

3.1.1 Far-reaching Project Related Effects

Disturbance to the Fraser River habitats will occur from shoreline modification, pile driving, ground stabilization works, construction, and significant alterations in the river from the removal of the existing Massey Tunnel. In addition there will be future impacts as the new bridge will allow numerous large freighters to travel the Fraser carrying LNG, coal, containers, cars, fuel and other products. The impacts of these vessels, their terminals, and their related infrastructure needs have not been included in the current environmental assessment.

3.1.2 Effects on Wildlife, Vegetation, and Water Quality

In addition to construction damage and disturbance, the removal of the Massey Tunnel will allow the river to be dredged much deeper to accommodate large freighters and tankers. The increase in number and size of ships in the Lower Fraser will negatively impact habitats and the species they support. The lowered river bed will alter the salt wedge impacting river and shoreline habitats, fisheries and adjacent farmlands. Also a deeper river could well lead to the loss of riparian marshes due to ship wake erosion and slippage of river banks into deeper waters.

These significant alterations in the Fraser River ecosystems will impact species that are dependent on the interactive, interdependent habitats of the river, shorelines, waterways, ditches, farmland and Burns Bog. New terminals and larger ships along the river will impact shorelines that have been classified as highly productive fish and wildlife habitat for numerous species including federally and provincially listed species:

SARA: Species at Risk Act

COSEWIC: Committee on the Status of Endangered Wildlife in Canada

- White Sturgeon Lower Fraser River population – Threatened under COSEWIC
- Pacific Water Shrew – Endangered under COSEWIC and endangered under SARA
- Great Blue Herons – Species of Special Concern under COSEWIC and Special Concern under SARA
- Eulachon – Fraser River population – Endangered under COSEWIC
- Streambank Lupine – Endangered under COSEWIC and SARA
- Bank Swallow – Threatened under COSEWIC
- B.C. Yellow Listed Sandhill Cranes are known to use the area close to the planned bridge. It appears breeding takes place in nearby field habitat.

Noise from construction, pile driving and tankers will impact some species and drive them away.

The agricultural fields around Crescent Slough, directly west of Burns Bog have been identified as a critical fall staging area for the Greater Sandhill Cranes. No other large group of sandhill cranes are known to occur in the region. They require the habitats of both Burns Bog and the surrounding agricultural lands. The cranes have been using this area since the 1800s and are very sensitive to disturbance. Bridge construction will impact this location.

Water quality in the river will be impacted by construction and freighters on the river. Storm water from the new bridge has the potential to pollute the river. New industrial activities along the river will pollute endangered and threatened streams and waterways critical to viable fish habitats.

3.1.3 Effects on Air Quality

The claim that the Project will improve air quality lacks sincerity and is not substantiated with accurate science. Increased traffic congestion and associated emissions will move from the tunnel area to the Oak Street and Knight Street Bridges.

The health of the public, the wildlife, the farmland and the river deserve more specific and accurate information on the potential impacts to air quality in the region. The massive bridge is expected to accommodate double the number of current truck movements. As it is clear that the Project is being planned to accommodate increased shipping vessels and industrialization along the river, a more comprehensive, inclusive air quality assessment is required. Impacts of emissions on the adjacent farmland soils, waterways and wildlife in the area need to be included.

3.1.4 Loss and Degradation of some of Canada's best farmland and habitats

Destroying a prime agricultural land in Delta and Richmond to build this bridge places jobs and long-term food security at risk. Once a corridor like this is built, urban sprawl inevitably follows. This does not correlate with the Greater Vancouver Regional Growth Strategy.

The farmland also supports Canada's largest number of wintering birds of prey. Some hunt at night so the tall bridge will result in bird strikes and light pollution will impede hunting on the farmland and along the river.

3.1.5 Rationale of the Project

The stated Rationale:

“Addressing safety and traffic congestion issues associated with the existing Tunnel are the primary reasons for the Ministry’s decision to proceed with the proposed Project.”

This fails to reveal the plan of removing the tunnel to accommodate Port Metro Vancouver's goal of industrializing the south arm of the Fraser. The real purpose of accommodating larger shipping vessels for containers, cars, coal, LNG and fuels should have been disclosed; it explains the excessive size and height of the planned bridge. Original plans to twin the Massey Tunnel changed after meetings took place amongst Port Metro Vancouver, the province, consultants, transportation business people, and the federal government. The public and local governments were not included in the planning; nor were they informed of changes being made to the original plans.

BC Government representatives began a series of meeting with Port Metro Vancouver in early 2012 as the port made it clear that:

“The tunnel is also a marine bottleneck. It was not designed for the size of ships used in modern day trade, which must access the Fraser River in Richmond and Surrey. As a result, the tunnel is becoming a significant obstacle to international trade on the Fraser.”

(Robin Silvester, CEO, Port Metro Vancouver: Vancouver Sun, April 29, 2012)

Discussions were underway about clearances for the new potential crossing and the Port of Vancouver made it clear to the government that plans should include air drafts to accommodate large ships:

"Liquid bulk tankers with larger air draft requirements (e.g. LNG) should be considered,"

(Port Development Strategies Manager, Jennifer Natland, Nov. 29, 2012 to Project Planners)

The Port of Vancouver signified its intent to dredge the river to 15.5 metres should the tunnel be removed. For shipping, it means the Fraser will have to be dredged 33 kilometres from Sand Heads to Surrey resulting in a major threat to migrating fingerlings threatening the survival of Fraser River fisheries and other wildlife habitat.

On September 20, 2013, the B.C. Government announced plans to build a bridge instead of replacing the tunnel. Port Metro Vancouver was included in the meetings for planning and design. Emails show that port staff urged the province to design a taller bridge, even though that would mean higher costs, a more challenging design and a steeper grade for Highway 99 traffic on both approaches.

On July 16, 2014, Port Metro Vancouver CEO, Robin Silvester queried:

“What is the air draft of the largest length LNG vessel that we could imagine in the river?”

Port marine operations director Chris Wellstood responded:

“...we feel that the 61-metre MAX air draft would allow for the larger part of the world's LNG fleet” – tankers up to 320 metres long- to pass under new bridge and head up the Fraser.”

In another exchange of emails:

“On a June 5th a follow up meeting between PMV and Gateway was held to discuss PMV’s height requirement and as a result of that meeting Gateway was going to provide a revised drawing with a 130 m one-way channel for clearances...

...The main issue with additional height for the bridge is that the shore landings need to be higher and longer which increases the overall cost of the project...

...Please let me know if you see a problem with the original height requirements requested by PMV in 2012...”

(Chris Wellstood, Director Marine Operations & Security, Harbour Master to Cliff Stewart, to Cliff Stewart, Vice President, Infrastructure Delivery, Port Metro Vancouver, July 15, 2014)

A June 2014 briefing note by port officials following a meeting with provincial counterparts cautions:

“...there are multiple challenges with high costs to achieve PMV's requested height" of 65 metres”.

These negotiations did not include the public or the local governments. The public have not been provided with credible information for other options such as upgrading the existing tunnel, twinning the tunnel, a smaller bridge or retaining the status quo with better transit and restrictions on truck hours.

In spite of repeated requests for the business case for this Project, the provincial government has failed to produce this information. This should have been presented to the public and local governments for comment in the early planning stages.



3.1.6 Traffic Congestion

The Massey Tunnel has at least 10 – 15 years of serviceable life before major operating systems will need to be replaced. A total of \$22 million was spent on seismic improvements in 2004 so it should be kept operational for as long as possible.

There is a need to address traffic congestion at the Massey Tunnel. However, there has not been a genuine effort by the B.C. Government to look at less expensive and less intrusive options such as twinning the tunnel or building a more modest bridge.

The B.C. Government has increased congestion by the addition of lanes feeding into the tunnel. Lanes were added as a result of the South Fraser Perimeter Road and for rapid transit. However, the rapid transit service is not being provided as planned. As a result of the increase in lanes funneling into the tunnel, there is more congestion and more accidents. This could be alleviated by better rapid transit as promised, and by realignment of the feeder lanes. This was an engineering error of the South Fraser Perimeter Road Project.

The traffic information provided to the public on this Project is incomplete and inaccurate. At this pre-application stage of the B.C. Environmental Assessment, there is almost no information on the B.C. Environmental Office website. Information that was provided to the public at Open Houses, *Project Definition Report* and *Traffic Data Overview, November, 2015*, was not on the official website which is extraordinary. This document provides superficial information on traffic patterns and numbers. The information is misleading and not properly substantiated. There is a credibility gap about the claim that 59% of the vehicles through the tunnel go to Richmond.

The *Traffic Data Overview, November, 2015* is not properly referenced as it does not provide resources for the public to check. The referenced reports are contrived documents compiled for the Project whereas public statistical reports should have been included.

The traffic data sources are an unconvincing mixture from strange tallying points so the summaries lack credibility. This varying collection of information is being used to create a traffic model for predicting traffic volumes. The process and results are unacceptable.

However, it appears that all information points to the fact that the number of vehicles through the tunnel is down about 4% over the past few years. There are about 6% fewer cars but there has been a 4% to 7% increase in trucks, probably due to ongoing construction projects such as the South Fraser Perimeter Road; Deltaport Road and Rail Improvement Project; the Tsawwassen First Nation's Mall and other developments. As trucks are long and cannot start or stop quickly, cars try to avoid them so each truck is equivalent to about 5 to 10 cars in the tunnel in terms of movement times and flow of traffic.

The container business at Deltaport has leveled out for the movement of Canadian-bound containers but there has been growth in US-bound containers being funneled through Deltaport. So perhaps the plans for a new container terminal at Roberts Bank and a massive new bridge are to benefit US business. It appears the purpose of the massive bridge is to provide truck routes over the river and freighters on the river. And the public is expected to pay for all of this.

3.1.7 Public Concern

Public input has not been genuinely sought. Vested interest groups were invited to "information meetings". Their interests were included in tabulating public input. The only reason for such a long, high bridge is to industrialize the south arm of the Fraser. Neither the public, nor the local governments were consulted on the size and length. As a result of the interests of Port Vancouver, the bridge is unnecessarily over-sized and over-priced.

Meetings between Port Vancouver and Gateway, prior to the public input on options for twinning the tunnel versus a new bridge, indicate that plans were already underway for a bridge.

The B.C. Government is ignoring concerns expressed by most Metro Vancouver local governments. The federal government should call for a federal Review Panel environmental assessment due to the level of public concern.

3.1.8 Social Impacts

The introduction of the largest bridge ever built in B.C. to the Lower Fraser will change the landscape and the environment forever. A bridge this size will not preserve the heritage of this area for farming and fishing. The Most Important Bird Areas in Canada will be degraded. You cannot industrialize an area with impunity. Noise, light, water, and air pollution will transform the lower Fraser into an industrial corridor. This will change the quality of life, the health of the river and the surrounding environment.

Plans for new Fraser River Bridge ignore agricultural and environmental concerns.

An article in the Vancouver newspaper, Georgia Straight, March 31, 2016, by Author and Naturalist, Anne Murray, capsules social and environmental concerns:

“It is misleading to ignore these developments and present the bridge as a green alternative that will somehow “increase farmland”. Existing ALR lands near the tunnel are for sale as investment opportunities at prices far beyond the reach of local farmers.” (See Appendix 3 for full article)

3.1.9 Need for a risk analysis to address uncertain residual effect predictions

The Project should be subject to a federal review as the purpose of the *Canadian Environmental Assessment Act* is 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; s. 4 (1) (a).

There is potential for irreparable significant adverse environmental effects from the massive George Massey Tunnel Replacement Project which is moving forward without due diligence to public input and concerns. More sensible, cheaper and more environmentally sensitive options have not been sincerely considered. A federal Review Panel Environmental Assessment is required to ensure a more thorough review.

3.1.10 Cumulative Environmental Effects

The collective impacts point to devastating degradation of the internationally-significant habitats and wildlife that depend on the health of the Fraser River delta and estuary. Millions of migratory birds, salmon and endangered orcas will be negatively impacted by many more large shipping vessels moving on the Fraser, the estuary and through Orca Pass.

The cumulative effects assessment needs to include not just the Project footprint but impacts from past, current, and planned Projects. It also needs to include impacts of increased shipping in the Fraser River and through the narrow shipping channels to the Pacific. For the past 20 years, the Canadian Environmental Assessment Agency (CEAA) has failed to require a credible cumulative effects assessment for all the Projects in the lower Fraser as required by law:

Canadian Environmental Assessment Act, 2012

Factors

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

- (a) the environmental effects of the designated project, including the environmental effects of malfunctions or accidents that may occur in connection with the designated project and any cumulative environmental effects that are likely to result from the designated project in combination with other physical activities that have been or will be carried out;
- (b) the significance of the effects referred to in paragraph (a);

3.2 Legally Flawed Process

Due to the level of public concern, and potential impacts to globally-significant habitats, this Project should be assessed by a federal Review Panel environmental assessment.

It is disconcerting that CEAA has not already advised the BC Government that the George Massey Tunnel Project requires federal permits due to impacts to the Fraser River.

CEAA should also identify the need to assess the environmental impacts that will result from removal of the tunnel, plans for future dredging, more and larger freighters on the river, and industrialization of properties up the river.

To date, April, 2016, the public is being denied a federal environmental assessment of the George Massey Tunnel Replacement Project even though four previous completed transportation Projects in this area required no less than 15 federal environmental assessments (EA) by the Canadian Environmental Assessment Agency (CEAA).

A study of these Projects reveals that CEAA did not present the public with full information for Projects during public input periods so additional environmental assessments were required after approval of a Project:

- Deltaport Third Berth – 3 federal environmental assessments – 2 after Project Approval
- South Fraser Perimeter Road – 5 federal environmental assessments – public included in only one – 4 after Project Approval
- Port Mann Bridge/Highway 1 Project – 2 environmental assessments – 1 after Project Approval
- Golden Ears Bridge – 5 environmental assessments – 3 after Project Approval

1. **Deltaport Third Berth** – CEAA #04-03-3734- Federal Comprehensive Study

Reasons for EA: - Vancouver Port Authority was the proponent
- Subsection 71(1) of the *Canadian Environmental Protection Act*
- Subsection 35(2) of the *Fisheries Act*.

Project Approved November 3, 2006

2. Loading and disposal at sea of material resulting from dredging at Deltaport Third Berth Construction- CEAA #09-01-50501- Federal Screening

Reasons for EA: - subsection 127(1) of the *Canadian Environmental Protection Act*.

Approved July 6, 2012

3. Loading and disposal at sea of material resulting from the removal of a portion of the Roberts Bank East Causeway- deposited at Point Grey – CEAA #09-01-50502-Federal Screening

Reasons for EA: - subsection 127(1) of the *Canadian Environmental Protection Act*.

Approved July 6, 2012

4. **South Fraser Perimeter Road** – CEAA #06-01-24060 – Federal Screening

Reasons for EA: - financial assistance from Transport Canada
-Section 5(1)(a) of the *Navigable Waters Protection Act*
-subsection 35(2) of the *Fisheries Act*.

Project Approved July 28, 2008

5. Pacific Water Shrew recovery on South Fraser Perimeter Road Advanced Works (Sunbury Stockpile site)- CEAA #09-01-45861- Federal Screening

Reason for EA: -it was determined that an environmental assessment was required in relation to the project because the Vancouver Fraser Port Authority considered providing federal lands. (*Note: this was known during the original assessment but not included*)

Approved March 2, 2009

6. Vegetation clearing, pre-loading & drainage modifications at CN Railway Intermodal Yard in Surrey (South Fraser Perimeter Road Project) – CEAA #10-01-59565- Federal Screening

Reason for EA: -subsection 35(2) of the *Fisheries Act*.

Approved Jan. 26, 2011

7. Maintenance Dredging, Pile and Conveyor Installation on River Road, Delta, BC (*South Fraser Perimeter Road Project*) – CEAA #11-01-64561 – Federal Screening
Reason for EA: -Vancouver Fraser Port Authority considered providing federal lands
(Note: this was known during the original assessment but not included) **Approved Jan. 17, 2012**
8. Pile and Conveyor Installation on 130 Street, Surrey, BC (*South Fraser Perimeter Road Project*) – CEAA #11-01-65273 – Federal Screening
Reason for EA: -Vancouver Fraser Port Authority considered providing federal lands
(Note: this was known during the original assessment but not included) **Approved Jan. 05, 2012**
9. **Port Mann Bridge/Highway 1 Project:** CEAA #29230 – Federal Screening EA
Reasons for EA: paragraph 5(1)(a) of the *Navigable Waters Protection Act* and subsection 35(2) of the *Fisheries Act*. **Project Approved July 10, 2008**
10. Port Mann Bridge Demolition: CEAA #59348 – Federal Screening
Reason for EA: subsection 35(2) of the *Fisheries Act*. **Approved July 6, 2012**
11. **Golden Ears Bridge Project:** Loading and Ocean Disposal – Disposal at Point Grey CEAA #06-01-18523 – Federal Screening
Reason for EA: subsection 71(1) of the *Canadian Environmental Protection Act*. **Project Approved April 27, 2006**
12. Golden Ears Bridge Project: Loading and Ocean Disposal – Disposal at Point Grey and Sands CEAA #06-01-19946 – Federal Screening EA Head
Reason for EA: subsection 71(1) of the *Canadian Environmental Protection Act*. **Approved June 27, 2006**
13. Golden Ears Bridge Project: Loading and Ocean Disposal- Disposal at Point Grey CEAA # 06-01-22782- Environment Canada 5055 -Federal Screening
Reason for EA: subsection 127(1) of the *Canadian Environmental Protection Act*. **Approved, November 10, 2006**
14. Golden Ears Bridge: Golden Ears Bridge: Use of PolyShield PBS to Stabilize Sediments and the Loading and Disposal at Sea of Dredged Material Treated with PolySheild PBS CEAA #06-01-21812 - Environment Canada: 5013
Reason for EA: subsection 127(1) of the *Canadian Environmental Protection Act*. **Approved April 2, 2007**
15. Golden Ears Bridge Project: Relocation of 500 metres of Linear Katzie Slough Canadian Environmental Assessment Registry: CEAA #08-01-40770 – Federal Screening Fisheries and Oceans Canada: #08-HPAC-PAI-00003
Reason for EA: subsection 35(2) of the *Fisheries Act* **Approved September 10, 2010**

This list demonstrates how flawed environmental assessment has become in Canada. The Deltaport Third Berth Project at Roberts Bank should have been a Review Panel Process due to cumulative impacts from planned projects at Deltaport. However, lawyers from the Department of Fisheries and Oceans assisted the Vancouver Port Authority in writing a letter to avoid a Review Panel Assessment. Two additional environmental assessments were done after the public process demonstrating that CEAA had not demanded full information at the outset.

Similarly, the South Fraser Perimeter Road should have required a Review Panel Assessment due to Species at Risk (*Pacific Water Shrew and Steambank Lupine*) on federal lands that were planned to be used for the Project. Although this was brought to the attention of CEAA during the environmental assessment, public input was ignored and the use of federal lands for the Project was not disclosed. Then after approval of the process, three environmental assessments were required due to the use of federal lands for the Project.

In all of these Projects, there has been a failure to properly disclose complete information at the beginning stages of environmental assessment resulting in a failure to identify the requirement of a Review Panel assessment as opposed to a lesser Screening process.

Additionally there has been a failure to insist on a credible assessment of cumulative environmental impacts of past, current and planned Projects in the lower Fraser. This is a requirement of the *Canadian Environmental Assessment Act*. Unless there is a major change at the Canadian Environmental Assessment Agency, CEAA, the George Massey Tunnel Project will receive the same rubber stamp process and there will be long-term adverse impacts on the Fraser River and estuary.

3.3 Immediate Action Needed

1. As the George Massey Tunnel Replacement Project has far-reaching implications for navigation on the Fraser River and future industrialization along the River impacting globally significant habitats for wildlife, the Project should be referred to a federal Review Panel Environmental Assessment.
2. As the B.C. Environmental Assessment Process fails to meet federal requirements under the *Canadian Environmental Assessment Act*, the Project should be referred to a federal Review Panel Environmental Assessment.
3. As federal permits and consultation will be required, there should be a federal environmental assessment at this initial stage, not after approval of the Project.
4. Due to the potential residual adverse environmental effects of the Project, the Precautionary Principle of a federal environmental assessment should be applied.
5. Due to the high level of concern by the public and local governments, the federal government should refer this Project to a Review Panel.
6. As there has been an ongoing failure to credibly assess the cumulative impacts of past, current and future projects in the Fraser River Estuary, delta and narrow waterways to the Pacific, the Project should be referred to a federal Review Panel environmental assessment.
7. As there is no business case or credible rationale to build the longest and largest bridge in B.C. on the lower Fraser River, a federal process would review the Project in terms of need and justification.
8. As the process has failed to include a risk analysis to address multiple uncertain residual effects, including effects of climate change, there should be a federal environmental assessment.
9. As plans to double the number of trucks from Deltaport and industrialize the lower Fraser River will have a major impact on air quality in Greater Vancouver, there should be a federal environmental assessment of impacts on the health of the Fraser River, the Fraser Valley, the wildlife and the public.

The Canadian Government commenced an environmental assessment for the WesPac Jetty on July 10, 2015, two months after the National Energy Board had already granted a license. The federal Minister of Environment inappropriately granted substitution of the environmental assessment to British Columbia under a Memorandum of Understanding on the Substitution of Environmental Assessments (2013).

As the LNG terminal and its operation will have far-reaching impacts on the Fraser estuary ecosystems and the health and safety of nearby communities, the Canadian Environmental Assessment Agency should have required a Review Panel environmental assessment.

4.1 Environmental Impacts

4.1.1 Need for a Cumulative Effects Assessment

The WesPac Tilbury Marine Terminal will require considerable dredging impacting salmon and other fish species including the salmon, endangered White Sturgeon and fast-disappearing eulachon.

Missing is the potential effects on the health and survival of the Fraser Delta ecosystems which interact interdependently to support living organisms that have local, national and international significance. Piecemeal projects, such as this LNG Terminal, are causing degradation that is leading to the loss of clean air, endangered species at risk, salmon runs, herring, sturgeon, and millions of birds that make this area Canada's most Important Bird Area (IBA).

The document, Valued Component Selection Document for Tilbury LNG Jetty, lacks clarity and transparency. The B.C Environmental Assessment Office should not accept this document as it does not meet the requirements of either the *B.C. Assessment Act* or the *Canadian Environmental Assessment Act*. It fails to address accountability under these acts as well as *Species at Risk Act*, *Fisheries Act*, *Migratory Bird Act*, *Canada Marine Act*, *BC Environment Management Act* and other legislation along with many local and transboundary agreements.

The Scope of the Assessment should include effects of the shipping associated with the 21 kilometre route within the South Arm of the Fraser River to Sand Heads and then the route through the Strait of Georgia, the Gulf Islands, Boundary Pass, Haro Strait, and the Salish Sea to the Pacific Ocean.

The terminal site is coded RED in the Fraser River Estuary Management Plan (FREMP) habitat mapping system. This is the highest coding for habitat and is designated for protection.

4.1.2 Require Inclusion of Downstream and Upstream Effects

Upstream the gas well industry, whence the natural gas is obtained, has had devastating effects on the wildlife in the area, not to mention the leakage of methane into the atmosphere.

Downstream, the passage of over a hundred LNG ships per year, cumulatively with planned increase in container ships, through Strait of Georgia and Juan de Fuca Strait can only have serious detrimental effects on all the wildlife in the area, particularly orcas, humpback whales, and all the fish species including five species of salmon, sturgeon, steelhead, herring and eulachon.

Russian scientists, who have researched LNG environmental impacts on salmon and marine life, claim LNG operations on Sakhalin Island in Russia negatively impacted habitat and marine life. The nearby pink salmon runs collapsed.

http://friendsofwildsalmon.ca/news/article/russian_science_delegation_says_pacific_northwest_lng_could_collapse_skeena

4.1.3 Inadequate Information on Current and Long-term Dredging Requirements and Effects

Around the Wespac terminal, there needs to be a huge dredging operation before the dock is built and at frequent intervals thereafter, just to allow huge tankers enough draft to access the jetty. The environmental impact of such massive dredging is impossible to quantify, but is sufficiently worrying that this alone should disqualify the project.

4.1.4 Major Safety Concerns not addressed

Safety in the production and transportation of liquefied natural gas needs to be taken very seriously. There are many lives at stake and accidents have occurred. Even the ocean traffic may not be as safe as claimed. A spill of LNG, a very cold liquid of course, is reported by some experts as a serious fire hazard. Apparently a large amount of very cold methane liquid will freeze water that comes in contact with it, and the resultant reaction may have safety considerations, even an explosion.

The WesPac Midstream LNG Terminal Project contravenes the LNG Terminal Siting Standards as outlined by the Society of International Gas Tanker and Terminal Operators (SIGTTO) of which WesPac is a member. The plans to transport LNG vessels through the South Arm of the Fraser River breach the protocol of avoiding transit fairways and populated areas.

An abbreviated Summary of LNG Terminal Siting Standards:

<http://www.quoddyloop.com/lngtss/standards.html>

1. There is no acceptable probability for a catastrophic LNG release [¹];
2. LNG ports must be located where LNG vapors from a spill or release cannot affect civilians [²];
3. LNG ship berths must be far from the ship transit fairway;
 - a. To prevent collision or allision [³] from other vessels;
 - a. To prevent surging and ranging along the LNG pier and jetty that may cause the berthed ship to break its moorings and/or LNG connection;
 - b. moorings and/or LNG connection;
 - c. Since all other vessels must be considered an ignition source; LNG ports must be located where they do not conflict with other waterway uses [⁴] — now and into the future. [This requires long-range planning for the entire port area prior to committing to a terminal location];

Long, narrow inland waterways are to be avoided, due to greater navigation risk;

Waterways containing navigation hazards are to be avoided as LNG ports;

LNG ports must not be located on the outside curve in the waterway, since other transiting vessels would at some time during their transits be headed directly at the berthed LNG ship;

Human error potential always exists, so it must be taken into consideration when selecting and designing an LNG port.

>> Additional items exist in the standard than are summarized here. Please refer to "[Site Selection and Design for LNG Ports and Jetties](#)."

¹ While risk of small LNG spills is acceptable, any risk of catastrophic LNG release is unacceptable.

² Sandia National Laboratories defines for the US Department of Energy three Hazard Zones (also called, "Zones of Concern") surrounding LNG carriers. The largest Zone is 2.2 miles/3,500 meters around the vessel, indicating that LNG ports must be located at least that distance from civilians. Some world-recognized LNG hazard experts, such as Dr. Jerry Havens (University of Arkansas; former Coast Guard LNG vapor hazard researcher), indicate that three miles or more is a more realistic Hazard Zone distance.

³ Allision — (nautical term) Collision between a moving vessel and a stationary vessel or object

⁴ Conflicting waterway uses include fishing and recreational boating.

The Standards claim LNG ports must be located where they do not conflict with other waterway uses as all other vessels must be considered as ignition sources.

<http://www.surreyleader.com/news/307170211.html>

The B.C. Wilderness Committee has created a risk map of the lower Fraser based on a U.S. Coast Guard document that outlines "zones of concern" in the event an LNG tanker accident.

Zone 1, within 500 metres of a ruptured LNG tanker, is "where an LNG spill could pose severe public safety and property hazard and could damage or significantly disrupt critical infrastructure and key assets," according to the U.S. document.

Consequences would be "less severe" in a wider hazard zone band up to 1.6 kilometres away.

Zone 3 would extend up to 3.5 kilometres – which according to the map would encompass all of Steveston and much of Ladner – and is considered the maximum distance a cloud of escaped LNG vapour could drift without dispersing. If it ignited, the cloud could burn back to the tanker and result in a "pool fire."

LNG Hazard Zones

Red – 500 metres **Purple** – 1.6 kilometres **Blue** – 3.5 kilometres.

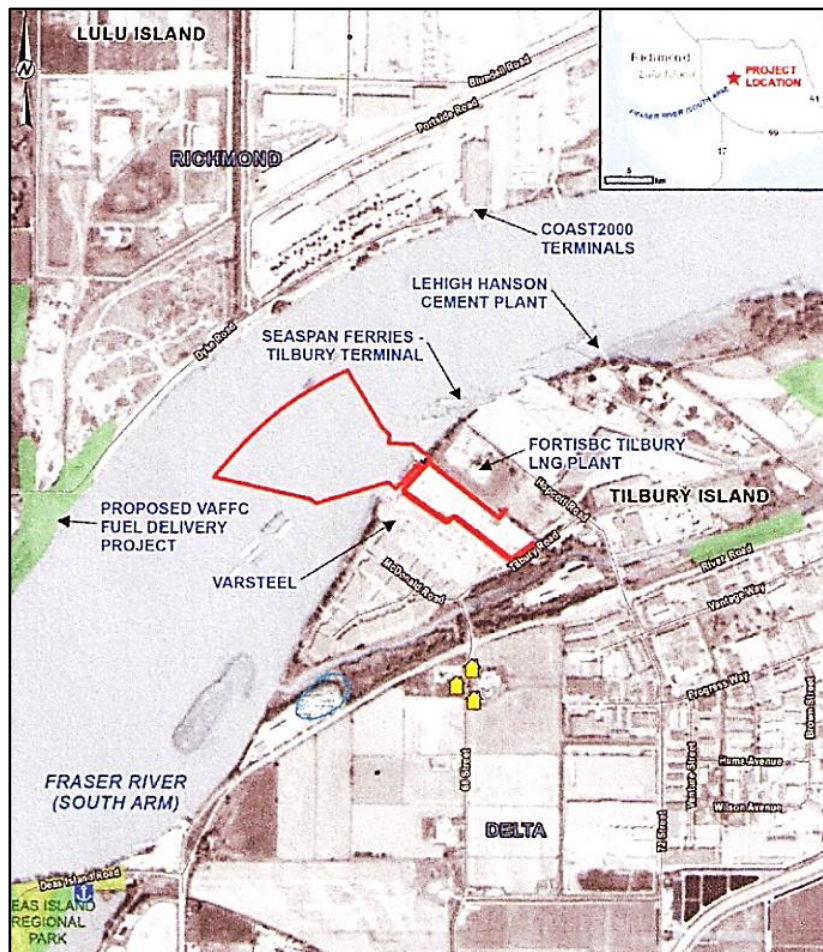


B.C. environmental groups circulated this map to show how U.S. Coast Guard-defined hazard zones for LNG tankers would overlay the route from the proposed Tilbury LNG port.

