



Key Request:

The Provincial Government along with the Federal Government is requested to develop a comprehensive strategy for maintaining the local channels of the lower Fraser River and develop a dredging plan, with dedicated funding, to resolve this long-standing issue.

Background:

The local channels of the lower Fraser River are critical for ensuring access to businesses, marinas, and float home communities, playing an essential role in the regional economy and the daily lives of residents. Recognizing their significance, the Province of British Columbia, the City of Delta, the City of Richmond, and the Vancouver Fraser Port Authority (VFPA) entered into a \$10 million joint funding agreement in 2013. This initiative aimed to restore the channels around Ladner and Steveston to their pre-1990 depths. Major dredging was carried out in 2014/2015, followed by targeted "spot dredging" between 2018 and 2021 to address areas with high sediment accumulation.

However, the Fraser River's natural sedimentation processes have continued to affect these channels, creating a critical situation as the waterways are once again approaching their pre-2013 sediment levels. The original funding has been fully exhausted, leaving several key issues unresolved:

1. **Jurisdictional Responsibility:** There remains a lack of clear responsibility for local channel dredging among different levels of government.

2. **Lack of Dedicated Funding:** No established funding source exists to ensure the ongoing maintenance of these channels.
3. **Absence of a Long-Term Plan:** A comprehensive, long-term strategy for maintaining the secondary channels of the lower Fraser River has yet to be developed.
4. **Regulatory Complexity:** The dredging process is hindered by a complicated regulatory framework and stringent environmental considerations, making timely interventions difficult.

Recognizing the urgency, a new working group was formed in January 2023, including the City of Delta, City of Richmond, VFPA, Metro Vancouver, and the Steveston Harbour Authority. This group is collaborating with senior government officials to develop and secure funding for a sustainable local channel dredging strategy. In March 2023, Delta and Richmond, along with the Tsawwassen First Nation and Musqueam Indian Band, signed a joint letter urging immediate federal and provincial action to address this issue.

In February 2023, VFPA released a Situation Report estimating that \$2.5 million annually is needed to implement a sustainable dredging program. The report highlights the need for the Local Channel Dredging Collaborative to reconvene and work toward a long-term solution and consistent funding. A copy of this report is attached to this briefing.



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Vancouver Fraser
Port Authority

The Lower Fraser River: Domestic and local channels

A Situation Report

February 02, 2023

Contents

The Purpose..... 1

The Fraser River 1

Types of channels 2

Dredging the channels 2

The Challenges 4

The Recommendation 6

Appendix 1: List of domestic and local channels 8

Appendix 2: Map of domestic and local channels 10

The Purpose

This document is a situation report regarding dredging the Lower Fraser River's domestic and local channels. This report contains the following elements:

- An overview of the Fraser River
- A summary of previous dredging programs
- Five key challenges to finding a long-term solution
- One recommendation



Tug boat on the North Arm of the Fraser River
Credit: Jerry Meaden, Flickr

The Fraser River

For millennia, the Fraser River has been crucial to the lives of local Indigenous groups. The river's banks and tributaries are home to half of B.C.'s First Nations and the river served as their major transportation corridor as well as a key source of food.¹

The Fraser River is the longest river in British Columbia. It flows more than 1,400 km, beginning in Mount Robson National Park in the Rocky Mountains and meets the Pacific Ocean at the Strait of Georgia. The land drained by the Fraser River and its tributaries is known as the Fraser River basin. It is B.C.'s largest, and Canada's fifth largest, watershed which is 240,000 km² (roughly a quarter of the province). For a sense of scale, the land mass of Britain or most of California could fit within it.²

The Fraser River is a sediment-carrying river. On average, the Fraser River discharges 32 million cubic metres of sediment into the Strait of Georgia every year. About 10 per cent of that sediment settles on the

¹ *The Economic Importance of the Lower Fraser River*, Richmond Chamber of Commerce, 2014. Page 12. Available [here](#).

² Fraser Basin Council, https://www.fraserbasin.bc.ca/about_fraser_basin.html

river bottom in the lower reaches. Approximately 80 per cent of sediment transport occurs during late spring and early summer during freshet, also known as spring run-off, when the snowpack melts.

