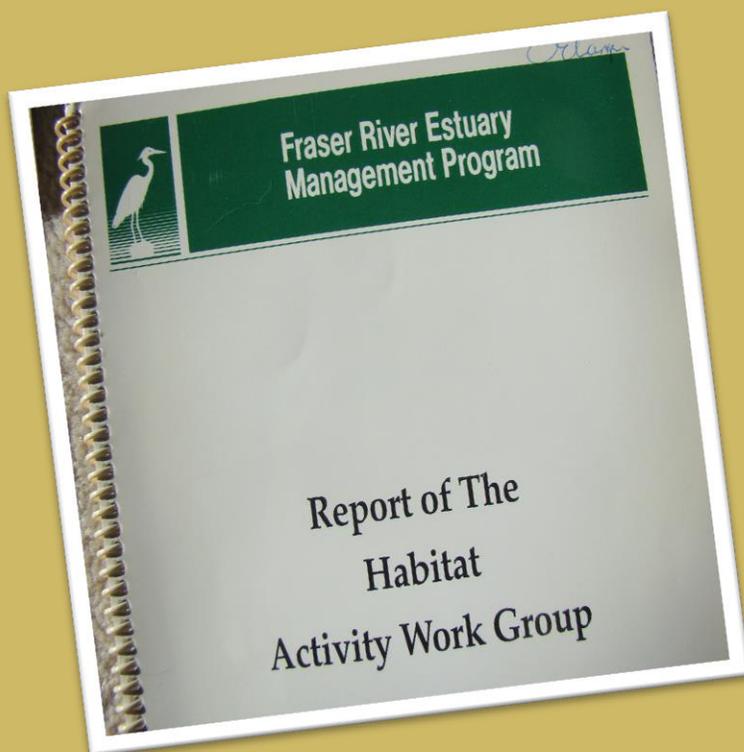


# History and Outcomes of the Fraser River Estuary Management Program (FREMP) and the Burrard Inlet Environmental Action Plan (BIEAP).

FREMP was formed in the 1980s after several years of Fraser River Estuary Study work. FREMP was to overcome the disjointed and inadequate protection of the Fraser River estuary. FREMP was a successful initiative but was terminated by the federal government in 2013. A new FREMP type program is urgently required to protect the estuary and associated ecosystems to reduce industrial / environmental conflict now taking place in the estuary and the Lower Fraser River.

Otto E. Langer

May 18, 2019



*After  
FREMP/  
BIEAP –  
Where to  
Next?*

# Overview and History of the Fraser River Estuary Management Plan (FREMP) / Burrard Inlet Environmental Action Plan (BIEAP) and Recommendations for Action.

## *After FREMP / BIEAP - Where to Next?*

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Otto E. Langer - Fisheries and Aquatic Biologist

May 18, 2019

### 1. Overview – the Need for FREMP.

Since the 1860s the Fraser River Estuary was and is threatened by a myriad of industrial projects and jurisdictions that caused maximum conflict and a continued loss of estuarine life (fish, wildlife, and their habitats) and recreation opportunities. In the 1970s many citizens, public groups and fish and wildlife agency staff lobbied for a much higher level of protection for the living resources in the Fraser River Estuary.

FREMP did not evolve because it was simply the right thing to do at the time. Senior bureaucrats and politicians had to be forced into finding a better way to arrest the downward spiral mess caused by inadequate will, weak or non-existent legislation, mismanagement, terrible communications and cross purpose jurisdictions.

Significant projects that were a threat and had brought harm to the natural life in the estuary in the 1960 to 1970 time period was the development of the Roberts Coal Port and a plan by FRHC to channelize (train) the South Arm of the river so as to allow the river to be self-scouring and thereby allow greater shipping and ports in the river.

Industrial effluents and poorly treated sewage discharges were an ongoing concern. In 1976 the B.C. Development Corp. (a BC government crown corporation) caused maximum conflict when without any approval they began to fill in Tilbury Island and its marshes. DFO seized their equipment and this led to a significant BC - Canada standoff until a political agreement allowed BCDC to develop what they had destroyed. In turn they would consign the unfilled part of Tilbury Slough to DFO ownership. This remains as the only piece of DFO owned habitat in the Fraser Estuary.

Single mandate mentalities, uncaring environmental attitudes, and poor communications within government agencies at all levels including the three federal harbour authorities exacerbated the problem. For instance the Tsawwassen Indian Band wanted greater protection from storm surges. Inland Waters of Environment Canada began the construction of a dyke cutting off all the marsh area between the Roberts Bank and BC Ferries causeways. The agencies such as DFO did not practice their due diligence. This was an expensive mistake. DFO stopped the work and had to pay costs for stopping the construction.

Prior to 1972 estuary research and protection was not on the radar of the various conservation agencies and the only significant Lower Fraser work was being done by U.B.C.'s Westwater Institute. It was established by federal grants and was a key scientific and advocacy voice studying the Fraser River and its estuary. Westwater Chair Tony Dorcey authored a comprehensive review of the overall FRES process, FREMP need, its creation and progress to 1997 (*Appendix I*). That paper has been attached since it is central to this paper and should be referred to for additional detail and academic review on the first 20 years of FREMP.

## **2. From Individual Agency Interests to FRES to FREMP.**

The *Fraser River Estuary Study* began in 1976. A management committee established the various options for the eventual creation of an environmental management plan. Several study groups and sub-groups were established to bring together existing information and produced reports on habitat, recreation, water quality, dredging, land use designations etc. It involved all the parties that eventually gave rise to its implementation program i.e. FREMP in 1982.

FRES, as was later the case with FREMP, had to be extended beyond its original intended timeframe and FRES II renewed its work and developed the framework that became the management program i.e. FREMP.

In the 1970s the conflict between DFO, CWS and the BC Fish and Wildlife staff and the three harbour bodies (PV, NFHC, and FRHC) was intense. Those concerned about water quality had a less than amicable relationship with the Greater Vancouver Regional District. The GVRD had been dragging its feet on upgrading sewage treatment in the area for many years. The more significant discharges were still being discharged in a raw state.

Things only began to change in about 1983 when NFHC and FRHC noted to the newly formed DFO Habitat Management office in New Westminster that times had changed

and it was time for the harbour authorities to work with DFO. DFO was often seen as the main obstacle to industrial development.

In the South Arm conflicts between the agencies and FRHC gave rise to habitat and pollution charges under the Fisheries Act. The development of the Bridgepointe Market (now River Rock Casino and marina) in the North Arm reached a stalemate until DFO outlined a partnership approach that eased a thaw in frozen relationships (Brownlee, 1990) worked very well. This agreement resulted in DFO developing a colour coding system for habitat protection and a habitat bank for compensation and harbour clean-up plan was agreed to (1988). This simple red, yellow and green habitat colour coding was then developed for the FRHC harbour and was later adopted by FREMP as the 'FREMP colour coding'.

### 3. The Creation of FREMP (1982) and FREMP II (1994).

FREMP was formalized in 1982. An Environment Canada FREMP Technical Report summarizes the organization as:

***"The Fraser River Estuary Management Program (FREMP) is a cooperative program linking federal and provincial government agencies, port authorities, regional districts, municipalities, and First Nations. The program provides a vehicle for coordinating decision-making on environmental conservation, and development in the estuary. The six funding partners to FREMP are: Environment Canada, Fisheries and Oceans Canada, the Greater Vancouver Regional District, the BC Ministry of Environment, Lands, and Parks, the Fraser River Harbour Commission, and the North Fraser River Harbour Commission."***

Although their harbour was a part of the estuary, Port Vancouver was obvious by its absence from FRES - FREMP.

The most obvious key gains in FREMP's creation and operation included;

- Establishment of a FREMP office which was essential for communications, project review and to highlight FREMP's existence value.
- Improved communications and cooperation via the formation of several multi-agency committees including management, conservation mapping (area designations), log handling, dredging, habitat protection, etc.
- Centralized project reviews ('one window shopping') replaced the isolated interests of dozens of different agencies. This did not replace agency legal and any permit requirements but ensured some degree of a common approach as outlined in a common FREMP position.

FREMP was originally established for an initial five year period and after extensions was formally renewed in 1994 as FREMP II. The renewal did not significantly change the organization or its mandate but in some ways as it matured it became more

complicated and an organization unto itself. Despite the exceptional public and ENGO concern about estuary conservation the general public still remained on the outside of the organization and its operations.

#### **4. The Creation of BIEAP 1991 and then BIEAP/FREMP in 1992.**

In that FREMP was seen to be a success, the Port Vancouver Burrard Inlet area came under consideration for a similar plan i.e. **Burrard Inlet Environmental Action Program (BIEAP)**. It was another effort to reduce cross agency agendas and coordinate project reviews. Eventually it was determined that since FREMP existed with an office and staff and served a similar purpose they should be logically linked together under one roof. This made sense in that Burrard Inlet was a key part of the Fraser River Estuary. The plan then became known as the BIEAP - FREMP plan.

BIEAP / FREMP were best described as:

*“The Burrard Inlet Environmental Action Program and the Fraser River Estuary Management Program, often referred to as BIEAP-FREMP, is an intergovernmental program that coordinates environmental management review and interagency communications for projects and shoreline developments in the Burrard Inlet and the Fraser River estuary. A major part of BIEAP-FREMP's work is to streamline the environmental reviews for anyone working on a project that may impact the water or foreshore in the Lower Mainland. BIEAP-FREMP would take the project application from the proponent, (a municipality or business, for example) and then contact all the relevant agencies - which could include Environment Canada, Fisheries and Oceans Canada, or Port Metro Vancouver, for instance - and consolidate their feedback into one coordinated response so the proponent didn't have to approach each agency separately.”* (Burnaby Now March 2013).

BIEAP and FREMP functioned through Memoranda of Understanding which establish the framework for the coordination of partner agencies. FREMP with the addition of BIEAP became a more complicated organization and in the late 1990 to 2010 period the proactive work done to date (e.g. area designations) and the reduction in new project applications due to the economy reduced the amount of work facing the updated organization.

#### **5. March 31, 2013 FREMP / BIEAP Closes its Doors**

The initial nail in the FREMP coffin was hammered in by Environment Canada (EC) under Peter Kent, the Conservative Government's Environment Minister. All senior agencies contributed monies to FREMP to keep their office and staff in place and EC was the first to withdraw their support. This above action was not taken with any consultation with other FREMP partners and the BC Government was caught off guard and took exception to this – see *Appendix II*.