The width of the Fraser River does not come close to the minimum safety requirements for LNG. The close proximity of these routes to densely populated communities is a big no-no in the eyes of global experts on LNG tanker safety.

Safety concerns in the USA, and resultant public outcry, have prevented several proposed LNG Terminals (receiving plants) from being built, especially in urban areas, i.e. East Coast and California. The US has laws preventing the movement of LNG ships in narrow waterways and close to communities. LNG production and export should not be permitted in this Tilbury Island location due to safety concerns on site and along the narrow shipping route. The Fraser River is too narrow to meet the international standards for the safe shipping of LNG.

The FortisBC Tilbury LNG plant and adjacent planned WesPac Terminal for LNG export are too close to communities, industrial activities and public areas as shown in the map below with a fuel delivery project on the opposite bank, a shipping facility, a cement plant, and a steel plant all nearby.



- The LNG operation will be a major intrusion into the Fraser River with offshore and onshore activities.
- Due to the narrow areas in the Fraser River, an appropriate safety zone around the LNG vessels and barges cannot be achieved.
- The large LNG vessels will dominate the river negatively impacting small businesses and recreational users.
- Large LNG vessels will impact the Fraser Valley Air shed contravening Metro Vancouver air quality standards and guidelines along with transboundary agreements.
- There will be impacts to the archaeological site on the opposite side of the river.
- The beams of the LNG ships are too wide for safety on the river.
- The people along the Fraser River and on the Gulf Islands will be affected by proximity to LNG ships and wave impacts.
- Vessels need to move through narrow, busy channels of the Strait of Georgia, the Gulf Islands, Boundary Pass, Haro Strait, and the Salish Sea to the Pacific Ocean.
- There are potential hazards of a large liquefied natural gas spill during marine transportation. These can cause toxic vapours, pollution and even fires or explosions.

4.2 Legally Flawed Process

Steps taken to facilitate the large export LNG facility and adjacent shipping terminal at Tilbury Island, 21 kilometers up the Fraser River Estuary, have not been transparent and the public has been deceived.

4.2.1 CEAA Disclaimer Contravenes Due Process and Legislation

Three weeks after Stephen Harper dissolved the Canadian parliament, the Canadian Environmental Assessment Office wrote to the B.C. Environmental Assessment Office making the disclaimer that the effects of shipping associated with the WesPac Tilbury Marine Jetty Project are:

”beyond the care and control of the proponent, along with the designated shipping route within the South Arm of the Fraser River, from the Project’s marine terminal to the pilot station at Sand Heads.” (*Letter from CEAA to B.C. EAO, August 24, 2015*)

This statement defies belief. So no one is accountable for the effects of up to 122 LNG carriers and 90 LNG barges per year for 21 kilometers in the Fraser estuary and then through the narrow channels of Boundary Pass and Haro Strait out to the Pacific.

The same disclaimer was made to the environmental assessment of the Roberts Bank Terminal 2 Project. CEAA has been advised that these disclaimers contravene the *Canadian Environmental Assessment Act* and CEAA has been put on notice that should shipping effects be excluded from the cumulative effects assessment and the decision-making process, clients may be forced to take the issue to court. This intent to slip past due diligence should provide the new 2015 Liberal Government with a reason to terminate this flawed, illegal process under the *Canada Marine Act*, the *Canadian Environmental Assessment Act*, the *Species at Risk Act*, and the *Environmental Protection Act*.

4.2.2 Failure to Effectively Disclose the Interdependence of two LNG Projects

The proponents for the shipping terminal claim the two adjacent projects are separate. One is the FortisBC LNG massive expansion. The other is the WesPac Midstream shipping terminal required to export the LNG. So it is dishonest to treat the two projects separately as they are located side by side and their operations are interdependent. This is a classic example of project splitting to avoid full disclosure of environmental impacts. To ignore the FortisBC Tilbury LNG plant in the assessment of the shipping terminal is in contravention of the *Canadian Environmental Assessment Act*.

Also the Operation Policy Statement of CEAA requires “*the assessment of the environmental effects of accidents and malfunctions that may occur in relation to the designated project. Accordingly, the environmental effects of accidents and malfunctions must be considered in the assessment of cumulative environmental effects if they are likely to result from the designated project in combination with other physical activities that have been or will be carried out.*”

While the proponent of the shipping berth claims it is a separate Project from the FortisBC Tilbury expansion, information of the background to the WesPac Terminal Project indicates a clear understanding of the interdependence of the two projects. In a report by Natural Resources Canada, Energy Markets Fact Book 2014-2015, it is spelled out on page 51:

**“WesPac Marine Terminal/Tilbury LNG (Delta, BC) Marine terminal proposed by WestPac Midstream
Maximum capacity of 3 mtpa (0.40 bcf/d) following expansion of existing Tilbury LNG (FortisBC) facility
Targeted start date of 2016”**

Note: 3 mtpa = 3 million tonnes of LNG per annum. .40 bcf/d = 40 billion cubic feet per day

http://www.nrcan.gc.ca/sites/www.nrcan.gc.ca/files/energy/files/pdf/2014/14-173EnergyMarketFacts_e.pdf

The FortisBC Tilbury LNG plant and expansion are also included in the export licence granted to WesPac Midstream Vancouver by the National Energy Board:

“WPMV stated it intends to export LNG produced at the Tilbury plant in Delta, British Columbia, which is owned by FortisBC Energy Inc.” (Page 7 of the Letter Decision, May 7, 2015)

https://docs.neb-one.gc.ca/11-eng/11sapi.dll/fetch/2000/90466/94153/552726/2482343/2482959/2774368/Letter_Decision_to_WesPac_Midstream_-_Vancouver_LLC_-_Application_for_a_licence_to_Export_Natural_Gas_-_A4L1F1.pdf?nodeid=2773609&vernum=-2

So to pretend that these are separate Projects is deliberately misleading the public. The FortisBC Tilbury LNG plant will not be able to transport its product without the new terminal so the public is not offered an opportunity for the project to be rejected. It is classic “cart before the horse” process which contravenes the general principles of environmental assessment: transparency, practical, purposive, inter-disciplinary, participative, efficient, relevant, integrated, credible, and it certainly isn’t rigorous.

For the Canadian Environmental Assessment Agency and the Canadian Government to accommodate this flawed process raises serious questions of the public interest and the public trust. So how did it unfold that LNG at FortisBC Tilbury is being permitted to proceed to 90 times the current production with a license for export?

4.2.3 Failure to require environmental assessment and public input to expanded FortisBC Tilbury LNG plant

The failure to undertake an environmental assessment for the FortisBC Tilbury LNG plant contravenes legal and ethical due process. As the plant requires transmission lines for electricity, LNG storage and processing natural gas, and a pipeline to the new dock, both a federal and provincial environmental assessment should have been required. The Blakes legal firm document, ‘*Overview of the Permitting Requirements for LNG Projects in British Columbia*’, points out in the Review Process that an environmental assessment is typical with any LNG Project so how the provincial and federal governments let this one slip through without any environmental assessment raises serious questions.



Shipping Route in South Arm of Fraser River from Tilbury Island to Strait of Georgia



4.2.4 License to export LNG through narrow Lower Mainland channels granted without due process

In 2013 and 2014, the B.C. Government announced it had exempted FortisBC LNG expansion at Tilbury from a Certificate of Public Convenience and Necessity (CPCN) and a review by the B.C. Utilities Commission. Furthermore, the B.C. Government passed two Orders-in-Council to allow the LNG expansions to 56 times the current production of 5,000 gigajoules per day with full build out plans for 450,000 gigajoules per day. The public was not consulted and an environmental assessment was not included.

Surely a federal environmental assessment should have been required for the FortisBC LNG expansion approval as there are considerable risks of safety and health to the public and the fragile ecosystems on the shoreline of the Fraser River impacting fish populations, water quality and air quality.

4.2.5 Lack of Disclosure and Accurate Information to the Public

The Valued Component Selection Document fails to give an accurate description of the Project. Page 6 refers to up to 90 LNG vessels and up to 34 barges per year. This is not consistent with the WesPac Tilbury website which claims:

“It is estimated that up to 90 barge calls and up to 122 LNG carrier calls (of various sizes) could occur at the jetty per year.”

Such discrepancies demonstrate disregard of public interest and a huge gap in credibility. It is unclear what size the LNG ships and barges will be. From the little that can be gleaned from snippets of contradictory information, the public could witness LNG carriers of all sizes on the Fraser. Even the smallest LNG vessels are at least 33% larger than the B.C Ferries and the LNG barges will be almost as long as the ferries.



Example of the type of mid-sized LNG carrier that would load at the proposed WesPac Terminal

The 38.0 metres width of the beams on LNG ships exceed the 32.5 metres that are the current limit on the Fraser. Apparently, WesPac Midstream has applied to Port Metro Vancouver for exemption from the limit. So it turns out that Port Metro Vancouver has the power to grant permission for larger vessels on the Fraser River? Surely, this is classic Fox overseeing the Henhouse and the public has no assurances about the size and length of LNG vessels that could be permitted on the River.

One internet blog, Mighty-Ships.com, claims: *“Definitely the LNG Carriers are among the most dangerous ships sailing around the seas. They are carrying compressed natural gas, which is flammable and easily exploding. The gas carriers are having large requirements for their machinery, their tanks and their support.”*

4.2.6 License Granted to Export LNG through Graveyard of the Pacific

On May 7, 2015, Canada's National Energy Board approved a license for the annual export of 3.5 million tonnes of LNG without an environmental or risk assessment. Two months later, federal and provincial environmental assessments were initiated with the federal government granting a substitution process to B.C.

The LNG ships will be travelling through the narrow channels of the Fraser River and the Gulf Islands to the Strait of Juan de Fuca which can be extremely dangerous due to strong easterly wind, frequently reaching 60-80 miles per hour.

“Pacific Northwest ports are being increasingly used to ship oil and coal to Asia. Unfortunately, **northwest inland and coastal waters are some of the most dangerous in the world**, with strong winds, powerful currents, rocky shores and river bars. Unstable, steep slopes threaten train traffic heading to coal/oil ports, and a huge fishery and shellfish industry is at risk if a spill occurs. With coal and oil shipping potentially increasing substantially over the next decade, the threat of major or catastrophic environmental damage is substantial.”

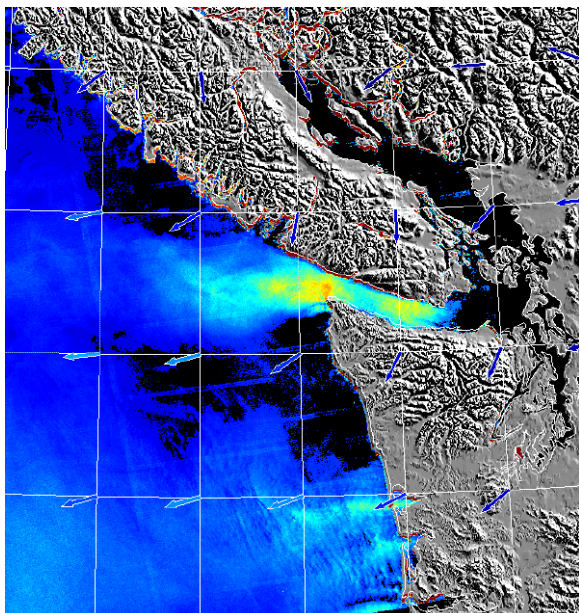
<http://coalexportfacts.org/2014/04/24/are-pacific-northwest-waters-too-risky-for-oil-and-coal-ships-cliff-mass-weather-blog/>



“The blue region on the map is known as the Graveyard of the Pacific with strong winds sometimes reaching hurricane strength...”



High Winds near Victoria, B.C. – two barges broke loose and drifted to shore on March 3, 2016.



← **Gap Winds through Strait of Juan de Fuca**
LNG ships will be travelling through this dangerous passageway

The Juan de Fuca Eddy Ecosystem is a regional system of localized currents at the entrance to the Strait of Juan de Fuca. Known as “the Big Eddy”, its waters flow in and out of the strait and mix with coastal currents along the shores of Washington and Vancouver Island. Rich in nutrients, the Big Eddy supports entire food chains – from plankton to whales. Imagine the effects of an LNG accident in this location.

4.3 Immediate Action Needed

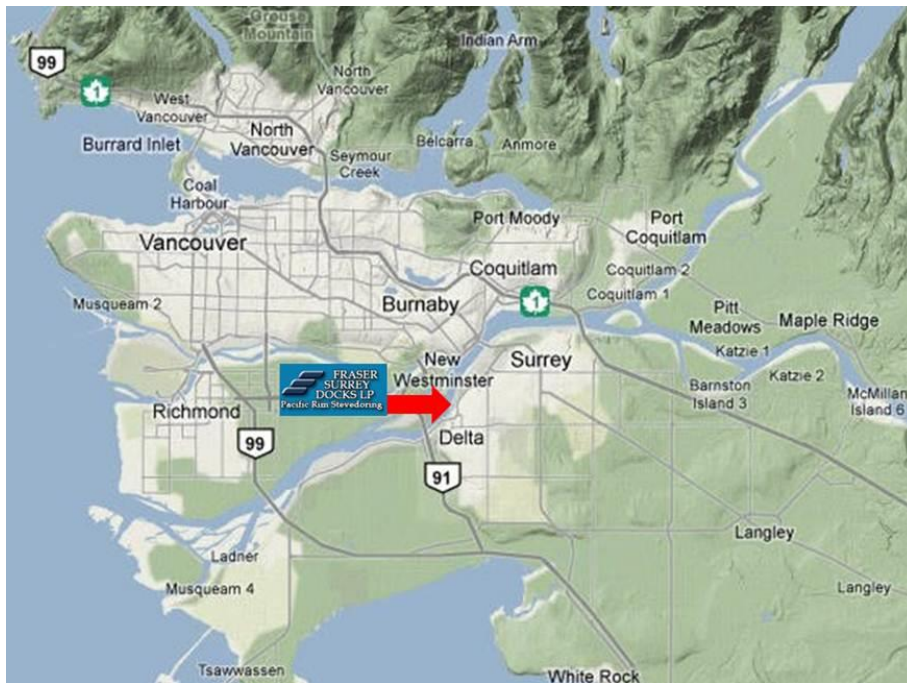
1. As the federal and provincial governments have granted approval and a license for the Tilbury LNG production and export without due process, the federal government should terminate the Projects.
2. As the FortisBC Tilbury LNG plant was granted permission in 2013 and 2014 to expand its operation to 56 times the current production without any public process or environmental assessment, the federal government should not permit the WesPac Tilbury Marine Jetty Project to transport this LNG.
3. As the National Energy Board approved a license in May, 2015, for WesPac to annually export 3.5 million tonnes of LNG without any public input or an environmental assessment, both Projects should be terminated.
4. As LNG export ships in the narrow, highly-populated Fraser River estuary, and narrow shipping lanes through the Gulf Islands, put the public's safety and health at risk, the Projects should be terminated.
5. As the Canadian Environmental Assessment Agency has erroneously abdicated the federal environmental assessment of the WesPac Tilbury Marine Jetty to the B.C. Government, the Project should be terminated.
6. As the process is legally flawed due to the failure of the Canadian Environmental Assessment Agency to include the effects of shipping associated with the Project in the cumulative effects assessment and the Project decision, both the LNG expansion production and export facility should be terminated.
7. As the Harper Conservative Government unethically, and apparently illegally, authorized Port Metro Vancouver to exercise powers and functions that the federal government is constitutionally bound to exercise itself, this Project should be terminated. The Fraser River is no longer being protected by the *Navigable Waters Protection Act* and Port Metro Vancouver has inappropriately been granted powers of regulations and exemptions on the Fraser River.
8. As the Project fails to meet the LNG Terminal Siting Standards as outlined by the Society of International Gas Tanker and Terminal Operators (SIGGTO), both Projects should be terminated.
9. As the Canadian Heritage Fraser River, estuary and waterways to the Pacific have global significance for salmon, migratory birds and endangered species such as the Southern Resident Killer Whales, the LNG Projects at Tilbury Island should be terminated.
10. As Port Metro Vancouver has abdicated a lease to facilitate the Project, more information should be provided.
11. As WesPac seeks approval to use federal crown waterlot for the LNG Terminal, the federal government should refuse the use of federal crown fish habitat for LNG operations.
12. As the Precautionary Principle has not been credibly applied, the Projects should be terminated.
13. As the process has failed to include a risk analysis to address multiple uncertain residual effects, including effects of climate change, potential for a catastrophic accident greater than Lac-Megantic, Quebec, and exposure to acts of terrorism due to the vulnerable, unprotected location, the Projects should be terminated.
14. As there has been an ongoing failure to credibly assess the cumulative environmental impacts of past, current and future projects in the Fraser River Estuary, delta and narrow waterways to the Pacific, the Project should be terminated.

5.0 Direct Transfer Coal Facility at Fraser Surrey Docks (FSD)

No federal or provincial Environmental Assessment - only a Port of Vancouver permit

Fraser Surrey Docks is the largest modern, multi-purpose marine terminal on the West Coast of North America with facilities for Containers, Breakbulk, Project Cargo, Forest Products and Bulk customers. The facility is located in the greater Vancouver area of Surrey, British Columbia, along the banks of the Heritage Fraser River. Ships travel 34 kilometers up and down the Fraser River with various cargoes.

The Proponent, Fraser Surrey Docks plans to construct a Direct Transfer Coal Facility to ship up to 8 million metric tonnes of American Thermal Coal through British Columbia, annually. If this happens, BC will become the largest coal exporter in all of North America.



In June, 2012, the proponent, Fraser Surrey Docks, submitted a Project Application to Port Metro Vancouver for approval to ship up to 4 million metric tonnes of US Thermal Coal. This is another classic Fox in the Henhouse process with Port Metro Vancouver approving Projects on the properties they manage within their mandate.

The Project includes the development of a coal-handling facility on the site with new rail facilities. The US thermal coal is to be shipped by the Burlington Northern Santa Fe Railway from Wyoming and Montana, through the B.C. municipalities of White Rock, South Surrey, Delta and North Surrey to the Fraser Surrey Docks where it will be shipped overseas.

On August 21, 2014, Port Metro Vancouver issued a permit to Fraser Surrey Docks to proceed with the facility to handle up to 4 million metric tonnes of coal.

At first, the export plan was to barge the coal down the Fraser River past the municipalities of New Westminster, Burnaby, Delta and Richmond to Texada Island to be unloaded and then later reloaded onto large ocean-going vessels. This plan was changed and on November 15, 2015, Port Metro Vancouver issued a project permit amendment to allow for the direct loading of coal onto ocean-going vessels at the Surrey Docks.

5.1 Environmental Impacts

5.1.1 Irreversible Adverse Effects on Fish, Vegetation and Wildlife

Due to public pressure, Port Metro Vancouver asked Fraser Surrey Docks in the fall of 2013 to conduct an Environmental Impact Assessment. Fraser Surrey Docks hired SNC-Lavalin to do the Environmental Impact Assessment (EIA) raising public concern about the reputation of the company, their delivery of coal mining projects around the world, and their close connection through business agreements with Macquarie, the owners of Surrey Docks.

The Environmental Impact Assessment (EIA) stated there will be adverse impacts on fish and fish habitat, including species-at-risk. There will be a permanent loss of riparian habitat which was understated in the EIA. Several red-coded waterways, which are highly productive fish and wildlife habitats, were identified and dismissed as already compromised inferring it is okay to cause further negative impacts. The EIA also identified adverse effects on vegetation and wildlife species-at-risk from habitat loss and fragmentation.

These findings alone should have triggered a proper Canadian Environmental Assessment process, not a Port Metro Vancouver in-house vacuous report. The mitigation plans are descriptive with the usual meaningless promises of vigilance and good practices. The document failed to provide evidence-based science to support the conclusion that, with mitigation, there will be no residual effects. No thoughtful person believes these conclusions anymore due to the repeated template now presented to the public as “rigorous environmental assessments”.

5.1.2 Effects on Air Quality

Upon review of the released EIA in November 2013, Chief Medical Health Officers Dr. Paul Van Buynder of Fraser Health Authority and Dr. Patricia Daly of Vancouver Coastal Health called the report inadequate and deeply flawed as it focused more on the environment than human health, and it left out most communities, choosing to focus primarily on the area around Fraser Surrey Docks.

Over 3700 public comments were submitted to Provincial Health and Environment Ministers asking them to intervene and request an independent Health Impact Assessment. To date (March, 2016) this has not materialized.

Trains transporting uncovered coal will be traveling through many municipalities close to residential areas. Naturally, the public has voiced concern about the impacts from the coal dust which has, not only deadly inhalable fine particles that can stay airborne for days, but also heavy metals such as arsenic, lead, mercury, and cadmium. Add to this diesel emissions from the trains, port equipment and coal ships. Every time coal is handled, there is an escape of fugitive coal dust. Fraser Surrey docks will give at least two doses: unloading the rail car into a pit, possible storage on site and then a conveyer belt to a ship.

5.1.3 Public Concern

Due to the level of public concern, the potential for significant residual adverse environmental effects, and concerns of infringement on aboriginal rights, the Project should be subject to a federal Review Panel Environmental Assessment and an assessment under the B.C. Environmental Management Act.

On September 25, 2014, the Union of BC Municipalities (UBCM) voted to urge the need for a full assessment of health and environmental impacts of moving thermal coal through BC. At that time, the plan was to move the coal by barge to Texada. Concern was expressed at the UBCM that in the future freighters would travel up the Fraser River to directly load the coal. That fear was realized when Port Metro Vancouver approved an amendment on November 15, 2015, allowing for the direct loading of coal at the Fraser Surrey Docks.

During the November-December 2013 public comment period, over 3500 people posted comments opposed to the project and only 6 were in favour. Nearly 30,000 people have signed petitions opposing coal export expansion and twelve local governments have expressed concerns about the proposal.

5.1.4 No Credible Purpose or Rationale

An important element of environmental assessment is to provide evidence of the need and purpose of a Project. The rationale and purpose of the coal transfer from Fraser Surrey Docks cannot be substantiated. It doesn't make sense to use this prime industrial port to funnel US dirty, thermal coal through B.C. with no economic benefit to Canadians but with negative effects on their health and the ecosystems of the lower Fraser River.

A November, 2014, report by the Institute for Energy Economics and Financial Analysis (IEEFA) warned of the decline in demand for coal-port capacity. In a more recent report, March, 2016, the same author, Tom Sanzillo, investment bank and financial advisor, warns that the coal industry is in trouble and advises of:

“A growing awareness that there is no safe way to burn coal is spreading globally. Coal use creates air, water and land pollution that is simply no longer acceptable to the public.”

He warns that coal proponents have it wrong and today's low coal prices have depressed revenues.

There are compelling reasons of environmental risks and regulations that are preventing the US from exporting its own coal. These same reasons should prevent the export through B.C.

Port Metro Vancouver (PMV) is constantly sending out press releases claiming a desperate need for industrial land and yet PMV is willing to use its best site, with ample industrial land, for the highly questionable coal export project that makes no economic sense and which creates air, water and land pollution.



Why would Canada want to waste this prime industrial site on the globally-significant Heritage Fraser River by shipping dirty US thermal coal through B.C.?



Photo: Jerry Bierens for Delta Optimist

Westshore Coal Terminal at Roberts Bank, 45 km per hour winds in April, 2012

Coal dust is a deleterious substance under the pollution section of the Fisheries Act as it is damaging to delicate tissues and can clog fish gills. Suspended in water, the dust obstructs sunlight interfering with photosynthesis. Settling on the ocean or river floor, it impacts fish and crab species.

5.2 Legally Flawed Process

According to Fraser Surrey Docks, the Project does not require a federal or provincial environmental assessment. This is the result of the major changes the Harper Conservative Government made to environmental assessment and protective legislation. Just how Port Metro Vancouver (PMV) changed from a proponent of projects to a position of power to approve its own projects raises serious questions about legal accountability.

The process is further flawed in that Port Metro Vancouver claims no accountability for a Project beyond the port footprint. In other words, there is no accountability by Port Metro Vancouver for the impacts of freighters on the Fraser River and the narrow shipping lanes to the Pacific.

This Project should have triggered a federal Review Panel environmental assessment due to the high level of public concern and potential irreversible environmental impacts to fish, wildlife, air quality, and water quality.

5.2.1 Legal Challenges for a Judicial Review of PMV's decision to grant a permit for the Coal Facility

VTACC, Communities and Coal and 2 Individuals

On September 19, 2014, Ecojustice, on behalf of Voters Taking Action on Climate Change (VTACC); Communities and Coal; and two individual applicants filed an application for a Judicial Review of the Port Metro Vancouver (PMV) decision to grant a permit alleging the decision making process was unlawful and bias, and furthermore, it failed to consider the climate impacts that would be generated by the export and burning of this US thermal coal.

As of March, 2016, the court date has not been assigned. It is expected the case will be heard in the fall of 2016.

Cities of New Westminster and Surrey Granted Intervener Status

On July 13, 2015, the cities of New Westminster and Surrey were granted intervener status in the case aimed at quashing Port Metro Vancouver's decision to approve the new coal transfer facility at the Fraser Surrey Docks.

Port Vancouver claims Change to Permit Invalidates Court Challenge

Fraser Surrey Docks and Port Vancouver have filed a motion to dismiss the court application on the grounds that Fraser Surrey Docks has amended the permit so the court challenge is no longer valid. Arguments on this challenge are being heard in court this month, April, 2016.

5.2.2 Musqueam Indian Band

On September 24, 2014, the Musqueam Indian Band also filed an application for a Judicial Review of the Port Metro Vancouver's decision to grant a permit for the Direct Coal Transfer Facility on the banks of the Fraser River. The application seeks to have the permit set aside as it infringes on the aboriginal right to fish for food, social and ceremonial purposes.

5.2.3 Other Related Legal Challenges

5.2.3.1 Fraser Surrey Docks challenge to Metro Vancouver's jurisdiction to regulate air emissions

In 2013, Metro Vancouver levied a \$1,000 fine against Fraser Surrey Docks for a discharge of soybean dust from its grain handling operations. Fraser Surrey Docks filed a challenge in provincial court claiming Metro Vancouver does not have the jurisdiction to regulate industrial air emissions on federal port lands.

For the same reasons, Fraser Surrey Docks has not applied to Metro Vancouver for an air quality permit for the Direct Coal Transfer Project.

On June 11, 2015, Fraser Surrey Docks paid the fine and withdrew the legal challenge. The terminal operator, however, has warned that it could return to court if Metro Vancouver issues further tickets for air quality violations. At the same time, the operator claimed Fraser Surrey Docks will voluntarily apply for an air quality permit from Metro covering its operations.

(Information from Peace Arch News and Surrey North Delta Leader, September 3, 2015: Coal port firm drops court battle against Metro Vancouver by Jeff Nagel) <http://www.peacearchnews.com/news/324180381.html>

As of March, 2016, there is no indication that Fraser Surrey Docks has applied for an air quality permit despite Metro's insistence that one is required.

5.2.3.2 VTACC challenge to B.C. Government's permit for increased coal exports from Texada

The original plan was to barge the coal from the Fraser Surrey Docks to Texada Island to be stored and shipped overseas. In March, 2014, the B.C. Ministry of Energy and Mines approved up to a 20-fold expansion in the coal exports from Texada. On June 2, 2014, West Coast Environment Law, on behalf of Voters Taking Action against Climate Change (VTACC), filed a challenge in B.C. Provincial Court citing an unfair and unreasonable process and claiming the province failed to get approval under the *Environmental Management Act (EMA)*.

In March, 2015 the BC Supreme Court sided with the province's decision to increase the amount of coal that can be stored at Texada Island. The Court ruled that VTACC was accorded statutory and procedural fairness. The Court noted that more information would have been available to the group if they had attended information sessions.

In spite of the ruling Fraser Surrey Docks abandoned the plan to export the US coal from Texada Island and on November 15, 2015, Port Vancouver issued a project permit amendment to allow for the direct loading of coal onto ocean-going vessels at the Fraser Surrey Docks.

