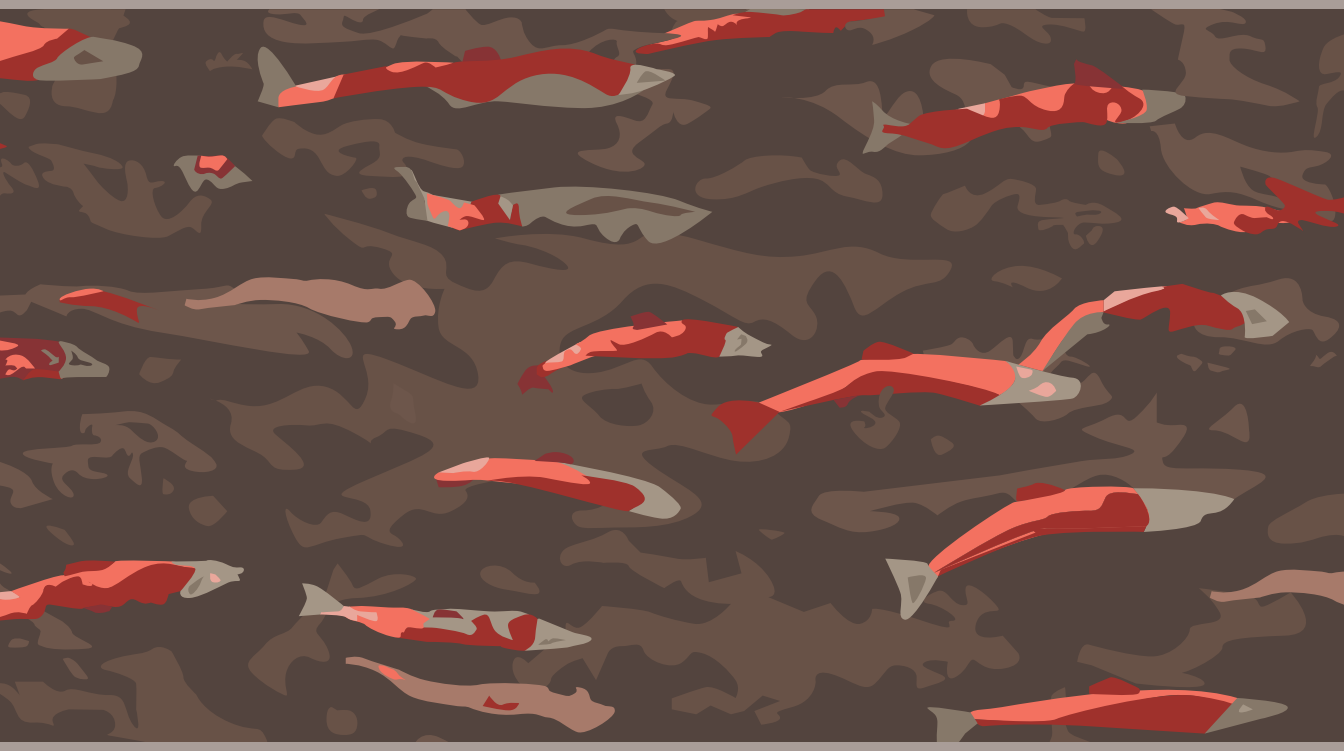
Commission of Inquiry
into the Decline of
Sockeye Salmon in the Fraser River

Commission d'enquête
sur le déclin des populations
de saumon rouge du fleuve Fraser

Fraser River Sockeye Salmon: Past Declines. Future Sustainability?

Interim Report

October 2010



The Honourable Bruce I. Cohen
Commissioner

Commission of Inquiry
into the Decline of
Sockeye Salmon in the Fraser River

Commission d'enquête
sur le déclin des populations
de saumon rouge du fleuve Fraser

Vancouver, B.C. V6B 4N7

October 29, 2010

To His Excellency
The Governor General in Council

May it please Your Excellency:

As Commissioner appointed by Order in Council PC 2009-1860, which was promulgated on November 5, 2009, pursuant to Part I of the *Inquiries Act*, and in accordance with the Terms of Reference assigned therein, I respectfully submit this interim report. It sets out my preliminary views on and assessment of previous examinations, investigations, and reports relevant to the commission and the Government's responses to those examinations, investigations, and reports respecting the decline of sockeye salmon in the Fraser River.

