



Aerial view of Fraser River - www.straight.com

# To Dredge or Not to Dredge?

## Immediate action needed to resolve conflict in the Fraser River

**S**ilt accumulation in the Fraser River from decades of sedimentation, limits ship access and increases risk of flood for nearby communities. Dredging is petitioned by certain interest groups to remove the sedimentation and increase the river depth. However, dredging disrupts the Fraser River ecosystem, which is a vital habitat for many marine organisms including salmon.

This paper examines the cost and benefits of dredging for each perspective, and suggests possible policy responses.

### What is Dredging?

Dredging is the removal of sediments and silt from the bottom of a water body (NOAA, 2013). There are different types of dredges – some used in excavation activities (Fraser River) and others for catching marine organisms like oysters or clams.

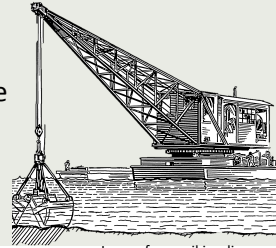


Image from wikipedia.com

### Recommendations

#### Yes to Dredging

- Promote river habitat rehabilitation projects
- Ensure safe disposal of removed silt
- Coordinate dredging to avoid interfering with salmon runs

#### No to Dredging

- Protect organism
- Promote river habitat rehabilitation projects

#### Overall

- Support the FREMP (Fraser River Estuary Management Program)

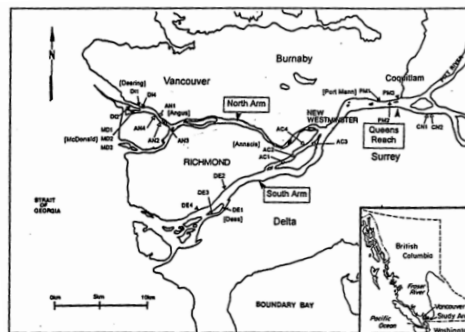


Figure 1: Map of Fraser River in B.C.'s Lower Mainland (Levings & Nishimura, 1997)

### Why is the Fraser River Important?

The Fraser River is vital to British Columbia's identity, economy and ecology. At 1,400 kilometers long and draining an area of 238,000 square kilometers (equivalent to

one quarter the area of B.C.), it is the largest river in the province. It has **cultural** value as it intertwined with B.C.'s first nations and European settlement history. Many of the province's prominent cities were strategically developed on the shores of the Fraser River. **Economically**, it accounts for 80% of the province's gross domestic product and is the route to supply interior B.C. with resources. In terms of **biological** significance, the Fraser River holds the world's most productive salmon fishery (Northcote & Larkin 1989) and it provides a fundamental ecosystem for other fish, migratory birds and plant life.

BIOL 420: Ocean Conservation and Sustainability

Policy Brief Assignment: Objective brief

Written by Melanie Ang (melanieang@outlook.com)

## YES to Dredging

**Shipping** is restricted as large containers are unable to navigate the shallow waters and local businesses at the mouth of the River argue that the sediment is hindering the river accessibility (Hansard, 2013). Further upstream towards Hope and Mission, the main concern with a shallow river is the increase risk of **flooding**. These parties proposed a major dredging project to remove the excess silt and then maintenance dredging to occur on an annual basis. Furthermore, with the recent announcement to replace the George Massey tunnel with a new bridge in 2017, stakeholders have expressed their intention for deeper dredging (Hansard, 2013).



## NO to Dredging

The river is a **nursery** and rearing ground for billions of salmonid (trout, char and salmon), mountain whitefish, sculpins, minnows and suckers as they migrate towards the ocean (Levings & Nishimura, 1997; Rosenau, 2013). Alteration of the Fraser River by dredging destroys this vital **habitat**. Rosenau (2013), a fishery biologist, questions the validity of the flooding argument; he believes that it's a gimmick to justify the removal of silt. Furthermore, the **dikes** built to protect communities against flooding are tailored to withstand the flood of record (17,000 m<sup>3</sup>/sec in 1894) plus a 60cm extra. Plans to recreate existing habitats are challenging and costly (Levings & Nishimura, 1997).



## Recommendations and Implications

- 1. Extend the depth of Fraser River**  
*Implications: Increase shipping accessibility and economic opportunities*
- 2. Ensure safe disposal of removed silt**  
*Implications: Minimize further destruction on habitat*
- 3. Coordinate dredging to avoid interfering with spawning seasons or salmon runs**  
*Implications: Reduce impacts of dredging on vital life periods*

- 1. Promote river habitat rehabilitation projects**  
*Implications: Unlikely to restore habitat to original state, but rehabilitated areas show equal species composition and abundance when compared to undisturbed sites (Levings & Nishimura, 1997).*
- 2. Prevent dredging from occurring in Fraser River**  
*Implications: Honor commitment to protect COSWEIC endangered species like the Eulachon, which primarily habitates the Fraser River.*

### Overall: Increased support for the FREMP (Fraser River Estuary Management Program)

Integrative resource management such as FREMP is designed to facilitate effective discussion and compromises between Fraser River stakeholders (Hanna, 1999). Water resource demands and environmental reports are assessed. FREMP needs to develop a faster efficient approach to decision-making and increased participation from NGOs (Hanna, 1999).

## References

- Hanna, K.S., 1999. Integrated resource management in the Fraser River estuary: Stakeholder's perceptions of the state of the river and program influence. *Journal of Soil and Water Conservation*, 8, 490-498.
- Hansard, 2013. Official report of debates of the legislative assembly. 2013 Legislative Session, 5<sup>th</sup> Session, 39<sup>th</sup> Parliament (March 11, 2013)
- Levings, C.D. and Nishimura, D.J.H., 1997. Created and restored marshes in the lower Fraser River, British Columbia: summary of their functioning as fish habitat. *Water Quality Research Journal of Canada*, 32, 599-618.
- Rosenau, M.L., Nov. 15 2013. The Fraser River gravel reach. *Abbotsford Today*. (Retrieved Nov. 25, 2013)