5.3 Immediate Action Needed

1. As the federal and provincial governments have abdicated their fiduciary responsibility to undertake a credible environmental assessment, this Project should be withdrawn.
2. As the Harper Conservative Government authorized Port Metro Vancouver to exercise powers and functions that the federal government is constitutionally bound to exercise itself, this Project should be withdrawn.
3. As Port Metro Vancouver (PMV) claims it is not accountable beyond its mandated lands, it should not be permitted to replace the federal and provincial environmental assessment processes which are legally bound to assess effects outside a Project footprint.
4. As Port Metro Vancouver permitted the Fraser Surrey Docks to change the coal export plans without an environmental assessment of the impacts of large ocean-going vessels carrying coal in the Fraser River, estuary, and island channels, this Project should be terminated.
5. As the public and municipalities have expressed major concerns with impacts on the health of citizens in the Lower Mainland from this Project, it should be withdrawn.
6. As there is no evidence of a credible cost/benefit analysis or feasibility study for this Project, and as there is no evidence to support purpose and rationale, the Project should be withdrawn.
7. Port Metro Vancouver's legal challenge of the regulatory powers of Metro Vancouver has far-reaching implications beyond the coal export Project. Additionally, it appears Port Metro Vancouver has the power to ignore restrictions on the B.C. Agricultural Land Reserve. Action is needed to ensure that the federal government removes inappropriate powers from Port Metro Vancouver and introduces legislation that acknowledges and protects municipal and provincial laws and regulations.
8. As the Precautionary Principle has not been credibly applied, the Project should be withdrawn.
9. As the process has failed to include a risk analysis to address multiple uncertain residual effects, including effects of climate change, the Project should be withdrawn.
10. As there has been an ongoing failure to credibly assess the cumulative impacts of past, current and future projects in the Fraser River Estuary, delta and narrow waterways to the Pacific, the Project should be withdrawn.

6.0 Vancouver Airport Fuel Delivery Project

CEAA Project # 53860 – Transitional Screening and BC Environmental Assessment

This Project was approved by the B.C. Government on December 11, 2013 and by the Federal Government on December 16, 2013.

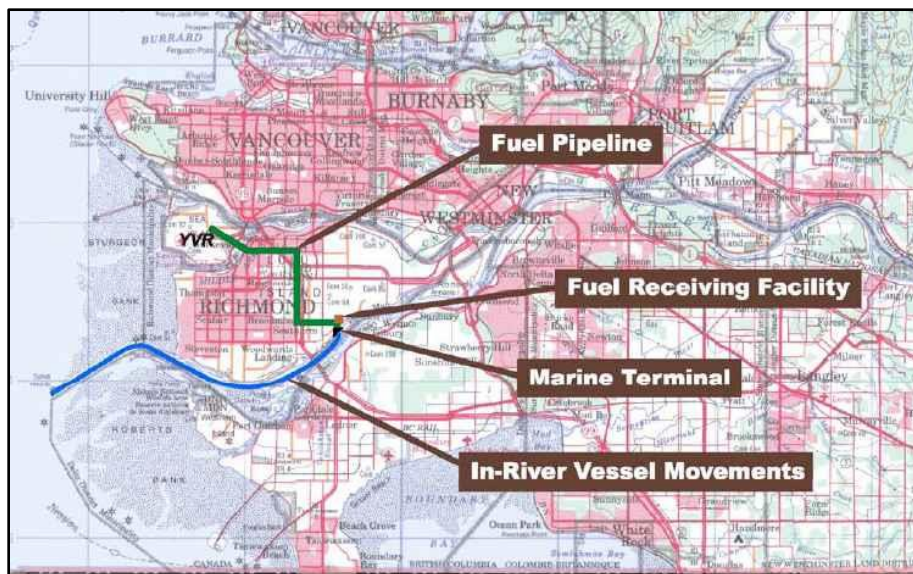
In February, 2016, the Port of Vancouver issued a permit for the Project to begin construction in March, 2016. This is a controversial decision as there is a new Liberal Government in Ottawa which has promised to restore environmental safeguards.

Apparently the new Minister of Transport was not aware that the port had issued the permit. This exposes how the Port of Vancouver has been allowed to operate without due oversight and accountability. As the Port is under federal jurisdiction, and, as the Project will be constructed on federal land (owned by PMV), there is an opportunity for the new Liberal Government to reform a flawed process in terms of public input, public ownership, safety and environmental concerns.

The Proponent, the Vancouver Airport Fuel Facilities Corporation (VAFFC), a non-profit organization of commercial airlines including Air Canada and WestJet, plans to bring supertankers up the Fraser River in order to import offshore jet fuel. Plans for the Project include:

- upgrading an existing marine terminal to import jet fuel by barge (20,000 Deadweight Tonnage) as well as Handysize and Panamax Tankers (60,000 to 80,000 Deadweight Tonnage)
- a loading dock and six storage tanks for jet fuel – each five-storey tank will store 13.3 million litres of fuel and there are provisions to add two more tanks at a later date
- construction of an approximate 1 km long pipeline to transfer off-loaded fuel from the marine terminal to the fuel receiving facility – the pipeline will be 16 to 20 inches in diameter
- an approximate 15 km long pipeline to deliver fuel from the fuel receiving facility to the Vancouver International Airport – the pipeline will be 20 to 12 inches in diameter
- an operations building
- a foam storage and incident command centre
- spill containment infrastructure

The facility will be in Richmond on the Fraser River foreshore, east of the Riverport Entertainment Complex which is at Steveston Highway and Number 6 Road.



6.1 Environmental Impacts

The Vancouver Airport Fuel Facilities Corporation (VAFFC) plans to have supertankers and Aframax freighters transport jet fuel 15 kilometres up the south arm of the Fraser River for the first time in history presenting great dangers to the already busy shipping corridor, local communities, and globally-significant wildlife habitats.

This unnecessary project will greatly alter the status quo of the Fraser infringing on current economic and social benefits. Massive tankers on the Fraser River will threaten the livelihood of the fishing industry and could well lead to environmental catastrophes from collisions and other accidents causing jet fuel to spill into the River.



Crude/Product Panamax Oil Tanker 71,000 DWT (Deadweight Tonnage)



Aframax tanker Seamaster 80,000 – 119,000 DWT (Deadweight Tonnage)

This medium-sized Aframax Oil Tanker can haul between 80,000 and 119,000 Deadweight Tonnage and the Jet Fuel Project permits up to 80,000 DWT so tankers this size will be permitted up the Fraser River. These large freighters will need to navigate around other commercial and recreational traffic and debris. Mooring and unloading on a busy river way is fool-hardy. Any spill that does occur will spread quickly due to the flow of the river posing significant risk to the environment and to people who work and live on the Fraser.

The Fuel Terminal is located too close to residential and commercial areas – a reckless decision with the potential for disaster.



Proximity of the Marine Terminal to Residential and Commercial Buildings

6.1.1 Environmental Concerns that cannot be mitigated or compensated

- The Project is located on seismically- sensitive ground that will straddle large parts of Richmond with unreasonable risk.
- A spill will impact 80 fish species.
- A large spill would have a major impact on: Sturgeons Bank, George C. Reifel Migratory Bird Sanctuary, Alaksen National Wildlife Area, Brunswick Point, and Deas Island Park.
- Human impact from a fuel spill or fire would likely be seen at a residential complex 400 meters away, at Steveston, and along the banks of Fraser River.
- The large tankers will be travelling in habitat of the endangered Southern Resident Killer Whales. Shipping acoustics are known to have a negative impact on the Whales.
- The planned pipeline to the Vancouver Airport will destroy riparian ditch habitat impacting a number of species including the Endangered Pacific Water Shrew and Special Concern, Great Blue Herons.
- The large tankers will impact air quality.
- There is considerable risk of fire.
- The transfer of jet fuel from tankers to the storage tanks presents a risk of spillage.
- High level of public concern – In 2012, over 5,000 citizens signed a petition objecting to this project. It was submitted to the House of Commons by MP Fin Donnelly but it was ignored by the Harper Government.

6.1.1.1 Environment Canada, August 17, 2011

Documented serious concerns that cannot be mitigated or compensated:

https://a100.gov.bc.ca/appsdata/epic/documents/p346/1315598695328_c7666adbc8b3b2247f394232149804bc61f3e088d3c18757ae74ef708f70c7e8.pdf

- The Project would present a new and unacceptable risk to the locally, nationally and internationally important fish and wildlife populations of the Fraser River Estuary, including migratory birds and species at risk.
- There exists a high level of uncertainty, due the lack of credible, peer-reviewed science, regarding the potential effects of acute and chronic spills of Jet-A fuel to migratory birds and their associated habitats, including biofilm; and,
- Based on its mandate for, and operational experience with responding to environmental emergencies, Environment Canada is of the opinion that there is limited ability with currently available technologies to effectively control a potential Jet-A fuel spill in the Fraser River Estuary.
- For additional context, the need for greater understanding and certainty with regards to the potential pathways to and impacts of Jet Fuel A on biofilm relates directly to the mandate of Environment Canada under the *Migratory Birds Convention Act* (1994). Specifically, the Act prohibits the deposition of harmful substances into waters or areas frequented by migratory birds:

5.1 (1) No person or vessel shall deposit a substance that is harmful to migratory birds, or permit such a substance to be deposited, in waters or an area frequented by migratory birds or in a place from which the substance may enter such waters or such an area.

(2) No person or vessel shall deposit a substance or permit a substance to be deposited in any place if the substance, in combination with one or more substances, results in a substance — in waters or an area frequented by migratory birds or in a place from which it may enter such waters or such an area — that is harmful to migratory birds.

- The conservative risk assessment is noted in terms of the likelihood of a spill; however, we do not agree that the overall Project assessment is conservative – or even accurate – in its evaluation of the spill response plan to effectively and reliably protect the ecological values and sensitivities of the Fraser River Estuary...
- The chronic loss of product remains a concern. The proponent's argument that there would be no spills of any kind is contrary to the statistics provided in the Application, and is an overly optimistic position that Environment Canada, based on its experience, does not share.
- Environment Canada notes that the view of the proponent with regards to routine activities on the lower Fraser River is at odds with the views of both the department and Port Metro Vancouver.
- As previously stated, the department does not share the same confidence as the proponent that the spill response plan would effectively and reliably protect the high ecological values and sensitivities of the estuary. Under ideal conditions spill recovery is challenging, with inevitable loss of product. With reference to booming specifically, we note that the effectiveness of these systems drops significantly in currents of more than 0.5 knots. The dynamic nature of the Fraser River would therefore further limit the effectiveness of any proposed spill response.
- The proponent has misinterpreted Environment Canada's response. The department does not support a habitat compensation plan (HCP) in the context of a fuel spill...
- Environment Canada recommends the development of a rigorous, science-based plan to address uncertainty and associated risk.

6.1.1.2 Environment Canada, January 3, 2012 – further comments:

https://a100.gov.bc.ca/appsdata/epic/documents/p346/1329776313786_d15fa8f71268a7fbfdb6205d4fba61613acdab6d30eab9e2cf2abde9ccf0f9b.pdf

- Due to the challenges of containing and managing river-based spills, Environment Canada does not agree that the Project would necessarily reduce risk to biofilm. It is important for the proponent to fully appreciate the ecological values and sensitivities of the Fraser River Estuary.
- It continues to be Environment Canada's opinion that the Project would represent an increased risk to the estuary insofar as it is very challenging to effectively contain and manage spills in dynamic environments. As previously stated, significant science gaps exist regarding jet fuel behaviour and fate in the estuarine environment. With respect to the latter, professional conjecture will not resolve the existing science gaps.

6.1.2 Project Rationale

Vancouver Airport Fuel Facilities Corporation Document, Oct. 5, 2007 document:

Trans Mountain (Jet Fuel) Inc. ("TMJ") Application for Approval of Tolls and Accelerated Depreciation under section 7 of the Pipeline Act, Project: 3698466 / Order P-2-07

http://www.bcuc.com/Documents/Arguments/2007/DOC_17419_12-10_VAFFC-Final-Argument.pdf

This document reveals that the existing pipeline capacity is listed at 1.9 billion litres (*YVR is currently consuming 1.4 Billion litres per year*) a year and YVR now has new 40 million litre tank farm that on average will hold over 10 days of fuel storage available at YVR to buffer peak usage. The current fuel provider to YVR has stated emphatically that they can provide 100% of YVR current jet fuel needs. With additional fuel pumps the fuel could be delivered more quickly during peak periods.

There is already adequate supply with the potential to increase. The reckless jet fuel import Project is not needed.

6.1.3 Alternatives

Out of the 14 options Vancouver Airport Fuel Facilities Corporation (VAFFC) very briefly outlined, the Marine Terminal is nowhere near the safest or environmentally responsible solution. However, a low cost, and most likely safest option, is a 70km pipeline to the Cherry Point.

6.2 Legally Flawed Process

The federal government failed to thoroughly examine the potential effects of this Project with the result that a Screening Environmental Assessment was erroneously initiated instead of a more comprehensive environmental assessment. A Review Panel Assessment would have been more appropriate considering the extensive area of potential effects and the likelihood of irreversible residual adverse environmental effects:

- Major safety issues with accountability to federal laws
- Introduction of fuel tankers and Aframax freighters on the Fraser River for the first time in history
- Potential effects of a fuel spill on:
 - Human activities and residences along the Fraser River
 - Migratory birds of the Pacific Flyway and their food sources such as biofilm
 - 80 species of fish including the largest sockeye salmon run in the world
 - Endangered Species and Species of Concern: White Sturgeon, Green Sturgeon, Eulachon, Pacific Water Shrew and Southern Resident Killer Whales
 - Risk of fire and explosions
- Far-reaching impacts from site operation and transport of Jet Fuel over 15 kilometres of the river and the narrow shipping lanes through the Gulf Islands, and across 15 kilometres of land to the Vancouver Airport

- Dredging of the riverbed between the navigation channel and the terminal berth to ensure adequate clearance for Panamax-class tankers during all river conditions
- Impacts to Air Quality in the Metro Vancouver region
- Potential for a massive fires and/or explosions
- Cumulative Effects of the Project in conjunction with past, current and planned Projects on the River and in the Estuary
- Need for a risk assessment
- Social and Economic impacts to rivers users and local residents
- Impact to indigenous activities on the Fraser
- Need to inform public of pending Project and provide public information forums and meaningful opportunities for public input
- Need to address the accountability of the Federal Minister of Transport to navigation in the Fraser River and shipping lanes to the Pacific
- The need for federal permits which have not been disclosed
- The BC Government has approved a large LNG facility across the Fraser River from this jet fuel terminal facility and they will both be served by barges and large tankers. The public safety of this section of the river is being placed in jeopardy

This Project epitomizes how compromised the BC and federal environmental assessment processes have become. The B.C. Environmental Assessment Act is weak and fails to protect vital habitats and ecosystems. At best, a few regulations are considered. Follow-up to environmental assessments are anecdotal and there is little evidence of credible compliance.

In July, 2011, B.C.'s Auditor General slammed the Environmental Assessment Office for being toothless:

"Adequate monitoring and enforcement of certified projects is not occurring and follow-up evaluations are not being conducted," said Auditor General John Doyle. "EAO's oversight isn't sufficient to ensure compliance and enforcement, or to avoid significant adverse impacts."

The BC Environmental Assessment Office managed the environmental assessment of the jet fuel Project for the Canadian Environmental Assessment Agency under an unsuccessful harmonized process. This is extraordinary considering the Project is for federal operations in areas of federal jurisdictions.

Federal Agencies failed to provide submissions prior to the public input process. This would have assisted the public in learning about potential impacts. The submission from Fisheries and Oceans was a series of strange inquiries rather than citing legal accountability and how the Fisheries Act would apply to the Project. Environment Canada submitted excellent reports detailing potential residual adverse effects and legal requirements. The reports were totally ignored and so was public input. The Canadian Environmental Assessment Agency (CEAA) appeared to not participate at all other than to list documents on their website. Their extraordinary final comment on the website defies belief:

"The Vancouver Fraser Port Authority has determined that a follow-up program, as defined under the *Canadian Environmental Assessment Act*, is not required for this project."

<http://www.ceaa.gc.ca/050/document-eng.cfm?document=97023>

This was decided by the Port of Vancouver? Where was CEAA?

6.2.1 Port Metro Vancouver and other Canadian Ports in Conflict of Interest

The token federal participation in the jet fuel review was mainly by the Port of Vancouver which happens to own the property where the fuel receiving facility and storage tanks will be located.

The Port of Vancouver, a federal body quasi Crown Corporation, has the power to approve and profit from this project. This is a clear conflict of interest.

On February 24, 2016, the Port of Vancouver issued a permit to the Vancouver Airport Fuel Facilities Corporation allowing it to build the loading dock and six storage tanks for the jet fuel. Was there **ever** any doubt that Port would issue this permit?

Apparently the new Minister of Transport, Marc Garneau, was not aware that the port had issued the permit to build the jet fuel facility. According to MP Joe Peschisolido (Steveston-East Richmond):

“Port staff should take into account that there was an election and policies have changed. The minister was shocked that a heads-up was not provided,”

Peschisolido: Port of Vancouver must adjust to changed government in Ottawa, Kent Spencer, Vancouver Sun, April 14, 2016, <http://vancouver.sun.com/news/local-news/peschisolido-port-of-vancouver-must-adjust-to-changed-government-in-ottawa>

The response from the Port of Vancouver reveals that the Port has been operating with unrestricted authority without any accountability from elected representatives. The Port has more power, and less accountability, than a large, private corporation and it is based on exploitation of public assets and rights. Port President, Robin Silvester stated:

“We are the federal manager of lands in the port and are clearly designated as the environmental permitting agency. There are 200 or 300 projects a year where we are the designated decision-maker. It wouldn’t be normal for us to have a consultation with the minister prior to the decision,” he said.

It is incomprehensible that the Port of Vancouver has the authority to permit a facility that will bring supertankers and Aframax freighters carrying jet fuel up the Fraser River for the first time in history, and Robin Silvester claims it wouldn’t be normal to consult with the Minister of Transport on this decision!

It gets worse. Mr. Silvester further states:

“Silvester said the port “engages the community broadly” but “it’s kind of hard to know what a social licence is.”

He’s right. The Port of Vancouver doesn’t have a clue about social licence.

This illicit situation is the result of the actions of the Harper Conservative Government. As Mr. Peschisolido stated:

“...the problem stems from powers granted to the port in 2008, when Environment Canada was removed from the environmental assessment process and the port became responsible for assessing and approving its own projects”.

And that’s the sad truth which has brought considerable habitat destruction to the Fraser River delta ecosystem and has undermined democracy.

Unfortunately almost the entire Fraser River Estuary is within the jurisdictional area of the Port of Vancouver.

It is unacceptable that power has been unwisely delegated to the Port of Vancouver (and other federal ports) to do environmental assessments for projects in their port areas, issue permits, and then benefit from projects through land leases and berthing fees. There is no accountability.

As elected politicians are constitutionally bound to exercise powers and functions of Canadian Law, it is unacceptable and unethical to delegate such powers to unelected members or bodies, especially if they stand to gain from those legislative powers.

“The power to do environmental assessments rightly belongs to Environment Canada, DFO and CEAA. This is especially so in that this federal port is home to the Navigable Waters Protection Act (NWPA), a federal pilotage authority, and federally administered fish and wildlife populations and their habitats and refuge areas.”

(Otto Langer, BSc (Zoology) and MSc - fisheries biology (U of A) Fisheries Biologist and Aquatic Ecologist: Letter, March 22, 2016 to Federal Government)

6.2.2 Previous 1988 Project Rejected

In 1988 the Federal Government held a public Review Panel of a much smaller, but similar, jet fuel project in the Fraser River by the same proponent. The Project was rejected due to the risk highly toxic and flammable fuels would pose to public safety, the river and its life.

Why would we now have less public consultation and environmental protection than we did 25 years ago?

6.2.3 Legal Challenge to Project

On June 24, 2015, a citizens group, VAPOR, in provincial Supreme Court lost a legal challenge to the B.C. Government for granting the environmental certificate for the Vancouver Airport Fuel Delivery Project. Lawyers for VAPOR argued that the public was not properly consulted.

On January 22, 2016, the provincial Supreme Court refused to award costs to the Vancouver Airport Fuel Facility Corporation. VAPOR claimed this as a victory for citizens pursuing issues of public interest in court. VAPOR was encouraged by comments from Madam Justice Dillon who unequivocally stated that while the province had met bare legal requirements, they could have done more. She referred to her original judgement of June, 2015, where she had stated that the public had been, “constrained by the law and disengaged from the environmental process.”

She said the public had every right to challenge the adequacy of the process. It’s about instilling respect for the public process and trust in decisions made...not just about getting the job done. She asked:

If Citizens can’t trust the process, then where are we?

6.3 Immediate Action Needed

1. As the Project is to provide fuel to a federal agency, the Vancouver International Airport, and, As the Project is to be built on federal lands managed by Port Metro Vancouver, and, As navigation on Canadian waters is a federal responsibility:

the new (2015) Liberal federal government should exercise legislative responsibility and terminate this Project due to high risks to public safety, internationally-significant habitats, and the health of the Fraser River
2. As Port Metro Vancouver's powers of environmental assessment and permits are placing the port in a conflict of interest, immediate action is needed to remove these powers and regain the public trust.
3. As the Harper Conservative Government unethically, and apparently illegally, authorized Port Metro Vancouver to exercise powers and functions that the federal government is constitutionally bound to exercise itself, this Project should be terminated.
4. As elected politicians are constitutionally bound to exercise powers and functions of Canadian Law, the Liberal Government needs to restore powers to elected officials.
5. As highly toxic, flammable jet fuel poses risks to public safety and the health of the Fraser River, this Project should be terminated.
6. As this Project is not needed, it should be terminated.
7. As this Project presents new and unacceptable risk to the locally, nationally and internationally important fish and wildlife populations of the Fraser River Estuary, including migratory birds and species at risk, it should be terminated.
8. As the Project plans to dangerously permit supertankers and Aframax freighters to travel up the Fraser River for the first time in history, the Project should be terminated.
9. As the Fraser River is no longer appropriately protected by the *Navigable Waters Protection Act*, this Project should be terminated.
10. As Environment Canada has documented major concerns about the potential for irreversible environmental impacts, the Project should be terminated.
11. As the Canadian Environmental Assessment Agency failed to provide a satisfactory environmental assessment process, the Project should be terminated.
12. As the Precautionary Principle has not been credibly applied, the Project should be terminated.
13. As there has been an ongoing failure to credibly assess the cumulative impacts of past, current and future projects in the Fraser River Estuary, delta and narrow waterways to the Pacific, the Project should be terminated.
14. As the process has failed to include a risk analysis to address multiple uncertain residual effects, including effects of climate change, the Project should be terminated.

PART TWO – Four Projects Completed – significant loss of habitat

Four Projects have been built without credible environmental assessments or due process. These were pushed through with dismantled federal legislation and flawed processes at the provincial and the federal level. Environmental values have been disregarded with the loss of hundreds of hectares of forests, irreplaceable wetlands and fish habitat in the Fraser.

- **Golden Ears Bridge**
- **Port Mann Bridge/Highway 1 Project**
- **Deltaport Third Berth**
- **South Fraser Perimeter Road**

Even the good news story of the establishment of the **Burns Bog Ecological Conservancy Area** avoided due process with the resulting subdivision of bog properties for developers. Also the South Fraser Perimeter Road was permitted through valued bog areas with the loss of bog edges and important habitats. This edge destruction continues.



Special Concern under Species at Risk



Sandhill Cranes at risk from planned bridge



Great Blue Heron - Special Concern under Species at Risk

7.0 Port Mann Bridge/Highway 1 Project

Proponent: BC Ministry of Transportation

CEAA Project # 07-01-29230 – Screening & BC Environmental Assessment: *Approved July 10, 2008*

CEAA Project# 10-01-59348 – November, 2010 - Screening for Demolition of old Port Mann Bridge – The Screening was terminated July, 6, 2012 due to the Harper Conservatives changes to legislation:

“On July 6, 2012, the new *Canadian Environmental Assessment Act, 2012* came into force which replaced the former *Canadian Environmental Assessment Act*. As a result, there is no longer a requirement to complete the environmental assessment of this project.”

<http://www.ceaa.gc.ca/052/details-eng.cfm?pid=59348>

The construction Project was approved by the B.C. Government on June 12, 2008 and by the Federal Government on July 10, 2008. A harmonized environmental assessment of the two processes was led by the B.C. Environmental Assessment Office under the Canada/British Columbia Agreement for Environmental Assessment Cooperation. The Project included:

- building a new Port Mann Bridge with new interchanges
- widening the Highway 1 Corridor with upgraded interchanges

The Project did not include decommissioning of the old Port Mann Bridge. The old bridge was decommissioned after the new bridge was built and the environmental assessment for demolition was terminated due to changes to legislation.



New Port Mann Bridge adjacent to the old bridge



7.0.1 Cost of the Port Mann Bridge

An ongoing impact is the cost of the Port Mann Bridge Project. The estimated construction cost was \$2.46 billion, including the cost of the Highway 1 upgrade. Of this, the bridge itself comprised roughly a third, \$820 million. The total cost, including operation and maintenance, was expected to be \$3.3 billion. On February 22, 2016, the Vancouver Sun reporting on the B.C. Government budget stated that the:

“bridge lost \$86 million last year, followed by projected losses of \$100 million in each of the next three years, pushing its total debt to \$3.68 billion by 2018. The losses are significantly higher than what was predicted in 2012-13, when it was forecast the net loss for 2014-15 would be \$28.3 million.”

7.1 Environmental Impacts

The regulating and responsible authorities assigned to the environmental assessment were Fisheries and Ocean Canada and Transport Canada. Health Canada should have been included due to the far-reaching impacts to public health from air emissions from construction and operation of the Project.

Environment Canada also should have been included due to impacts to *Species at Risk* and the requirement for permits for disposal at sea under the *Canadian Environmental Protection Act*.

If the demolition of the old Port Mann Bridge had been appropriately included in the original environmental assessment, the environmental impacts of demolition and the need for disposal permits would have been included. These issues, as well as public concern, impacts to air quality, impacts to the river, and impacts to shoreline habitats would have triggered a higher level of environmental assessment. There was not even a credible cumulative effects assessment of the two Projects (construction and demolition) let alone the required cumulative effects assessment of past, current and future major Projects on the lower Fraser River.

As the Project includes a transportation corridor of 37 kilometres, there have been impacts to Fraser River habitat, riparian habitat and inland habitats of 206 waterways, wetlands, treed areas and soils. The Project has fragmented vast stretches of interdependent, interactive ecosystems vital to the food chain of numerous species.

Part of the northern shoreline of the Fraser River in the vicinity of the Port Mann Bridge was designated as red-coded shoreline, meaning it had highly productive habitat features. Such areas should not be disturbed as mitigation and compensation plans do not have proven success.

Impacts on the Fraser from scouring and dredging were not adequately identified.

7.1.1 Impacts to Fisheries

The Project impacted the ecosystems of the Fraser River, the shoreline, four large urban watersheds, and five sub-basins including 206 watercourses. The Project Application identified impacts to:

- at least 36 fish species including Pacific Salmon
- 10 fish species considered to be potential “Species of Concern” or “Special Status”, as defined under the federal *Species at Risk Act*.
- 96 watercourses classified as red zones meaning high valued habitat for salmonids seasonally and year round

The federal Department of Fisheries and Oceans (DFO) raised concerns about the 96 watercourses that support important fish habitat. The department was concerned that:

“broad statements of infilling, culverting and relocation of these systems is prescribed with what appears to be little to no consideration for avoidance or site specific mitigation.”

DFO was also concerned that:

“new pilings will cause changes in river velocity and flow regimes. The potential impacts to fish and fish habitat due to these changes has not been specified. DFO is especially concerned with how the new piling configuration will affect the potential for downstream scour and sediment deposition to affect eulachon and surf smelt spawning, as well as fish migration upstream of the proposed works and increased streambank erosion.

Some species of fish, such as Sockeye salmon, prefer to migrate in different areas of the Fraser River and an assessment of migration patterns in relation to the new pilings is required to understand those effects.
(DFO submission, November 19, 2007)

Consultations did occur but it is difficult to comprehend how any measures could prevent these impacts.

7.1.2 Impacts to Wildlife

Seven species, provincially and federally listed, should have been protected under the *Species at Risk Act*

- Three listed species of birds, Great Blue Heron, Green Heron and Peregrine Falcon
- Listed Red-legged frog
- Listed Pacific Water Shrew – expected habitat loss and direct mortality
- Two listed insect species

7.1.3 Impacts to Vegetation

Loss of habitat corridors and species that depend on these habitats:

- 1.3 hectares of mature blue and red listed mixed broadleaf and coniferous forest habitat
- 34.5 hectares of predominantly young broadleaf, mixed and coniferous forest habitats where 2.6 hectares will be converted to grasslands and 6.6 hectares reclaimed from upgraded highway interchange areas
- 2.4 hectares of modified wetlands
- Vegetation along drainage ditches and channels

7.1.4 Mitigation and Compensation for loss of Fish, Wildlife, Vegetation and their ecosystems

Mitigation plans state restoration to some areas after completion of the Project. In the interim, many species will have died. After the fact restoration, creates new corridors and different habitats which serve some purpose but cannot replace lost ecosystems and their species.

The mitigation and compensation plans lead to fragmented habitats which cannot begin to replace the vast stretches of interactive, interdependent habitats that support varied ecosystems

It was suggested in the Application that some species, such as raptors, would move away or temporarily abandon nests. This is based on a cavalier assumption that there is habitat available elsewhere.

Off-site compensation was planned on existing protected areas leading to a net loss of habitat areas. A large number of government-friendly environmental companies did well from the Project.

7.1.4 Air Quality and Greenhouse Gases

A longer corridor invites more development and more vehicles. Many comments from public submissions raised concern about impacts to air quality and the increase in greenhouse gas emissions.