The Honourable Bruce I. Cohen
Commissioner

Suite 2800, PO Box 11530, 650 West Georgia Street, Vancouver, BC V6B 4N7
Tel: 604 658 3600 Toll-free Tel: 1 877 658 2808
Fax: 604 658 3644 Toll-free Fax: 1 877 658 2809
www.cohencommission.ca

COHEN COMMISSION OF INQUIRY
into the Decline of Sockeye Salmon in the Fraser River


YUKON TERRITORY
NORTHWEST TERRITORIES
BRITISH
COLUMBIA
ALBERTA
ALASKA
PACIFIC
OCEAN
Fort St. James
Burns Lake
Fraser Lake
Vanderhoof
Prince George
McBride
Wells
Quesnel
Valemount
Williams Lake
100 Mile House
Clinton
Chase
Sicamous
Cache Creek
Salmon Arm
Lillooet
Ashcroft
Kamloops
Enderby
Logan Lake
Pemberton
Lytton
Lumby
Whistler
Merritt
Hope
Vancouver
Richmond
Chilliwack
Surrey
Abbotsford
Victoria
WASHINGTON
IDAHO
MONTANA
Fraser River Basin
Indian Reserve
Municipality
0 50 100 200 300
km

Commission of Inquiry
into the Decline of
Sockeye Salmon in the Fraser River

Commission d'enquête
sur le déclin des populations
de saumon rouge du fleuve Fraser

Fraser River Sockeye Salmon: Past Declines. Future Sustainability?

Interim Report

October 2010

The Honourable Bruce I. Cohen
Commissioner

Cat. no.: CP32-93/1-2010E-PDF
ISBN 978-1-100-16291-1 (PDF)

Also available in print.

Available on the commission's bilingual website, www.cohencommission.ca, along with transcripts, exhibits, and all reports prepared by or for the commission. Details of how members of the public may make submissions and how to contact the commission are posted on the website.

Also available electronically is a document compiled by the Department of Fisheries and Oceans, entitled "Recommendations Related to Fraser River Sockeye Salmon and Responses by the Government of Canada, 1982–2010," May 2010.

Library and Archives Canada Cataloguing in Publication

Commission of Inquiry into the Decline of Sockeye Salmon in the Fraser River (Canada)
Fraser River sockeye salmon : past declines. future sustainability? [electronic resource] : interim report / Bruce I. Cohen, commissioner.

Issued also in French under title: Le saumon rouge du fleuve Fraser, après le déclin, la viabilité ? rapport provisoire.

Electronic monograph in PDF format.
Issued also in printed form.
ISBN 978-1-100-16291-1
Cat. no.: CP32-93/1-2010E-PDF

1. Commission of Inquiry into the Decline of Sockeye Salmon in the Fraser River (Canada). 2. Sockeye salmon--British Columbia--Fraser River. 3. Sockeye salmon fisheries--British Columbia--Fraser River. 4. Salmon stock management--British Columbia--Fraser River. 5. Governmental investigations--Canada.
I. Cohen, Bruce I. II. Title.

SH349 C65 2010 597.5'5097113 C2010-980239-X

Contents

EXECUTIVE SUMMARY

Introduction

In 2009, the decline of sockeye salmon stocks in the Fraser River in British Columbia led to the closure of the fishery for the third consecutive year, despite favourable pre-season estimates of the number of sockeye salmon expected to return to the river. The 2009 return marked a steady decline that could be traced back for two decades.

In November 2009, the Governor General in Council appointed me as a Commissioner under Part I of the *Inquiries Act* to investigate this decline of sockeye salmon in the Fraser River. The Terms of Reference direct me

- "to consider the policies and practices of the Department of Fisheries and Oceans" (DFO) with respect to the Fraser River sockeye salmon fishery;
- "to investigate and make findings of fact regarding … the causes for the decline," the current state of stocks; and the long-term projections for those stocks; and
- "to develop recommendations for improving the future sustainability of the … fishery."

I am also directed to conduct the commission of inquiry without seeking to find fault on the part of any individual, community, or organization. The overall aim of this commission is to respect the conservation of the sockeye salmon stock and to encourage broad co-operation among the stakeholders.

Commission activities

The commission established an office in downtown Vancouver and retained administrative, legal, and scientific research staff. I received 50 applications for standing from the Government of British Columbia, the Pacific Salmon Commission, First Nations and other Aboriginal organizations, various commercial and recreational fishery interests, and environmental and conservation organizations, as well as from individuals. The Government of Canada has standing as of right. On April 14, 2010, I made 20 grants of standing for participation in the commission (later increased to 21), based on my finding that these participants had a substantial and direct interest in the matters to be investigated. Some of these grants were shared among applicants who originally applied for standing individually. In total, 53 individuals, groups, and organizations are included in these 21 grants of standing.

Fifteen of the original 20 participants applied for funding, in accordance with the terms and conditions approved by the federal Treasury Board. I made recommendations to the clerk of the privy council that 14 of those 15 participants receive funding, to ensure their appropriate participation. These 14 participants included 44 individuals, groups, and organizations. The Government of Canada accepted my recommendations.