The then BIEAP/FREMP program manager De Andrade announced:

*“In most recent years, the evolving mandates of partner organizations have necessitated change. As a result, the BIEAP-FREMP office, located in Burnaby, will be closing its doors on March 31, 2013. All partners intend to continue the partnership and are establishing a new model based on renewed cooperation and ongoing collaboration. It's very traumatic, and it's very traumatic for us. People value the program, but we understand there is need for renewal. Hopefully it will come back stronger.”*

It would soon become apparent that Ms. De Andrade's comments were at least politically correct but were based on wishful thinking. FREMP was to be terminated as part of the Harper's governments plan to cut environmental legislation and protection plans across Canada. Most ENGOS were very upset but this was what most industrial lobby groups had pressured the government to do.

Despite promises of and public expectations that the 1915 elected Trudeau Liberal government would reverse this setback, FREMP's renewal does not appear to have even been considered as Canadians prepare to another election in October 2019.

The decline in government responsibility was first noted just prior to 2000 when the cost cutting Liberal government of Paul Martin made large cuts to agency budgets and promoted the need for SMART regulations whereby industry would monitor its own environmental practices and assume self-compliance to the performance based rules of the day. This concept was based on the myth of corporate stewardship and had not worked elsewhere in the world.

This development was most unfortunate but it fitted into the Harper government's pattern of undermining the DFO, NWPA type agencies and was accompanied by the elimination of their legislation, operational work and then their jobs and offices.

For instance, in 2004 DFO and other agencies signed an agreement in secret that promoted the mining of gravel in the sturgeon and salmon spawning areas in the Chilliwack to Seabird Island of the Lower Fraser River. DFO's estuary office in New Westminster staff was eliminated and DFO pretended that that habitat in the Lower Fraser would be protected out of Kamloops. A massive kill of immature salmon was caused by such gravel mining in 2008.

The Fisheries Act habitat protection law (promulgated in 1977) was then gutted in 2012 - 2013. The politics of economic growth and jobs were to rule the government's agenda in Ottawa and Victoria. In many ways, these federal government moves placed estuarine protection back to where it was in the 1960s era. In the modern area of more enlightened environmental conservation it was a hideous way of dealing with agency staff and our living aquatic resources.

The federal government of the day also had combined the three harbor authorities into the Fraser River – Vancouver Port (also known by other similar names) and delegated CEAA and then FREMP responsibilities to this new Port Authority. It was a low point in environmental management in the 1976 to 2013 time period. Some felt that the combining of the three harbour authorities would promote efficiencies but it was apparent that a large new monolithic bureaucratic structure had been created and it would become the largest threat to the estuary.

Burnaby Now reported (March 2013): *“Carrie Brown, manager of environmental programs with Port Metro Vancouver, confirmed that her organization has taken over the lead role in coordinating the project review application.”* In that Vancouver Port could now conduct environmental assessments on its own projects, the Harper government had put the wolf in charge of the sheep. This conflict of interest was not based on naivety but was very deliberate part of getting the Fisheries Act out of the way of industrial development across Canada.

The above actions were part of the final chapter of industry self-governance and self-compliance started by the Martin government a decade earlier.

## **6. Status Quo from 2013 to 2019.**

The above delegation of responsibilities from FREMP to PV was most unfortunate but was a key aspect of the Harper government's economic growth and jobs agenda. The Harper government made it very clear that whether society had to deal with pipeline or port development in Canada, environmental protection got in the way of economic progress.

Many parliamentarians and three retired DFO Ministers took great exception to what the Harper Government had done but massive public opinion fell on deaf ears. It was soon realized that a change in government was the only way to overcome these giant environmental protection setbacks.

Accordingly when the Trudeau Liberal government in 2015 campaigned to correct this Harper Conservative Government environmental bungling many felt delighted to see

the Liberals form a majority government. The letter of direction to Ministers showed that Trudeau was maybe going to be a Prime Minister that could well deliver on his many promises.

It is now May 2019 and despite the many letters and briefs submitted to the Trudeau Government by those concerned with fisheries and other environmental protection little has taken place to at least restore the Fisheries Act to what it was in 1977 and what CEAA was in 1995. The government has gone through lengthily consultation exercises but this has not given rise to an improved NWPA, CEAA, SARA and Fisheries Act (habitat protection).

## **7. Summary of Major FREMP Accomplishments.**

- Greatly improved communication and cooperation between the agencies. This was assisted by legislation changes, enforcement and staff changes encouraged new thinking and cooperation.
- DFO - FREMP cooperation allowed DFO's 1977 habitat law (harmful alteration disruption or destruction - HADD) and habitat zoning and 'no net loss' policy to be incorporated into a meaningful area designation process.
- A single coordinated project referral review process.

## **8. Apparent FREMP Shortcomings.**

Despite its major contribution to estuary management, many felt that FREMP did have shortcomings. Some criticism related to a misunderstanding of what FREMP was set out to do. FREMP was not a legal entity with enabling legislation. It could do no more other than be an interagency partnership program and coordinate the agencies and project reviews of new development in the estuary.

The legislative powers of the partners in FREMP did not delegate their legislated powers to FREMP. For instance, the powers to enforcement habitat protection provisions of DFO as mandated in the Fisheries Act always remained with DFO. Some saw that as a weakness but to have created a real FREMP authority would simply have been too threatening to each agencies mandate.

As with almost every government exercise the public continually felt public consultation was inadequate. However FREMP often did a better job than the public consultations that were part of each individual agency's operations.

From the very beginning FREMP was run as a 'linked partnership' and that gave rise to inadequate leadership and resulted in slow progress. Leadership remained an issue as more and more parties came to the table and the public were not there to hold parties accountable in terms of what should be expected of them. The evolving role of the several First Nations communities in the FREMP area had not been well established.

As with all government initiatives there was a concern of "where is the accountability and enforcement?" as related to estuarine protection. Despite this large organization enforcement was left to the individual agencies and habitat enforcement in DFO and water quality and habitat type enforcement by MOE and EC decreased as FREMP progressed and by 2010 there was next to no enforcement taking place as outlined in Appendix IV.

Although originally prepared in 1996 the attached Dorsey paper provides a more detailed review of BIEAP - FREMP accomplishments and shortcomings.

## 9. DISCUSSION.

During the past 150 years the Fraser River Estuary and Burrard Inlet were subjected to many industrial developments that greatly harmed living resources, habitats and quality of life issues (e.g. existence values, recreation, security ) in that area. The 1976 development of FREMP was very timely. The design of the program allowed each agency to retain their mandate so the organization of FRES, FREMP and BIEAP was a non-threatening to existing agencies and made significant accomplishments that well related to the concept of sustainable development.

As FREMP developed it became a complex organization and to some degree a bureaucracy unto itself. The reduction of industrial developments in the first decade of 2000 caused some to feel that FREMP was coasting and with staff changes and a federal government that was ideologically opposed to environmental protection, termination of FREMP was just one of many cuts made to environmental programs, agencies and laws (e.g. CEAA, Fisheries Act, SARA and NWPA) in Canada.

The federal government's decision to move the FREMP and CEAA project review processes into Fraser Vancouver Port was a terrible decision. Those responsible for that action were naive or very deliberate in their creation of one of the greatest conflicts of interest seen in the recent history of Fraser River Estuary management.

In the 2012 to 2013 period DFO habitat protection staff was eliminated in New Westminster, habitat protection law was gutted and project reviews were delegated to the port authority.

Upon the recovery from the 2008 recession large industrial projects began to appear such as Tilbury LNG, Surrey-Fraser coal port, Roberts Bank Terminal 2, jet fuel terminal and a mega bridge or tunnel in the middle of the estuary. The framework to protect the environment and allow unbiased project reviews to take place was lost.

Beginning in about 2000 and more formally in 2012 the economic growth and jobs agenda was to rule over the river e.g. *see Appendix IV*. Further to the above the federal government had created the perfect storm. There was no federal safety net and the 2002 BC Environmental Assessment Act was weak in design and B.C. simply lacked will to put in place more assertive environmental protection. This problem prevails as of 2019.

The actions over the past nine years indicate that FREMP did have an important role to play and the estuary will continue in its path of greater environmental risk and a more rapid net loss of habitat. Projects such as the VAFFC jet fuel tanker and river terminal project makes this claim rather clear.

Although the concept of having jet fuel tankers enter the river is high risk and of extreme public concern, Port Vancouver (PV) screened this project as a minor project not requiring public input. The project was then accepted for 'voluntary' review by the BC EAO because weak provincial legislation did not have a legal requirement for a project review of this high risk industry in an extremely sensitive habitat. PV then delegated their review to the BC EOA process for this voluntary review.

Public input into the project was extremely problematic and despite the historic precedent of not having tankers of highly toxic and flammable jet fuel to enter the Fraser, the project was approved subject to many conditions. A BC Supreme Court Judge ruled that the proponent had met the low EAO standard but much more could have been done to involve the public in consultation and review of this project.

The two local governments (Richmond and Delta) unequivocally opposed the project. The interests of DFO and CWS were swept under the carpet and the public at no time had the opportunity to relate to agency positions and no public hearing was held. All agencies met in camera and the public were kept in the dark. FREMP could have improved upon that sad state of project review.

The government and PV were disingenuous when in 2013 they announced at the termination of FREMP that it was time for a new model of FREMP and the delegation of FREMP duties to the port was just a temporary arrangement. It is now six years later and despite federal government promises, nothing has changed. The public has not been consulted on this matter.

There can only be an effective FREMP (including the Fraser Estuary to Mission, Burrard Inlet the estuary) with government will and political leadership. To date we have not seen that political leadership at any level in government as economic growth gets highest priority and the leaders mislead the public that 'balance' has now been achieved.

Further to the above, despite the usage of words like ecosystem management, balance, and stewardship etc., it is painfully clear that our society and governments are unable to address the need of true regional ecosystem management. Environmental protection is often relegated to the status of political football. It is clear that since 2000 the politics related to economic growth rules the day and little relates to the survival needs of our living natural resources.