The Lower Fraser River is an economic driver for Canada, the province and for the Lower Mainland. In 2014, the Richmond Chamber of Commerce published a report entitled *The Economic Importance of the Lower Fraser River*. The report highlights many examples of economic activity; for example, that the deep-sea port function of the Lower Fraser rivals the Canadian marine traffic on the St. Lawrence Seaway in terms of tonnage and jobs.³ The report also lists a variety of other river-dependent activities such as the movement of forest products and aggregates, recreational boat and marina docks, and even a float plane terminal.⁴ Nine of the ten federal Small Craft Harbours, including Steveston in Richmond, are on the Lower Fraser River.⁵

According to the Steveston Harbour Authority, Steveston is the largest commercial fishing harbour in Canada. It is the homeport to more than 400 fishing vessels and its facilities process up to 50 million pounds of seafood every year.

In the Vancouver Fraser Port Authority's 2016 economic impact study, port operations and activity along the Fraser River represents 44% of direct jobs in the Port of Vancouver.⁶

Types of channels

There are three types of navigational channels in the Lower Fraser River.

- Deep-sea channel: maintained for ocean-going vessels
- Domestic channel: maintained predominantly for the tug and barge industry
- Local channel: maintained for community, recreational and marina uses

The Lower Fraser River is defined in this report as the area between Maple Ridge and the Strait of Georgia, including the North Arm, Main Arm and Pitt River. In this section of the Lower Fraser, there are nine domestic channels and 16 local channels. (See Appendices A and B for a list and map of the channels.)

Dredging the channels

Because of annual sediment build-up, maintaining appropriate water depth is a key component of ensuring that commercial, recreational and residential activities continue throughout the Lower Fraser River. Appropriate water depth is achieved by removing sediment from the riverbed through the process of dredging.

For nearly 100 years, dredging the Fraser River was a federal responsibility. Initially, dredging was managed by Public Works Canada and then the Canadian Coast Guard assumed responsibility. Through the years, river training structures were placed in the river at critical locations to control the flow of the river adding stability to the dikes thereby reducing the risk of flooding.

In 1998, the Canadian Coast Guard stopped dredging the Fraser River as part of its federal responsibility and the Government of Canada did not assign the responsibility to another entity. Due to the jurisdictional

³ *The Economic Importance of the Lower Fraser River*, Richmond Chamber of Commerce, 2014. Page 16.

⁴ Ibid. Page 26.

⁵ Ibid. Page 18.

⁶ Port of Vancouver Economic Impact Study, 2016. Available [here](#). Page 27.

vacuum, the Fraser River Port Authority began annual dredging of the deep-sea channel to maintain it as a safe and navigable waterway for marine commerce.

In 2008, the Vancouver Port Authority, Fraser River Port Authority, and North Fraser Port Authority amalgamated, and the Vancouver Fraser Port Authority was established. The role and responsibility of a Canada Port Authority is outlined in federal legislation called the *Canada Marine Act* but it does not assign or mandate any responsibility of dredging—not even deep-sea channels—to a Canada Port Authority. Instead, the Act allows a port authority to conduct dredging if the port authority can afford it and if dredging is performed in an environmentally responsible way.



Canoe Pass float home community at low tide,
Delta. Credit: City of Delta

Due to a lack of jurisdictional clarity, the Vancouver Fraser Port Authority developed an annual program for maintenance dredging of the Fraser River deep-sea shipping channel only. This program, which continues today, ensures that the deep-sea channel remains accessible for trade-enabling purposes and safe for ocean-going vessels calling on the Port of Vancouver's terminals along the South Arm of the Fraser River. The port authority also completed some dredging projects for a few domestic channels in the South Arm, North Arm, Main Arm and Pitt River.

In 2009, the Vancouver Fraser Port Authority introduced a 10-year \$7 million Local Channel Dredging Contribution Program to assist with dredging local channels within its navigational jurisdiction of the Lower Fraser River. While offering funding and project management to dredge local channels, the port authority's program was also intended to identify stakeholders and generate interest in a long-term solution. Although the dredging program was successful in restoring several channels to appropriate depths, the program did not generate momentum toward a long-term solution.