Beginning in December 2009, commission counsel and the Department of Justice developed a process for the disclosure by Canada of documents relevant to the commission's mandate. They include more than 500,000 DFO "core" documents, DFO emails, and documents from other federal government departments. The commission is also pursuing disclosure of relevant documents from other participants, including the Province of British Columbia. Disclosed documents are stored digitally in Ringtail Legal, the automated document management program specified by the attorney general of Canada. Participants received Ringtail Legal licences and training, giving them full access to all disclosed documents.

In accordance with the commission's Rules for Procedure and Practice:

- Two participants have applied for production of specific documents related to fish health and aquaculture facilities from the governments of Canada and British Columbia and from the BC Salmon Farmers Association (another participant).
- I have made a ruling respecting my authority to make findings of misconduct.

During the summer and fall of 2010, I conducted public forums in 10 coastal and Fraser River communities along the Fraser sockeye salmon migratory route and visited sites in nine communities to provide me with context and information about various aspects of the fishery. Commencing on October 25, 2010, I am conducting evidentiary hearings regarding the issues that the commission is mandated to investigate.

The commission's bilingual website provides information about the commission's activities. It will include transcripts and exhibits of each day's proceedings during the

evidentiary hearings, as well as Policy and Practice Reports and Scientific Reports prepared by or for the commission. Members of the public may make submissions on any matter relevant to the commission's Terms of Reference and may comment on another person's submission. Submissions, and bilingual summaries of them, are posted on the website.

My final report, due in 2011, will include my findings of fact regarding the causes for the decline of the Fraser sockeye, as well as the current state of those stocks and the long-term projections for them. It will also contain my recommendations for improving the future sustainability of the Fraser sockeye fishery, including, as required, any changes to DFO's policies, practices, and procedures in relation to the management of that fishery.

Preliminary views and assessment

The Terms of Reference direct me to set out in my interim report my "preliminary views on, and assessment of, any previous examinations, investigations or reports" that I consider relevant to the commission. In addition, I am asked to comment on "the Government's responses to those examinations, investigations and reports."

Previous reports and government responses

Over the past three decades, there have been dozens of examinations, investigations, and reports into the Pacific fisheries, primarily focusing on DFO's management of the fishery and the department's legislative powers respecting harvesting, protection of habitat, protection of wild salmon stocks, and aquaculture.

In May 2010, DFO provided the commission with a document entitled "Recommendations Related to Fraser River Sockeye Salmon and Responses by the Government of Canada, 1982–2010." This document set out the recommendations contained in 25 reports prepared by or for the Government of Canada between 1982 and 2005, along with the federal government's initial responses.

In this interim report, I refer to 22 of those 25 reports. I have also considered reports from several other sources, including provincial auditors general, provincially appointed commissions, and reports commissioned by Aboriginal organizations and an environmental non-governmental organization. My principal interest was reports that are relevant to the Fraser sockeye fishery, but I also thought it important to review reports that deal more generally with various aspects of West Coast fisheries, such as DFO management, conservation, and habitat protection and the potential impact of open-pen salmon farms on wild salmon stocks.

In most cases I have limited myself to the government's initial response to these reports, and in this interim report I am presenting only what the government has said about its response to particular recommendations. Readers should not infer from this form of presentation that the commission has accepted or is endorsing such responses. The commission's evidentiary hearings will explore how DFO and other government departments have dealt with some of these issues since the recommendations and the initial responses were made.

The previous reports discussed in this interim report have resulted in more than 700 recommendations being made about the Pacific fishery. I have organized these recommendations into the following major categories: DFO organization and administration; habitat management, conservation, restoration, and enhancement; harvest management; harvesting; responsibility for salmon farms; enforcement; and research and identification of gaps in knowledge.

The number of previous reports and the number of recommendations contained within them is remarkable, as is the wide range of issues that were examined. Read as a whole, the previous reports touch on most major issues in fisheries management. Several themes emerged from these reports:

- the response to an immediate crisis;
- fleet reduction and intersectoral allocation (among Aboriginal, commercial, and recreational fishing);
- the Aboriginal role in fisheries;
- the effects of salmon farms;
- conservation and habitat protection; and
- consultative arrangements.

Some issues have been examined repeatedly. An enormous amount of time and money has been invested in arriving at the recommendations contained in these previous reports, yet the decline in Fraser sockeye stocks continued through 2009. This history of decline motivated the Government of Canada to investigate the causes for it – and to appoint me to conduct this commission of inquiry.