## **10. CONCLUSIONS and RECOMMENDATIONS**

- 1. Despite the 50 year struggle to better protect the living resources and habitats of the globally important Fraser River Estuary, society and its governance bodies lack the will to do its job. This attitude of neglect cushioned by the belief that we can have continuous growth and better protect what we have with anemic conservation action is a myth. This thinking must change.**
- 2. First Nations, Metro Vancouver, British Columbia and the federal government must now jointly show the will and leadership to replace and improve upon the FREMP model the government dissolved in 2013.**
- 3. Further to the above, for any new FREMP to work effectively, it must be a transparent organization and involve public participation at all levels in its organization and operations.**
- 4. To restore and improve upon the foundation upon which any new FREMP is to function the legislation (e.g. Fisheries Act HADD, BC EAO and CEAA assessments) with supporting resources and expertise must be greatly upgraded. It is absolutely critical to put habitat protection and enforcement back into the Fisheries Act.**
- 5. Of great urgency is the need to remove Port Vancouver as the lead agency in coordinating the review and approval of environmental impact of industrial projects. This will resolve a terrible conflict of interest and restore public trust in a system that has deteriorated greatly in the past decade.**
- 6. To enable a new FREMP to be established and operate successfully its structure must be kept simple and it must not become a bureaucracy unto**

itself. For a new FREMP type organization to be effective it may require some legal statute backup.

7. Agency resources are needed to support the operations of a new FREMP. This can be allocated as it was for FREMP in the 1980s. It is obvious that these resources already exist in Port Canada. One must question why a port agency has more resources to relate to Fraser River fish habitat issues than DFO has.
8. The management of the estuary out of context of the entire Fraser River Basin and the related ocean ecosystem must change. The use of words like "ecosystem stewardship" is less than helpful unless supported by a higher level of understanding of such concepts and meaningful action.
9. Significant expertise and public input will be required to establish a new FREMP. A new FREMP must be at least as good as and preferably better than the FREMP of decades ago. Most architects of FRES and FREMP are now long gone and the new generation of staff must appreciate what FREMP was and the need to couple a seamless agency approach to land and water conservation.
10. If the Fraser River is to be seen as a Gateway to the Pacific the estuary area should be established as a world class example of how ecosystem and adverse risk management must take place in the coming decades. This study and plan implementation will require great expertise, public support and millions of dollars. It could be the new FREMP and it is essential if we are to address the steady decline of all living creatures here and globally.

## **Otto E. Langer BSc (Zool) MSc**

### **Bio for Otto E. Langer BSc(Zool) MSc**

In 1969 he began work in DFO and Environment Canada in stream protection, contaminants control and enforcement. He has been an expert witness in over 100 habitat and pollution trials across Canada.. He was a leader in the development no net loss principle and pioneered its use in the Fraser Estuary. He was very involved in the working of FRES and FREMP and the development of the first harbour environmental management plans.

In 2001 he moved to the David Suzuki Foundation and developed their Marine Directorate. He was an advisor to the London based MSC and retired in 2005. He has published numerous articles and co-authored Stain Upon the Sea which won a BC Book Prize. In 2009 and 2010 he was respectively awarded the BCWF and the Canadian Wildlife Federation's B.C. and Canadian Conservationist of the Year Awards. In 2012 Mt. Langer exposed the Harper government' plans to weaken environmental protection legislation in Canada He lives in Richmond BC and is active in providing volunteer expertise to many environmental groups.

May 18, 2019

## Appendix I (page numbers altered from original document).

*This paper was prepared in 1997 and published in 2004 in Fraser River Delta, British Columbia: Issues of an Urban Estuary, (ed.) B.J. Groulx, D.C. Mosher, J.L. Luternauer, and D.E. Bilderback. Geological Survey of Canada, Bulletin 567, 247-263.*

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### **The Evolution of Estuarine Governance in a Metropolitan Region:**

#### **Collaborating for Sustainability in the Fraser River Estuary**

*by*

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#### Overview/Abstract

The Fraser River Estuary Management Program (FREMP) is an innovative approach to collaboration in estuarine governance. Before work began on its development in 1977, federal, provincial and local government agencies acted largely independently and there was little involvement of non-governmental stakeholders. Today, FREMP facilitates coordination among the activities of more than a hundred different agencies in implementing a jointly agreed Estuary Management Plan. The goal of the Plan is to improve environmental quality in the Fraser River Estuary while providing economic development opportunities and sustaining the quality of life in and around the estuary. Implementation is through the management processes and tools that have been created by FREMP for habitat classification, area designation, project review and activity planning. Evolving FREMP has been a slow and difficult process but it has resulted in a collaborative estuarine governance model with great potential for meeting the challenges posed by a metropolitan region growing at the third highest rate in North America. Despite the development pressures, significant progress has been made towards achieving land and water objectives in the estuary. However, if FREMP is to meet the even greater challenges that are in prospect with the intensification of development in the Greater Vancouver Region, then further innovations will be necessary. Key to strengthening the Program is opening up the collaboration to non-governmental stakeholders so as to build public understanding and political commitment for achieving the sustainability goals that have been adopted in the Plan.

## INTRODUCTION

For more than 10 000 years people have lived, worked and played in and around the Fraser River Estuary. During the vast majority of that time, what they did had no irreversible or extensive effects on it. But, in less than two centuries, growth in population and settlement activities has transformed the estuary and delta. In the last three decades, there has been increasing concern about the impacts of this development and varied attempts have been made to manage them. This chapter describes and assesses these initiatives, focusing on the Fraser River Estuary Management Program (FREMP) (Dorcey, 1993; Fraser River Estuary Management Program, 1994)\*.

Over the almost 20-year life of FREMP, there has been substantial progress in building a new collaborative system of estuarine governance. The first half of the chapter sketches the slow evolution of these innovations, quoting from key documents to reveal how people defined the problem and evaluated alternative solutions at different points in building towards today's system. The second half of the chapter, assesses the innovative governance process that was created and its significant achievements in managing the estuary through coordinated processes for habitat classification, area designation, project review and sectoral plans for different activities. It is concluded that building such collaborative approaches to governance will almost inevitably be slow and tortuous but that they can be the wellspring for significant innovation, as evidenced by the management tools fashioned in the Fraser Estuary and now being copied elsewhere. At the same time, however, it is strange to conclude in a province where there has been such strong experimentation with multistakeholder collaboration processes, that the greatest weakness has been the timidity with which non-governmental stakeholders have been involved. It is argued that remedying this weakness in the estuarine governance system will be key in meeting the challenges of environmental, economic and social sustainability that are in prospect for a region with one of the highest growth rates in North America.

Before beginning, it is important to note that in focusing the analysis in this chapter on the collaborative approach to estuary governance, it is not being suggested that this is the only important issue to be considered in assessing the effectiveness of the governance process (Dorcey, 1991, 1993, 1997). While greater collaboration is a crucial and pervasive ingredient in the transformation of governance processes necessary to meet sustainability goals, it is only one of the elements that have been recognized as requiring greater emphasis. A more comprehensive evaluation (Dorcey, 1991) would assess progress in putting greater emphasis on

- ethics;
- being proactive;
- integrating science and politics;
- consensual decision making;
- federation;
- intersectoral decision making;
- integration of regulatory and economic mechanisms; and
- design of the total governance system.

While a full analysis of each of these considerations in the evolution of the Fraser River Estuary governance system is a task for future publications, they are all at least touched upon in the current focus on collaboration.

## DEVELOPMENT OF THE FRASER RIVER ESTUARY AND DELTA

From the beginning of history, estuaries such as the Fraser have preferentially attracted human settlements and, in recent times, major metropolises, like Greater Vancouver, increasingly bestride them. When Simon Fraser came down the river in 1808, he saw how aboriginal peoples had been living in settlements along the river and in the estuary for thousands of years. During those millennia, the population in the Lower Valley and estuary likely never exceeded 10 000 people and the largest villages were no more than 200 persons.

Only a century after Simon Fraser, any new settler would have seen that dyking and draining the wetlands for agricultural development, forestry, ports and expanding settlements had already transformed the estuary and delta. The river had been trained to flow primarily through one large main and a smaller north arm channel, three-quarters

of the wetlands had been lost and already the total population had increased more than ten-fold. Meanwhile, the aboriginal populations had been cut to a quarter of what they had been at their peak and their traditional settlements were becoming lost among new waterfront developments and expanding urbanization.

Almost another century later, the new settler finds that the population has increased to 2 million and that the water and landscapes have been radically changed. Whereas the earlier settlers likely had their first glimpses of the Fraser as they arrived by sea from the west or rail from the east, today's likely fly in above it and see beneath them a sprawling metropolis wedged in between the mountains to north, east and south. If their landing approach comes down over the Lower Fraser Valley out of the east, they see the dyked Fraser clearly etched beneath them and a changing landscape, shifting as they come closer from a dominance of rural-agricultural to urban-industrial. Just before landing at Vancouver International Airport, at the sea mouth of the estuary, they might be struck by contradictory impressions of substantial pockets of wildland still remaining amongst development; extensive agriculture apparently operating amidst urban areas; old, heavy industry existing adjacent to new, low and high-rise residences on the waterfront; and deepsea container shipping navigating among fleets of fishing and recreational boats, and all, moored together with rafts of logs and floating homes, along busy waterways.

Almost any time in recent years, the new settler would not have to be in the region long before stories in the local newspapers, and on radio and television revealed that the people of Greater Vancouver are facing major challenges in the Fraser Estuary. Typical items that might soon be read or heard would suggest the bewildering diversity of issues and organizations involved:

- "...federal fisheries agency announces unexpectedly high returns...short openings for the commercial sockeye fishery..."
- "...provincial ministry of environment reports water quality conditions in the estuary area range from 'fair' to 'excellent'..."
- "...environmental group declares it will continue with private prosecutions of polluters even though the provincial attorney general has already refused 26 times to allow them to proceed..."
- "...homeowners informed taxes will increase by 90% unless the federal and provincial governments contribute more to the cost of the regional secondary sewage treatment plants..."
- "...university researchers announce studies show lead concentrations in urban run-off have declined as a result of banning lead in gasoline, but other contaminants related to transportation, including aromatic hydrocarbons, are still increasing..."
- "...aboriginal peoples submit their claim to land and water areas in the estuary to treaty negotiation process..."
- "...harbour commission argues it's essential to deepen the channel of the main arm of the estuary to maintain port's competitiveness..."
- "...local mayor says they can build more flood protection measures and need not reduce population growth in his island community..."
- "...naturalists and wildlife agencies argue the estuary's remaining wetlands are of international importance to migratory waterfowl..."
- "...spokesperson for industry warns waterfront lands need to be conserved for industrial and commercial activities in the estuary ...it would be a mistake to allow them all to be converted to residential and parks designations..."
- "...real estate development company announces it will rebuild three times the area of wetlands lost to its new housing by a compensation project in another part of the estuary..."
- "...volunteers from environmental groups, the fishers union, schools and companies begin a program to clean-up waterfront areas..."

Thus in two short centuries, the estuary and its delta have been greatly altered by an increasing diversity and intensity of settlement and development. The prospects are for this transformation to continue apace, creating new challenges for the evolving governance system.