A submission from Health Canada (December 12, 2007) raised important issues:

“The air quality assessment recognizes that PM2.5 and O3 are formed secondarily from vehicle emissions; however, scientific evidence indicates that there is no apparent lower threshold for the effects of these two pollutants on human health.

Section 8.2.11.5 of the Application states that “Ozone concentrations are not expected to increase because of the PMH1 project” – however no justification for this statement is provided

... The reasoning or data used to make this statement should be provided and subject to review...

... Based on the information provided, it is not anticipated that the PMH1 project will cause severe adverse health effects with respect to air quality; however, it must be noted that several aspects of the assessment of air quality and health impacts are presented and described in a way that may be misleading to readers who do not have background knowledge on these types of assessments.

As the environmental assessment process is meant to be accessible to a broad range of individuals, including members of the general public, this should be an important consideration in gauging the acceptability of the assessment.

... The focus of the conclusions included in the application should be changed to reflect a more appropriate assessment of the proposed project, with a focus on the build vs. no build future scenarios and with complete information on worst-case scenarios.” (Health Canada, Page 3)

7.2 Legally Flawed Process

The public were not provided with full disclosure of information in a fair manner.

The Harmonized Environmental Assessment of May, 2006 July, 2008, should have included the plans for Decommissioning the old Port Mann Bridge.

Due to unethical changes to legislation, decommissioning of the old Port Mann Bridge did not receive an environmental assessment so the impacts from demolition and the requirements of disposal were not assessed with due process. The federal government failed to require an appropriate level of environmental assessment.

The Project qualified for a Review Panel assessment due to:

- Impacts to Greater Vancouver Air Quality
- Impacts to Species at Risk
- Disposal at Sea Permit Requirements
- Permits Required from the Department of Fisheries and Oceans
- Impacts to health of the Fraser River
- Far-reaching effects on 206 watercourses impacting ecosystems and human health

- Impacts to indigenous activities and dependence on the health of the Fraser River
- Impacts to business activities on the Fraser River
- Need to demolish old Port Mann Bridge and assess impacts
- Requirement under the *Canadian Environmental Assessment Act* of a credible cumulative effects assessment of the Project in relation to past, current and future Projects
- Need for disclosure of numerous Projects and Initiatives of Gateway Plans
- Numerous residual adverse environmental impacts that cannot be mitigated or compensated
- Risks to the sockeye salmon in the Fraser River and recommendations of the Cohen Commission

7.2 Immediate Action Needed

1. As this Project was not adequately scoped, and as the Project was not assessed at the appropriate level of environmental assessment, this Project should be held up as an example of failure of the Ministers of Environment, Fisheries, Health, Transportation and Infrastructure to meet fiduciary responsibilities of elected officials.
2. As this Project was not appropriately assessed by the federal government, the Canadian Environmental Assessment Agency should be overhauled and made more accountable.
3. As there was a lack of due process to the public in this environmental assessment of this Project, the Canadian Environmental Assessment Agency should be required to report on the environmental effects of this Project and document the loss of habitats and interactive, interdependent ecosystems throughout the 37 kilometres of the Project.
4. As mitigation, compensation, and adaptive management strategies lack evidence-based science, recent practices should be terminated.
5. As there has been an ongoing failure to credibly assess the cumulative environmental impacts of past, current and future projects in the lower Fraser River and Estuary, the federal government should call for a moratorium on major Projects, undertake a cumulative effects environmental assessment, and prepare a plan to protect the Lower Fraser River and Estuary.
6. As this Project adds significant habitat destruction to the Lower Fraser River, the federal government should review designations and protect the areas with legislation.
7. As this Project did not appropriately assess the impacts of a higher bridge on navigation uses of the Fraser River, a report should be prepared by Transport Canada.
8. As this Project is yet another part of the ongoing Gateway Plans with 34 Projects and 16 Supply Chain Initiatives which include an agenda to industrialize the Lower Fraser, Transport Canada should be required to produce a report with full disclosure of plans which should then be subject to a Review Panel environmental assessment.
9. As the Precautionary Principle was not credibly applied to this Project, amendments to federal environmental assessments should strengthen this mandatory requirement.
10. As the process failed to include a risk analysis to address multiple uncertain residual effects, including effects on regional air quality and long term effects of climate change, this omission should be recognized and legislation should be amended to ensure future risk assessments have integrity.

8.0 Golden Ears Bridge Project

Provincial Name of Project: Golden Ears Bridge

Federal Name of Project: New Fraser River Crossing Project

Proponent: Greater Vancouver Transportation Authority known as TransLink

It is curious that the federal and provincial titles for the environmental assessments of this Project were listed under different names. The Project was listed on the BC Environmental Assessment Office website as a harmonized environmental assessment of the federal Screening and the B.C. Environmental Assessment, led by the B.C Environmental Assessment Office under the Canada/British Columbia Agreement for Environmental Assessment Cooperation, June 2003.

The BC Environmental Assessment for the New Fraser Crossing was initiated in March/June 2003. The Project was approved on August 6, 2004.

Federal Screening Environmental Assessments – Five Screening Assessments after the Project was approved by the harmonized assessment.

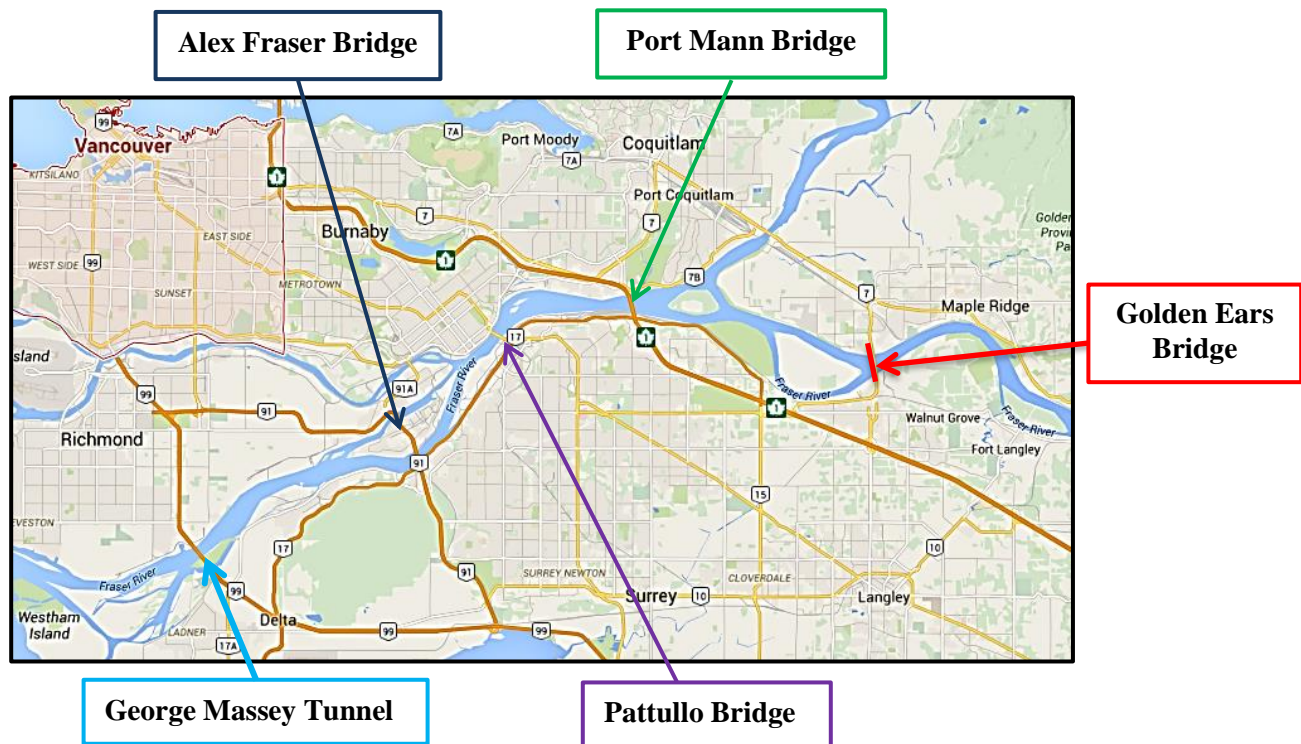
1. Golden Ears Bridge Project: Loading and Ocean Disposal – Disposal at Point Grey
CEAA #06-01-18523 – Federal Screening
Reason for EA: subsection 71(1) of the *Canadian Environmental Protection Act*.
Project Approved April 27, 2006
2. Golden Ears Bridge Project: Loading and Ocean Disposal – Disposal at Point Grey and Sands Head
CEAA #06-01-19946 – Federal Screening EA
Reason for EA: subsection 71(1) of the *Canadian Environmental Protection Act*.
Approved June 27, 2006
3. Golden Ears Bridge Project: Loading and Ocean Disposal- Disposal at Point Grey
CEAA # 06-01-22782- Environment Canada 5055 -Federal Screening
Reason for EA: subsection 127(1) of the *Canadian Environmental Protection Act*.
Approved, November 10, 2006
4. Golden Ears Bridge: Use of PolyShield PBS to Stabilize Sediments and the Loading and Disposal at Sea of Dredged Material Treated with PolyShield PBS
CEAA #06-01-21812 - Environment Canada: 5013
Reason for EA: subsection 127(1) of the *Canadian Environmental Protection Act*.
Approved April 2, 2007
5. Golden Ears Bridge Project: Relocation of 500 metres of Linear Katzie Slough
Canadian Environmental Assessment Registry: *CEAA #08-01-40770 – Federal Screening*
Fisheries and Oceans Canada: *#08-HPAC-PA1-00003*
Reason for EA: subsection 35(2) of the *Fisheries Act* *Approved September 10, 2010*

The Project, located east of Barnston Island, included:

- a new six-lane bridge across the Fraser River with connecting roads as well as widening and/or relocating existing rights-of-way
- modification of existing roads and new road structures
- development or modification of water diversion and drainage structures

The new Golden Ears Bridge is approximately 10.5 kilometres long. The bridge is located east of the Port Mann Bridge and connects the Districts of Maple Ridge and Pitt Meadows on the north shore with the City of Surrey and the Township of Langley on the south shore.

Crossings on the South Arm of the Fraser River



8.0.1. Cost of the Golden Ears Bridge

The bridge was constructed by a joint venture of CH2M Hill and Bilfinger Berger called Golden Crossing Group. The original cost estimate of \$600 million came in at \$800 million.

The Bridge Project was financed by a Public Private Partnership through the B.C. Government organization, Partnerships B.C. The Golden Crossing General Partnership agreed to design, construct, finance, operate, maintain and rehabilitate the Golden Ears Bridge. The cost of the Project was anticipated to be recovered in 35 years, which would be 2041.

TransLink leased the bridge for a 35-year time frame beginning in 2006.

A CTV News Report, March 25, 2015, reported:

“The Golden Ears Bridge is about to report a loss in the range of \$38 million last year, as evidence mounts that B.C.’s experiment using tolls to pay for major urban bridges is failing badly.”

In January, 2016, TransLink announced that the bridge’s surveillance system needed to be replaced at a cost of \$5 million.

8.1 Environmental Impacts

The Application stated that a federal environmental assessment was required as federal authorizations and permits were required under:

“the *Fisheries Act*, and the *Navigable Waters Protection Act* and possibly other statutes. Fisheries and Oceans Canada (DFO) is expected to be a Responsible Authority for a screening-level assessment under CEAA.”

The statement that “possibly other statutes” would be required demonstrates a cavalier attitude to the federal environmental assessment. The Project should have identified Environment Canada as a Responsible Authority as the Project involved the *Species at Risk Act*, the *Canadian Environmental Assessment Act* and the *Environmental Protection Act* due to endangered Pacific Water Shrew as well as special concern Great Blue Heron and Barn Owl. The Canadian Environmental Assessment Agency should have identified impacts to migratory birds and the permanent loss of woodlots and watershed areas impacting irreplaceable ecosystems.

The Project had a large footprint including not only the Fraser River, but upland watercourses, sloughs, wooded areas, and wetland areas. Due to the size of the Project and considerable impacts to irreplaceable wildlife corridors with interactive, interdependent habitats, it merited a higher level of federal environmental assessment. In combination of past and planned projects, the requirement of credible effective cumulative effects should have been flagged by federal agencies.

The federal Department of Fisheries and Oceans and Environment Canada participated in a cooperative Work Plan for the Project. However, a formal Screening Environmental Assessment was not identified on the federal Project Registry of the Canadian Environmental Assessment Agency.

Significant loss of habitat and adverse residual environmental effects were documented:

- Failure to follow outlined methodology
- The Lower Fraser provides the most significant habitat potentially affected by Project as it is extensively used as a corridor for upstream and downstream fish movement, provides rearing habitat for numerous fish species including species of special concern, and provides spawning habitat for resident and transient fish species
- Harmful alteration, disruption or destruction of fish habitat (HADD) that cannot be avoided or mitigated
- Direct and indirect impacts to watercourses with loss of riparian habitat and effects on water quality
- Loss of mature vegetation that will take many years to be restored
- Impacts from road surface contaminants
- Impacts of the Abernethy Connector on fisheries and aquatic resources – permanent loss of habitats
- Loss of habitat of numerous ditches and watercourses
- Failure to ensure that legal responsibilities for the Pacific Water Shrew (which is listed on schedule 1 of the Species at Risk Act (SARA)) were appropriately addressed under both SARA and CEEA
- Impacts to rare and sensitive plants in 'disturbed' habitats were not adequately assessed
- Impacts to birds of prey were not appropriately addressed with the exception of identification of a Barn Owl nest and the agreement to develop a management plan for the nest
- Failure to include areas of watersheds that have already been lost or compromised by urban development
- Failure to fulfill the overall purpose of a cumulative effects assessment
- Failure to recognize that references to moderate effects in the reports needed to be taken as significant
- Failure to address a storm water system and plan for construction or operation phases
- Failure to present an erosion and sediment control plan for construction phase
- Failure to appropriately address impacts on navigation for commercial and recreational vessels on the Fraser River
- Failure to effectively outline habitat compensation required to achieve the DFO objective of "no net loss" of fish habitat
- Failure to effectively address air quality and noise pollution
- Failure to document specific compensation and mitigation measures

The Section on Fisheries in the Application stated a cumulative effects assessment would be submitted as an Application Supplement. However, the Application Supplement did not include a cumulative effects assessment for Fisheries.

The federal agencies raised concerns several times over habitat fragmentation and the the lack of a credible cumulative effects assessment. In the end, this was not provided.

There does not appear to be any documentation of this federal Screening or approval of the Project on the Canadian Environmental Assessment Agency Project list site. However, there were five environmental assessments after approval.

8.1.1 Later federal Screening Environmental Assessment of the Katzie Slough

During the environmental assessment of the new Golden Ears Bridge, it was documented that:

“Katzie Slough and its tributary ditches do not provide productive salmonid habitat or make a significant food/nutrient contribution to downstream reaches. The Slough’s primary function as fish habitat is to support spawning and rearing life functions of so-called “coarse” fish. However, regardless of the low significance of the Slough as salmonid habitat, compensation will still be required to ensure “no net loss” of fish habitat.”

However, six years later, in 2010, it became necessary for another environmental assessment:

“to divert and relocate a section of Katzie Slough, approximately 500 metres in length, in the District of Pitt Meadows, B.C... The need for relocation of this section of Katzie Slough came about due to the Golden Ears Bridge project; however, these works were not anticipated at the time... Fisheries and Oceans Canada has determined that the scope of the project for the federal environmental assessment is the draining and infilling of a portion of Katzie Slough and the construction of a new channel for Katzie Slough.”



Golden Ears Bridge

8.2 Legally Flawed Process

The federal-provincial harmonized environmental assessment failed to meet requirements of the *Canadian Environmental Assessment Act*.

- Five Screening environmental assessments were required after Project Approval
- The Department of Fisheries and Oceans, Environment Canada and the Canadian Environmental Assessment Agency raised genuine concerns but failed to administer the law
- There was no credible cumulative effects assessment
- The environmental assessment failed to credibly address significant, irreversible loss of habitat
- The environmental assessment failed to address impacts to the interactive, interdependent habitats of the ecosystems
- The environmental assessment assumed it was acceptable to destroy habitats and explore possible compensation after the fact
- The provincial agencies brushed off concerns raised by federal agencies instead of seeking solutions to serious issues
- The environmental assessment was descriptive and lacked substantive information
- The initial Application was a series of vague reports that failed to identify major criteria of an effective environmental assessment

8.2.1 Weak Legislation for Wildlife Habitat under the *Canadian Environmental Assessment Act*

A submission, November 27, 2003, by Environment Canada stated that compensation for the loss of wildlife habitat is not presently explicitly mandated by existing legislation as it is in the *Fisheries Act*. As a result Environment Canada sought securement of replacement habitats recognizing:

“This approach does not prevent an incremental loss of habitat in a given instance. However, if applied consistently it does ensure the protection of a substantial proportion of the remaining contiguous areas of wildlife habitat in the project area over time. This is the overall goal. The importance of habitat offsetting is highlighted by the fact that cumulative losses of wildlife habitat in the project area are already substantial...”

This pathetic acknowledgement highlights the ongoing loss and degradation of wildlife habitats in the lower Fraser River ecosystems.

While the Project was under a Harmonized federal –provincial environmental assessment, it was named the New Fraser River Crossing. The federal Canadian Environmental Assessment Agency never listed this as a Project at the time of the harmonized environmental assessment. It appears the Project was never formally approved by the federal government under the CEAA registry process. The Project received a provincial certificate only.

The Canadian Environmental Assessment Agency entered into a Work Plan Agreement under the Agreement for Environmental Assessment Cooperation on June 24, 2003. The information was listed on the provincial website but it was not posted on the Canadian Environment Assessment Agency website.

8.3 Immediate Action Needed

1. As it appears the Canadian Environmental Assessment Agency (CEAA) failed to legally register the harmonized environmental assessment on the CEAA Registry, the Agency should be overhauled and made more accountable.
2. As five environmental assessments were required after Project approval, it proves that the initial environmental assessment did not address all components of the Project. The scoping by the Canadian Environmental Assessment Agency failed to legally identify Project components and potential impacts. As a result, the public was denied the appropriate level of environmental assessment by a Review Panel.
3. As it has become common practice for the Canadian Environmental Assessment Agency to fail to identify all components and appropriately scope Projects, multiple Screening assessments are occurring after Project approval. This contravenes the *Canadian Environmental Assessment Act*.
4. As the work submitted by Health Canada, Fisheries and Oceans and Environment Canada was effectively brushed off, legislation needs to be revised to protect habitat with powers and funds for enforcement.
5. As the cooperative harmonized system of environmental assessments is failing to meet the requirements of the *Canadian Environmental Assessment Act*, the practice should be terminated.
6. As acknowledged in this Environmental Assessment that current legislation does not adequately protect wildlife habitat leading to loss and degradation, it is vital to the health of the Fraser River that the new government in Ottawa move quickly to explicitly mandate no net loss of wildlife habitat in the Lower Fraser.
7. As there was a lack of due process to the public, the Canadian Environmental Assessment Agency should be required to report on the environmental effects of this Project and document the loss of habitats and interactive, interdependent ecosystems.
8. As mitigation and compensation for this Project was not clearly presented to the public, the Canadian Environmental Assessment Agency should be required to present a report and offer potential solutions to the loss of vital habitats and the restoration of interactive ecosystems in the Project location.
9. As there has been an ongoing failure to credibly assess the cumulative environmental impacts of past, current and future projects in the lower Fraser River and Estuary, the federal government should call for a moratorium on major Projects, undertake a cumulative effects environmental assessment, and prepare a plan to protect the Lower Fraser River and Estuary.
10. As this Project adds significant habitat destruction to the Lower Fraser River, the federal government should review designations and protect the areas with legislation.
11. As this Project is yet another part of the ongoing Gateway Plans with 34 Projects and 16 Supply Chain Initiatives which include an agenda to industrialize the Lower Fraser, Transport Canada should be required to produce a report with full disclosure of plans which should then be subject to a Review Panel environmental assessment.
12. As the Precautionary Principle was not credibly applied to this Project, amendments to federal environmental assessments should strengthen this mandatory requirement.
13. As the process failed to include a risk analysis to address multiple uncertain residual effects, including effects on regional air quality and long term effects of climate change, this omission should be recognized and legislation should be amended to ensure future risk assessments have integrity.

9.0 Deltaport Third Berth

Roberts Bank in the Fraser Estuary

BC Approval Nov. 3, 2006 and Federal Approval Dec. 8, 2006

Proponent: Vancouver Port Authority, now known as Port Vancouver

Third Berth Opened - January 18, 2010

BC environmental assessment and 3 federal environmental assessments – 2 after Project Approval

1. **Deltaport Third Berth** – CEAA #04-03-3734- **Federal Comprehensive Study**

Reasons for EA:

- Subsection 71(1) of the *Canadian Environmental Protection Act*
- Subsection 35(2) of the *Fisheries Act*.

Project Approved November 3, 2006

2. **Deltaport Third Berth:** Loading and disposal at sea of material resulting from dredging

CEAA #09-01-50501- **Federal Screening**

Reasons for EA:

- subsection 127(1) of the *Canadian Environmental Protection Act*.

Approved July 6, 2012

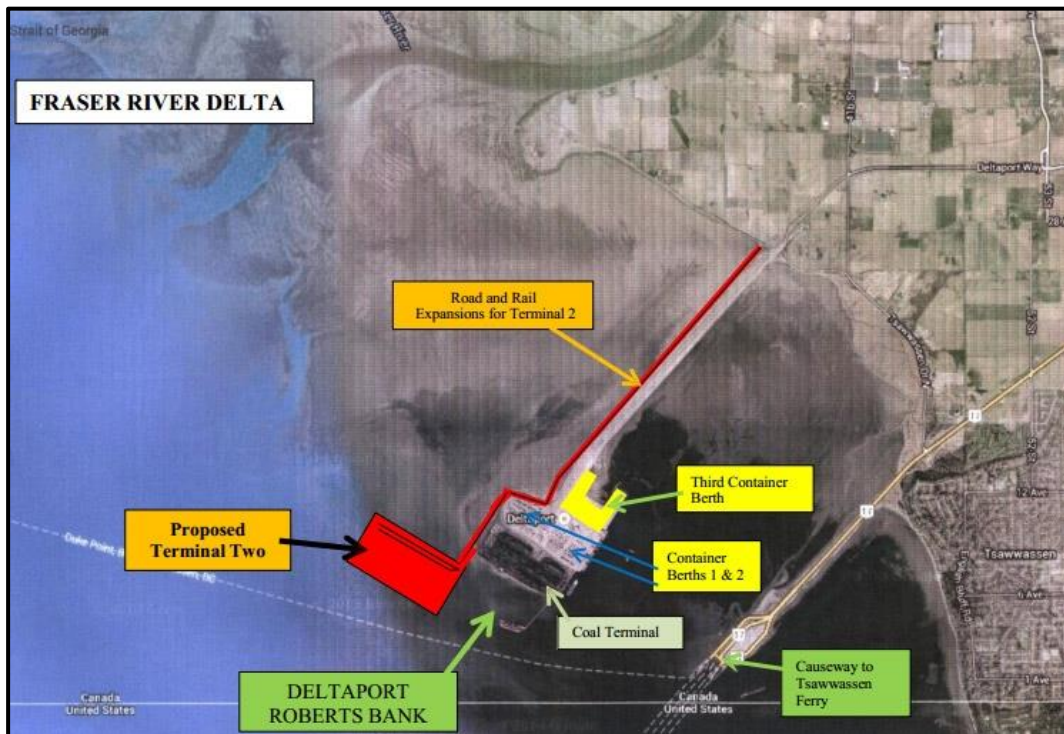
3. **Deltaport Third Berth:** Loading and disposal at sea of material resulting from the removal of a portion of the Roberts Bank East Causeway- deposited at Point Grey

CEAA #09-01-50502 - Federal Screening

Reasons for EA:

- subsection 127(1) of the *Canadian Environmental Protection Act*.

Approved July 6, 2012



The Deltaport Third Berth Project included:

- construction and operation of a caisson-supported wharf for a new container berth
- 22 hectares of fill to accommodate an expanded container storage yard
- dredging to deepen the existing ship channel and create a tug moorage area adjacent to the terminal
- Rail upgrades within existing rail rights-of-way
- upgrades to existing roads and highways

The Deltaport Third Berth Project was proposed by the Vancouver Port Authority (the Proponent) in 2003 to expand the existing Deltaport Container Terminal (Deltaport) at Roberts Bank in Delta, British Columbia to increase its capacity by 600,000 TEUs (*twenty-foot container equivalent*) achieving a capacity for 2.1 million TEUs at Deltaport.

Current Capacity, 2016

Current road and rail upgrades, to be completed in 2016, increase the Deltaport capacity to 2.7 million TEUs. With planned expansions, total capacity of the greater Vancouver container terminals is 5.5 million TEUs and could be more with increased efficiencies.

Prince Rupert Port, with current upgrades, has a capacity for 1.3 million TEUs and plans for further expansion to 2.4 million TEUs. So as of 2016, Canada's west coast has ample container capacity for 6.8 million TEUs expanding to 8 million TEUs without a second terminal at Roberts Bank. Canada's total west coast container business for 2015 was 3.8 million TEUs.

9.1 Environmental Impacts

9.1.1 Background

After the Tsawwassen Ferry Terminal was built in 1958, the provincial government recognized the wildlife values and moved to protect Roberts Bank. However, the federal government allowed the construction of a coal terminal and causeway in 1968-69. The provincial government moved further to protect the Roberts Bank in 1977 under Order-in-Council 908.

In response to a Proposed Expansion by the Vancouver Port Corporation in 1977, the then Minister of the Environment, The Honourable Len Marchand, said at a news conference in Ottawa in 1979:

"full expansion of the port would present an unacceptable threat to the Roberts Bank ecosystem".

The 1979 Federal Environmental Assessment Review (FEAR) Panel that reviewed the proposal recommended:

"that approval for the full expansion as proposed not be granted" and "concluded that the potential impacts on the Fraser River estuary, ... are too great to recommend that the port expansion be approved as proposed. The extent and ecological significance of the Fraser River estuary, particularly its use by fish and wildlife, make it Unique in North America."

The Panel qualified the statement claiming limited expansion could occur if strategically located provided the shipping lane was not enlarged, the causeway was not widened and no changes were made to the ship turning basin. However, ignoring the concerns of 1979, without due process, from 1981 to 1984, the Vancouver Port Authority built two container terminals, expanded the causeway and dredged the entire ship turning basin.

In 2003, yet again ignoring scientific information and historic concerns, the Vancouver Port Authority (VPA) proposed large expansion for a Third Container Berth and a new Terminal 2 with 3 additional Container Berths. The plan was for two concurrent environmental assessments. It became clear that as the *Canadian Environmental Assessment Act* required a cumulative effects assessment of current, past and future Projects, these Projects would likely require Review Panel assessments. Although the Vancouver Port Authority had shown intent for both Projects, the Terminal Two Project was withdrawn in February, 2006.

The Deltaport Third Berth Project was assessed under a Comprehensive Study environmental assessment and approved in 2006.

On November 8, 2013, a federal environmental assessment was initiated for the Roberts Bank Terminal 2 Project. This Project is currently undergoing a federal environmental assessment.

9.1.2 Documented Concerns about the Deltaport Third Berth Project

9.1.2.1 Department of Fisheries and Oceans

At the preliminary stages of the Project, the Department of Fisheries and Oceans (DFO) repeatedly expressed concerns about the impact of the Deltaport Third Berth:

“...As you know, Fisheries and Oceans Canada (DFO) outlined its concerns with the proposed container terminal expansion (then identified as one project) in a letter from DFO to the VPA dated November 21, 2002. In addition, DFO has met with the VPA on four occasions to discuss proposals for container terminal expansion at Roberts Bank: September 24, 2002, November 14, 2002, November 22, 2002 and January 21, 2003. In each of those meetings DFO clearly stated our concern over any proposal to develop additional container storage and dock facilities on the east side of the existing causeway.

In each of those meetings DFO advised the VPA that, because of the critical value of the fish habitat in the area of the proposed expansion, DFO would not be able to issue a Fisheries Act Sec. 35(2) authorization for the destruction of that habitat.

“...Accordingly, as I stated at the March 11 meeting, DFO will not be involved in any review of the Delta Port proposal as the only option proposed for that project results in the destruction of critical fish habitat on the east side of the causeway. These circumstances do not permit DFO to authorize the harmful alteration, disruption or destruction of fish habitat and, as such, DFO cannot exercise any power, duty or function that would permit the Delta Port project to proceed as proposed.”