The commission benefited from its review of these previous reports and recommendations. The legal team identified approximately 20 broad topics in fisheries management, fish biology, and the ecosystem that warranted investigation. They, in turn, became an outline for the issues that the commission intends to investigate during its hearings. This review also served to inform the commission's scientific research program, directed by its in-house fisheries research consultant. The commission also sought and received valuable input from participants respecting the issues that the commission ought to investigate in its hearings and its scientific research program, as well as the relative priority of those issues.

When to make findings of fact and recommendations

Although I am mindful of the detailed research and cost associated with the production of these previous reports and recommendations, I have concluded that it would be premature and unwise to make findings of fact or recommendations based solely on these reports and recommendations, for several reasons:

- Notwithstanding the best efforts of DFO and other participants, the commission has not yet received complete disclosure of documents from DFO, other government departments, and the other participants.
- The commission's legal team is still conducting interviews of potential witnesses.
- Before I draw any conclusions respecting DFO's policies and practices, I should await the evidence that will flow from the evidentiary hearings investigating those matters.
- Similarly, I need to consider the results of the commission's contracted scientific research projects, which will not be available until early 2011.

Findings of fact and recommendations must await my consideration of the whole of the evidence emanating from the hearings, public forums, site visits, and public written submissions.

Issues the commission will investigate

In late July 2010, the commission finalized the 22 issues to be investigated during its processes, which are summarized as follows:

- Fraser sockeye life cycle
- Conservation perspectives
- Perspectives on Aboriginal law
- DFO's organizational structure
- The Pacific Salmon Commission
- Wild Salmon Policy (Part 1)
- Overview of DFO habitat management and conservation
- Harvest management
- Harvesting
- Enforcement (fisheries)
- Habitat enhancement and restoration
- Wild Salmon Policy (Part 2)
- Protection of sockeye biodiversity
- Watershed-based planning and marine coastal planning

- Enforcement (habitat)
- Effects on habitat in the Fraser River watershed
- Predation
- Diseases, viruses, bacteria, and parasites
- Salmon farms
- Effects on habitat in the marine environment
- Population dynamics
- Other fisheries models

Technical and scientific research projects

The commission finalized 12 technical and scientific research projects, which have been contracted out to respected external researchers. The topics are as follows:

Project 1	Diseases and parasites
Project 2	Effects of contaminants on Fraser River sockeye salmon
Project 3	Fraser River freshwater ecology and status of sockeye salmon Conservation Units
Project 4	Marine ecology
Project 5	Impacts of salmon farms on Fraser River sockeye salmon
Project 6	Data synthesis and cumulative impact analysis
Project 7	Fraser River sockeye fisheries and fisheries management
Project 8	Effects of predators on Fraser River sockeye salmon
Project 9	Effects of climate change on Fraser River sockeye salmon – literature compilation and analysis
Project 10	Fraser River sockeye production dynamics – data compilation, literature review, and reporting
Project 11	Fraser River sockeye salmon – status of DFO science and management
Project 12	Sockeye habitat analysis in the Lower Fraser River and the Strait of Georgia

Although the two-decade decline in Fraser sockeye stocks has been steady and profound, in 2010 Fraser sockeye are experiencing an extraordinary rebound, demonstrating their capacity to produce at historic levels. The reasons for this dramatic improvement are as yet unclear. This inter-year variability has important implications for the commission's work, in that previous years' declines must be understood and evaluated in the context of an unprecedented rebound in 2010.

How this commission is unique

Several significant circumstances distinguish the mandate of this commission of inquiry from that of previous reports. It is the first commission

- that has specifically been tasked to identify the causes for the decline of Fraser River sockeye salmon and to make recommendations for the fishery's future sustainability;
- that has been specifically directed to investigate the fish biology and ecosystem issues that may have caused or contributed to the decline, including a consideration of anthropogenic climate change;
- that has been mandated to undertake a comprehensive consideration of DFO's past and present policies, practices, and procedures.

It is the first commission in three decades to have been granted authority under Part 1 of the *Inquiries Act*, which authorizes me to summon witnesses to attend and give evidence under oath or affirmation and to produce documents relevant to the commission's mandate. This commission is also unique in the degree to which it has sought input from 21 formally recognized participants (representing 53 individuals, groups, and organizations) who represent governmental, Aboriginal, commercial fishing, sport fishing, industrial, and environmental non-governmental interests.

The legal landscape within which this commission operates has changed as well. This change will require a consideration of the Aboriginal right to fish under section 35 of the *Constitution Act, 1982*, and of the 2009 decision of the Supreme Court of British Columbia which struck down the provincial regulatory scheme with respect to finfish farming in this province. That decision has resulted in DFO taking over responsibility for the regulation of fish farms.

I must also take into consideration modern treaties, such as those that have been ratified under the 1992 British Columbia Treaty Commission Agreement. These agreements give First Nations specified food, social, and ceremonial allocations, as well as side agreements that provide for Aboriginal commercial fishing opportunities.