## DESIGNING A MANAGEMENT PROGRAM

By the early 1970s major concerns had emerged about water pollution and the loss of fish and wildlife habitats in the estuary. A proposal to expand the airport by building a new runway extending into the wetlands focused attention on those concerns as never before and led to demands for a moratorium on all development until a plan for protecting the estuary could be put into place. Although the federal and provincial governments refused to impose a moratorium, they did agree in 1977 to undertake the Fraser River Estuary Study (FRES) but it was not until after a great deal of debate about alternative governance designs that this initiative evolved into the Fraser River Estuary Management Program (FREMP) in 1985. In the following sections, the slow and often tortuous evolution is highlighted and quotes from key documents are used to reveal the evolving perceptions of the management problem and the merits of alternative approaches to the design of the governance system. The story is complicated but an appreciation of the details is important in understanding the difficulties and the breakthroughs that are critical to identification of the lessons to be drawn from the 20 years of experience.

### Fraser River Estuary Study, 1977-'78 (FRES I)

The agreement signed in 1977 by the federal Ministers of Fisheries and Environment and the provincial Minister of the Environment established the FRES "to develop a management plan which recognized the importance of the estuary both for human activities such as urban-industrial development, and for preservation of ecological integrity." The study area was to include the land and water outside of the dykes, including upland areas within approximately 1000 m of the dyke. Directed by a Steering Committee of federal and provincial agencies, four work groups were formed to prepare reports on land use, transportation and port development, water quality, fish and wildlife habitat, and recreation (Fig. 1). A report on the constitutional and legislative framework was also prepared. The work groups were made up of personnel from agencies represented on the Steering Committee and were under the general direction of a Study Coordinator. There was no special budget for the study and funds and personnel were contributed by the participating agencies. Their reports were drafted within 18 months.

Out of the Study, a clear picture of the nature of the estuary management problem emerged and the Steering Committee made far reaching recommendations on the governance system needed to meet the challenge.

The natural system of the Fraser Estuary together with extensive use by man for industrial and port development presents a highly complex and diverse situation. This complexity is echoed institutionally - with a large number of agencies, organizations and interests involved in what happens in the estuary.

The Steering Committee notes that some organizations have powerful and direct roles in estuary management. But no single agency can control the estuary. While the simple answer of a "single authority" is superficially appealing, it could not override the inherent diversity of interests and needs which exist. We are persuaded that dealing with and streamlining interjurisdictional complexity through joint consultation in developing and agreeing on a management plan as a framework for future use is a preferred approach. We believe the goal is mutual adjustment of policies and actions in accord with agreed management principles. This means explicitly agreeing upon a "negotiated order" and "linking" the separate operational plans of different agencies in a coherent way.

We also see the need for an ultimate level of decision which would be the responsibility of the elected politicians at the various levels of government. This is because value judgements will be required to resolve some issues where objective information is not adequately available.

We offer for discussion an organizational concept comprising three interacting groups:

- a "constituency" comprising all government agencies and non-governmental groups that would meet at intervals to exchange views and understandings and to participate in task groups that may be established to resolve specific problems;

- a "policy group" comprising the key agencies with direct management powers and interests in the estuary. It will develop initiatives, explore means of reconciling conflicts, and make recommendations to the political level to which it is accountable. A well-known and capable figure outside government perhaps should be chosen to chair this group;
- an "Estuary council", a small political group bearing ultimate responsibility and accountability for formalizing policies for the estuary.

These three parts of the total "organization" are served in ways appropriate to each by a Coordinator and a small staff group or "secretariat". The Coordinator would provide the essential liaison between groups in facilitating the plan development process which as noted must be evolved by intensive consultation on the proposed policy guidelines and to achieve linkage of separate smaller plans. It also involves working towards more formal "area designations" for various development, recreation and conservation uses along the many sections of the estuary shoreline. This Coordinator and staff secretariat are essential to complete the next phase of developing a management plan for the Fraser Estuary through extensive public participation and dialogue.

As a Steering committee, we believe an estuary management plan that collates relevant parts of the various independent "plans" of the many agencies and links them, can work and have considerable positive effect.

(Fraser River Estuary Study Steering Committee, 1978, p. xx-xxi)

### Fraser River Estuary Study, 1979-'82 (FRES II)

The Federal-Provincial Phase II Agreement signed in 1979 did not implement key elements of the recommended governance innovations; provincial politicians did not want a new political body, they preferred an enhanced bureaucratic organization that would develop consensus through wide public involvement. The Phase II Agreement "instructed the Study to develop and expand the Phase I proposals through further studies and evaluations and through exploration with agencies and interested public bodies" (Fraser River Estuary Study Planning Committee, 1982, p. 37). As shown in Figure 2, political leadership and accountability remained with the Federal and Provincial Ministers of the Environment. Although they were designated as the Study Council, they performed the same highly removed role as in FRES I and the Council did not include other political representatives from senior and junior levels of government, as had been suggested in the Phase I concept of an Estuary Council. The Study Steering Committee was renamed the Planning Committee, its agency membership doubled and it evolved from being dominated by environmental agencies to reflect a mix of environmental and developmental interests. Chairmanship of the Committee remained with the provincial Ministry of Environment. Funding was provided to support an expanded role for a study coordinator and a small staff.

It is important to note, however, that this greatly expanded organisation, which significantly enlarged representation of the diversity of agency interests, lacked the ingredients for strong leadership that had been emphasized in the Phase I report. "We believe that the next phases of the Study will require stronger and more evident leadership than we, as Steering Committee, have been able to provide in Phase I" (Fraser River Estuary Study Steering Committee, 1978, p. 107). To exert this leadership the report had argued that not only should the Council have greater political representation but also it must be more active in interacting with the "policy group" and the "constituency". Recognising the constraints on holding frequent meetings of the politicians, it had been suggested that the coordinator or, preferably, the outsider who is appointed to chair the policy group, should be responsible for working with the council and providing the essential leadership.

None of these recommendations were implemented during Phase II. Chairmanship of the policy group (the Planning Committee) was not assigned to a well-known outsider and no longer was it vested in an Assistant Deputy Minister, instead it was delegated to the Regional Director of the B.C. Ministry of the Environment. The Chairmanship also was shared with a federal counterpart. The staff coordinator who was appointed was a person with less experience in such studies when compared with the coordinator in Phase I. Thus FRES II, instead of strengthening the political leadership capability, had a more diffused organization and assignment of bureaucratic leadership responsibility, and

individuals appointed to these positions were more junior and less experienced in leading such studies than the Study Coordinator in Phase I. Given the diversity of interests and the complexity of the issues, the bureaucrats charged with undertaking FRES II were given an immensely difficult task by the responsible politicians.

In 1982 at the end of Phase II, a "linked management system" was proposed for the estuary. The final report analyzed three alternative approaches and recommended a hybrid. The three approaches were essentially alternative ways of organizing what Phase I called the "policy group" and the "constituency":

#### **Alternative A: A committee approach**

The Committee approach would essentially seek a voluntary consensus on an advisory management program for those government agencies involved in estuary management. Linkage would be established by agreements between key federal and provincial agencies to participate in a key agency committee made up of representatives from the estuary management level. The committee would be a forum for discussion and voluntary agreements on areas of overlap between agency responsibilities.

Improved coordination would be facilitated in each alternative by a more effective and efficient information system and referral systems.

#### **Alternative B: A lead agency approach**

The Lead Agency approach would designate certain estuary agencies to take the lead in estuary decision making. These agencies would make a mutual commitment to the estuary management program by means of interagency agreements or contracts. Agencies giving up job assignments to lead agencies would not be giving up their statutory authority and could step back in if need be. An example of a lead agency agreement now in place is the management agreements by which the B.C. Ministry of Lands, Parks and Housing transfers leasing management to the harbour commissions in areas where the river bed is provincially owned. The agreements designate one agency to manage rather than two.

#### **Alternative C: An estuary council of governments**

This approach would establish a council of Estuary Governments by intergovernmental agreement and executive orders. The council would be made up of senior officials of the governments involved. They would be delegated executive authority, consistent with prevailing statutes. The council as a whole would have the job of updating and adopting the management program, overseeing estuary management activity, as well as of preparing and making submissions to their Ministers for budget approval, funding and staffing. Existing agencies would continue to manage the estuary and would jointly staff the council. However, some reorganization of these agencies might be required to more clearly delineate which parts of their organization deal with the estuary.

(Fraser River Estuary Study Planning Committee, 1982, p. 41)

It was concluded that "a hybrid alternative is preferable, with the committee approach being employed for planning and representation and the lead agency approach for implementation" (Fraser River Estuary Study Planning Committee, 1982, p. 42). The perceived benefits of the proposed system were summarized as follows:

It addresses the major management challenges identified through our studies. It facilitates agreement on common goals and policies. It simplifies government administration and promotes better management of agency personnel, money and resources, while assuring accountability and improved information exchange. In addition, the proposal is simple to implement, as it involves existing powers of the Government of Canada and British Columbia. It succeeds because it affords a change in operating style and builds on the experience of those agencies that have been

managers of the estuary. Finally, as a result of its streamlining aspects and encouragement of cooperation between the sixty to seventy agencies holding mandates in the estuary, it reduces regulation and cuts red tape.

It is important to note that the proposal presented in this report should not be underestimated because it suggests simple solutions. **It is not a status quo proposal.** On the contrary, it addresses an innovative and far reaching approach to "tuning-up" the processes of government decision making and resultant action while retaining flexibility. Thus it can achieve concerted actions in the interests of both environmental and economic resources of the estuary.

(Fraser River Estuary Study Planning Committee, 1982, p. 37; emphasis in original)

Thus in contrast to FRES I, changes designed to ensure more effective political leadership were not seen to be of primary importance. As the report says, the FRES II recommendations were limited to "tuning-up" the existing system.

### Fraser River Estuary Study Review, 1983-'84

Although the Phase II report had been widely discussed in draft and then revised, it was decided that a Federal-Provincial Review Committee should be established to obtain further comment on the proposals and design an implementation strategy (O'Riordan and Wiebe, 1984). This step was felt to be necessary because the report did not provide a clear basis for proceeding; the proposals were extremely complex and there were doubts that it contained essential ingredients for success. The Review Committee summarized the comments they received in the following guarded terms:

Although there was general endorsement of the need for a management program, there were a number of issues which required clarification. These included the need for: broad consultation; government and industry commitment to the management process; a simplified management structure; clarification of the role of municipal and regional governments; and practical cost-effective management activities. In addition, a strong desire for meaningful action to occur as soon as possible was expressed.