(Letter submitted to EA from Jeff Johansen, A/Chief, Major Projects Review Unit, Habitat and Enhancement Branch, DFO, April 1, 2003)

In a submission, September 6, 2005, the Department of Fisheries and Oceans continued to express concerns:

- Lack of information on juvenile Dungeness Crab
- Noise levels and the impact on Southern Resident Killer Whales
- Fueling and fuel spills
- Lighting impacts
- Boat collisions
- Impacts to eelgrass habitat
- Stormwater outfalls into inter-tidal habitats
- Large footprint of roads, parking and container storage

9.1.2.2 DFO failed to address a number of major concerns:

- Distances migrating fish have to travel due to the obstruction of Deltaport and the Ferry Terminal
- The susceptibility of fish to predators due to the obstructed pathways
- Loss of nearshore feeding
- Major impacts of planned dredging
- Concerns about the degradation of habitats in the intercauseway *(between the Ferry Terminal and Deltaport)*
- Concerns about erosion in the intercauseway
- Concerns about changes to eelgrass vegetation and implications
- Incremental loss of vital fish habitats

9.1.2.3 Environment Canada, Technical Comments, April 27, 2005:

Intercauseway is the waters between the Tsawwassen Ferry Terminal and Deltaport

- “EC has adopted the position that the risk of eutrophication within the intercauseway cannot be dismissed. If it does occur, the state of eutrophication is predicted to result in such massive environmental change between the causeways that there would be public outrage as well as agency embarrassment on an international scale, not to mention the loss of productive habitat for a very large and diverse assemblage of biota”
- ...”Further, given our lack of confidence in the effectiveness or adequacy of the habitat compensation strategy currently proposed, EC does not consider that potential impacts associated with the construction and operation of the Deltaport Third Berth Expansion will be appropriately mitigated. We consider the proposed compensation to be a further loss of productive habitat for migratory birds”
- The footprint of the development, and the proposed mitigation, will directly impact productive habitat for migratory birds and other biota
- The studies presented in support of the finding of no significant ecological impacts do not provide sufficient evidence to support that conclusion. As already discussed, the conclusions are based on data and analyses for which there exist major flaws...
- ...Perhaps most importantly, the evidence cannot show that the project footprints impacts will not act cumulatively with historical changes to the bank that have resulted from construction of the Deltaport and ferry causeways
- Despite the hydrodynamic analyses completed to date, the effects of the first expansion were not predicted, and the mitigation efforts in response to dendritic channel formation in the intercauseway have been unsuccessful
- A notable deficiency of the cumulative effects assessment is the lack of historical data for each ecosystem receptor
- ...The proponent needs to monitor the annual amount of nutrient/organic input into the intercauseway area in relation to the amount of export to the Strait, the chemistry of the sediment, and the health and extent of the eelgrass beds. Otherwise, the long term effects resulting from the cutting off of estuarine flow from the Fraser River to the intercauseway cannot be predicted
- Based on the present lack of data, the predictive power to reasonably assess the potential for this project to cumulatively impact intercauseway marine habitats cannot be completed
- The importance of the area to a variety of migratory birds of conservation concern is not being appropriately recognized in the Application
- The assumption therefore that there will be no impacts to the marine habitats is not well supported by the evidence presented”
- “Given the international significance of Roberts Bank for migratory birds, and fish and wildlife generally, EC urges caution, and recommends a more detailed understanding of ecological impacts of past, present, and future planned projects, before any further changes are made to the system... 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”
- “EC is of the view that the internationally recognized groups of waterfowl, shorebirds and seabirds that utilize the habitats at Roberts Bank throughout the year should have been identified as Valued Ecosystem Components (VECs) for the purposes of this environmental assessment review.”
- “Existing Environment. ... The Application, however, has made a glaring omission, and in this section in particular, by failing to suitably describe and put into context the internationally recognized populations of, and habitat for, shorebirds, geese and ducks on the Fraser River Estuary and Delta, including on Roberts Bank”

- Based on the limited information provided in the application, the overall package of mitigation measures the proponent has committed to for project operation, does not appear to represent best practices and technologies to minimize air emissions

Environment Canada - Letter to CEEA from M.D. Nassichuk, Acting Regional Director, Environmental Protection Branch, Pacific & Yukon Region

- “Because residual air quality effects are predicted, a cumulative air quality effects assessment is required for the DP3 project. In accordance with the PSD (Project Scoping Document), the VPA is required to consider the proposed future development of Container Terminal 2 at Roberts Bank and other proposed future projects in the study area for the cumulative air quality effects assessment”

In spite of concerns documented by the scientists, the bureaucrats signed off on the Project which was approved in 2006.

9.1.3 Ecological Significance of Roberts Bank in the Fraser River Estuary

- The Fraser River is the greatest salmon river in North America with more than two billion juvenile salmon spending days to months in the estuary
- The Fraser River ranks in the top 50 Heritage Rivers in the world
- The Fraser River supports around 80 species of fish and shellfish that spend at least part of their life cycles in the Lower Fraser and estuary
- The Lower Fraser is vital to threatened White Sturgeon and endangered eulachon
- The Lower Fraser supports 300 species of invertebrates
- The estuary is a wetland of international significance
- The intertidal wetlands cover roughly 17,000 hectares
- The freshwater flows from the Fraser River are so great that, technically, the entire southern Strait of Georgia is an estuary
- 17 million tonnes of nutrient-rich sediment pass through and deposit on the delta and into the Strait of Georgia each year
- The Fraser River Delta is Canada’s number one critical stopover for millions of migrating shorebirds and waterfowl of the Pacific Flyway
- The Fraser River Delta and farmland host Canada’s largest number of wintering shorebirds, waterfowl and birds of prey
- The Fraser River Delta stretching into Georgia Strait is vital habitat of the endangered Southern Resident Killer Whales (Orcas)

9.1.3.1 Designations

A number of Designations recognize the significance of the Fraser River delta and estuary but do not offer any legislative protection. These are listed and described with maps in *Appendix 1*.

- BirdLife International’s Important Bird Area (IBA) designation in 2001 for the Fraser River Estuary: Boundary Bay, Roberts Bank and Sturgeon Bank; the Estuary is the most significant IBA out of 597 sites in Canada.
- In 2004, the Western Hemisphere Shorebird Reserve Network (WHSRN) gave the Estuary its highest designation as a Hemispheric WHSRN Site.

- In 2011, Roberts Bank, the vital central link in this chain of inter-connected and protected estuary habitats, was finally declared a Wildlife Management Area after a 12-year delay by Port Metro Vancouver (PMV).
- In 2012, the whole lower Fraser River Delta was declared a Ramsar Site by the International Convention on Wetlands but Port Metro Vancouver made sure that the area around Roberts Bank was excluded.

9.1.4 Deltaport Third Berth Project Not Justified

The Vancouver Port Authority, now Port Metro Vancouver, failed to provide credible justification for the Third Berth Container Terminal. The port consistently understates capacity and overstates projected container volumes. Even the lowest projections to justify the Third Berth were not achieved. The lowest projected case for 2015 was 3.6 million TEUs. The actual number for 2015 was 3.1 million TEUs.

9.2 Legally Flawed Process

9.2.1 Failure of Environmental Assessment of Cumulative Effects

The cumulative effects assessment contravened the *Canadian Environmental Assessment Act*. Section 16.1 of the Act required any screening or comprehensive study to include consideration of:

“any cumulative environmental effects that are likely to result from the Project in combination with other projects or activities that have been or will be carried out.”

As the Terminal 2 Proposal was removed from the concurrent environmental assessments, it was not effectively included in the cumulative effects assessment. The South Fraser Perimeter Road was not included even though the interdependence of the three projects was clear to the public.

The cumulative effects assessment was subjective and lacking in quantitative and qualitative data. It did not appropriately address past, current and future projects. The report failed to address problems of upland port-related development and impacts on area farmland. Impacts to interactive, interdependent habitats and ecosystems were not addressed.

In spite of all the historic developments at Roberts Bank and numerous available studies, reports and air photos, the Canadian Environmental Assessment Agency permitted the Vancouver Port to use 2003 as a baseline for studies. This prevented inclusion of extensive habitat loss from the construction of Deltaport and the Ferry Terminal. It also avoided addressing the major erosion and deterioration of habitats in the intercauseway between the Ferry Terminal and Deltaport. It did not question the effects of introduced eelgrass on the sandbanks which could negatively impact shorebirds.

9.2.2 Lawyers from the Department of Fisheries and Oceans assisted the port in avoiding a Review Panel

The federal environmental assessment of this Project was confusing. At first the Vancouver Port Authority (VPA) announced the Roberts Bank Container Expansion Project that included the Deltaport Third Berth and a new three-berth container Terminal 2. The provincial environmental assessments proceeded with both Projects commencing on March 8, 2003.

Due to the scope of the 2 projects, it was clear a Review Panel environmental assessment would be required. In the fall of 2004, the Vancouver Port Authority (VPA) considered withdrawing the Terminal 2 Project. A memo by Environment Canada stated that if the Terminal 2 Project was withdrawn from the environmental process, the scoping for the Deltaport Third Berth should be sent back out for public consultation:

October 21, 2004, Environment Canada:

“Deltaport Third Berth Expansion - Scope of the Cumulative Effects Assessment

... the proposed Terminal 2 project should be included in the cumulative effects assessment and, if Terminal 2 is removed from the scope of the cumulative effects assessment, then the scoping document should be sent back out for public consultation...

The memo then cites the appropriate legislation and regulations:

... Policy clearly indicates that Terminal 2 should be included by a Responsible Authority in a cumulative effects assessment.

...The Fisheries and Oceans Canada position that it is not necessary to go back to the public if T2 were removed from the scope of the assessment due to its uncertainty does not accord with either the intent or the letter of the *Canadian Environmental Assessment Act* (CEAA).

...The removal of T2 from the scope of the assessment is clearly a change in the “factors proposed to be considered in [the assessment”, as Terminal 2 was explicitly mentioned in the original scoping document upon which the public provided comments. Many public responders specifically mentioned Terminal 2 in their comments.

The Act states that the public must be consulted, as opposed to merely informed. Valid consultation must be meaningful. It is my opinion that removing a major factor from the environmental assessment scope without reissuing the scope for public comment would not be meaningful consultation on the scope of the project.

If T2 were removed from the scope of the assessment for any reason, that Act would require that Responsible Authorities consult with the public on this change...

The plans for Container Terminal 2 were a certainty in 2004, yet Terminal 2 was not properly included in the Scope of the Deltaport Third Berth Project.

Lawyers at the Department of Fisheries and Oceans consulted with Port Vancouver (Vancouver Port Authority (VPA) at that time) and advised the VPA that if the planned Container Terminal 2 were fully included in the cumulative effects study of the Deltaport Third Berth, the project would need to be reviewed by an independent Review Panel. To avoid this, the lawyers recommended that the VPA write a letter to create uncertainty about plans for Container Terminal 2 even though studies and plans for the second container terminal were well underway.

The lawyers then reviewed the letter which was submitted to the Environmental Assessment Process. The result was that uncertainty about Container Terminal 2 was accepted by the Responsible Authorities and the Review Panel process was avoided.

The public was not given an opportunity to have input to the revised Scoping Document.

Evidence of these consultations between the Vancouver Port Authority (the Proponent of the project), lawyers in the Department of Fisheries and Oceans and Environment Canada is revealed in email exchanges: (*names removed*)

From: Pacific Yukon Region [PYR]
Sent: October 18, 2004 2:18 PM
To: [PYR]
Subject: Deltaport - T2 and Cumulative Effects

Hi -- I got a phone message from --- this morning who sat in on the call between VPA and DFO on the issue of T2 and the cumulative effects assessment. According to ---, the outcome is that VPA will be drafting a letter for review by DFO legal and EC on the issue. More on this after I speak with --- in person tomorrow

Cheers

Sr Environmental Assessment Engineer, Environmental Protection Branch, Environment Canada

From: [PYR]
Sent: October 18, 2004 3:01 PM
To: [PYR]
Subject: RE: Deltaport - T2 and Cumulative Effects

I just spoke with ---. He confirmed that we will receive a copy of the draft letter for review. Apparently VPA was presented with 3 options: (i) leave T2 in the CE assessment and recommend referral to Panel; (ii) remove T2 from CE I assessment and go back out for consultation; (iii) letter from VPA explaining uncertainty with respect to T2 and continuation as Comp Study without T2 but no need to consult on the change. I said this was a bit more definitive than what we had discussed on Friday.

From: [PYR]
Sent: Thursday, October 21, 2004 11:35 AM
To: [PYR]; [NCR]; [NCR]
Cc: [PYR]

Subject: FW: draft letter clarifying the status of Terminal 2

Here is a draft letter from VPA explaining the likelihood of T2. I seek your advice on whether this letter would provide sufficient rationale to remove T2 from the cumulative effects assessment for Deltaport Third Berth Expansion Project, on the basis that it is hypothetical, rather than certain or reasonably foreseeable. Also, DFO has advised VPA that, with such a letter, T2 could be removed from the scoping document without the need to go back for public consultation. Are you in agreement with this?

Original Message

From: VPA
Sent: October 20, 2004 8:31 AM
Cc: [CEAA]; [CEAA]; DFO; [PYR]; VPA

Subject: draft letter clarifying the status of Terminal 2

Please find attached a copy of a draft letter clarifying the status of Terminal 2. I am just wondering whether the letter should be jointly addressed Environment Canada as well as the other RA? As discussed I have included everyone on the cc list that was present on the Monday Conference call as well as --- from Environment Canada in the region.

If you have any questions please feel free to give me a call.

Regards,

Manager-Environment, Container Development Group, Vancouver Port Authority

Senior bureaucrats ignored the advice of their own experts and accepted the letter which the Vancouver Port Authority wrote with advice and consultation from the lawyers working in the Department of Fisheries and Oceans. How could lawyers working for the Department of Fisheries and Oceans justify consultation and advice to a Crown Corporation Proponent of a Project being assessed under the legislation of the *Canadian Environmental Assessment Act*?

The Department of Fisheries and Oceans was a Responsible Authority for the Deltaport Third Berth Environmental Assessment. How can that Ministry justify advising a federal Proponent how to circumvent a Review Panel Environmental Assessment when the project scope qualified for a Review Panel?

If due process had been followed, Terminal 2 would have been included in the Scope of the Deltaport Third Berth Project. The inclusion of Terminal would have necessitated inclusion of the South Fraser Perimeter Road as it is needed for Terminal 2. The result would have been expanded scoping which would have required a full Panel Review Process. So a chain of events of faulty scoping and government agencies assisting the Proponent in avoiding due legal process cheated the public out of due process of a Review Panel and a credible cumulative effects assessment of interconnected Gateway Projects.

9.2.3 Failure to Disclose Transfer of Provincial Crown Waterlot to the Federal Government

The federal environmental assessment was a Comprehensive Study so the final federal document was the Comprehensive Study Report.

The Comprehensive Study Report failed to disclose a necessary component of the Deltaport Third Berth Expansion which was the transfer of 2,852 acres (1154 ha) of crown provincial waterlot surrounding Roberts Bank to the federal government to accommodate the Project.

In 1961, this area was protected by a provincial Order-In-Council Reserve 2374. In 1977, the provincial government moved further to protect the Fraser River Estuary including Roberts Bank with Order-In-Council 908. Apparently, in 1999, the land was transferred to the B.C Transportation Financing Authority for port purposes even though there was an Order-In-Council and a Notation of Interest for conservation and plans were underway for the Roberts Bank Wildlife Management Area.

The implications of this transfer were far-reaching. Plans for the Roberts Bank Wildlife Management Area were scuttled and the wildlife management area was reduced. In a letter to the Corporation of Delta, July 28, 2005, Jim Cox, Vice President of Infrastructure Development for the VPA wrote:

“Secondly with respect to the amount of development, the entire waterlot is being acquired to provide design flexibility and to ensure that federal crown has control over not only the terminal site but also the land and water areas surrounding the proposed terminals for vessel, road and rail access. Parcel A will accommodate the D3 project and the T2 project when it is proposed.”

Although the public made inquiries in 2005, the information was not documented in the Comprehensive Study Report. As this information was pertinent to past, current and future developments at Roberts Bank, it should have been included in the Comprehensive Study Report.

9.2.4 Failure of Mitigation, Compensation and Adaptive Management Strategy

Provincial and federal environmental assessments no longer include specific information on monitoring, mitigation, compensation and so-called Adaptive Management Programs. Environmental assessments uniformly state these measures will occur and there will be no adverse residual environmental effects such as loss of habitat.

The public has to apply to Access to Freedom of Information to get any information. As plans and implementation take place behind closed doors after approval of a Project, there is no public disclosure or accountability. This subverts any acceptable notion of transparency and credible ecological planning and protection.

Compensation money for the Deltaport Third was used to award rich contracts to government-friendly organizations. Off-site compensation was ludicrous as it was impossible to duplicate the loss of fish and migratory bird habitat of the estuary. The money was used to benefit a different agenda that was not based on scientific evidence.

Environment Canada has worked with Port Metro Vancouver on the Adaptive Management Strategy for the Deltaport Third Berth which is a plan to monitor environmental impacts as they are anticipated, or as they occur, and then seek measures to minimize, prevent or repair damage. It is presented as a “scientifically rigorous adaptive management plan” in spite of the fact that the scientists admit the necessary background data has not been gathered or studied.

When it came to implementing the compensation / mitigation plan for the intercauseway between the Tsawwassen Ferry Terminal and Deltaport/Roberts Bank, the Agencies concluded (*several years later*) that the plan might not be successful and, furthermore, might cause, further damage. 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. It was so-called enhancement of existing, protected habitat so there was a net loss of habitat. This was not disclosed to the public.

With respect to the dendritic channels in the intercauseway and continuing loss and erosion of mudflat, biofilm and eelgrass features caused by ongoing port expansions, historic port development accountability is being discounted. There is a failure to recognize the cumulative effects of all previous port developments at Roberts Bank

As for monitoring impacts at Roberts Bank, in 2010, a BC Government Agency criticized ‘Reporting Updates’ from the Port’s consulting firm, as:

“grossly incomplete (despite repeated input over the last two years)”
(*Email acquired through Access to Freedom of Information*)

9.2.5 Public Input was Effectively Ignored

The public was required to read 73 pages of tables to find responses to public input. The information was scattered, in small print and difficult to read. The so-called responses were merely repetitions of information in the Application Studies. Agency input was vaguely addressed. Public input was not incorporated.

9.3 Immediate Action Needed

1. As government agencies colluded with the Vancouver Port Authority to avoid a Review Panel, stricter legal policies should be implemented to ensure this is not permitted in the future.
2. As the Canadian Environmental Assessment Agency is failing to meet fiduciary responsibilities, the agency should be revised with strict, legal accountability.
3. As actions of the Vancouver Port Authority lack transparency, legal accountability should be required.
4. As there was not complete disclosure of land transfers and, as it appears business occurs behind closed doors, new legal policies need to be implemented to ensure transparency and due process.
5. As there has been an ongoing failure to credibly assess the cumulative environmental impacts of past, current and future projects in the lower Fraser River and Estuary, the federal government should call for a moratorium on major Projects, undertake a cumulative effects environmental assessment, and prepare a plan to protect the Lower Fraser River and Estuary
6. As current legislation does not adequately protect wildlife habitat leading to loss and degradation, it is vital to the health of the Fraser River that the new government in Ottawa move quickly to explicitly mandate no net loss of wildlife habitat in the Lower Fraser.

7. As there was a lack of due process to the public, the Canadian Environmental Assessment Agency should be required to report on the environmental effects of this Project and document the loss of habitats and interactive, interdependent ecosystems.
8. As mitigation, compensation and Adaptive Management Strategies lack transparency and are not strictly science-based, these practices should be terminated. Loss of habitats in the lower Fraser and Estuary should not be permitted as 80% of productive habitats have already been lost.
9. As this Project adds significant habitat destruction to the Lower Fraser River, the federal government should review designations and protect the areas with legislation.
10. As this Project is yet another part of the ongoing Gateway Plans with 34 Projects and 16 Supply Chain Initiatives which include an agenda to industrialize the Lower Fraser, Transport Canada should be required to produce a report with full disclosure of plans which should then be subject to a Review Panel environmental assessment.
11. As the Precautionary Principle was not credibly applied to this Project, amendments to federal environmental assessments should strengthen this mandatory requirement.
12. As about 80% of marsh, mudflats, eelgrass beds, and bog habitats have been destroyed over the past 100 years, action is needed to protect the remaining 20%.
13. As the process failed to include a risk analysis to address multiple uncertain residual effects, including effects on regional air quality and long term effects of climate change, this omission should be recognized and legislation should be amended to ensure future risk assessments have integrity.

10.0 South Fraser Perimeter Road Project (SFPR)

Highway 17 opened December 21, 2013

Proponent: BC Ministry of Transportation

Provincial Environmental Assessment initiated on February 3, 2003 - Approved: July 24, 2008

Federal Screening Environmental Assessment initiated on December 4, 2006 -Approved, July 28, 2008

The environmental assessment of the South Fraser Perimeter Road was a Harmonized Environmental Review by the federal and provincial governments.

The South Fraser Perimeter Road should have required a Review Panel Assessment due level of public concern and due to Species at Risk (*Pacific Water Shrew and Steambank Lupine*) on federal lands that were planned to be used for the Project. Although this was brought to the attention of CEAA during the environmental assessment, public input was ignored and the use of federal lands for the Project was not disclosed. Then seven months after approval of the process, another environmental assessment was done due to the use of federal lands for the Project. Then three subsequent environmental assessments were necessary, two due to the use of federal lands and one for a federal Fisheries permit.

1. **South Fraser Perimeter Road** – CEAA #06-01-24060 – Federal Screening
Reasons for EA: - financial assistance from Transport Canada
-Section 5(1)(a) of the *Navigable Waters Protection Act*
-subsection 35(2) of the *Fisheries Act*. **Project Approved July 28, 2008**
2. Pacific Water Shrew recovery on South Fraser Perimeter Road Advanced Works (Sunbury Stockpile site)- CEAA #09-01-45861- Federal Screening Reason for EA: it was determined that an environmental assessment was required in relation to the project because the Vancouver Fraser Port Authority considered providing federal lands. (*Note: this was known during the original assessment but not included*)
Approved March 2, 2009
3. Vegetation clearing, pre-loading & drainage modifications at CN Railway Intermodal Yard in Surrey (*South Fraser Perimeter Road Project*) – CEAA #10-01-59565- Federal Screening
Reason for EA: -subsection 35(2) of the *Fisheries Act*. **Approved Jan. 26, 2011**
4. Maintenance Dredging, Pile and Conveyor Installation on River Road, Delta, BC (*South Fraser Perimeter Road Project*) – CEAA #11-01-64561 – Federal Screening
Reason for EA: -Vancouver Fraser Port Authority considered providing federal lands
(*Note: this was known during the original assessment but not included*) **Approved Jan. 17, 2012**
5. Pile and Conveyor Installation on 130 Street, Surrey, BC (*South Fraser Perimeter Road Project*) – CEAA #11-01-65273 – Federal Screening
Reason for EA: -Vancouver Fraser Port Authority considered providing federal lands
(*Note: this was known during the original assessment but not included*) **Approved Jan. 05, 2012**

The Project included:

- A new four-lane, 40- kilometre length highway along the south side of the Fraser River extending from Deltaport Way in Delta to 176th Street in Surrey/Langley
- Construction, operation, modification, and decommissioning work between Deltaport Way and the Fraser River Crossing at about 184th Street
- Bridges; pilings; structural fills; works in a water body; material handling and laydown areas; fuel storage facilities; sewage disposal; construction platforms; storage sites and all equipment and machinery



Image: UBC Geography 370 Project, 2010

Plans included:

- The new highway stretching 40 kilometres, starting at Highway 17 in Delta near the Deltaport container port, running north through farm land past Ladner, then west along the northern edge of Burns Bog and along the south shore of the river to Port Kells in Surrey to join up with the approach to TransLink's new Golden Ears Bridge
- The need to acquire all or part of more than 700 properties, including about 200 residential properties
- 105 hectares of prime farmland in Delta, to be taken out of production, including 90 hectares needed for the highway right-of-way, and 15 hectares whose access will be cut off by the highway
The new road will run through 18 hectares of cranberry farms, representing about 10 per cent of B.C.'s \$30-million cranberry crop
- The planned route to skirt around the protected lands of Burns Bog, but included the removal of 15 hectares of forest near the protected area, mainly along its northern edge
- Impacts to archeological sites where native villages once stood
- Noise impacts to 36 sites along the route
- A 400-metre-long bridge to be built across the Fraser Heights wetland to minimize disturbances to the area's sensitive ecology
- Four lanes with a speed limit of 80 km/h with five interchanges and five intersections
- The highway to link directly, or via other access roads, to Deltaport, Vancouver International Airport, Fraser Port Terminals, Fraser Surrey Docks, the CN Intermodal Terminal, the Tsawwassen ferry terminal, industrial areas at Tilbury, Annacis Island, Bridgeview and Port Kells, and two U.S. border routes
- The highway to be the major east-west link south of the Fraser for goods movement, bypassing the severely congested Port Mann Bridge
- The highway to provide a key piece in the provincial government's plans to turn the Lower Mainland into a gateway for trade between North America and Asia, especially for containers

10.0.1 Cost of the South Fraser Perimeter Road (SFPR)

- The planned cost of the South Fraser Perimeter Road was \$800-million
- The highway was built by the Fraser Transportation Group under the government Partnerships BC
- The capital cost was listed as \$658 million under Partnerships BC
- The Government of Canada provided \$365 million
- The final cost of the SFPR was \$1.26 billion

10.1 Environmental Impacts

The Department of Fisheries and Oceans stated that the plans for a Design-Build approach to the Project made it difficult for government scientists to determine impacts and mitigation:

“Depending on what level of uncertainty would remain concerning the likelihood “that the project would cause significant adverse environmental effects”, DFO may have no choice but to withhold reaching a CEAA conclusion until a final design is completed”

There was no follow-up on this concern.

Even within the framework of the narrow scope of the South Fraser Perimeter Road Project, government and non-government scientists raised serious concerns

10.1.1 The Canadian Environmental Assessment Agency, October 31, 2007:

- The mitigation by specialized design and construction has been discussed visually in meetings; but, no plans have been provided that federal agencies can review and comment on, or agree to.
- The proposal is not a proven technology and only conceptual at best.
- It does not matter that the area of impact (north and west fringe of Burns Bog) is small relative to the area of Burns Bog; this area is critical to maintaining the hydrological conditions in the bog.
- Habitat fragmentation was a big concern for Pacific water shrew in the review of the Golden Ears Bridge; this species should be included in the discussion here.
- Impacts are anticipated to several animal species considered at risk including sandhill cranes, Pacific water shrew and southern red-backed vole.
- It is not the proportion of SFPR’s contribution to cumulative effects that matters; it is the total of all past, present and future projects.”

10.1.2 Environment Canada (EC) Letter and Technical Comments, Nov. 19, 2007

- The effects of the Project will not be small in comparison to current conditions, but rather will have a proportionally more damaging impact in ecologically sensitive areas such as Burns Bog.
- The Project will likely result in residual adverse effects after mitigation for the following VECs:
 - Pacific Water Shrew (PWS)
 - Barn Owl
 - Hydrology
 - Ecological Integrity of Burns Bog
- EC predicts that the direct negative effects of the Project upon the Pacific water shrew, bog hydrology, and ecological integrity of the bog will likely result in significant adverse effects.

- Environment Canada described the global and regional significance of Burns Bog and national and international obligations to be “considered including:
 - North American Waterfowl Management Plan
 - The Ramsar Convention;
 - Convention of Biological Diversity
 - Federal Policy on Wetland Conservation
- Environment Canada further emphasized that even after mitigation and compensation measures there will be residual adverse environmental effects and a loss of valued ecosystem components:

“Based on the above, Environment Canada is of the opinion that the Project will significantly compromise the ecological processes that are fundamental to the long term viability and integrity of Burns Bog.”

10.1.3 B.C. Ministry of Environment to the Environmental Assessment August 21, 2007

- It is our opinion that the highway corridor, as proposed, will have substantial irreversible impacts on associated ecosystem values, particularly at the western side of Burns Bog and the wetland/stream complexes associated with Fraser Heights.
- The concurrence of bog edge forest, wetlands, shrublands, old field areas and agricultural lands at the western edge of Burns Bogs attract a uniquely rich and abundant gathering of wildlife species including species at risk or of regional significance. Pacific Water Shrew, Southern Red-backed Vole, Trowbridges Shrew, and a new shrew species are all confirmed or expected in this area.
- Burns Bog contains one of two remaining breeding areas for Greater Sandhill Cranes in the region. The agricultural fields around Crescent Slough, directly west of the bog, have been identified as a critical fall staging area for these birds.
- The proposed highway corridor impedes or severs the terrestrial connections between the agricultural fields from the forests and wetlands at the western side of Burns Bog. Direct and indirect impacts to the wildlife are anticipated to be noticeable and quantifiable.
- Without the ability to migrate between habitats, use of the area by wildlife such as shrews, voles, deer and the variety of amphibians is compromised. The inability to transfer genetic material within populations of these wildlife threatens their long-term viability for the area at large
- The more northern forest at the west side of the Burns Bog conservation partnership lands is a relatively large, in-tact, red-listed Lodgepole pine – Sphagnum bog forest community. This unique ecosystem component that is disconnected from the larger bog by the gas and powerline right-of-way is a functioning remnant of bog forest. The proposed alignment directly bisects the lodge-pole pine plant community.”
- Fraser Heights includes a large contiguous wetland and forest complex with several species including species at risk
- In March 2006, 15 critical habitat areas were identified based on the only 15 recent confirmed locations of the Pacific Water Shrew in Canada. The Fraser Heights Area... was identified as critical habitat; a Pacific Water Shrew was captured there in 2003... The proposed alignment bisects this identified critical habitat and threatens its integrity.”
- The direct impacts to habitat and species populations along the SFPR will be significant, particularly in areas that act as habitat corridors or refugia in less disturbed areas. The current highway alignment also directly impacts red-listed plant communities.

10.1.4 Federal Department of Fisheries and Oceans, December 12, 2006

- DFO notes that the habitat compensation proposals are conceptual. We recommend that the details (access, technical feasibility, biological feasibility, and design details for construction) for all of the proposed compensation sites to be worked out as soon as possible and preferably before completion of the environmental assessment.