Improving the future sustainability of the Fraser River sockeye fishery

The Fraser sockeye is an iconic species of fish in Aboriginal and non-Aboriginal communities. It has been a resource at the centre of Aboriginal traditions in this province for millennia, as well as a critically important resource for the province's economy. The steady decline of this resource over several decades has put enormous pressure on the Aboriginal and non-Aboriginal communities that depend on it for their food, social, and ceremonial purposes; recreational pursuits; and livelihood needs. They want answers as to why there has been a steady decline in the Fraser sockeye stocks. They seek solutions for restoring the stocks to those levels of abundance where an ample supply of sockeye salmon served the needs of all the communities that relied heavily on it.

A common will to conserve sockeye

I believe there is a common will to do what is necessary to conserve Fraser sockeye stocks, and I am cautiously optimistic that, with the co-operation of the participants, recommendations will be made to satisfy our mandate of improving the future sustainability of the fishery. In saying so, I am under no illusions about the challenge that lies ahead for the commission, the controversial nature of some of the issues that must be investigated, and the long history of recommendations and responses that have been made.

If there is reason to be optimistic, it is in the willingness of all those I have come into contact with to find a way to participate in as meaningful and helpful a manner as possible. I have been well served by the commission's staff of legal and science professionals, as well as by those who have agreed to provide their services to the commission as consultants or advisers. I am also fortunate in having a dedicated staff of administrators who toiled long hours to get the commission in operation as quickly and efficiently as possible, in order to meet the tight schedule under which it is working.

From commission staff to participants to other interested citizens, we all share the common goal of doing our very best to identify the causes for the decline in numbers of Fraser River sockeye salmon and to make meaningful recommendations for the fishery's future sustainability.

PART ONE

Commission activities

Establishment of the commission

In November 2009, the Governor General in Council issued Order in Council 2009-1860 establishing this Commission of Inquiry and appointing me as sole Commissioner under Part 1 of the *Inquiries Act*,[1] to inquire into the decline of sockeye salmon in the Fraser River.

The same Order in Council set the commission's Terms of Reference. The Order in Council with complete Terms of Reference appears as Appendix 1 at the end of this report. In brief, the Terms of Reference direct me:

(A) to conduct the Inquiry without seeking to find fault on the part of any individual, community or organization, and with the overall aim of respecting conservation of the sockeye salmon stock and encouraging broad cooperation among stakeholders,

(B) to consider the policies and practices of the Department of Fisheries and Oceans (the "Department")[2] with respect to the sockeye salmon fishery in the Fraser River – including the Department's scientific advice, its fisheries policies and programs, its risk management strategies, its allocation of Departmental resources and its fisheries management practices and procedures, including monitoring, counting of stocks, forecasting and enforcement,

1 RS 1985, c. I-11.

2 In this report, the acronym DFO will be used to denote the Department of Fisheries and Oceans.

(C) to investigate and make independent findings of fact regarding

(I) the causes for the decline of Fraser River sockeye salmon including, but not limited to, the impact of environmental changes along the Fraser River, marine environmental conditions, aquaculture, predators, diseases, water temperature and other factors that may have affected the ability of sockeye salmon to reach traditional spawning grounds or reach the ocean, and

(II) the current state of Fraser River sockeye salmon stocks and the long term projections for those stocks, and

(D) to develop recommendations for improving the future sustainability of the sockeye salmon fishery in the Fraser River including, as required, any changes to the policies, practices and procedures of the Department in relation to the management of the Fraser River sockeye salmon fishery, …

As discussed later in this report, there have been several dozen examinations, investigations, and reports on various aspects of the Pacific fishery during the past three decades. Many of these studies were limited in scope to a specific aspect of the fishery, such as habitat or salmon farms, or to a specific year's return. Although this commission focuses only on Fraser River sockeye salmon, its mandate is broader than previous examinations. It calls for a consideration of all aspects of the Department of Fisheries and Oceans' (DFO's) past and present policies and practices in relation to the management of the Fraser River sockeye salmon fishery and an investigation – not limited to any one year's return – of the fish biology, ecosystem, and other causes for its decline. It is also the first commission of inquiry dealing with the Fraser sockeye fishery that has been established under the authority of the *Inquiries Act* since the 1982 Pearse Commission on Pacific Fisheries Policy.