(O'Riordan and Wiebe, 1984, p. 2)

In response to these concerns the Review Committee developed a revised proposal that was released in May, 1984 (Fig. 3). The proposed organisation of the management system was greatly simplified and heavy emphasis was put on the need for a sparing organization at a time of severe economic restraint. At its core would be a Management Committee. It would have a five member Executive and further 27 Members at Large drawn from the key agencies including local and regional governments and Indian Bands. There would be a two-person administrative Secretariat that supports the Management Committee and Management Program. The Management Program would have four components: an Information System, a process for Coordinated Project Review, Activity Program Work Groups and Area Planning Work Groups.

Responsibility for leadership was clearly placed in the Executive which would consist of the federal Department of the Environment, Fisheries and Oceans Canada and, the provincial Ministry of the Environment, and the two Harbour Commissions in the Fraser. The Executive would in turn be accountable to the Canada Minister of the Environment and the British Columbia Minister of the Environment. Representation of other agencies of government, regional districts, municipalities and native Indian bands was provided for by making them all members of the Management Committee that would meet as a whole twice each year.

### OPERATING THE MANAGEMENT PROGRAM

In late 1985 the Fraser River Estuary Management Program (FREMP) agreement was signed as had been recommended and each of the five signatories agreed to contribute \$50 000 each year for the next five years. The superordinate goal was "[t]o provide the means for accommodating a growing population and economy, while

maintaining the quality and productivity of the Fraser estuary's natural environment". A Secretariat Office was opened in New Westminster to provide a contact point for the public and various Secretariat services including a Central Project Registry. Thus after the eight years of the Study, a "Management Program", FREMP, had been designed and put into operation under a five year agreement.

In addition, key elements of the Program had been developed and successively refined to varying degrees by working groups during the years of FRES I and II. A statement had been drafted and agreed to as a vision for the year 2002 - "A Living River by the Door". A series of general objectives had been developed and adopted to guide management of specific sets of activities. Building upon the reports produced in FRES I, eight activity program working groups and standing committees produced management plans for water quality, waste management, port and industrial development, recreation, habitat, emergencies, log storage and navigation/dredging. Beyond this, progress had also been made on what were to become central components of FREMP: the Coordinated Project Review Process and Area Designation Process including a habitat classification scheme. Each of these components of the management program are discussed in more detail in the second half of the chapter, after highlighting how FREMP has continued to evolve.

Over the last decade, FREMP has built on these foundations. At the end of the first five-year agreement in 1991 a second one, FREMP II, was signed for a further three years, the Greater Vancouver Regional District became a sixth signatory and, with a doubling of the contributions, the total budget increased to \$600 000 each year. The Executive was re-named the Management Committee and was reconstituted by representatives of the six signatories. The larger Management Committee of FREMP I, ceased to exist as it was felt to be unnecessary given the other opportunities for involvement in the management program. For example, a Local Government Implementation Advisory Committee was concluded to be unnecessary when it was found they could be represented on key committees, such as Land Use and Water Quality.

The major product from FREMP II was an Integrated Management Plan for the Fraser River Estuary, finalized in 1994, and entitled "A Living Working River" (Fraser River Estuary Management Program, 1994). As the title suggests, the Plan continues to evolve the approach initiated during the FRES. The statement of Vision, Goals and Principles (Table 1) consolidates and elaborates earlier ideals and provides a framework for the more specific targets and actions in the plan. Six Action Programs which have their origins back in the reports and work groups of FRES and FREMP I are now organized under two themes: Environmental Protection consisting of Water Quality Management, and Fish and Wildlife Habitat; and Human Activities including Navigation and Dredging, Log Management, Industrial and Urban Development, and Recreation (Fig. 4).

Two key management tools developed earlier continue to have a central role in implementing the plan and evolving guidelines and policies for the estuary: the Project Review Process established in 1986 to coordinate applications for use or development in the estuary, and the Area Designation Process initiated in 1982 which identifies the primary uses for areas within the estuary (e.g., log storage, recreation, conservation, or industry), associating with them terms and conditions of use, and thus linking estuarine concerns with upland decision making. Maps provided in the plan document detail the status of the evolving designations and a Conflict Resolution Process is outlined for resolving disputes arising during implementation. Each of these management tools are discussed in more detail in the second half of this chapter while assessing the experience of building a collaborative approach to governance in the Fraser River Estuary and Delta.

## **COLLABORATIVE GOVERNANCE**

The Canadian governance systems established originally could not have anticipated the challenges of estuary management that have arisen over the last two centuries. The 1867 Constitution Act allocated rights and responsibilities in ways such that all four orders of government - federal, provincial, local and First Nations - have major roles in the management of today's uses of the estuary. FRES I identified upwards of a hundred governmental and non-governmental organizations involved. Today, there are over 30 governmental agencies with jurisdiction over water quality (7 agencies), waste management (6), land use (15), water use (11) and habitat protection (5) (Table 2); and this is without examining all of their sub-divisions (e.g., there are 12 municipalities each with its own collection of departments and division of responsibilities). Finding a way to overcome the fragmented and largely ad

hoc decision making among all these organizations was recognized during the first 18 months study in the 1970s as the fundamental problem in estuary governance.

The FRES I proposals were a perceptive and innovative response to the governance challenge. The critical need for leadership and ultimate political responsibility in decision making were recognized and provided for in the idea of a Council. It was to be the political mechanism for making the trade-offs that would inevitably be required in governing the estuary. It would ultimately be held accountable through the electoral process. The need to represent diverse interests was accepted and hence, the commonly suggested idea of creating a single authority was rejected. Representation in coordination and exploration of trade-offs was provided for in an explicit process of negotiation. Accountability was secured by requiring plans to be linked within a negotiated order established by the Council; as plans would be completed or revised they would be approved by the Council; and, in turn, those responsible for implementing the plans would be accountable to the Council for their performance. Finally, and perhaps of greatest significance, it was recognized that the organizational innovations must precede attempts to deal with substantive issues.

As with other proposals, this one too is offered for review and comment, but it should have high priority because some elements of organization and the required manpower and funding must be in place before the main dialogue on policy guidelines and other substantive issues can start.

(Fraser River Estuary Study Steering Committee, 1978, p. 99)

Perhaps not surprisingly, the proposal for an "Estuary council" was not taken up. Even twenty years later, there are very few examples around the world of governance institutions for managing estuaries or watersheds that are led by people elected specifically for that purpose. For the most part, politicians and their bureaucrats perceive such innovations as threatening to take away from them more than they might gain. Instead, a more limited model of collaborative governance was adopted: ultimate authority and leadership officially resides with selected federal and provincial ministers, who only become involved on a relatively few occasions; responsibility for making decisions primarily resides with a management committee of relevant bureaucrats from participating organizations; each of the participants retains all of their original jurisdiction; and, when they are unable to reach a consensus, decisions are referred for resolution to the extra-estuarine governance processes of which they are a part. In the following sections, the characteristics of this collaborative model are examined more specifically before returning in the conclusions to raise questions about the adopted model.

### Goals of estuarine governance

Long before Brundtland had made popular the concept and ideal of sustainable development, the vision and goal statements for the estuary reflected concerns for both the environment and the economy:

The purpose of the study was to develop a management plan which recognized the importance of the estuary both for human activities such as urban-industrial and port development, and for preservation of ecological integrity.

(Fraser River Estuary Study Steering Committee, 1978)

To provide the means for accommodating a growing population and economy while maintaining the quality and productivity of the Fraser estuary's natural environment.

(O'Riordan and Wiebe, 1984)

To improve environmental quality in the Fraser River Estuary while providing economic development opportunities and sustaining the quality of life in and around the estuary.

(Fraser River Estuary Management Program, 1994)

While the visions and goals have remained broadly similar, there is greater comprehensiveness (Table 1) and a significantly different emphasis in the recent plan which states explicitly that "[i]mproving environmental quality is the foremost priority, recognizing the linkages among economic needs, social and cultural heritage values, and the natural resources of the estuary."

### **Leadership and accountability**

Leadership has been primarily focused in what was the Executive Committee of the Management Committee during the first FREMP agreement and subsequently the Management Committee (hereafter referred to as "the management committee") with its members being accountable to their respective organizations. Consistent with the goals, there has always been strong governmental agency representation of environmental interests. All of the agreements have been signed by the federal Ministers of Environment, and Fisheries and Oceans, and the provincial Minister of Environment, and each of these organizations has been a member of the management committees. Although neither federal nor provincial ministers representing economic and developmental portfolios have been signatories to the agreements, there has been strong representation of such interests since the end of FRES I through the participation of the Fraser River Harbour Commission and the North Fraser River Harbour Commission, firstly as members in the Steering Committee for the FRES and then as signatories, equal financial contributors and members of the management committees from the time of the first FREMP agreement. It was not until the second FREMP agreement in 1991 that local government through the Greater Vancouver Regional District formally became one of the signatories to the agreement and hence a financial contributor and member of the management committee.

More than might at first appear, this unusual hybrid mechanism that is the management committee has been an innovative means for leading collaboration among federal, provincial and local government organizations and the harbour commissions. As the committee members have become more familiar with estuary management issues, knowledgeable about each other's organizations and interests, and built trust among themselves through working together, it has become an increasingly effective mechanism for collaboration. This began to happen even before the harbour commissions and the local governments became formal members of the committee. It has been reinforced by many of the same individuals being the representatives on the management committee for several years. Furthermore, over time it has become evident, as for example reflected in the 1994 Management Plan, that the members have greater joint interest in environmental and economic issues than might be suggested by superficially looking at their formal mandates alone.

Given the realities of demands on the time of federal and provincial ministers, local politicians and harbour commissioners, it is not surprising that the responsibilities for leadership and accountability have fallen heavily on the management committee. How well this has worked within the confines of the adopted model of governance is a question that is returned to in the conclusions after considering other key aspects of what has been achieved.

### **Stakeholder involvement**

Under the direction of the management committee, intensive use of working committees in developing and implementing the estuarine management program has provided for extensive involvement of representatives of governmental agencies but the involvement of non-governmental organizations and the general public has been uneven and less concerted. From the beginning of the FRES and through the FREMP, working committees have been used in each of the six or seven aspects of management activity (Fig. 1-4). Over time, these committees and their various sub-committees or task groups have involved stakeholders in scoping the issues, developing possible management approaches, implementing agreements and refining them in light of experiences. Formally these groups have been constituted predominantly by governmental agencies with the notable addition of the harbour commissions. Although the groups have had the option under the public consultation policy adopted by FREMP of adding non-governmental interests to their participants, this has not been done extensively; some groups have done this more than others (e.g., land use and recreation) and others not at all (e.g., waste management).