In 2010, the port authority and the Ladner Sediment Group commissioned a study on ways to reduce the amount of sediment in local channels in the Ladner area. Hay & Company Consultants conducted a comprehensive hydrological modelling study. They modelled three mitigating options in detail, including the construction of wingdams, infilling between islands and the construction of training walls. The study found that all three options would successfully reduce sediment deposit. However, the study concluded that the estimated capital costs and modelled benefit from each of the projects was not worthwhile when compared with maintenance dredging alone.⁷



Above: Grounded vessel on the Fraser River.
Right: Tilting float home due to sediment accumulation. Credit: City of Delta



In 2013, the Province of B.C., City of Delta, City of Richmond, Steveston Harbour Authority, and the Vancouver Fraser Port Authority entered into a joint funding agreement to dredge local channels near Ladner and Steveston. The Province of B.C. contributed \$3 million, the City of Richmond contributed \$852,000, the City of Delta contributed \$2 million, and the Steveston Harbour Authority contributed \$550,000. The port authority's contribution was \$2.75 million which was taken from the initial \$7 million Local Channel Dredging Contribution Program. Dredging these channels in 2014, 2015 and 2017 was successful, restoring the local channels to grade or sub-grade depths. The program and its funding is complete. From 2018 to 2021, the port authority undertook spot dredging to maintain areas that had high sediment accumulation, providing channel users with temporary relief. This program and its funding are also complete.

The Challenges

The Fraser River transports millions of metric tonnes of sediment towards the Strait of Georgia every year. About 10 per cent of that sediment settles on the riverbed in the lower reaches of the river.

⁷ City of Delta update to council, June 5, 2018. Available [here](#).

Because there is not a funded annual dredging program, domestic and local channels are silting up and gradually becoming unnavigable.

There is an urgent need for a long-term solution, but major challenges exist. The five challenges are:

1. There is no mandated authority.
2. There is no dedicated funding.
3. There is no comprehensive long-term plan.
4. There is a complex regulatory process.
5. There are onerous environmental considerations.

1. There is no mandated authority.

- There are multiple stakeholders and stewards of the river. In 2014, it was estimated that there are 15 municipalities and 29 Indigenous groups along the Lower Fraser River. More than 20 federal and provincial entities are involved in its administration.⁸
- Of all these entities, not one has an official mandate to dredge domestic and local channels or official responsibility to manage dredging activities.
- The Vancouver Fraser Port Authority does not have a mandate for dredging the Fraser River. Its maintenance program dredges the deep-sea channel only and costs approximately \$12 million per year.
- Transport Canada has limited regulatory authority for navigational dredging.
- Fisheries and Oceans Canada is responsible for small craft harbours and commercial fisheries. It dredges its own harbours but not the approaches to the harbours.
- Environment and Climate Change Canada is responsible for sediment management and the disposal-at-sea permitting process.
- For the portion of the river that is provincial crown land, the riverbed is the responsibility of the Ministry of Land, Water and Resource Stewardship (formerly FLNROD). The ministry is also responsible for the regulation of instream works. The portion of the riverbed that is federal crown land is from Kanaka Creek in Maple Ridge downriver to Annacis Island.

If \$2.5 million were dedicated to annual dredging of domestic and local channels, the channels would become stable and sustainable.

2. There is no dedicated funding.

- The Vancouver Fraser Port Authority donated \$7 million to local channel dredging through the Local Channel Dredging Contribution Program. The port authority also donated the time and expertise of a project manager to oversee the program. The funding ended with the program.
- In 2013, the Province of B.C., the port authority, City of Richmond, City of Delta and the Steveston Harbour Authority jointly funded local channel dredging. The port authority also donated the time and expertise of a project manager to oversee the program. All funding ended when the dredging program was completed.
- Sediment disposal is subject to Environment and Climate Change Canada's ocean disposal fee of approximately 47 cents per cubic metre, which is solely an administrative cost. Of the \$10 million program in 2013, the ocean disposal fee totaled almost \$200,000, representing 2% of the total cost.

⁸ *The Economic Importance of the Lower Fraser River*, Richmond Chamber of Commerce, 2014. Page vii. Available [here](#).