Administration and organization

Before describing the details surrounding the commencement of our process, I wish to express my sincere appreciation to those former commissioners of public inquiries who so graciously and unstintingly accepted my request for information and assistance based on their wealth of experience in setting up a commission of inquiry. I extend my gratitude to Justices Dennis O'Connor, Stephen Goudge, Denise Bellamy, and Jeffrey Oliphant. For their time and assistance, I am also grateful to Dr. Harry Swain of the Centre for Global Studies; and Glenn Sigurdson Q.C. and the Honourable Barry Stuart, facilitators of the Integrated Salmon Dialogue Forum. In addition, I am appreciative of the time spent

by authors of previous reports related to my mandate for giving me their time to discuss their processes, notably Dr. Peter Pearse, the Honourable John A. Fraser, and the Honourable Bryan Williams.

I also wish to note my reliance on the recent publication by Ed Ratushny,[3] professor emeritus of the Faculty of Law, University of Ottawa. Dr. Ratushny's book *The Conduct of Public Inquiries* proved most valuable at the initial stages of setting up this commission and has provided a wealth of information for researching many of the points that have arisen since the commencement of our process.

Finally, I wish to express the deep appreciation of the commission to the Federal Court of Canada, whose staff in Vancouver accommodated our requests to use the excellent courtroom facility and provided constant co-operation, hospitality, and kindness during the conduct of our hearings.

Office premises and commission staff

The Department of Public Works and Government Services Canada secured office space for the commission in downtown Vancouver and facilitated office improvements and the required security enhancements for the premises. Furniture and equipment were purchased and installed. The commission's office, at 650 West Georgia Street, is within one block of the Federal Court, where I anticipate conducting our evidentiary hearings.

For a complete listing of commission staff, see Appendix 2.

Website

The commission's bilingual website provides detailed information about the commission's activities; in addition, my rulings and the rules of procedure the commission has adopted are reproduced there. It will include transcripts and exhibits of each day's proceedings during the evidentiary hearings, and Policy and Practice Reports and Scientific Reports prepared by or for the commission will be posted there.

Members of the public are invited to make submissions on any matter relevant to the commission's Terms of Reference. After the submissions are reviewed for relevance and appropriateness, bilingual summaries, along with the submissions themselves, are posted on the commission's website.

3 Ed Ratushny, *The Conduct of Public Inquiries: Law, Policy, and Practice* (Toronto: Irwin Law, 2009).

Participants

Applications for standing

The Terms of Reference authorize me to grant an opportunity for appropriate participation in the commission to all persons who satisfy me that they have a substantial and direct interest in its subject matter.

Formal involvement in the commission's evidentiary hearings is restricted to participants. Participants are entitled to represent themselves or to be represented by counsel at the hearings; to propose witnesses to be called by commission counsel; to review documents disclosed by DFO and other participants; and to make oral and written submissions. They may also, as determined by the Commissioner, examine or cross-examine witnesses. Participants are required to notify the commission of documents in their possession relevant to the subject matter under study and, if requested to do so, to provide copies to the commission.

The commission adopted Rules for Standing and Funding (see Appendix 3), establishing the process the commission would follow in considering applications for standing. The rules provided in part:

- [T]he Government of Canada ... [has] standing throughout the inquiry.
- Commission counsel have the primary responsibility for representing the public interest, including the responsibility to ensure that all matters that bear upon the public interest are brought to the Commissioner's attention.
- The Commissioner may grant a person standing if he is satisfied that the person has a substantial and direct interest in the matters investigated in the inquiry or portions thereof.
- [P]ersons with standing are referred to as "participants."
- The Commissioner retains the discretion to vary a participant's participation or rescind standing.

A Notice for Standing and Funding published on the commission's website identified what would be considered in determining whether an applicant has a "substantial and direct interest" in the subject matter of the commission:

- the nature and extent of the applicant's rights or interest;
- why standing is necessary to protect or advance the applicant's rights or interest;
- whether the applicant faces the possibility of adverse comment or criticism with respect to its conduct;
- how the applicant intends to participate, and how this approach will assist the commission in fulfilling its mandate;

- whether and how the applicant's participation will contribute to the thoroughness and fairness of hearings;
- whether the applicant has expertise and experience relevant to the commission's work;
- whether and to what extent the applicant's perspective or interest overlaps or duplicates other applicants'; and
- whether the applicant may participate in another capacity – for example, a research body which may be otherwise consulted by the commission, or a witness who may testify – instead of being granted formal standing.

The Notice also made clear to applicants:

> Where applicants have shared interests or a similar perspective in the subject matter of the inquiry, they should make a single application for standing, identifying those persons whose interests are reflected in the application. The Commissioner may make a grant of standing conditional upon such cooperation.

The commission received 50 applications for standing from the Province of British Columbia, the Pacific Salmon Commission, First Nations and other Aboriginal organizations, various commercial and recreational fishery interests, environmental and conservation organizations, and individuals. This number is significantly greater than for other federal commissions of inquiry. Under the commission's Rules for Standing and Funding, the Government of Canada was granted standing without having to apply.