This did not happen even though a major concern was raised in the original Fish Habitat Impact Assessment:

- ... it is expected that there may be cumulative environmental effects on fisheries values. The nature of the potential cumulative effects are likely to include water quality issues associated with urban runoff, changes in hydrological regimes as a result of increases in impervious areas, and an increasingly fragmented resource with potential reductions in connectivity between islands of intact habitat. Overall, all of these factors may challenge the integrity and long-term viability of fisheries resources through the project corridor.

10.1.5 Scientific Advisory Panel to the Burns Bog Ecological Conservancy Area, July 16, 2007

- It is clear that wherever the SFPR is put, it will have major consequences to wildlife. A route within or immediately adjacent to the mixed conifer forest on the Bog's western edge will have the greatest impacts on ecological integrity, through ecosystem conversion and negative edge effects.
- Due to concerns about the Crescent Slough lagg, the planned freeway was moved west from the forest area into the Crescent Slough farmland. This plan will cause new environmental impacts. In particular, the Crescent Slough area is habitat for the Sandhill Cranes. An environmental impact of this new alignment did not take place

10.1.6 Other Concerns

- Listed as special concern, the Barn Owl would lose roosting habitat and there would be bird strikes from moving vehicles
- The project has identified 454 potentially contaminated sites along the route
- Archeologists warned the new road would destroy priceless archeological and heritage sites impacting First Nations burial sites and artifacts along the Fraser River, particularly in the area of the old Glenrose Cannery.
- The Air Quality Impact Assessment was garbled and impossible to comprehend. It did disclose that there would be an increase in deadly particulates and sulphur dioxide. It also stated:
"With increased air pollution there can possibly be increased employment (e.g., in the health sector) because of the economic activity associated with correcting the results of its impacts."
(Technical Volume 16, page 39)

10.1.7 Failure to credibly consider alternatives

The BC Ministry of Transport refused to consider cheaper alternatives that would have protected more farmland, bog lands, wetlands and forests. One alternative was presented by professionals, the Hoover Naas Route but support and public input was ignored.

The Hoover-Naas Route would have used an existing rail right-of-way, thus requiring virtually no farmland be destroyed, and would have traveled at some distance from the schools and residences the SFPR passes close by, thus minimizing the health impacts of air pollution from trucks. In contrast, the Government's chosen SFPR route skirts a dozen schools and thousands of people in their homes.

10.1.8 Failure to credibly include Gateway Projects in the Cumulative Effects Assessment

Submissions stated that Gateway projects such as the Deltaport Third Berth, Terminal 2 at Deltaport, the South Fraser Perimeter Road and the Golden Ears Bridge were all interconnected and should be assessed collectively under a Review Panel Process as required under the *Canadian Environmental Assessment Act*. Piecemeal assessments and project-splitting avoided due process.

Early in the environmental assessment, the Department of Fisheries and Oceans revealed that the scope of the project merited a Review Panel environmental assessment:

“While it may be premature to speculate at this point whether public concerns (such as identified in MOT’s public consultation documents) would warrant reference to a mediator or review panel as per CEAA Sec. 20 (1)(c) (if all other criteria were met), it remains possible that the magnitude and location of this project could generate such a public response” (January 23, 2003 – DFO)

10.1.9 Failure to provide meaningful public input

There was no public consultation on the overall route of the South Fraser Perimeter Highway. The public was invited to address only small sections. This was contrived to avoid input on the cumulative effects of the highway on Burns Bog, Fraser Heights wetlands, and forested escarpment areas.

Submissions from the public were not credibly addressed

10.2 Legally Flawed Process

10.2.1 Amendments to the Table of Commitments and Assurances on the South Fraser Perimeter Road

In June, 2011, the B.C. Ministry of Transportation announced plans to install culverts instead of bridges at Nelson View Creek and Gunderson Creek stating that culverts are not significantly different to bridges at these locations. The information in the ‘Fish Impact Assessment’ of the South Fraser Perimeter Road would not support this assertion. Of particular note is the impact to the vegetation in these areas which is vital for fish populations of the Fraser River.

Gunderson Creek and Nelson View Creek were identified as yellow-coded watercourses in the Fish Habitat Impact Assessment. Habitat loss along the stretch of the Fraser River between the Alex Fraser Bridge and the Pattullo Bridge was not adequately assessed for cumulative impacts on fish habitat and for impacts on the habitat of the endangered Pacific Water Shrew. Changes to the plans for Gunderson Creek and Nelson View Creek will add to the destruction of vital habitat.

10.2.2 Failure to Disclose Important Information

Internal documents reveal that government experts had concerns that were not included. One was the failure of the environmental assessment to identify critical Pacific water shrew habitat area on the route of the South Fraser Perimeter Road on the North side of the bog:

“Unfortunately this occurrence record from 2002 was not reported on during the environmental assessment... It is important to advise the EAO of this new information so that impacts might be mitigated as these areas are crucial to the recovery of the Pacific water shrew.”

(October 19, 2007, email ENV:EX)

Surely the federal and provincial experts should have reported this information in their comments to the Environmental Assessment process. Surely the public should have been informed.

There were concerns about the endangered Streambank Lupine:

“Streambank lupines were designated by COSEWIC as endangered in 2002, and are a SARA listed species currently undergoing recovery efforts by a Streambank Lupine Recovery Team and the Province of B.C...

...The Streambank lupine is mentioned in 4.6 Rare Plant Species of the Environmental Assessment Application, but is not mentioned in section 7.2.1 Minimizing Vegetation Clearance and Project Footprint.”
(Dec. 19, 2006, email from ENV:EX)

This rare plant was known to have occurred on the Alaska Way access road which was planned for the South Fraser Perimeter Road. The land owner, Surrey Fraser Docks is federal land and, as such, subject to the federal *Species at Risk Act*. When asked to produce boundaries of the federal properties, the port claimed they didn't have them.

If the use of federal lands with Species at Risk had been disclosed, Environment Canada would have been a designated Responsible Authority. Federal laws would have applied and a more extensive federal Review Panel environmental assessment should have been required.

The plans for the South Fraser Perimeter Road included other federal lands with species at risk. This was not disclosed. The final Cumulative Effects Assessment of June 18, 2008 acknowledged that the Project would affect rare, red-listed or blue listed plants. However, no conclusions of the residual adverse environmental effects were provided. While the Streambank Lupine is mentioned in the Application, there is no documentation indicating that the South Fraser Perimeter Road Project on federal lands threatens the survival of the Streambank Lupine.

10.3 Immediate Action Needed

1. As the Design-Build approach to a Project is problematic for scientists to determine whether or not there will be significant residual adverse environmental impacts from a Project; and

As the Design-Build approach does not effectively determine issues and mitigation/compensation measures during the initial environmental assessment,

- the agencies and the public should be informed and permitted input once the design is completed

2. As there was no disclosure of the use of federal lands with species at risk, new legal policies need to be implemented to ensure full accountability and transparency.
3. As major changes were made after approval in terms of culverts instead of bridges, the follow-up process lacks credibility. The Department of Fisheries and Oceans should have acted to prevent such a major change.
4. As alternatives to Projects are no longer given serious consideration, the process needs to be revised with complete disclosure and transparency.
5. There needs to be serious repercussions for failing to disclose information.
6. As the Project has destroyed wetlands, forests, and transitional bog lands, the BC Government and the Canadian Government should purchase the remaining unprotected lands of Burns Bog and ensure health is restored to their ecosystems.

7. As the Project destroyed habitat for species at risk, legislation needs to be stronger and enforced.
8. As there has been an ongoing failure to credibly assess the cumulative environmental impacts of past, current and future projects in the lower Fraser River and Estuary, the federal government should call for a moratorium on major Projects, undertake a cumulative effects environmental assessment, and prepare a plan to protect the Lower Fraser River and Estuary
9. As this Project is yet another part of the ongoing Gateway Plans with 34 Projects and 16 Supply Chain Initiatives which include an agenda to industrialize the Lower Fraser, Transport Canada should be required to produce a report with full disclosure of plans which should then be subject to a Review Panel environmental assessment.
10. As the Precautionary Principle was not credibly applied to this Project, amendments to federal environmental assessments should strengthen this mandatory requirement.
11. As the process failed to include a risk analysis to address multiple uncertain residual effects, including effects on regional air quality and long term effects of climate change, this omission should be recognized and legislation should be amended to ensure future risk assessments have integrity.

11.0 Burns Bog Ecological Conservancy Area

1.0.1 The Burns Bog Ecological Conservancy, established in March, 2004, after backroom deal

On June 1, 1999, the B.C. Government announced a special environmental ecosystem review of unprotected Burns Bog. A review resulted in a number of reports completed by April, 2000.

https://a100.gov.bc.ca/appsdata/epic/html/dep/epic_project_home_60.html

The results, conclusions and recommendations of the review were summarized in the *Burns Bog Ecosystem Review, Synthesis Report for Burns Bog, Fraser River Delta*, March, 2000.

https://a100.gov.bc.ca/appsdata/epic/html/dep/epic_project_doc_list_60_r_com.html

The Review reported that Burns Bog is globally unique: (*Synthesis Report, pages 238-241*)

“On a global scale, Burns Bog is distinct and unique because of its morphology, chemistry, flora and large size...Burns Bog undoubtedly contributes to ecosystem diversity in the Fraser Lowland where bogs are uncommon...Forty percent of the original bog area has been alienated by development.”

The *Synthesis Report* identified Burns Bog as a raised bog ecosystem of approximately 3,000 hectares (7,413 acres) and concluded that 2,440 hectares (6,029 acres) required protection for the ecological viability of the bog.

Burns Bog



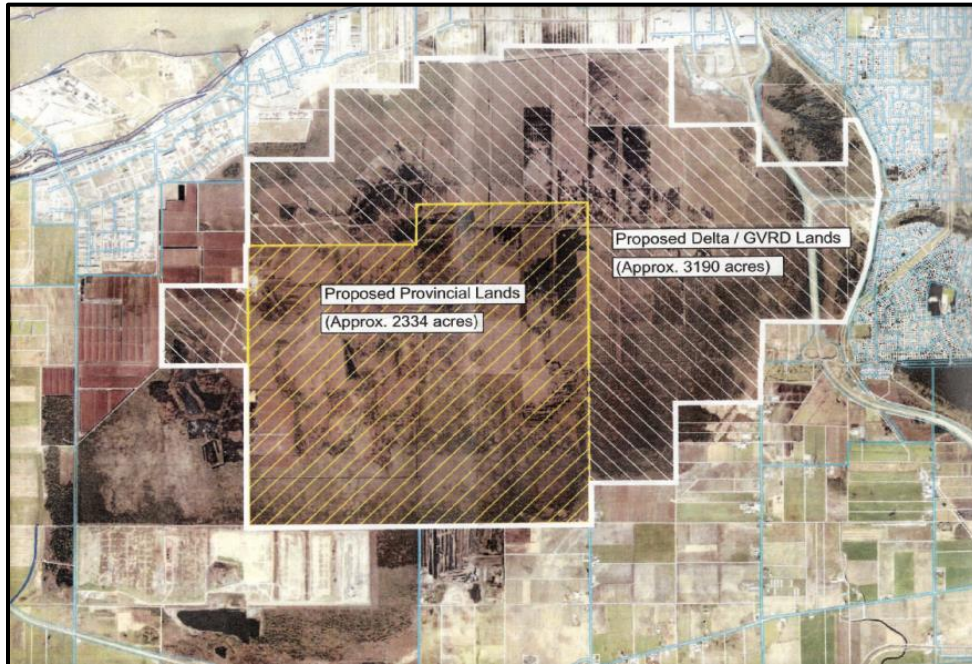
On December 11, 2003, four levels of government announced that they had offered \$78.7 million to purchase 2,196 hectares (5,426 acres) of Burns Bog. After the announcement, the owners of Burns Bog, and a Toronto development company hired two Canadian Senators to broker a different deal. One senator was paid \$100,000 and it is unclear how much the other received. However he did admit to using a Canadian Senate letterhead on a number of occasions during the bog negotiations. He made an appeal to the Minister of Environment on a Canadian Senate letterhead.

As a result, 184 hectares (455 acres) of Burns Bog were taken off the table. A large contiguous property of Burns Bog was subdivided with 4 properties strategically placed for future development. These 4 properties are causing controversy today as new owners seek rezoning for development.

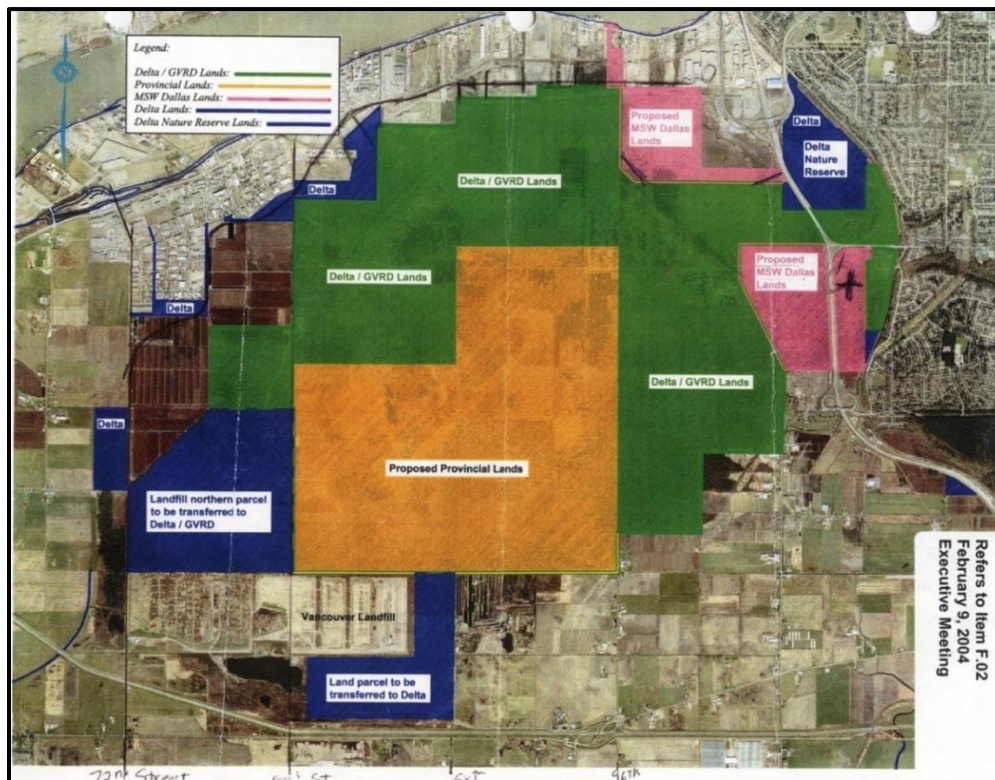
The original plan was to include the four properties in the protected area. The Province of B.C. was in a good bargaining position as they held a \$25 million mortgage on Burns Bog and foreclosure was imminent. So it was not necessary to bargain away these properties

In March 2004, the Governments of Canada, British Columbia, Metro Vancouver, and the Corporation of Delta purchased 2,042 hectares (5,045 acres) of Burns Bog. The Government of Canada contributed \$28 million towards the \$73-million purchase. The Burns Bog Ecological Conservancy Area was formed with a registered protective Covenant. A Management Plan was completed in May 2007.

In December, 2013, the Corporation of Delta announced plans to add 405 hectares (1,000 acres) of properties to the Burns Bog Ecological Conservancy Area.



Original 2003 Plan for purchase of Burns Bog



**Bartered Deal for Burns Bog 2004 – pink properties subdivided off for developers
Delta blue properties plan to be added to the Burns Bog Ecological Conservancy Area**

11.2 Significance of Burn Bog

Burns Bog:

- is the largest raised peat bog on the West Coast of North America
- is a vital part of Canada's number one stopover of migrating birds of the Pacific Flyway
- habitats support rare and endangered plants and animals
- unique biodiversity for the region due to climate, location and historical factors
- provides critical habitat for the regionally endangered Greater Sandhill Cranes
- The estimated total carbon stored in Burns Bog is about 1-2 million tonnes. If it were to be oxidized, it would represent 6% to 12% of one year's greenhouse gas emissions for B.C. (*Synthesis Report, 2000, page 239*)
- According to the book, Peatlands and Climate Change by the International Peat Society, 2008, in terms of greenhouse gas emissions, the maintenance of large store of carbon in undisturbed peatlands should be a priority
- According to an article in Scientific American, Peat and Repeat: Can Major Carbon Sinks Be Restored by Rewetting the World's Drained Bogs? David Biello, December 8, 2009, the United Nations Environment Program estimates that by reducing global deforestation, especially that occurring on top of peatlands could restore some 50 billion metric tons of carbon dioxide, or nearly two years of global emissions. <http://www.scientificamerican.com/article/peat-and-repeat-rewetting-carbon-sinks/>
- According to biogeochemist, Nancy Dise, Peatland Response to Global Change, November 6, 2009: "... peatlands store more carbon than any other terrestrial ecosystem. Covering only about 3% of Earth's land area, they hold the equivalent of half of the carbon that is in the atmosphere as CO₂ ...

On September 22, 2012, the Ramsar Convention on Wetlands announced the designation of 20,682 hectares of land as a **Ramsar Wetland of International Significance**, the highest designation for the protection of wetlands. The Fraser River Delta Ramsar Site includes:

- Burns Bog
- Wildlife Management Areas of Sturgeon Bank, South Arm Marshes, and Boundary Bay
- Serpentine
- Alaksen Ramsar Site

Other initiatives and designations could apply:

- United Nations Framework Convention on Climate Change (Kyoto Protocol)
- Global Peatland Action Plan
- United Nations Convention on Biological Diversity
- Federal Policy on Wetland Conservation
- Protected Area Strategies
- Canadian National Wildlife Area

The Canadian Government has failed to identify Burns Bog as a protected National Wildlife Area even though the bog meets the qualifications in terms of migratory birds; assemblage of rare, vulnerable, threatened and/or endangered plants and animals; and rare and unusual wildlife habitat.

If the federal government had protected Burns Bog as a National Wildlife Area, the South Fraser Perimeter Road Project would have qualified for a Comprehensive Study Review under the *Canadian Environmental Assessment Act, Comprehensive List Regulations*, Schedule 3, Part 1, 2.(i). Instead it was a minimal Screening Review.

11.2.1 Protection of Burns Bog Ecological Conservancy Area

When Burns Bog was purchased in 2004, a protective Covenant was registered on the properties. However it appears that the Covenant is flawed and local governments do not have legal authority.

11.2.2 Hydrology Key to Preserving Burns Bog

Burns Bog ecological viability is directly dependent on the extent and integrity of the bog's water mound and the peat that encloses it. Disruption of the water mound poses high risk to the integrity and viability of Burns Bog. As of the year 2,000:

“The overall water storage has declined by about 84 million cubic metres or about 60%.”

(Synthesis Report, March, 2000: page 234)

It is a challenge to retain the bog's remaining 40% water storage so all the area encompassed by the water mound is essential. The scientists reported on the study area of 3,000 hectares (7,413 acres):

“To ensure adequate water storage... the Bog area cannot be reduced substantially beyond what it is today.”

(Synthesis Report, March, 2000: page 239)

Vital to the health of Burns Bog is the need to manage the lagg zone which is the peripheral drainage systems of the bog. With developments occurring on unprotected bog lands and adjacent lands, scientists are working to engineer an artificial lagg. They query whether or not this will be successful.

Burns Bog is at risk from fire and drought. For this reason, the scientists reported, most of the bog should be preserved for the ecosystem complex to remain viable.

There are expectations that climate change also offers challenges as Burns Bog depends upon rainfall for its entire annual supply of water:

“The re-establishment of vigorous peat-forming processes and maintenance of the water levels in the bog will be crucial to the bog becoming resilient to projected climate change.”

(Restoring the Natural Hydrology of Burns Bog, Delta, B.C., P. Whitfield, R. Hebda, J. Jeglum, and S. Howie, 2006)

11.2.3 Many Roads Run Through It

Burns Bog is encased on three sides by major highways which literally dissect bog lands:

Highway 99, developed in the 1950s and 1960s, cut off the southern stretch of Burns Bog which at one time connected with Boundary Bay to the south:

“An option should be maintained to re-establish a connection to Boundary Bay as well.”

(Synthesis Report, March, 2000: page 240)

Highway 91, in Delta, built in 1986, cut through the eastern area of Burns Bog. This eastern section is required for the integrity and viability of the bog:

“The area east of Highway 91 and north of 72nd Avenue is required to support high biodiversity attributes, to provide water to the main part of the Bog west of Highway 91, and to connect the Bog to upland habitats. The main water mound zone needs to be connected to the area east of Highway 91, via a broad zone of *Sphagnum* regeneration and typical bog water.”

(Synthesis Report, March, 2000: page vi)

Environment Canada (EC) Letter and Technical Comments, Nov. 19, 2007

- The effects of the Project will not be small in comparison to current conditions, but rather will have a proportionally more damaging impact in ecologically sensitive areas such as Burns Bog.
- The Project will likely result in residual adverse effects after mitigation for the following Valued Ecosystem Components (VECs):
 - Pacific Water Shrew (PWS)
 - Barn Owl
 - Hydrology
 - Ecological Integrity of Burns Bog
- EC predicts that the direct negative effects of the Project upon the Pacific water shrew, bog hydrology, and ecological integrity of the bog will likely result in significant adverse effects.
- Environment Canada described the global and regional significance of Burns Bog and national and international obligations to be considered including:
 - North American Waterfowl Management Plan
 - The Ramsar Convention;
 - Convention of Biological Diversity
 - Federal Policy on Wetland Conservation
- Environment Canada further emphasized that even after mitigation and compensation measures there will be residual adverse environmental effects and a loss of valued ecosystem components:

“Based on the above, Environment Canada is of the opinion that the Project will significantly compromise the ecological processes that are fundamental to the long term viability and integrity of Burns Bog.”

B.C. Ministry of Environment to the Environmental Assessment August 21, 2007

- It is our opinion that the highway corridor, as proposed, will have substantial irreversible impacts on associated ecosystem values, particularly at the western side of Burns Bog...
- The concurrence of bog edge forest, wetlands, shrublands, old field areas and agricultural lands at the western edge of Burns Bogs attract a uniquely rich and abundant gathering of wildlife species including species at risk or of regional significance. Pacific Water Shrew, Southern Red-backed Vole, Trowbridges Shrew, and a new shrew species are all confirmed or expected in this area.
- Burns Bog contains one of two remaining breeding areas for Greater Sandhill Cranes in the region. The agricultural fields around Crescent Slough, directly west of the bog, have been identified as a critical fall staging area for these birds.
- The proposed highway corridor impedes or severs the terrestrial connections between the agricultural fields from the forests and wetlands at the western side of Burns Bog. Direct and indirect impacts to the wildlife are anticipated to be noticeable and quantifiable.
- Without the ability to migrate between habitats, use of the area by wildlife such as shrews, voles, deer and the variety of amphibians is compromised. The inability to transfer genetic material within populations of these wildlife threatens their long-term viability for the area at large

- The more northern forest at the west side of the Burns Bog conservation partnership lands is a relatively large, in-tact, red-listed Lodgepole pine – Sphagnum bog forest community. This unique ecosystem component that is disconnected from the larger bog by the gas and powerline right-of-way is a functioning remnant of bog forest. The proposed alignment directly bisects the lodge-pole pine plant community.”

Scientific Advisory Panel (SAP) to the Burns Bog Ecological Conservancy Area, July 16, 2007

- It is clear that wherever the SFPR is put, it will have major consequences to wildlife. A route within or immediately adjacent to the mixed conifer forest on the Bog’s western edge will have the greatest impacts on ecological integrity, through ecosystem conversion and negative edge effects.
- The SAP concludes that there will be an increase in air-borne drift of particulates and aerosols onto the Bog during the construction period and subsequent use of the SFPR. However, without detailed information on the rates of deposition of all nutrients for the period of construction and afterwards for similar highways, it is impossible to predict what the levels of deposition will be.
- Due to concerns about the Crescent Slough lagg, the planned freeway was moved west from the forest area into the Crescent Slough farmland. This plan will cause new environmental impacts. In particular, the Crescent Slough area is habitat for the Sandhill Cranes. An environmental impact of this new alignment did not take place

Letter of Concern from Scientific Advisory Panel

- The main impacts on wildlife will be on the diminishment and fragmentation of marginal mineral-water-influenced habitats – mixed conifer-hardwood-thicket swamps
- Clearly, any impacts to the marginal ecosystems through conversion or edge effects will have serious negative consequences to wildlife populations as well as the Bog's ecological integrity
- The wildlife-related issues include the effects of noise and lights from the highway on daily behaviour of wildlife; sources of food; location of roosting and nesting nests; and the danger to wildlife of regular road crossings in flight or on the ground to forage in adjacent agricultural fields
- In addition, the fragmentation and reduction in size of the forest and thicket swamp lands adjacent to the Bog may result in reduced capability of the smaller parcels to support populations of key wildlife species

Other Concerns

- The project identified contaminated sites along the route adjacent to bog lands with the potential to contaminate the bog
- Transportation and utility corridors pose the potential for contamination from spills.
- Concerns that activities on unprotected properties on the bog side of the new highway will negatively impact the bog
- Failed to address the loss of interconnectivity of habitats between the Fraser River and Burns Bog:

“Consideration of conservation biology principles requires that it must remain as connected as possible with adjacent ecosystems to sustain the species diversity and ecosystem functions in the Bog. The most important connections include riparian corridors to the Fraser River...”

(Synthesis Report, March, 2000: page 240)

- Burns Bog harbours the only known habitat for Southern Red-backed Vole in the province, and critical habitat for the regional Greater Sandhill Crane population

(*Synthesis Report, March, 2000: page 242*)

One only needs to drive the new Highway 17, or look at a satellite map of the area to see the loss of habitat and impacts to Burns Bog:

- Trees have been felled to make way for acres of empty shipping containers
- Many transitional bog lands that provided habitat for species at risk are gone
- Habitat suitable for rare small mammals and birds is significantly degraded
- Once undisturbed vegetation at 80th Street is now paved over
- Rich sphagnum cover in the northwest corner continues to be severely degraded
- The mixed conifer forest on the Bog's western edge is severely compromised
- Building too close to the bog has impacted ecological integrity through ecosystem conversion and negative edge effects

11.2 Legal Challenge by the Burns Bog Conservation Society over the South Fraser Perimeter Road

The Burns Bog Conservation Society took the federal government to court claiming breach of the Burns Bog protective Covenant. The Society was supported by many groups and the public in the claim that the alignment of the South Fraser Perimeter highway was too close to the bog and would interfere with the hydrology which is vital to the bog's viability. The case claimed breach of the Covenant and contravention of the *Canadian Environmental Assessment Act* and the *Species at Risk Act*. The judgement in August, 2012, ruled against Burns Bog claiming the case was not substantiated.

From this case, it became clear that local governments do not appear to have any legal ability with the Covenant meaning it is not particularly effective. It raises questions about future breaches of bog protection.

11.2.1 Current Development Pressures on Unprotected Burns Bog Properties

As a result of the deals that led to the subdivision of Burns Bog properties and loss of protection for 455 acres in 2004, the owners have repeatedly tried to get the lands rezoned for housing, commercial and/or industrial uses for two properties adjacent on either side of Highway 91 between 64th Avenue and 72nd Avenue.

The owners claim understandings for development were made at the time of discussions about the Burns Bog Ecological Conservancy Area (BBECA). In a letter to Metro Vancouver, February 2, 2010, the landowners, MK Delta Lands claim:

“The land negotiations for the BBECA were done in good faith by the land owners with an understanding with the Province and other stakeholder that the “non-essential” lands would be available for other land use opportunities in the future. MK indicated at the time of the negotiations that they saw themselves as long term partners, doing their part to manage their land in a responsible and sensitive manner recognizing its proximity to the BBECA...”

It is unfortunate that these properties were deemed “non-essential” in discussions because in the *Synthesis Report*, the properties are identified as Zone 2 meaning areas with several attributes supporting the bog. Also the two properties have protected bog properties on three sides so any developments will impact protected bog. Also the two properties are shown on maps in the *Synthesis Report* to have moderately high habitat suitability for rare small mammals and birds. The property on the west side of Highway 91 has a large area of undisturbed vegetation.



MK Delta Lands pointed out that the Corporation of Delta designated the two properties (Lots B and C on the map) as “Resource Study Area” and the Regional Growth Strategy designated them ‘Conservation/Recreation Area’ which is the same as the protected areas of Burns Bog. MK Delta Lands requested that Metro Vancouver designate the properties as “Special Study Area” in place of the Conservation/Recreation Area designation. Metro Vancouver did not comply with their request.

2016 Proposal from MK Delta Lands

MK Delta Lands is currently seeking industrial development on Lot 4 which is 62.7 hectares (155 acres) near the Highway 17 connector to Highway 91. The plans include development to create 9 industrial properties on 112 acres, road access and 26.8 acres of protection/enhancement area. This is presumably to provide a buffer zone between industrial activity and protected bog.

This property is zoned agriculture and is an isolated piece of land in the Agricultural Land Reserve. In return for industrial development, MK Delta Lands is proposing to transfer three other bog properties totalling 133 hectares (328 acres) to Delta for conservation.

In addition, MK Delta Lands is proposing to provide \$5 million for agricultural improvements on Westham Island in Delta, \$1 million for community amenities and \$5 million for transportation improvements on the South Fraser Perimeter Road, Highway 91 interchange to facilitate access to the development.