Although there was no public involvement during FRES I, there have been varied ways in which non-governmental organizations and interests have been involved at various times during the evolution of FRES and FREMP. Public consultation exercises involving review of draft documents, workshops and opportunities for written comments have

been part of the development of the two major reports, *A Living River By the Door* (1982) and *A Living Working River* (1994), and the activity program reports. On various occasions, the working committees have organized their own workshops, sometimes involving a wide diversity of interests (e.g., log handling committee) other times being more limited (e.g., the annual water quality research workshops). During two short periods, mechanisms were established for periodic consultation with a wider diversity of interests. For a time in the early 1980s, there was an attempt to use a broadly based advisory committee involving both governmental and non-governmental stakeholders under an independent chair but it proved extremely difficult to obtain consensus and was discontinued. During FREMP I the full Management Committee of 27 members provided a means for involving a wider diversity of governmental stakeholders but the full Management Committee was only convened twice a year and the various working committees were primarily used to involve these stakeholders.

The establishment of the FREMP Secretariat office in New Westminster in 1985 and its later move into a building on the redeveloped waterfront, provided a point of contact for the public to obtain reports and information. Various means have been used to communicate more widely including the production of a periodic newsletter, preparation of media packages, the provision of displays for use at the annual Fraser River Festival, conferences and in the community, the development of a schools program, and more recently a site on the World Wide Web.

Overall, the FRES and FREMP have been much more successful in securing direct and continuing involvement of governmental agencies, including the harbour commissions, than the range and diversity of non-governmental organizations and interests. In contrast to the multistakeholder processes that have become common in the 1990s in many other areas of governance in British Columbia and other parts of Canada, such as coastal zone management in Atlantic Canada, the FREMP has remained predominantly in a conservative mould, concerned primarily with fostering the coordination of government activities. More recently there have been some signs of movement towards a fuller partnership model of collaboration in the habitat restoration and enhancement programs and proposals for training citizens for clean-up tasks and reporting spills.

### Collaborative management tools

Over the last decade, FRES and then FREMP have developed and refined a set of management tools that have become the ongoing means of implementing the collaborative approach to governance. The provision of funding to support a coordinator and small staff has been key in providing a secretariat that gives continuity and facilitates the involvement of a large number of part-time contributing organizations and individuals in the various working groups, committees and processes that develop and implement policies and guidelines for management of the estuary.

### Policies and guidelines

As a result of the work carried out through FRES and FREMP and the independent but related development of new policies by some of the participating agencies, several sets of guidelines and policies for environmental protection have been implemented, including:

- Log Storage Guidelines (harbour commissions)
- Fraser River Dredging Guidelines for Fisheries Protection (DFO)
- Habitat Coding and Classification (FREMP)
- Provisional Water Quality Objectives (BC Environment)
- Policy for the Management of Fish Habitat (DFO)
- Official Community Plans (individual municipalities)
- Local Zoning Bylaws (individual municipalities)

Key FREMP tools used in the implementation of these policies and guidelines are the Project Review Process and the Area Designations.

## Coordinated project review

The Project Review Process, established in 1986, provides lead agencies with a single window of contact with all the agencies that are potentially concerned with an application for use or development within the estuary. Proponents deal directly with the lead agency designated for the relevant area of the estuary: Fraser River Harbour Commission, North Fraser Harbour Commission (within their respective port areas), B.C. Lands (provincial crown lands), and FREMP (private lands). Prior agreements on designated uses for areas of the estuary (discussed further below), specific terms and conditions of use, and common application forms, enable the proponent to take requirements and expectations into account in preparing a proposal. Completed applications are forwarded to the FREMP office for referral to all agencies with regulatory authority. The office maintains a Referral Log, accessible by computer, which enables agencies and the public to monitor applications, and written comments may be submitted during the response period including a request to meet with the Environmental Review Committee (ERC). This committee, consisting of representatives of Environment Canada, Fisheries and Oceans and the B.C. Ministry of Environment, Lands and Parks, reviews all the environmental referral responses and public comments and provides a coordinated environmental response. All responses and comments are returned to the Lead Agency which then issues a Decision Statement reflecting all the inputs and FREMP's environmental, economic and social objectives. Relevant leases, permits or approval documents may accompany the decision or remain to be obtained. Anyone may submit a written request for review of the decisions of the ERC or Lead Agency (see discussion below of conflict resolution process).

The progressive refinement of the overall mechanism has made the project review process increasingly predictable, effective and efficient. In 1991, the average time from signature of the application to issuance of the Decision Statement was 80 days. A high proportion of applications are approved because proposals that would not be acceptable are not likely to come forward. Growing experience and trust are leading to the development of criteria which permit Lead Agencies to make decisions without referral and to directly record their decision with the FREMP office. Likewise, criteria are being refined for determining when a project raises issues that merit more intensive examination through a task force or should be directed into a formal project review process of the federal or provincial governments.

## Area designation

The other major FREMP tool is Area Designation which began during FRES II when a map was produced designating the foreshore by 85 management units. It was based on available information and judgements about best use, considering natural attributes and suitability for human activities. It was developed by a task force of 15 agencies and was reviewed by another 13 non-government agencies and 9 local governments. Through a series of extended meetings, consensus was reached on 60 of the 85 units. Categories included conservation, recreation/park, log storage, small craft moorage, industrial port/terminal. The remaining 25 units were put into an "Undetermined Use" category. Although the map had no formal status it began to be widely used by management agencies and developers.

Review and refinement of these designations has been ongoing under FREMP and has included four significant adaptations:

1. A statement of intent is signed by the parties at interest so as to secure more formal commitment to the designations and reduce uncertainty. While this is not a legal contract it gives the agreements much more substance.
2. Multiple use designations are considered to reduce conflicts associated with the initial single use designations. By designating one use as primary and another as secondary (e.g., log booming is permitted in the foreshore waters as long as it does not interfere with the conservation designation of the shoreline), it is considerably easier to reach consensus.
3. By implementing the process separately with each municipality, the process is eased by having fewer parties directly involved. The process has been chaired by the FREMP Coordinator and involves intensive meetings and review of draft agreements by other interested agencies and the public.

4. The addition of a process for reviewing designations when requested by agencies has made them more willing to make commitments. Agreement has been further eased by adjusting management unit boundaries, some revision of categories, the improving information base as a result of other activities, and the growing experience and familiarity of those involved.

The 1994 Plan indicates that Burnaby and Richmond have Area Designation Agreements in place and other municipalities are working on them. Generally the area designation map is based on current uses and is not a long range plan *per se*. However, there are believed to be good possibilities for resultant foreshore uses to be compatible with and influential on upland zoning and official community plan designations. For example, Surrey has incorporated the designations into its Official Community Plan (OCP) thus making the designations meaningful above the high water mark and putting them into the regular cycle of update and review of their OCP. The Area Designation Agreements are still considered useful but are being developed more slowly because of the heavy time demands they place on contributing agencies.

### Conflict resolution

A fourth key management tool is the Conflict Resolution Process laid out in the 1994 Plan. Drawing on principles of consensus based decision making, reflecting those recommended by the B.C. Round Table on the Environment and the Economy, a voluntary process is provided for seeking resolution of conflicts arising in management. The process provides for FREMP to convene the interested parties, including non-governmental interests where this is judged appropriate; provide for a mediator if necessary; and engage in identifying issues and options for meeting interests within the goals and guiding principles of the Estuary Management Plan. If the parties cannot reach consensus then the Management Committee prepares a report on the deliberations, which is forwarded to the agencies with the jurisdiction and authority to make a decision and, if required, the decision will ultimately be made through the political or judicial system.

### Funding and resources

Under the FREMP agreements funding commitments increased from \$250 000 each year for FREMP I to \$600 000 each year for FREMP II. While these funds support the direct activities of the FREMP secretariat, it is important to recognize that the vast majority of the funding and resources that are devoted to estuary management are provided directly through the programs of the wide variety of governmental and non-governmental organizations that are active in the estuary. Nobody knows how much this adds up to because such accounting is never done but, without a doubt, the FREMP funds are less than 1% of the total capital and operating expenditures related to estuary management.

## LESSONS AND FUTURE OUTLOOK

Arguably, estuaries such as the Fraser present the greatest governance challenges on the planet in the intensity of settlement and development they attract, the diversity of interests involved, and the uncertainties surrounding interactions of their natural and human systems. Governing such highly complex systems is still more art than science and often only an infant art. Learning from the evolving approaches to governance in the Fraser River Estuary, building on strengths and remedying weaknesses, is crucial for meeting the challenges in prospect.

### Good fortune but....

Over the last two decades, good fortune has in many important ways made governance of the Fraser River Estuary relatively easy. At the time of the FRES I report it was recognized that despite the history and extent of development, in a broad sense, the supply of natural resources still considerably exceeded demands in the estuary. In particular, there were substantial areas of the estuary that had not yet been developed or committed. In addition, the enormous size of the flow through the mainstem of the river meant that it was remarkably forgiving of waste discharges and run-off from upstream and the growing metropolis. Over the intervening years, there fortunately has not been a spring freshet big enough to seriously threaten the settlements and developments behind the dykes. Nor have any of the seismic events been of a magnitude to have any significant impacts in the delta. Economic forces too

have been benevolent in facilitating the transition of major parts of the shoreline out of old port and industrial uses and into new residential and commercial developments. In addition, the availability of shoreland, development of new technology and expanding import and export demands, have enabled the ports to grow and flourish. At the same time, it has been possible to increase the number of parks and establish linear connections between green spaces. In many ways, the times have been good and time has so far been on the side of the evolving governance system.

But, at the same time, growth in population, settlement and development has been enormous and, despite what has been achieved by management efforts, the degrees of freedom for the governors have declined significantly. Information developed by the FRES and FREMP working groups and associated governance processes, shows the relentlessly increasing development pressures and the environmental, economic and social consequences, and implications of these in the region, delta and estuary (as discussed in detail in other chapters). For example:

- Since the FRES started in 1977, the population in the region has almost doubled and the extent and diversity of development has more than matched this rate of growth.
- Despite some gains from restrictions, such as on log storage, and successes in habitat restoration and banking, studies conducted in the estuary have developed a new understanding of the large amounts of wetlands lost from turn-of-the-century dyking and drainage and subsequent developments, and the threat of this to fish and waterfowl populations.
- While there have been years when salmon stocks seemed to be rebuilding towards historical abundance levels, the last few years of drastic declines in returns have brought home a realization of their vulnerability to the impacts of habitat loss, environmental change and overfishing.
- Even though the mainstem water quality conditions appear to be still relatively good and there have been some improvements, studies in the less well flushed tributaries, reveal the accumulation of contaminants and impacts of rural, urban and industrial discharges and run-off. They also show how atmospheric transportation, precipitation and drainage systems are moving contaminants into the estuary from activities throughout the region and even regions far away.
- Although there has not been a major flood since 1948, there is a growing appreciation of the risk to the increasing population and development behind the dykes; it is estimated that there is a 1 in 3 chance that the highest flow of record (1894) will be exceeded in the next 60 years.
- These risk factors have been further compounded by new understanding of the greater frequency and potentially large magnitude of earthquakes that could impact the delta.