The commission convened hearings on March 23 and 26, 2010, for certain applicants to supplement their written applications with oral submissions concerning their interests, and/or to state their positions on whether and how they may be able to collaborate with other applicants before the commission. In many cases, applicants for standing were able to reach agreements to collaborate with one another.

In a written ruling dated April 14, 2010 (see Appendix 4), I made 20 grants of standing for participation in the commission and set out my reasons for doing so. Many of these grants of standing are shared among applicants who originally applied individually. In total, 53 individuals, groups, and organizations are included in these 20 grants of standing.

I subsequently made the following rulings on applications to vary the standing ruling:

- On May 10, 2010, I ordered that the Heiltsuk Tribal Council may participate by separate counsel specifically for the evidentiary hearings pertaining to aquaculture, but that otherwise it remain part of the same standing group (see Appendix 5).
- On May 11, 2010, I allowed the application brought by the Snuneymuxw, Tsartlip, and Tsawout First Nations (collectively the Douglas Treaty First

Nations) that they be placed in the same participant group as, and share a single grant of standing with, the First Nations Coalition instead of the Western Central Coast Salish (see Appendix 6).
- On August 17, 2010, I allowed an application to sever the Heiltsuk Tribal Council from the standing group of which it was formerly a member, owing to conflicts within the group. The result is that the Heiltsuk Tribal Council receives individual standing as a participant (see Appendix 7).

The complete list of participants granted standing is included as Appendix 8.

Applications for funding

The Terms of Reference also authorize me to recommend to the clerk of the privy council that funding be provided, in accordance with terms and conditions approved by the Treasury Board, to ensure the appropriate participation of any person granted standing at the commission – to the extent of the person's interest – if I am of the view that the person will not otherwise be able to participate in the commission. The terms and conditions approved by the Treasury Board state:

> Eligible expenditures are restricted solely to legal costs, including disbursements and inter-city travel expenses incurred by counsel, subject to the maximum aggregate number of hours recommended by the Commissioner and approved by the Clerk of the Privy Council, and the limits set out herein. Any other types of costs incurred by a Recipient are excluded.

According to the commission's Rules for Standing and Funding, applications for a funding recommendation had to be supported by an affidavit setting out

> (a) facts that demonstrate the person seeking funding does not have sufficient financial resources to participate in the work of the commission without financial assistance for legal counsel, and
> (b) facts in relation to any other sources of funds received, expected or sought by the person in relation to legal services rendered, or to be rendered, with respect to the inquiry.

Initially, many applicants for standing also applied for funding. After the Standing Ruling was released, commission counsel sought revised funding applications from nearly all the applicants for funding. In some cases, the commission required new applications because the Standing Ruling directed participants to share grants of standing, changing the footing on which the initial funding applications had been made. In other cases, I required additional information in order to make a recommendation, because the original funding applications and supporting affidavits failed to provide sufficient detail to permit me to assess the application thoroughly.

Funding recommendations to the clerk of the privy council

In preparing funding recommendations, I bore in mind several considerations:

- The hours I set out in the recommendations were the product of an assessment of the appropriate participation of each participant to the extent of that participant's interest as described in the Standing Ruling.
- The commission's approach was to look to junior counsel for much of the preparation work but to increase the proportion of funding for attendance at hearings by senior counsel. The commission allotted 80 percent of the recommended time for an applicant to preparation (60 percent to junior counsel and 20 percent to senior counsel), and 20 percent of the recommended time to attendance at hearings (7 percent to junior counsel and 13 percent to senior counsel). Preparation time was further subdivided and allotted to different activities.
- These funding recommendations reflected the overriding premise for a commission of inquiry – that commission counsel have the primary responsibility for representing the public interest, including ensuring that all matters that bear on the public interest are brought to my attention. Commission counsel are primarily responsible for document review, and they are responsible for organizing and leading all the evidence at evidentiary hearings. The aim is to provide adequate funding for participants to access documents, but in a context where commission counsel have identified for them, in advance, the key documents and intended hearing exhibits.
- It is unnecessary for all participants' counsel to attend all the commission's hearing days. Rather, participants' counsel are expected to attend only those hearing days on which their clients' interest, as set out in the Standing Ruling, is directly engaged. Transcripts will be made available after each hearing day, permitting an efficient means of monitoring the proceedings.

On May 12, 2010, I made recommendations (as amended on May 19, 2010) to the clerk of the privy council that funding be provided, in accordance with terms and conditions approved by the Treasury Board, to ensure the appropriate participation of some of those granted standing at the commission. A summary of those recommendations, which excludes the content of detailed affidavit evidence received by the commission (because of the confidentiality attaching to the financial information of the applicants), is included as Appendix 9. Fifteen of the 20 participants who had received grants of standing applied for funding. I recommended that 14 of these 15 participants should receive funding. These 14 participants included 44 individuals, groups, and organizations.