11.3 Action Needed

- The Burns Bog Covenant needs to be revised to provide legal accountability of all levels of government.
- As outlined in *Peatlands and Climate Change* by the International Peat Society, 2008, Summary for Policy Makers, Item 28

“It is essential that future land use of peatland incorporates the principles and practices of wise use in order to promote sustainable management, especially with respect to hydrology, water and carbon. Inevitably, however, every type of human intervention on peatland leads to impairment or even loss of natural resource functions (ecology, hydrology, biodiversity, carbon storage). Effective peatland management also requires engagement between scientists, policy makers and stakeholders.”

- Government purchase of unprotected Burns Bog lands would prevent further incursion; would provide some compensation for the damage that has occurred; and would increase the chances of retaining the ecological integrity of Burns Bog.
- As Governments seek avenues to reduce greenhouse gas emissions, the action of adding unprotected bog lands to the Burns Bog Ecological Conservancy Area would prevent their degradation and increase the size of the valued carbon sink.
- Management of the hydrology of Burns Bog needs to remain a priority.
- It is essential to ensure an ongoing fire prevention program due to the high risk of fire in the Burns Bog Ecological Conservancy Area.
- Land management strategies need to focus on preventing any further degradation of bog lands and peripheral buffers.
- To ensure protection, the Burns Bog Ecological Conservancy should be declared a protected National Wildlife Area by the Canadian Government.

APPENDIX 1

Designations of the Fraser River Delta and Estuary

The Fraser River delta and estuary has global significance for millions of shorebirds, waterfowl and other birds migrating on the Pacific Flyway. The delta, including upland fields, hosts the largest number of wintering shorebirds, waterfowl and birds of prey in Canada. The estuary flowing into the Strait of Georgia supports endangered southern resident killer whales, gray whales and humpback whales.

The Fraser River supports one of the largest salmon runs in the world including six species of Pacific salmon - chinook, coho, chum, pink, steelhead and sockeye. The River is famous for endangered white sturgeon and eulachon.

The riches of the Fraser River and estuary, including sandy beaches, mudflats, eelgrass meadows, marshes, bogs, farmland and woodlands create a unique ecosystem that is recognized with international, national and provincial designations.

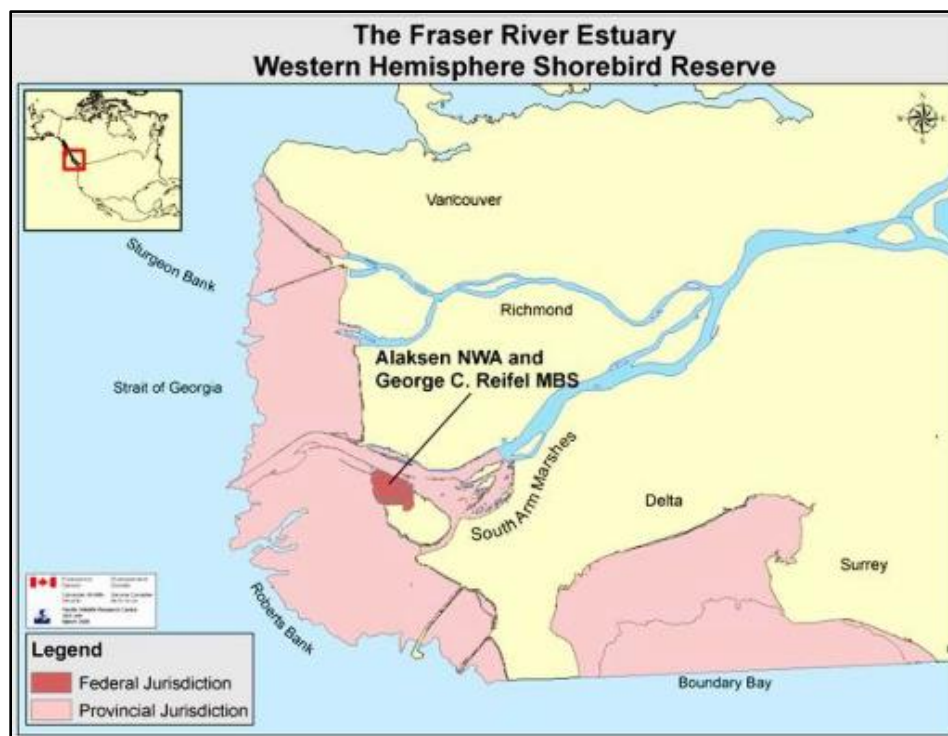
Conservation groups have worked for over 30 years to obtain protection and recognition for this world class ecosystem. As a result the Fraser River delta and estuary has numerous designations but almost no protection.

It is essential that we act now to ensure protection in perpetuity.

A1.1 International Designations

Western Hemispheric Shorebird Reserve Network Site - WHSRN

In 2004, the Western Hemisphere Shorebird Reserve Network (WHSRN) gave the Fraser Estuary its highest designation as a Hemispheric WHSRN Site. (www.whsrn.org) It is one of only eight Hemispheric Sites.



Canada's Top Three Important Bird Areas - IBAs

International recognition from BirdLife International for Canada's three top sites in the Fraser estuary:

- Roberts Bank
- Sturgeon Bank
- Boundary Bay

Designated in 2001, the estuary is the most significant Important Bird Area (IBA) out of 597 sites in Canada.

***The estuary was listed as one of the "Global IBAs in Danger" in 2015

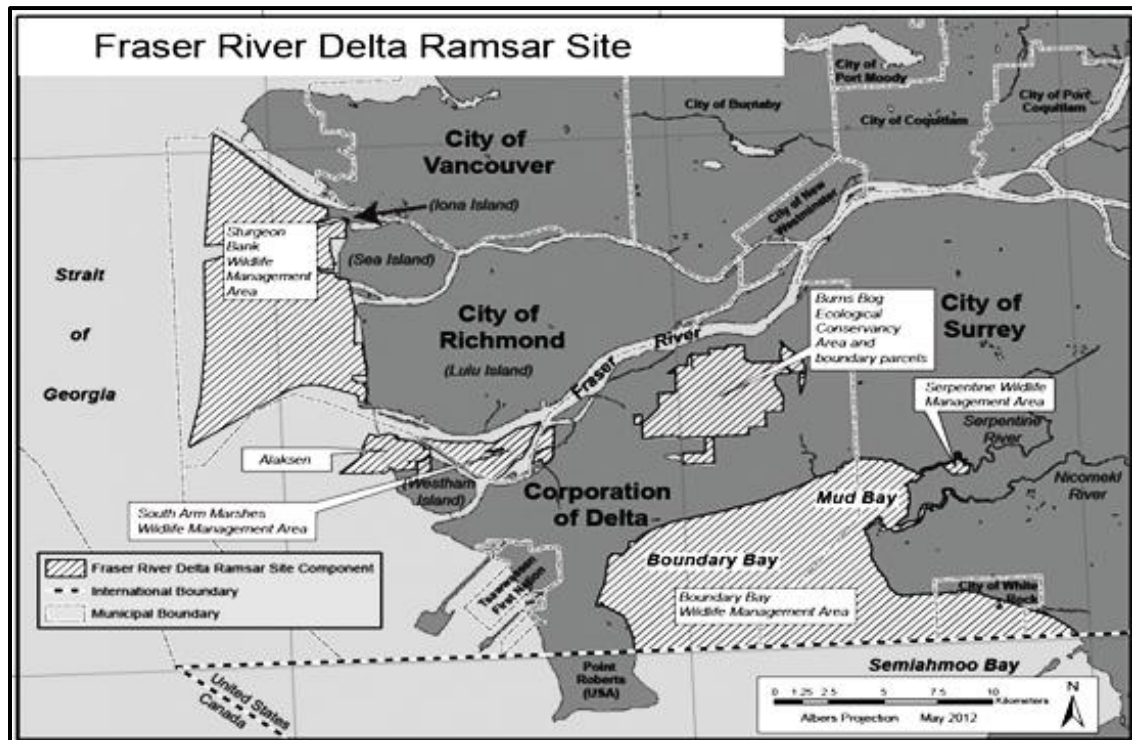
Fraser Delta RAMSAR site

On September 22, 2012, the Ramsar Convention on Wetlands announced the designation of 20,682 hectares of land as a Ramsar Wetland of International Significance, the highest designation for the protection of wetlands. The Fraser River Delta Ramsar Site includes:

- Burns Bog
- Wildlife Management Areas of Sturgeon Bank, South Arm Marshes, and Boundary Bay
- Serpentine
- Alaksen Ramsar Site

With the declaration of the RAMSAR site, most of the Fraser Delta was included with the exception of the Roberts Bank Wildlife Management Area and the rich eelgrass beds around the Deltaport Coal and Container Terminals. Deltaport activities are seriously degrading habitats that are not found elsewhere in the estuary due to the particular mix of salt and fresh water at Deltaport. The omission of Roberts Bank is purely a political act which puts the health of the estuary at risk.

<http://www.ramsar.org/news/canada-vastly-extends-vancouver-wetlands>



A1.2 Federal designations

Canadian Heritage River – designation of the Fraser River in 1998 in recognition of its exceptional natural, cultural and recreational values – the Fraser has the largest estuary on North America’s Pacific Coast:

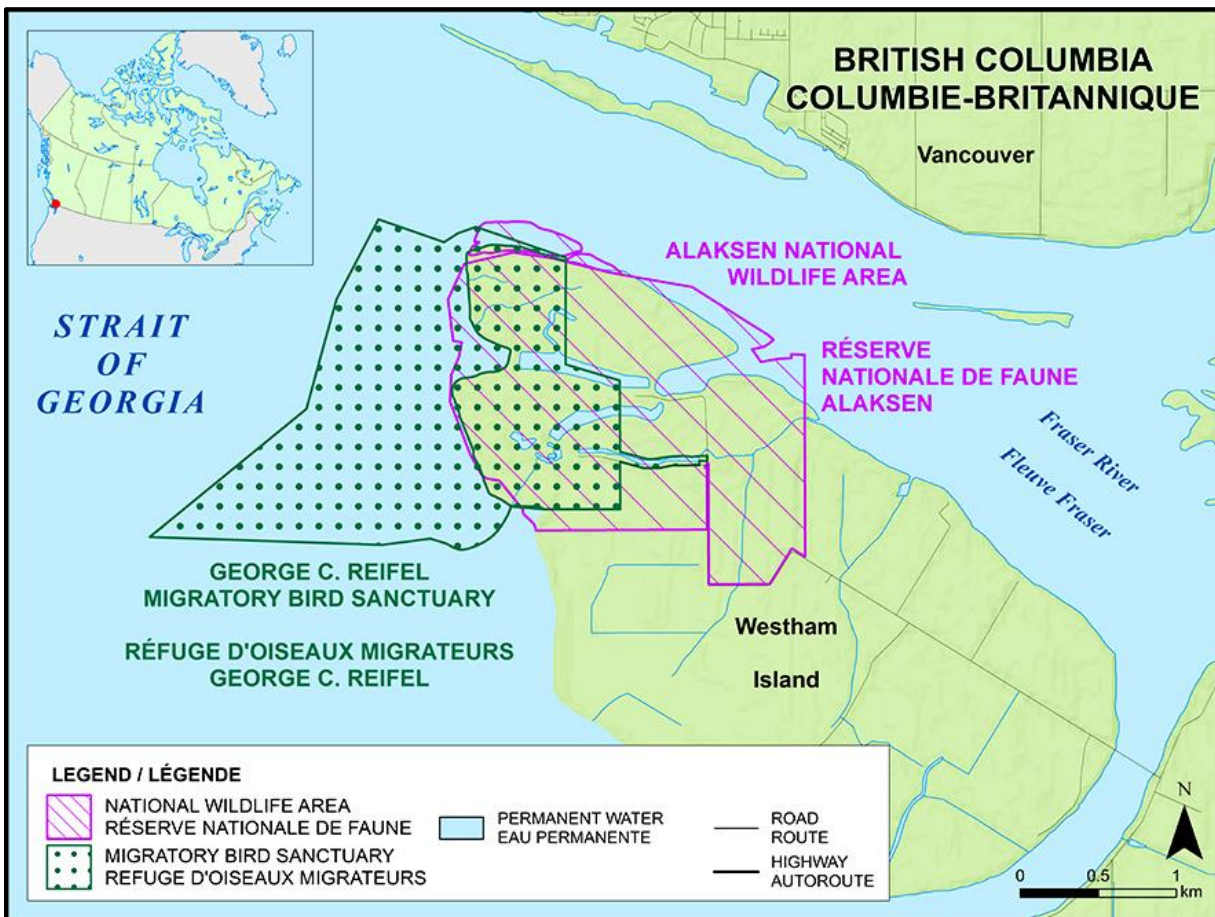
“– the largest river in British Columbia, ...the greatest salmon river in the world – is a river of superlatives...

...it merges with the Pacific Ocean among vast wetlands, internationally recognized as an important staging and nesting area for shorebirds and waterfowl

http://www.chrs.ca/Rivers/Fraser/Fraser_e.php

Alaksen National Wildlife Area

The Alaksen National Wildlife Area, established in 1972, is a protected area located on Westham Island. A section of the Alaksen National Wildlife Area overlaps with the George C. Reifel Migratory Bird Sanctuary.



George C. Reifel Migratory Bird Sanctuary - established in the 1960s for the protection and conservation of migratory birds.

A1.3 Joint Designations (federal, provincial, regional, municipal)

Burns Bog Ecological Conservancy Area

In March 2004, the Governments of Canada, British Columbia, Metro Vancouver, and the Corporation of Delta purchased 2,042 hectares (5,045 acres) of Burns Bog. The Burns Bog Ecological Conservancy Area was formed with a registered protective Covenant. A Management Plan was completed in May 2007.

Burns Bog



A1.4 Provincial designations 4 Wildlife Management Areas (WMA) in the Lower Fraser Estuary



Map of Wildlife Management Areas in Fraser Estuary

<http://www.env.gov.bc.ca/fw/habitat/conservation-lands/wma/map.html>

South Arm Marshes Wildlife Management Area was declared on May 31, 1991 for the management of critical habitat for waterfowl, shorebirds, raptors, songbirds and small mammals.

Boundary Bay Wildlife Management Area (WMA) was declared on June 21, 1995 as internationally significant habitat for year-round and migrating waterfowl and shorebirds as well as important critical fish and marine mammal habitat. It was identified as an important link of the Pacific Flyway.

Sturgeon Bank Wildlife Management Area established 1998 for conservation of critical, internationally significant habitat for year-round, migrating and wintering waterfowl populations, as well as fish habitat.

Roberts Bank Wildlife Management Area declared on September 7, 2011 for management of critical habitat for fish, waterfowl, shorebirds, raptors and other species. It is the vital central link in the chain of inter-connected and protected estuary habitats.

The value of Roberts Bank to wildlife was first recognized when some 27,200 acres (11,007 ha) of crown land and waterlots were protected under a provincial Order-in-Council in 1961. This Provincial Order-in-Council Reserve No. 2374 was established "for game management purposes". The Reserve included Crown (Provincial) land, foreshore, and land covered by water. The 2011 declared area is for 21,670 acres (8,770 ha).

So 5,530 acres were removed from legal protection. These were removed for the Tsawwassen First Nation Treaty and for port expansions at Deltaport. The provincial government transferred 2,851 acres of crown waterlot to the federal government for the Deltaport expansions. There are plans to transfer an additional 665 acres for another Container Terminal with 3 or 4 new berths. These waterlots are being leased to the Port of Vancouver for container shipping.



The provincial government deliberately left out key habitat areas to enable the construction of the container Terminal 2 at Roberts Bank. The large gap in the Roberts Bank Wildlife Management Area is vital habitat with unique nutrients due to tides, temperatures and a particular mix of salt and fresh water. The richness and abundance in this location is unparalleled anywhere else in the estuary. Similar habitats can be located but their nutrient value is not as high.

Agricultural Land Reserve (ALR) in Richmond, Delta, and Surrey

Agricultural land in the Fraser Delta

The river depends on the floodplain as a refuge for biodiversity. Rivers and their floodplains are ecologically inseparable.

The British Columbia Agricultural Land Reserve (ALR) is legal protection of agricultural land.

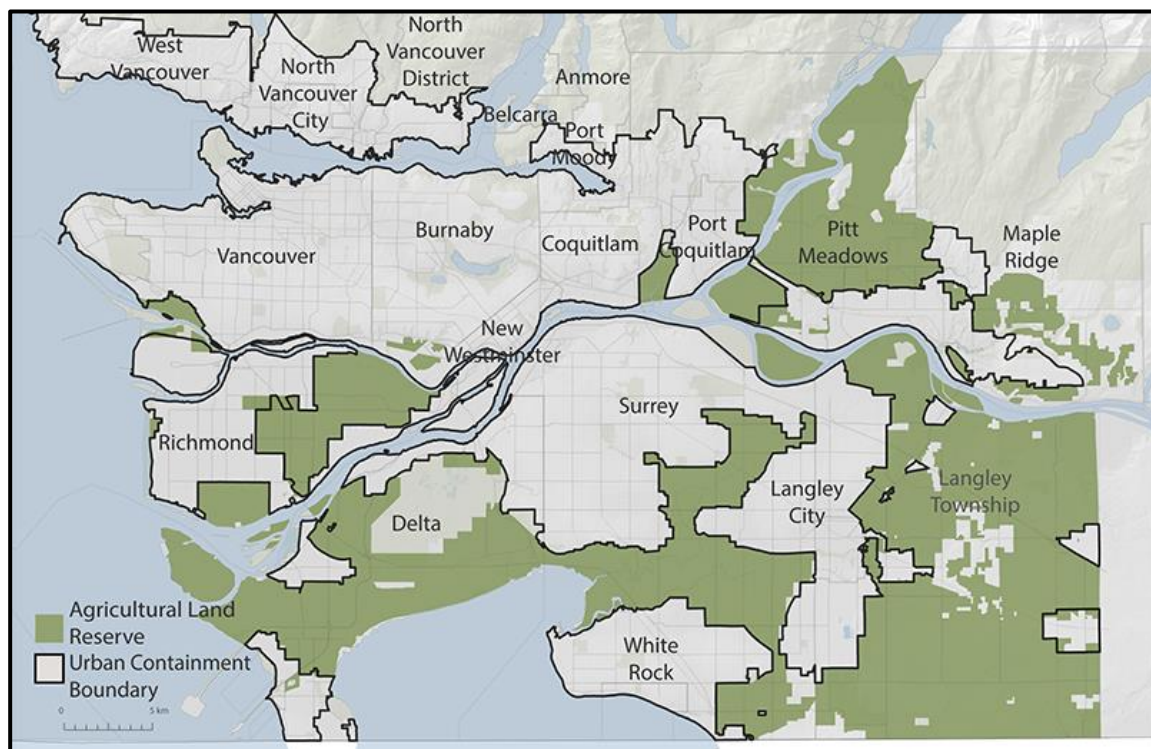
Agricultural land is important habitat for many of the Fraser delta's birds, including migratory shorebirds, ducks, geese and swans, and songbirds. A number of federally and provincially-listed at risk species depend on farmland, including Barn Owl and Barn Swallow. The Delta Farmland and Wildlife Trust (DFWT www.deltafarmland.ca) works to ensure ecologically sustainable habitats remain on active agricultural land.

The BC Agricultural Land Reserve was intended to protect the province's very limited arable land (<5% land base). However, farmland insecurity, alienation and speculation, particularly in the Roberts Bank area, has been an issue ever since the 1960s when port developments began. Competing jurisdictions and political goals continue to hamper the long term recognition that agricultural land should be for agricultural use.

Much of Richmond's farmland was developed for housing in the 1970s and 1980s. The Gilbert Farm adjacent to the Fraser River has been purchased by the Port of Vancouver with plans to use it as industrial land. Thousands of hectares of Delta farmland have been optioned by speculators and property investors. Farmers generally lease land for agricultural uses as they cannot afford to buy.

Of 1,000 acres of ALR transferred to the Tsawwassen First Nation in the treaty settlement, at least half has been used for malls, housing and industrial purposes. There is uncertainty over the future of farmland on Brunswick Point.

Green is Agricultural Land Reserve protected by zoning



APPENDIX 2

Anne Murray: Who is looking after the Fraser River?

<http://www.straight.com/news/648676/anne-murray-who-looking-after-fraser-rivers-estuary>

by Anne Murray on March 1st, 2016 at 9:57 PM



- Part of the Fraser River Delta/estuary. Shutterstock

During the decade of the Harper government, many important environmental programs and safeguards were dismantled. Government scientists were unable to speak up about issues, environmental laws were weakened, and important working groups were terminated.

Notable among these was the multi-agency Fraser River Estuary Management Program (FREMP), which, together with the Burrard Inlet Environmental Action Program (BIEAP), was responsible for such tasks as baseline mapping of estuary habitat and coordinating project-review applications.

When the doors closed at the FREMP-BIEAP offices on March 31, 2013, after 28 years of operation, the role of coordinating project reviews was handed to Port Metro Vancouver (PMV), the leading proponent of development in aquatic habitat in the Lower Mainland. It was a classic case of the fox looking after the hen house, with the potential for strong conflicts of interest.

PMV, also known as the Vancouver Fraser Port Authority, is the largest port in Canada and is accountable to the minister of transport, under the Canada Marine Act. It manages more than 16,000 hectares of water, over 1,000 hectares of land, and about 350 kilometres of shoreline, from Roberts Bank and the Fraser River to Burrard Inlet.

Its mandate includes planning, real estate, safety, project environmental review, permitting, and infrastructure development designed to facilitate trade through Canada's west coast gateway. The Port is not concerned with the overall, cumulative effects of development on the Fraser estuary's world-class fish and wildlife, and it is only required to pass the bureaucratic thresholds of environmental assessments under the Canadian Environmental Assessment Act 2012.

PMV's lead role as review coordinator was meant to be temporary, "until a new form of partnership was developed and launched". Three years later, the port corporation still holds the coordinator position while simultaneously driving many major building projects in the Fraser Delta. The B.C. government is taking a hands-off approach to environmental assessment, despite several areas of provincial jurisdiction that should be addressed. Some projects are even sliding through without proper federal or provincial environmental reviews.

It is high time to form a new multi-agency coordinating body to take over responsibility for the environmental protection of all habitats and wildlife in the Fraser River Delta, estuary, and adjacent waters. The Fraser is the world's greatest salmon river, and it is in the top 50 heritage rivers globally. The estuary is critical habitat for fish and wildlife: a BirdLife International Important Bird Area, host to internationally significant flocks of birds migrating on the Pacific Flyway and Canada's largest wintering habitat for waterfowl and birds of prey, and a regular foraging area for endangered southern resident orcas.

Without independent oversight, these amazing assets are at risk of extinction.

The timing is particularly urgent, with a newly elected federal government just finding its feet, coupled with the out-of-control proliferation of major projects under consideration. These include: PMV's three-berth Terminal 2, which will double the size of the Roberts Bank container port (currently undergoing a federal environmental assessment panel review); the \$3.5-billion bridge replacement for the George Massey tunnel, which will be designed to accommodate tankers moving to upstream terminals; the proposed WesPac Tilbury Marine Jetty project, currently under B.C. Environmental Assessment Office review; and a fourth runway for Vancouver International Airport that could intrude into Sturgeon Banks.

Other new projects on the Fraser River include: the Surrey-Fraser Docks direct-transfer coal facility; a Vancouver Airport Fuel Facilities Corporation (VAFFC) fuel-delivery system approved for the South Arm of the Fraser in Richmond; and the major expansion to FortisBC's Tilbury liquid-natural-gas (LNG) facility that was approved by B.C. government order-in-council without an environmental assessment.

Not only do these megaprojects undergo incomplete environmental assessments, they also lack transparent and credible cost-benefit analyses. Although they are portrayed as benefitting the Canadian economy, millions of tax dollars fund the required infrastructure while the public is excluded from planning and evaluation processes. The results are contracts that guarantee long-term financial benefits to vested interests.

Delta farmland, already heavily impacted by sprawling housing developments, industrial-size greenhouses, and the purchase of Agricultural Land Reserve (ALR) land for speculative purposes, is disappearing under blacktop. The South Fraser Perimeter Road, now Highway 17, facilitated traffic flow into the heart of delta farmland and further fragmented the agricultural land base. The price of farmland is well beyond the reach of most active farming families, who, typically, rent many of the fields they work. Irreplaceable transitional habitat and farmland of Burns Bog were also destroyed as the highway cut through unprotected bog lands.

Roberts Bank was designated as a Wildlife Management Area (WMA) in 2011, 16 years after Boundary Bay and Sturgeon Banks achieved WMA status. Included were 8,770 hectares, but more than 2,200 hectares of equally important habitat were omitted, presumably to allow for non-WMA uses in future. Similarly, designation as part of the Fraser Delta Ramsar Site, or Wetland of International Importance, has to date been withheld for Roberts Bank.

More than 1,600 hectares of Delta farmland were expropriated by the provincial government in 1968-69 for port industrial purposes. These Roberts Bank back-up lands were leased to farmers until the late 1990s, at which point some of the lands were offered to farmers for buy-back.

The remainder of the lands were transferred to the Tsawwassen First Nation as part of their treaty settlement in 2009 or were added to the existing rail right of way by B.C. Rail as part of the Deltaport Terminal Road and Rail Improvement Program. Over the past five years, many hectares of the former back-up lands have been optioned or changed hands, as speculative investments driven by port development. PMV as a federal entity may use ALR land for non-farm uses.

The Tsawwassen First Nation has partnered with major developers to construct two megamalls on their once fertile farmland and wildlife habitat near Roberts Bank, and further hectares are being developed for industrial infrastructure and housing. Much of Richmond has already been developed for housing and commercial uses; now some of the remaining farmland along the South Arm of the Fraser River has been purchased outright by PMV.

PMV's CEO, Robin Silvester, has made it clear that he views the Agricultural Land Reserve as "emotionally but not economically important" to the region and that more should be done to make industrial land available. This viewpoint is contradictory to those who recognize the importance of growing fresh food close to our population centres, especially in view of climate change and food-security concerns.

In 1988, a jet-fuel facility project on the river in Richmond was rejected by an environmental-panel review on the grounds that highly toxic and flammable fuels posed an unacceptable risk to public safety. Yet in 2014, a jet-fuel offloading, storage, and transfer facility and connecting pipeline to Vancouver International Airport were approved by the provincial government for PMV-leased land on the banks of the Fraser River in Richmond. Environment Canada and Fisheries and Oceans Canada played no role in the assessment process, for which PMV was the key federal participant.

The Fraser estuary is in deep trouble. The integrity of every hectare of this once magnificent wildlife habitat is threatened by the many cumulative developments. The rich farmland of the delta, the best growing area in Canada, is rapidly being speculated out of existence. With a land-use agenda driven by transportation and port interests, the low-lying delta lands of the estuary need a moratorium and a plan. If the Fraser River salmon and the shorebirds of the Pacific Flyway are to survive, we must have a true consideration of all the cumulative impacts of these ports, airports, industrial complexes, housing developments, rail lines, highways, and bridges.

A new coordinating multi-agency group is needed to address the environmental challenges of the Fraser River estuary and its surrounding lands and waters. Port Metro Vancouver should no longer have lead authority over environmental reviews and approvals. A stronger, more effective Fraser River Estuary Management Program (FREMP) would be backed with realistic financial support, adequate staff, and the power to ensure meaningful environmental assessments on all large projects. Its responsibility would be nothing less than the ongoing survival of the area's native wildlife and the habitats needed to support them.

In the 1990s, Environment Canada created the Fraser River Action Plan. Environmental-quality programs were initiated to clean up pollution, monitor the health of the river, and study such issues as sedimentation transport and its environmental implications in the lower Fraser. Detailed scientific reports were produced and distributed, and annual status reports gave information on achieving targets.

In 1993, “A Living Working River”, a management plan for the Fraser River estuary, was prepared by the Fraser River Estuary Management Program (FREMP). It aimed to improve environmental quality in the estuary while providing economic-development opportunities and sustaining the quality of life in and around the estuary. Despite work on biodiversity conservation and some habitat acquisitions in the next 20 years, this overall vision and coordinated action has now been lost; economic-development opportunities are being fast-tracked while estuarine habitats and quality of life are continually degraded.

In the early 2000s, even the provincial government was interested in producing annual reports on environmental trends in B.C., including biodiversity, climate change, toxic contaminants, water, and human health. It was not long before staff were fired and departments closed. The demands of energy and the rush to become a “gateway” to the world took priority over environmental concerns.

A comprehensive environmental-sustainability plan, based on the cumulative effects of all proposed development projects, is urgently needed to protect the ecological integrity of the Fraser River estuary and the wildlife that depend on its habitats. The best means of achieving this overall perspective and regulatory role is the creation of a new and stronger Fraser River Estuary *Ecological* Management Program.

Anne Murray’s books on Delta’s natural and ecological history, A Nature Guide to Boundary Bay and Tracing Our Past, a Heritage Guide to Boundary Bay, are available in local stores or from www.natureguidesbc.com/. She blogs at www.natureguidesbc.wordpress.com/.

Appendix 3: Anne Murray: Plans for new Fraser River bridge ignore agricultural and environmental concerns

<http://www.straight.com/news/669866/anne-murray-plans-new-fraser-river-bridge-ignore-agricultural-and-environmental-concerns>

by Anne Murray on March 31st, 2016 at 5:55

Christy Clark's plans for a 10-lane highway bridge to replace the 57-year-old George Massey Tunnel under the Fraser River is being met with a very mixed reception.