- The current estimate for routine dredging of domestic and local channels is \$2.5 million per year. Although the channels vary in condition, if \$2.5 million (CPI indexed) were dedicated to annual dredging, the channels would become stable and sustainable over time.
3. There is no comprehensive, long-term plan.
- Without a mandated authority and without a source of annual funding, there is no long-term plan for ongoing maintenance dredging of domestic and local channels.
 - A long-term plan would include a detailed schedule of routine maintenance dredging that would cycle through all domestic and local channels.
 - Without a plan and guaranteed funding, routine maintenance dredging does not occur.
4. There is a complex regulatory process.
- The Fraser River Estuary Management Program (FREMP) was an intergovernmental agency that streamlined the environmental review and permitting process for work on or along the Fraser River. The program ended in 2013.
 - The environmental permitting process for dredging activities is becoming increasingly complex. For areas of the river in provincial jurisdiction, environmental permitting rests primarily with the B.C. Ministry of Land, Water and Resource Stewardship (formerly FLNROD). Within federal jurisdiction, the responsibility of environmental permitting is the port authority's.
 - Dredging contractors are charging for the extra time required to obtain dredging permits and approvals, which is increasing overall costs.
5. There are onerous environmental considerations.
- Environment and Climate Change Canada has introduced stricter environmental considerations for dredging activities. These regulations may compound the permitting process and increase costs.
 - Due to environmental concerns, the dredging window for most domestic and local channels is limited to November to February. This increases demand for dredging contractors but, with such a small window of opportunity, their capacity is limited. Some contractors now require non-refundable deposits to secure rigs, increasing overall costs.
 - Southern resident killer whales and white sturgeon, both at-risk species, may be present in domestic and local channels. Dredging activities may be suspended or stopped if an at-risk species is observed near the dredging area. Additional environmental studies, sampling and monitoring costs are often required.

The Recommendation

In November 2018, a group of stakeholders hosted by the City of Delta met and discussed the need for routine local channel dredging. The working group, which called itself the Local Channel Dredging Collaborative, agreed that the priority is to secure federal and provincial funding and then work toward creating a long-term plan. The group has not met since then.

In 2021, the City of Delta, City of Richmond, Tsawwassen First Nation and Musqueam Indian Band sent a joint letter to the provincial and federal governments asking for collaborative action to address the need for a “sustainable dredging program to mitigate the economic, social and environmental impacts that occur” when Fraser River sediment is allowed to accumulate in local waterways.

Because the Local Channel Dredging Collaborative has not met since 2018, this situation report recommends that the working group reconvenes so it can continue advancing its stated objective of finding a long-term dredging solution and a source of ongoing funding.

Recommendation: That the Local Channel Dredging Collaborative reconvene to advance its objective of finding a long-term solution and ongoing funding.



Fishing boat "Elora Jane" leaving Steveston Harbor. Credit: Phil, Flickr.

Appendix 1: List of domestic and local channels

Waterway	No.	Channel name	Channel type	Municipality
Fraser River – South Arm	1	Cannery Channel	Local	Richmond (Steveston)
	2	Sea Reach	Local	Delta/Richmond
	3	Canoe Pass	Local	Delta
	4	Ladner Harbour	Local	Delta
	5	Ladner Reach	Local	Delta/Richmond
	6	Deas Slough	Local	Delta
	7	Tri-Mac	Local	Delta
	8	Shelter Channel	Local	Richmond
	9	Annacis Channel	Domestic	Delta/Richmond
	10	Gunderson Slough	Local	Delta/Surrey
	11	Timberland Basin	Domestic	Surrey
Fraser River – North Arm	12	Main Channel	Domestic	Vancouver/Burnaby/Richmond/ New West
	13	Morey Channel	Local	Richmond
	14	Mitchell Slough	Domestic	Vancouver/Richmond
Fraser River – Main Arm	15	Log Hole	Domestic	New West
	16	Sapperton Channel	Domestic	New West/Coquitlam
	17	Queens Reach	Domestic	Surrey/New West/Coquitlam
	18	Essondale Channel	Local	Coquitlam/Port Coquitlam
	19	Douglas South	Local	Port Coquitlam
	20	Douglas North	Local	Port Coquitlam/Pitt Meadows
	21	Parsons Channel	Domestic	Surrey/Langley
	22	Bishops Reach	Domestic	Pitt Meadows

Waterway	No.	Channel name	Channel type	Municipality
	23	Derby Reach	Local	Langley/Maple Ridge
Pitt River	24	Chatham Reach	Local	Port Coquitlam/Pitt Meadows
	25	Fox Reach	Local	Coquitlam/Pitt Meadows