Thus from today's perspective, while good fortune and a degree of ignorance have made estuary governance relatively easy during much of its first 20 years of evolution, it appears the years ahead are going to be a great deal more difficult now that the excess supply has been substantially reduced, and particularly with the prospects for some of the highest rates of growth in North America.

### Good collaboration but...

Over the last two decades there has been increasing collaboration among the many organizations involved in governance of the estuary. Through FRES and more recently FREMP there has been significant progress in building an orderly management system to replace what had previously been a largely *ad hoc* decision making process among more than a hundred organizations. The 1994 Estuary Management Plan reflects the progress in developing coordinated procedures for project review and area designation, management policies and guidelines, and standardized databases, and it lays out the next steps for their implementation and further development.

In addition, during the 1990s there have also been several other major collaborative governance initiatives that have begun to build a larger policy context and regional governance system to complement the specific focus of FREMP on the wet side of the estuarine dykes.

- In 1995, the Greater Vancouver Regional District completed its growth management planning process, with all the member municipalities agreeing to a Livable Region Strategy built around four key and interrelated strategies: protect the green zones, build more complete communities, achieve a more compact metropolitan region and increase transportation choice. Each of these strategies has been built into the 1994 Estuary Management Plan.
- In 1991, the Burrard Inlet Environmental Action Program (BIEAP) was initiated under a five-year agreement between the same federal, provincial and local government agencies as are involved in FREMP and with the Vancouver Port Corporation. While its mandate was not as broad as FREMP, the BIEAP was intended to protect and improve environmental quality in Burrard Inlet. Recognizing their similar and joint interests, the parties agreed in 1996 to begin a consolidation of the two programs.
- In 1991, as part of the federal government's Green Plan, the Fraser River Action Plan (FRAP) was announced as a \$100 million joint program of Environment Canada and Fisheries and Oceans. Focusing on the whole of the Fraser River Basin, the goal was to repair environmental damage and establish a management program for sustainable development of the Basin. FRAP's funds have contributed to activities advancing various components of the FREMP over the last five years.
- In 1992, the federal, provincial and local governments signed a five year agreement to establish the Fraser Basin Management Program (FBMP) and Board (FBMB). The FBMP was intended to coordinate the development of a management program for the whole Basin, building on the FREMP model but with greater and more diverse stakeholder involvement. Like FREMP, it is a collaborative with no authority of its own and its Board and a small secretariat are supported by contributions from three signatory governments (totalling approximately \$1.5M each year). In 1997, the Board was succeeded by the Fraser Basin Council, a non-profit society, consisting of 33 directors, which was launched by the governments with initial funding of \$950,000.
- Over the last few years the provincial government has begun the development of the Georgia Basin Initiative. Although not yet as well formulated and advanced as the other initiatives, it is designed to develop the collaborative processes that would address the growth management issues for sustainable development of the much larger Georgia-Basin and Puget Sound regions and ecosystems.

But, despite the progress that has been made in developing collaboration in and around the estuary, three major problems have continuously undermined the recognition of FREMP's progress and its credibility. Firstly, despite all the work that has been done and the very large number of reports that have been produced, there has continued to be great uncertainty about the environmental and economic state of the estuary. Many reports have been produced but many of them are highly technical and specific. Often results of the studies have been inconclusive, in part, reflecting the dynamism and variability inherent in natural and social systems, particularly those associated with estuaries. In general there has been much more information developed about the bio-physical than socio-economic systems in the estuary, and it has been more difficult to relate the socio-economic systems data to the estuary specifically. Integrative and summary reports have been relatively infrequent and the lack of specific targets and monitoring have not clearly demonstrated FREMP's achievements.

A second problem has been the general slowness in producing results. The one possible exception to this was FRES I, which was relatively productive during its short 18 month life. Since then progress has been more drawn out and there have been particularly slow periods between phases. The Review after FRES II, expressed people's demands for quicker action. The reports at the end of FREMP I and the Management Plan at the end of FREMP II, show the gradual progress in evolving the governance system and the products from the various working groups but at the same time reveal the slow advancement in key areas such as in developing a water quality management plan and completing negotiations with municipalities on Area Designation Agreements for their waterfront areas.

A third problem is the generally limited visibility of FREMP and associated lack of recognition of its achievements outside of the organizations and individuals directly involved. Several factors have contributed to this problem including the fact that FREMP does not have high profile people associated with it, does not spend large amounts of

money, and does not have authority of its own. Further, major estuary management issues in the public eye, such as the sewage treatment plants, fishery and flood plain management, are largely outside of its areas of activity. The vast amount of its work has been done behind the scenes and involved relatively few stakeholders. In the earlier years, the initiative did not make the efforts at communication and education that it has done in more recent times. Unfortunately the task of developing a clearer understanding of the role and achievements of FREMP has become a great deal more difficult in the 1990s by the confusing proliferation of many new initiatives (Livable Region, FRAP, BIEAP, FBMP, Georgia Basin Initiative).

### Good governance but...

When compared with other estuarine governance systems operating around the world, the evolving system in the Fraser has received high marks, as illustrated by a review of experience in OECD countries (Dorcey, 1993). Further, the general model piloted in the Fraser is influencing approaches in not only other parts of British Columbia but also other parts of the world, such as the Brisbane River Estuary in Queensland. It is important to appreciate how difficult estuary governance is and that the FREMP's performance needs to be compared with what has been achieved in practice elsewhere and not just theoretical ideals. For those who are close to the Fraser and understandably preoccupied with immediate concerns, there is a tendency to lose sight of the achievements over the last two decades and this broader perspective. The governance model adopted after FRES I has been progressively developed and implemented through the design and refinement of innovative procedures for coordinated decision making on project reviews and area designations. Gradual progress has been made from the general statement of goals towards more specific objectives and targets with agreements on policies and guidelines. There is a great deal more information readily available today about the bio-physical and socio-economic systems of the Fraser River Estuary than was the case when FRES was getting started in 1977.

But, without taking anything away from what has been achieved, there must be questions about how well the evolving governance system is equipped for the challenges in prospect with increasing and diversifying demands on the estuarine resources. The debilitating weaknesses of uncertainty about the state of the estuary, slow delivery and lack of recognition of FREMP will continue unless their fundamental causes are mitigated. Further, there is a sense that the challenges of estuarine governance are increasing faster than the capabilities to deal with them. Difficulties that the evolving governance system has encountered throughout the last two decades are likely to get worse. Chief among these are two that will exasperate each other: decreasing governmental funding and resources, and increasing needs for collaboration among all interests in sustainability.

To meet these challenges the governance system will have to evolve in some significantly different ways beyond what has been built so far (Dorcey, 1991). The key requirement is much greater involvement of non-governmental stakeholders so as to build understanding and commitment and through partnerships generate new management resources not only for what is done by FREMP but by all the associated initiatives in the estuary, delta and region. This implies an accelerated shift away from the conservative attitudes on public involvement that have predominated in FREMP, towards much greater emphasis on catalysing and facilitating the involvement of non-governmental stakeholders, as has begun to happen in many other initiatives in British Columbia in recent years, such as those associated with land use planning processes, watershed round tables and stewardship initiatives (Dorcey, 1997). This can be done in ways such that governmental agencies continue to retain their ultimate decision making authority but move towards sharing the responsibilities for management and stewardship in the estuary. Specifically, consideration needs to be given to the ways in which non-governmental stakeholders might become direct participants in the various committees and working groups of FREMP.

Nobody would claim that such new ways of doing business will be easy (Dorcey, 1991, 1997). Most would admit that the various experiments with greater involvement of non-governmental stakeholders have had mixed success so far as people struggle to learn how these new forms of governance can be made to work productively. Just as has been the experience of the governmental organizations that have been part of the FRES and FREMP experiments to date, it will take time to build the understanding and trust that is essential to a productive relationship. But increasingly, people are recognizing that there is no alternative than to begin working together in new multistakeholder processes because governments cannot do it alone. In the making is a transformation of what has been the dominant Canadian model of governance. Interestingly, it begins to look a lot like the collaborative estuarine governance model that was proposed and rejected at the end of FRES I!

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## REFERENCES

\*Except where otherwise noted, the chapter is based on two basic sources which contain more detailed analysis and references: (Dorcey, 1993) and (Fraser River Estuary Management Program, 1994). Current and extensive information on the key programs that are mentioned in the chapter can be found on the World Wide Web:

Burrard Inlet Environmental Action Program

<http://www.bieapfrempp.org>

Fraser Basin Management Board and Program

<http://www.fraserbasin.bc.ca>

Fraser River Action Plan - Environment Canada & Fisheries and Oceans Canada

<http://www.rem.sfu.ca/FRAP/fotf.pdf>

<http://www.rem.sfu.ca/FRAP/bibl.pdf>

Fraser River Estuary Management Program

<http://www.bieapfrempp.org>

Livable Region Strategic Plan - Greater Vancouver Regional District

[http://www.gvrd.bc.ca/services/growth/lrsp/lrsp\\_toc.html](http://www.gvrd.bc.ca/services/growth/lrsp/lrsp_toc.html)

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## Appendix II.

# B.C. minister attacks closure of office that helps protect Fraser River estuary and Burrard Inlet

Peter O'Neil, Vancouver Sun 03.04.2013



Port Metro Vancouver is temporarily taking over reviews of economic development proposals in the Fraser River Estuary and Burrard Inlet. A Burnaby-based office that previously did the work is closing after losing about \$150,000 in federal funding.

Jason Payne / Vancouver Sun

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OTTAWA — B.C. Environment Minister Terry Lake criticized the federal government Monday over the imminent closure of an office that co-ordinates governmental protection of the Lower Mainland's two most significant aquatic ecosystems, the Fraser River estuary and Burrard Inlet.