Although at first glance it might appear to be a reasonable solution to the horrendous daily traffic jams facing everyone who commutes from south of the river, on closer examination other, more entrenched, problems appear.

Increasingly, citizen groups, including the newly formed Fraser Voices, are demanding a federal environmental review for the three-kilometre-long, \$3.5-billion bridge, a requirement that the megaproject has so far managed to dodge. Notably, the federal government itself is lacking in enthusiasm, as it left the project out of its new budget.

Wider crossing would merely shift gridlock

Vancouver rejected the concept of cross-city freeways decades ago, so Highway 99 through Richmond feeds north into two lanes over the narrow Oak Street Bridge, a scene of frustrating traffic congestion every morning. From there, a string of traffic lights and urban streets faces drivers all the way through Vancouver to the Lions Gate Bridge.

A wider crossing for the Fraser River would simply move traffic congestion from one location to another, which does nothing for people's sanity, time, fossil-fuel use, or the environment.

The bridge, as proposed, is another example of poorly justified, piecemeal development that avoids a comprehensive, regional approach to transportation problems. It ignores important environmental issues, such as loss of farmland and agricultural viability, failure to reduce dependence on fossil fuels, and disruption of ecologically sensitive river lands.

Outdated traffic studies will be meaningless

The bridge's proponents have put much store in studies claiming to show the majority of northbound traffic only travels as far as Richmond. These studies were also used to justify the lack of tunnel expansion when the South Fraser Perimeter Road (now Highway 17) was constructed. They took place before the sudden exponential increase in Vancouver housing costs pushed desperate purchasers farther and farther into the suburbs, and before the latest round of port expansion and the development of two new megamalls near Tsawwassen.

The studies will likely be meaningless by the time bridge construction begins. Many local residents believe the real reason for the rush to build a bridge is Port Metro Vancouver's desire to open river passage to larger marine vessels by removing the obstructing tunnel.

Much of the lowland in Delta is in the Agricultural Land Reserve (ALR) and is actively farmed, but on either side of the river there is a patchwork of roads, communities, and other uses. In a B.C. government [video](#), the proposed bridge is shown in an exaggerated aerial view surrounded by farmland and trees, ignoring houses and condominiums alongside Deas Slough, the Town and Country Inn and adjacent buildings, and the new housing being built on the west side of the highway on the former Captain's Cove golf course.

Bridge anything but a "green alternative"

It is misleading to ignore these developments and present the bridge as a green alternative that will somehow "increase farmland". Existing ALR lands near the tunnel are for sale as investment opportunities at prices far beyond the reach of local farmers.

Building a 10-lane highway across the Fraser will only increase the pressure to develop remaining Delta farmland, in the same way that Richmond was developed in the 1970s. Additionally, the continual pressure from the port for more industrial land is in direct confrontation with the maintenance of active farmland.

As Charlie Smith wrote in the *Straight* back in 2013: “It is entirely plausible that [Clark’s] plan for a new bridge—along with the core review [of the ALR]—are designed to undermine the ALR. Building a bridge rather than adding more tunnel lanes could affect the viability of remaining food-producing lands in other ways.

Dredging of the river for larger ships would become possible if the tunnel were no longer there, and this could increase the size of the "salt wedge" entering the river at high tide, with serious consequences for farmland irrigation. Saltwater in irrigation ditches is already an issue for farmers on the low-lying delta, and it would not take much change to make the land unworkable.

Vulnerable and important ecological areas threatened

Important ecological areas lie close to, or right under, the proposed bridge, including Metro Vancouver’s Deas Island Park, Deas Slough, and the South Arm Marshes, a provincial wildlife management area (WMA). The Fraser River’s South Arm brings more than three-quarters of the total river flow to the sea.

Tall stands of cottonwoods and alder line much of the banks between Ladner Harbour and Deas Island Park. Nesting bald eagles, great horned owls, rufous hummingbirds, Pacific tree frogs, and Yuma bats are among the many species in these riverine woodlands, and several species of salmon swim and leap upriver through the summer months.

Deas Island Park is popular with picnicking families, kayakers and rowers, cyclists using the Millennium Trail, and those who like walking in a beautiful woodland setting beside the mighty Fraser River. The George Massey tunnel runs out of sight under the park’s southern end, and the new bridge would, apparently, span the river at this same spot. The video shows one of the main bridge supports standing right on the island.

Marshes' value is internationally recognized

The South Arm Marshes Wildlife Management Area (WMA) is part of the Fraser River Delta Ramsar site, or “Wetland of International Importance” as designated under the **Ramsar Convention**, a worldwide treaty for the conservation of wetlands. The marshes were chosen for inclusion in the expanded **Fraser Delta Ramsar** designation in 2012 due to their ecological value.

The WMA covers much of the foreshore area eastward from Ladner Harbour Park to Captain’s Cove and a group of five low-lying islands in the river, only accessible by boat. Waterfowl of numerous species visit in the winter, including migrant lesser snow geese. These birds nest on Wrangel Island in the far north of Russia and are listed as endangered in that country. The islands are a favourite location for duck hunting. Great blue herons feed on fish, frogs, and garter snakes in the wetlands, and red-winged blackbirds and marsh wrens nest among the cattails.

Environmental considerations must be taken into account when building megaprojects and this is usually done by conducting a federal environmental-review assessment. As yet, this requirement has been ignored. The provincial government’s fairy-tale video of the big bridge in the sky over green acres of farmland shows only too clearly the fantasy world they are selling.

Anne Murray’s books on Delta’s natural and ecological history, A Nature Guide to Boundary Bay and Tracing Our Past: A Heritage Guide to Boundary Bay, are available in local stores or from www.natureguidesbc.com. She blogs at www.natureguidesbc.wordpress.com

Appendix 4: Fraser River Delta National Wildlife Area Proposal

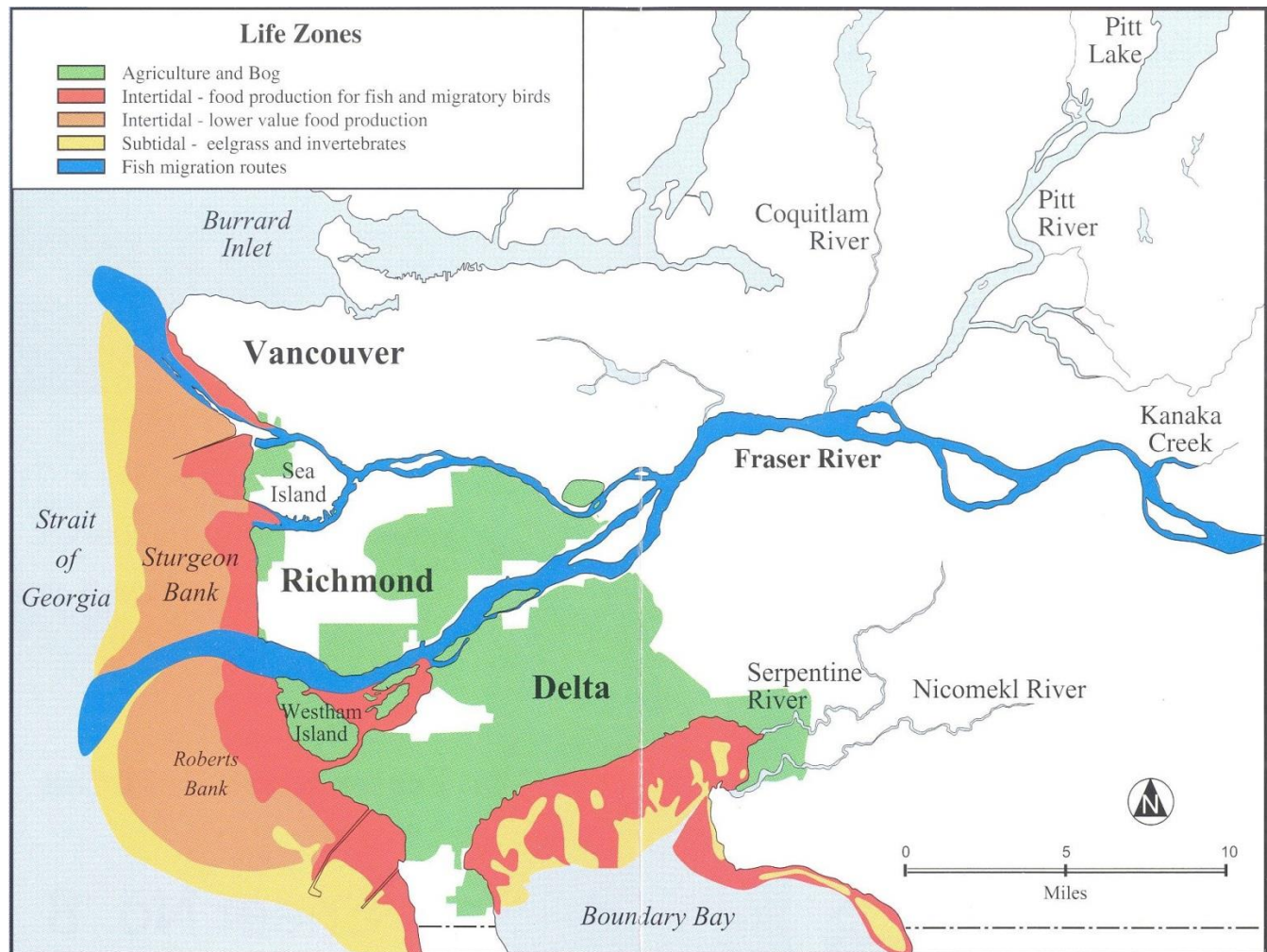
<http://fraserwildlifearea.com/major-economic-benefits/>

This website is sponsored by the B.C. Great Blue Heron Society (BCGBHS), a B.C. registered charitable society.

Protection for Canada's Most Important Bird Habitat

The Proposal

THE FRASER RIVER DELTA NATIONAL WILDLIFE AREA (FRDNWA) PROPOSAL WOULD ENSURE THE PERMANENT PROTECTION OF BOTH THE SEAWARD MARSHES AND A LAND AREA.



- Wildlife Management Areas (WMAs) have been declared for the marshes of Boundary Bay, South Arm, Sturgeon Bank and Roberts Bank. Since almost 99% of these WMAs are Crown Land, including them in the full protection of the FRDNWA will be entirely feasible.
- With less than 8 154 acres of inter-tidal marshes remaining at Roberts Bank, in 2006 the B.C. government rezoned 2 852 acres of this foreshore from conservation (part of the originally proposed Roberts Bank WMA) to industrial use.

- The Port purchased this Roberts Bank Crown Water Lot (Parcel A) primarily for future expansion (the proposed Terminal 2 would triple the Port's current size).
- Roberts Bank was omitted from the application for RAMSAR designation for the Fraser River delta.
- In inter-office memos, an Environment Canada biologist wrote, "... preliminary modeling [of Terminal 2]... indicates an alarming disruption of processes over the remaining part of Roberts Bank closest to the Fraser that could put the whole Western Sandpiper migration at risk." (October 2004).

●
© 2014 B.C. Great Blue Heron Society (BCGBHS), a B.C. registered charitable society.

Appendix 5: Otto Langer – The Lower Fraser and Its Estuary: An Urgent Action Plan for the Trudeau Government

This is a copy and paste version of the article. The original can be located on the website of Against Port Expansion

http://www.againstportexpansion.org/uploads/images/file_download/Threats_to_and_Corrective_Actions_for_the_Lower_Fraser_River_March_15_FINAL_2016_.pdf

The Lower Fraser River and its Estuary:

Conservation Steps Needed to Protect and Sustain

Fish and Wildlife and Our Quality of Life

An Urgent Action Plan for the New Trudeau Government

Otto E. Langer
Fisheries Biologist

March 15, 2016

Executive Summary

The Lower Fraser River and estuary has been through tremendous development over the past 160 years that has greatly altered its ability to support fisheries and wildlife. Presently a series of projects are proposed when Canada has greatly diminished laws to properly assess these projects and protect the environment. Projects of greatest negative impact concern in order of priority are:

1. Roberts Bank Terminal 2 project (greatest risk)
2. New Richmond – Delta Bridge.
3. Jet Fuel Project.
4. PMV habitat banking program
5. Kinder Morgan bitumen pipeline project.
6. Increased water temperatures.
7. Fortis LNG Facility on Tilbury Island
8. Gravel mining in fish habitat areas.
9. Flood control initiatives.
10. River dredging for flood control and construction sand.
11. Port expansion to Mission.
12. Increased shipping traffic in the estuary.
13. Surrey Fraser Dock coal export facility
14. 4th runway for Vancouver International Airport (lowest risk at this time).

An urgent action plan for the new government must include:

1. Port Metro conflict of interest between development and environmental protection must be resolved.
2. Make PMV accountable to public and local government.
3. Restore pre-2012 conditions back to CEAA, Fisheries and NWPA Acts.
4. Restore DFO will and capacity to do the job.
5. Address climate changes/ temperature issues affecting the Fraser.
6. Re-establish a Fraser River Estuary Management type organization.
7. Re-establish the federal role in environmental assessments in the Lower Fraser.



Map of the Lower Fraser River and its estuary outlining the planned developments that will create a threat to fish and wildlife populations and our quality of life in this region and for all Canadians. Each planned development is expanded on pages 5-7. Developments 8,9, 11 and 14 are upstream of the Pitt River.

The Lower Fraser River and its Estuary: Conservation Steps Needed to Protect and Sustain Fish and Wildlife and Our Quality of Life.

An Urgent Action Plan for the New Trudeau Government

Otto E. Langer - March 15, 2016.

A. Introduction:

I have been asked by some federal MPs after the October 2015 federal election to compose list of Fraser River Estuary issues that have to be addressed by this new government after years of neglect and environmental losses under the past government. The Lower Fraser River is in the midst of a new industrial revolution* that is taking advantage of the lack of diligent environmental protection laws and less than adequate environmental assessment procedures. In November 2015 I sent government a letter (Attached) outlining the need to address urgent Lower Fraser River and estuary conflicts. The following is a more complete list and also includes action steps to protect what we now have.

Many seem to pretend that the estuary as an ecologically intact unit. However, it has to be appreciated that the globally significant Lower Fraser and its estuary is not what it was before European contact some 150 years ago. Over 90 percent of the estuary's

**The Lower Fraser has now been or will be subject to three industrial development periods that has greatly affected the nature of the river and its life. In each development period some significant attributes from our natural world was lost and we are now dealing with a remnant of what habitat and fish and wildlife we had in 1860.*

- 1. The 1st Industrial Era : 1860 to 1920** (land clearing, dyking, drainage of wetlands)
- 2. The first Interlude: 1920 to WW II** (no protection laws but little development due to war and depression))
- 3. The 2nd Industrial Era : 1950 to 1975**(no protection laws and major industrial devilmnt such as Roberts Bank port)
- 4. 1975 - 2010 – 2nd Interlude – Age of Enlightenment** (ongoing economic development but with many new environmental protection laws)
- 5. The 3rd Industrial Era: 2010+** (reduced environmental protection and major developments planned – RBT2, LNG, jet fuel terminal, etc.).

marshlands have been destroyed. We are trying to protect a remnant of what we once had. Is protecting what now exists asking too much considering that we have less than a half dozen of estuaries of this size and importance along the entire North and South American West Coast from the Arctic to the Antarctic Oceans?

One must appreciate that the Lower Fraser River is not a self-sustaining ecological – hydrogeological entity. Everything that occurs in the upstream watershed affects the water flow, impacts on fish, sediment transport and water quality. That includes the multiple pulp mills in Kamloops, Quesnel and Prince George, massive forest removal, climate change, pine beetle damage, farming activities, road building and a number of other anthropogenic activities.

Further to the above, water quality in the Lower River, especially its estuary, is an ongoing concern. Improvements were made over the years (eg. secondary treatment at the main sewage treatment plants) but gains have been offset by continuous growth in the Metro Vancouver – Abbotsford – Chilliwack areas. All the wastes of some three million people, and the industry of the area, flow into the river after no or various forms of treatment. This water quality issue is not considered in the below issue and action outlined due to space limitations.

Further to the above comment, invasive species, over fishing and hunting pressures have of course affected life in the river. As with water quality, these issues are also not addressed in this brief. This brief is about the physical environment i.e. the shoreline, mudflats, spawning gravel, etc.

B. Present threats to the environment of the Lower Fraser River (Hope to Steveston reach and the estuary).

Threat ratings: Overall present threat to the Lower River and its estuary.

☒ (8-10) – Of extreme concern. Imminent threat that will cause significant alteration and damage to the river and its life.

☒ (5-7) Of significant concern to the protection of life and habitats in the Lower Fraser River and its estuary. The estuary includes English Bay.

☒ (1-4). Of lesser importance and threat to the Lower Fraser *at this time*.

1. **Roberts Bank Terminal 2 project (Threat rating 10).** This is one of a very few projects in Canada that is now subject to a CEAA Review Panel. PMV has applied to build a 180 hectare new fill area adjacent to the present port that is also built on the estuary mudflat. This new fill area will be one of the final nails in the coffin of the valuable fish and migratory bird habitat on Roberts Bank. The public has been very upset with the complexity of the CEAA review as directed to date. The process makes it impossible for the local citizen to have input into such a bureaucratic and gantlet type review.

2. **New Richmond – Delta Bridge. (10).** The proposal to build a bridge to replace the George Massey Tunnel may not significantly affect fish and wildlife habitat but the loss of the tunnel will allow the river to be dredged much deeper and this will allow the promotion of deep sea super freighter and tanker traffic in the Lower Fraser and that alone will set an irreversible and negative trend for most habitat and quality of life issues along the river's edge. The bridge will allow the passage of jet fuel and LNG tankers, coal freighters and associated terminal constructions. Also a deeper river could well lead to the loss of riparian marshes due to ship wake erosion and slippage of river banks into deeper waters. This new bridge and lowered bed in the Fraser River will greatly enhance the penetration of salt water into the Fraser River where it can affect the biology of the river and the use of water along the river such as for Richmond and Delta farmers.

3. **Jet Fuel Project. (9).** The Vancouver Airport Fuel Facilities Corporation's plans as approved by PMV and the Province EAO to allow Panamax jet fuel tankers to enter the Fraser River in Richmond and build an off-loading terminal with a very large tank farm and pipe the fuel across Richmond to YVR. The Federal CEAA process and Environment Canada and DFO played no public role in this review and the PMV simply screened and delegated the review to BC and then both approved the end result.

4. **PMV habitat banking program. (7).** This is an ongoing program by PMV to develop habitat on top of existing habitat so as to get habitat credits to apply against other habitats that they will, or plan to, destroy such as the subtidal habitats at Roberts Bank. Although it is called a Habitat Enhancement Program it is far from that. Many PMV projects are really habitat restoration and that should not be used to gain credits that will be used to destroy habitat created by nature that is stable, often more diverse and long lasting. Indeed the clean-up of a Boundary Bay habitat area in 2014 by PMV for habitat credits as issued by DFO was misguided and probably did more damage than good.

5. **Kinder Morgan bitumen pipeline project. (6).** This project will allow about 600 super tankers of bitumen to be exported out of Burrard Inlet i.e. in the middle of Metro Vancouver. Any spills from the large new pipeline will affect the Fraser River and ship based or loading spills will greatly harm Burrard Inlet. This project is under NEB-CEAA review but it has largely muzzled the public by not allowing the common citizen without extensive backup to appear before the panel. Those that can appear before the panel have no right to cross examine any presentation made. Once again PMV will greatly benefit from this project if it is approved.

6. **Increased water temperatures (6)** have and will more affect hydrology and continue to cause mortalities of salmon in the Fraser River and eventually affect all other ecological concerns. Climate change is a very real issue for the Fraser River and ocean. It will get worse with time.

7. **Fortis LNG Facility on Tilbury Island (6)**. This facility has been improperly assessed by the federal CEAA and BC EAO process. The use of fossil fuel (LNG) and the building of the plant and storage tank(s) have been ignored by the EA and only the dock in the river is subject to the EAO review.

8. **Gravel mining (6)**. Continued gravel mining in the salmon and sturgeon spawning areas of the Fraser River in the Chilliwack to Seabird Island reach of the river continues to be a concern. This mining began in earnest in about 2004 when the DFO largely delegated their responsibilities to the Province and the Province saw this as a valuable source of gravel for construction in the Lower Mainland. Little of this gravel mining has anything to do with flood control.

9. **Flood control initiatives (6)**. There has been years of clamor for better flood control along much of the Lower Fraser river. In many locations it is valid. To date misguided efforts have determined that gravel mining and dredging of the river will provide that protection. However, improved dykes are in order. Such a program along the river can result in significant damage to shoreline fish and wildlife habitat as it did after the 1948 flood when many riparian areas were destroyed and sloughs were cut off from the river. Any new dyking – riprapping program has to be conducted in an environmentally aware manner.

10. **River dredging for flood control (6)**. Further to the above, many local officials in the tidal reach of the river believe in the misguided concept that one has to dredge out sand from the estuary to prevent flooding. The high tide level determines the level of flooding and the depth of the river provides little flood protection. The demands for more dredging is accompanied by many new industrial developments such as the dredging of the river associated with the new Richmond-Delta Bridge, the wishes of Maple Ridge to have a cruise ship facility and the river shipping plans of Mission. The massive dredging of the sands of the Lower Fraser River can have untold impacts on river behavior, mudflat recovery and its habitats such as that of the near extirpated eulachon.

11. **Port expansion to Mission (6)**. The old FRHC port boundaries extended to Kanaka Creek. However that port authority noted many years ago their desire to extend the port to Mission. With PMV now in charge the ambitions to develop ports and industrial lands is greater than ever regardless of fish and wildlife habitat or ALR (Agriculture Land Reserve) values. This is combined with a constant push by Mission to have the river dredged for flood control and the operation of barges for business ventures in Mission. The extension of the port to Mission is a giant threat to the Lower Fraser River.

12. As noted above, **increased shipping traffic (5)** is an increased threat to the river and its riparian habitats. Shoreline erosion of rare and endangered habitats occurs from the large wake of boats. Also with the BC government allowing jet fuel transport on the river (LNG next) there are greater probabilities of accidents and spills of hazardous materials into the river.

13. **Surrey Fraser Dock coal export facility (5).** This facility is to export US thermal coal to Asia. Originally it was to be shipped down the Fraser by open barges but now large ocean carriers could be allowed into the Surrey Docks if the George Massey Tunnel is replaced by a bridge and the river is dredged out to allow large freighters and tankers up the Fraser River. Once again the Federal Government did not review this project under CEAA but delegated the environmental-social impact review to Port Metro Vancouver.

14. **Contaminated soil and waste sites. (3).** A contaminated waste site at Chilliwack was again ignored by the federal CEAA review process and the City of Chilliwack approved it despite the fact that it is on the banks of the Fraser River and was met with tremendous public opposition. Although public pressure seemed to have defeated this proposal it was then followed by a recent proposal to put a contaminated soil dump in to the salmon rich Chehalis River watershed.

15. Future plans by YVR to add a **4th runway to the Vancouver International Airport (3).** The only option to date seems to be a filling in of one of the last two large marsh- mudflat areas of the estuary i.e. Sturgeons Banks. As with RBT2 on Roberts Bank, this project will be the last nail in the coffin of this valuable habitat area. With Roberts and Sturgeons Bank largely compromised by these two projects the globally significant Fraser River Estuary will be small remnant of what it was in 1860 and what has survived over 150 years of development to 2016.

C. The overarching issues that contribute to habitat threats and losses in the Lower Fraser River. These umbrella issues are in need of corrective action by government

Priority for action:

- ☑ **10-8 - urgent – immediate action required;**
- ☑ **7-5 - must be acted on in the near future;**
- ☑ **4-1 - of longer term concern for future action.**

1. **(Priority for action - 10). Federal delegation of environmental and social impacts reviews to PMV is an unbelievable conflict of interest** in that the port promotes such development, profits from it and also now reviews and approves it. A neutral federal agency (a revitalized CEAA) must take over the review of all PMV and Fraser River estuary projects.

2. **(10). A new and aggressive approach by PMV to develop habitats and farmland for future industrial purposes is bound to negatively affect these renewable resources.** This rush for industrial lands has to be tempered with protection and enhancement of the remaining farmland and habitat and meaningful input from the local communities must be prioritized.

3. **(10). CEAA and NWPA and the Fisheries Act have been watered down by the past government** so they have little effect on almost any development proposal in this critical environment and its fish and wildlife habitat areas. CEAA has to be upgraded so as to address projects that have sensitivity to the habitat affected and the nature of the development and not necessarily its size regardless of siting location. Also their approach to 'valued components' needs great improvement as well as the re-instatement of the law triggers in NWPA and Fisheries Acts.

4. **(10). The dissolution of DFO Habitat Protection Offices** along the Fraser River directly associates with item 5 below. The rebuilding of DFO and EC as conservation agencies with a directed will to do the job is essential.
5. **(10).** Further to the **above the removal of habitat protection provisions from the Fisheries Act (2012)** and the directing of Fishery Officers and remaining habitat from doing any habitat enforcement work must be reversed. The habitat provisions (HADD) must be immediately re-inserted into the Fisheries Act. This habitat law did not hinder industrial development in Canada from 1976 to 2012.
6. **(9).** As recently indicated by the present government, **address climate change in a time effective manner** so as many resources that we now have are not lost in the next few decades as we wait for controls to be implemented and take effect. High water temperatures are already having a negative impact on salmon survival.
7. **(8). A fully functional FREMP type organization** to coordinate the environmental protection needs of the various federal, provincial, and local government laws and regulations has to be restored since it was dissolved by the past government. PMV pretends that they can now fulfil this role. That is an outrageous substitute to replace the loss of FREMP due to PMV's mandate and conflict of interest.
8. **(8).** There is a **complete lack of an environmental management body and plan** for the area of the Fraser upstream of the old FREMP boundary (Kanaka Ck.) to Hope. This area is home to over 400,000 people with various demands on the river and its riparian habitat. This plan is especially essential to coordinate flood control issues in this reach of the river as related to gravel removal as a flood control technique.
9. **(8).** It is extremely unusual that **much of the Lower Fraser is federal port, under federal navigation laws and pilotage authority and is home to federally protected habitat and fish and migratory wildlife resources and home to several federal conservation areas.** Yet after 2012 the federal government largely ignored environmental reviews of impacts in this key and essential habitat area. The federal government did a much more effective job of protecting social and environmental attributes of this area in the 1980s under the EARP – FEARO process before the development of proper legislation (CEAA) to do this job. However, CEAA was effective until about 2012 when its role as related to NWPA and the Fisheries Act was totally undermined by the past government. This problem has to be urgently corrected.
10. **(7). The BC EAO environmental assessment process is largely ineffective** in directly addressing the real threats of a project that may be planned with the wrong rationale in an environmentally sensitive area. The BC EAO has many shortcomings including low bar standards that are applied to all projects regardless of habitat sensitivity, lack of follow-up enforcement and a process that does not allow public hearings and thereby eliminates fair public consultation and input. The federal government must drop their dependence on the ineffective BC method of doing EAs that must be done by the federal government in a much more effective manner.

11. **(7). Harmonized federal/provincial environmental assessments have failed to credibly meet CEAA requirements.** Changes made in 2012 to the CEAA have allowed EAs of several projects to proceed in B.C. through “substitution” (i.e., one EA process and both the provincial and federal ministers render a decision on the result), or “equivalency” (i.e., one EA process and a provincial decision only) on request from the B.C. government. In the Tilbury Island LNG project the proponents were advised by lawyers that: *“The key to this strategy is to avoid an EA that encompasses additional associated project components, such as pipeline and/or power, and focus on the provincial EA process as the principal venue...”* Here the pipelines and the plant and tank construction was then exempted from the BC EA process.

D. CONCLUSIONS:

The Lower Fraser River and its globally significant estuary has been developed by industries, land reclamation, flood control and urbanization to such a degree that its functioning as a sustainable ecological unit is now at stake. During the past few years there have been a number of new setbacks in protecting what is remaining of a once large healthy natural estuary ecosystem.

It is obvious that environmental protection actions and social considerations have been greatly downgraded from what was in place during the 1977 to 2012 era. This downgrading was often by politically directed bureaucratic actions (2000 – 2012) and then in 2012 the recent past government totally handicapped environmental assessment and navigable waters and environmental protection legislation. We have experienced about 15 years of downward negative setbacks in environmental protection in the Lower Fraser River.

This was done by disingenuous changes to almost all environmental legislation from the Fisheries Act, CEAA, NWPA, and Species at Risk Acts. From Section B above, it appears that all activities, laws, and administrative arrangement that were essential to do the job must be now acted upon to give not only the Lower Fraser River, but all Canadians and their waterways the protection they deserve. This is important for survival of aquatic life and for our future generations enjoyment of our waterways. It is most urgent that above noted legislation be restored (with some fine tuning where necessary) and environmental assessments and approvals be given to or directed by CEAA, DFO and EC and not PMV. PMV is in a great conflict of interest each time it assesses a project and then approves it to their business advantage.

Several projects now are creating a significant risk to the river and its life and must be addressed in a more effective manner than recently shown by regulatory authorities.

By Otto E. Langer MSc Fisheries Biologist March 15, 2016.

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A handwritten signature in black ink, appearing to read "Dr. Rosenau". The signature is fluid and cursive, with the first letter of each word being significantly larger and more stylized than the others.

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Peer reviewed by Dr. Marvin Rosenau BCIT, John Werring DSF and Susan Jones BBCC