The multi-government office, a self-described "pioneer" in intergovernmental co-operation that will close at the end of the month, was set up in 1985 and reviewed 153 development projects in 2011.

Lake said the closure, along with recent federal decisions such as the closure of west coast Canadian Coast Guard facilities like the Kitsilano search-and-rescue station, send the wrong message to British Columbians.

Three federal departments cut roughly \$150,000 from the Burnaby-based office last year, forcing the closure of the \$350,000-a-year operation that was also funded by the B.C. government, Metro Vancouver and Port Metro Vancouver.

Lake complained that Ottawa didn't give him advance warning or allow time for the various levels of government to replace an entity that reviews economic development proposals in the Fraser River Estuary and Burrard Inlet.

"It's a worrisome trend, and I would like to have that conversation with our federal counterparts because I think it sends the wrong message if we don't have a new plan in place that assures British Columbians that ... development around our marine environment is done in a responsible way," Lake told The Vancouver Sun.

"People in British Columbia need to see you stepping up oversight of marine traffic and marine development rather than reduce resources."

A spokesman for federal Transport Minister Denis Lebel, asked to comment on Friday about the closure, suggested the decision was made collectively.

"This program is run by multiple partners, including the government of British Columbia and Port Metro Vancouver," Mike Winterburn said in an email.

"These partners determined, after a review, that it could not proceed in its current form. Work on a new framework is ongoing, which the federal government will continue to support."

One critic said Friday that the decision, which will put Port Metro Vancouver in charge of environmental approvals on an interim basis, represents the latest step by the Harper government to degrade environmental protection.

"It's again putting the wolf in charge of the sheep (by putting) the developer in charge of the environment," former federal fisheries biologist Otto Langer said in an email. "This is a certain guarantee to allow more habitat destruction."

Carrie Brown, Port Metro Vancouver's manager of environmental programs, indicated the decision was prompted by federal budget cuts and said the port is only temporarily taking over the work while governments figure out a new approach to it.

The Fraser River Estuary Management Program (FREMP) was established in 1985, and the Burrard Inlet Environmental Action Program (BIEAP) in 1991, in order to limit inter-governmental squabbling over shoreline development proposals.

Since 1996, the two have been jointly administered from a Burnaby office on behalf of its "partner organizations" — the B.C. Environment Ministry, Metro Vancouver, Environment Canada, Fisheries and Oceans Canada, Transport Canada, and Port Metro Vancouver.

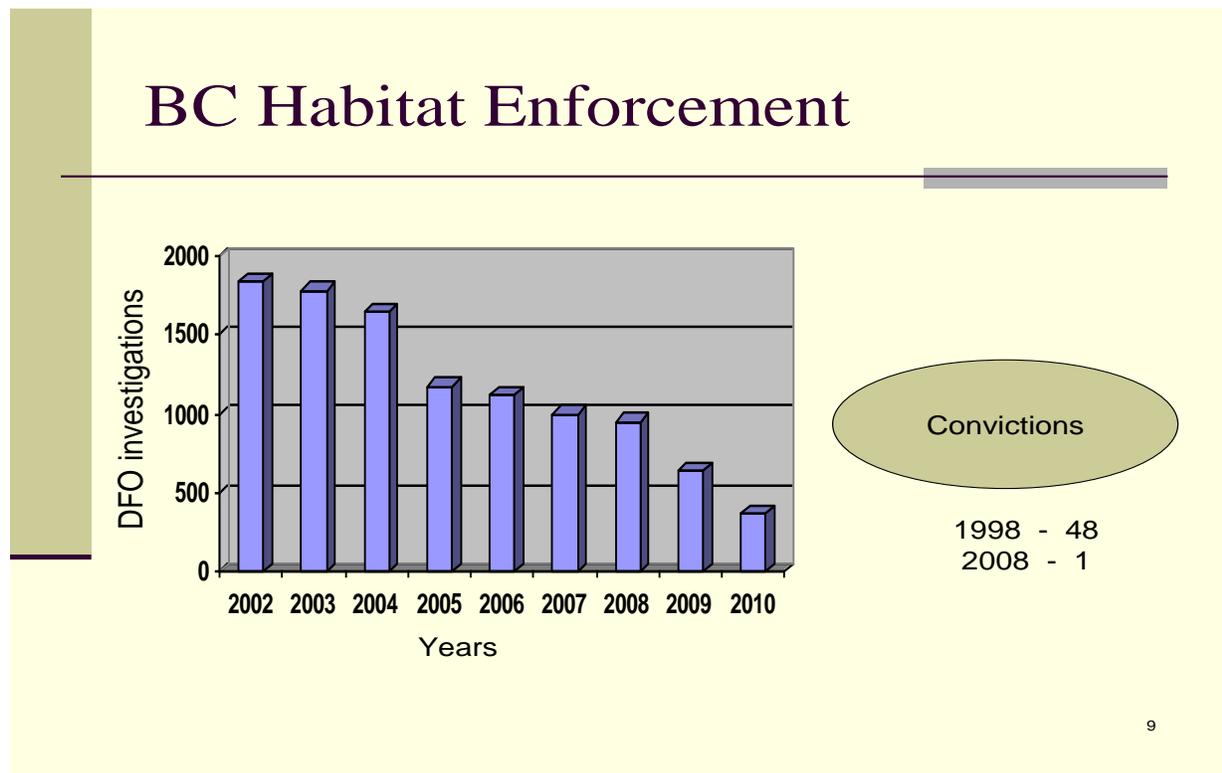
The office was praised as a model for intergovernmental co-ordination in a 1993 University of B.C. paper published by the Paris-based Organization for Economic Cooperation and Development.

Its objective was to improve water and sediment quality, protect fish and wildlife habitat, and promote ecological health in areas facing significant economic development.

Langer said Friday that the closure, and Port Metro Vancouver's new role in handling development reviews, is part of the Harper government's legislative and budgetary measures to weaken environmental protection.

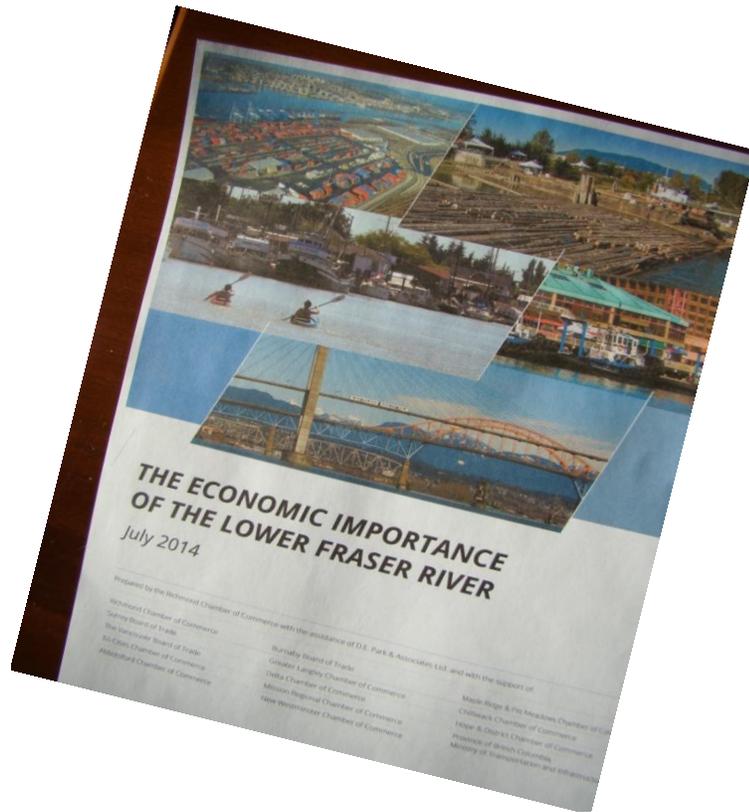
Port Metro Vancouver came under fire recently from Voters Taking Action on Climate Change, which accused the port of misrepresenting public opposition to the expansion of North Vancouver's Neptune coal terminal.

## Appendix III.



Record of habitat enforcement of DFO in B.C. during the 2002 to 2010 period. The steady decline reached zero prosecutions actions in 2015. In Pacific Region the political will, direction and resources to do the job diminished greatly after about 2000. The key habitat legislation was neutered in 2012- 2013 by the federal government. As of mid 2019 an active enforcement program has not been restored. Statistics supplied by DFO to the Cohen Commission 2012.

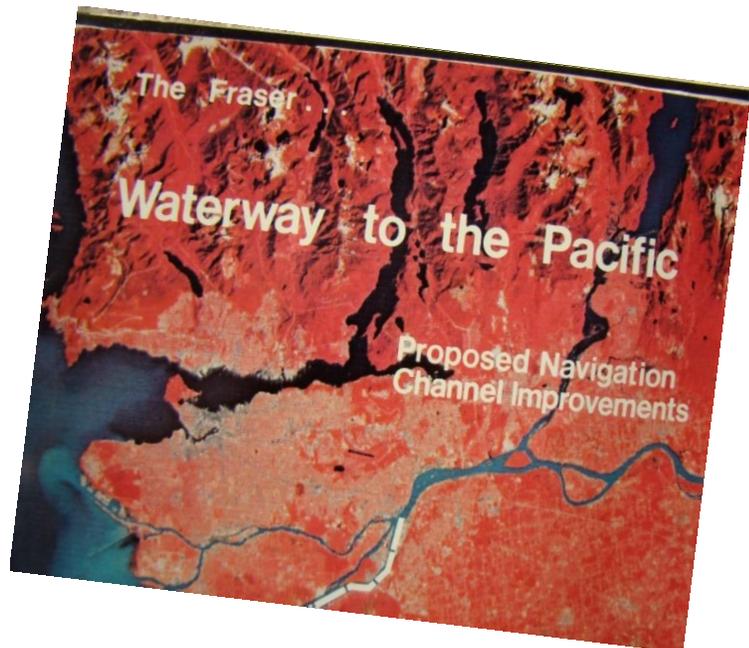
## Appendix IV



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This 2014 paper by Metro Vancouver Chamber of Commerce members promotes the need to dredge and develop industry in the Lower Fraser River. The need to address environmental needs with economic growth or the need for a new FREMP is not addressed.

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The 1972 *Waterway to the Pacific* paper promoting channelizing the Fraser River is similar to the agenda found in the above 2014 paper. The economic agenda to make the estuary into a port complex has changed little over the past 42 years. Improvements for estuary protection occurred in the 1975 to 2000 period but great setbacks took place in 2012-2013 (e.g. FREMP dissolution, neutering of the Fisheries Act).