Government of Canada's decision respecting funding

On June 9, 2010, the clerk of the privy council advised the commission that the proposed funding had been granted as I had recommended, in accordance with the terms and conditions of the Treasury Board Contribution Program, to a maximum limit of $3,423,200. I notified all participants accordingly.

Rules for Procedure and Practice

The Commission has adopted Rules for Procedure and Practice, which are included as Appendix 10. The matters addressed in the rules include the following:

- Commission counsel have the primary responsibility for representing the public interest, including the responsibility to ensure that all matters that bear upon the public interest are brought to my attention.
- A participant must identify to the commission documents in its possession or under its control relevant to the subject matter of the inquiry and, if requested to do so, provide copies of any such documents to the commission.
- Commission counsel may prepare reports setting out information derived from their review of previous examinations, investigations, and reports or identifying DFO's policies and practices with regard to the Fraser sockeye fishery (Policy and Practice Reports). These reports will be filed as exhibits and posted on the commission's website after participants have had an opportunity to comment on them. The reports are intended to inform my deliberations, and I may consider them in making findings of fact and recommendations.
- The commission may engage experts to conduct scientific and other reviews into the decline of Fraser sockeye and to prepare reports setting out their opinions (Scientific Reports). These reports will be filed as exhibits and posted on the commission's website. The reports are intended to inform my deliberations, and I may consider them in making findings of fact and recommendations.
- Hearings will be open to the public and may be video and audio recorded, unless I rule to the contrary. In the normal course, commission counsel will call and lead witnesses, who will give evidence under oath or affirmation and who will be subject to cross-examination. Participants may propose witnesses to be called by commission counsel. I may permit a witness to give evidence as a member of a panel of witnesses. Commission counsel plan to introduce the evidence of some witnesses by filing formal summaries of their expected testimony based on interviews, as provided for in Rule 22.

Disclosure of documents

Beginning in December 2009, commission counsel and the Department of Justice developed a process for the disclosure by Canada of documents relevant to the commission's mandate. Relevant documents are being disclosed to the commission in digital format according to the following priority – DFO "core" documents, DFO emails, and, finally, documents from other government departments. According to the Terms of Reference, the commission is required to use Ringtail Legal, the automated document management program specified by the Attorney General of Canada.

Given the commission's broad mandate, disclosure and review of documents are massive endeavours. As of early September 2010, DFO had produced approximately 75,000 core documents to the commission. I acknowledge, with appreciation, the exceptional resources that DFO and the Department of Justice have committed to this daunting task. The documents produced to date in fact constitute only a fraction of the total volume of documents that the federal government anticipates reviewing and potentially producing. The total number of documents to be reviewed is estimated to be

- DFO core documents (other than emails) – 75,000;
- DFO emails going back five years – 400,000; and
- documents from other government departments – 35,000.

Since April 2010, commission staff have been reviewing the Ringtail Legal document management database to identify important documents that shed light on DFO's policies and practices involving the Fraser sockeye fishery and to identify departmental employees who may be called as witnesses during the commission's evidentiary hearings.

In addition to DFO's disclosure of documents, the commission anticipates receiving disclosure of relevant documents from other federal departments and agencies, including Indian and Northern Affairs Canada, Foreign Affairs and International Trade Canada, Environment Canada, Transport Canada, and the Canadian Environmental Assessment Agency. The commission is also pursuing disclosure of relevant documents from other participants – including the Province of British Columbia, which has documents relating to a wide range of relevant matters, among them habitat, logging, mining, water quality, and salmon farms. Commission counsel request specific materials after reviewing participants' lists of documents they consider to be relevant.

The commission has provided participants with Ringtail Legal licences and training, giving them full access to all documents that the commission has received through this disclosure process.

Conducting interviews

Through a review of the Ringtail Legal document database, the commission's legal team has been able to identify many people knowledgeable about fisheries management and scientific issues who need to be interviewed prior to the commencement of the evidentiary hearings. Participants have also proposed people for interviews. The commission's legal team conducted interviews throughout the summer of 2010, and interviews will continue during the evidentiary hearings.

Applications brought by participants

The commission's Rules for Procedure and Practice provide that a participant may apply to me for an order or direction by preparing an application in writing and delivering it and supporting material, including affidavits, to the commission. The commission shall promptly deliver the application and supporting material to the other participants, who may file written materials in relation to the application. I may make an order or direction based on the written material filed or, at my discretion, after hearing oral argument.

I have received the following applications:

- *Authority to make findings of misconduct*. In June 2010, a participant raised with the commission the issue of whether I am authorized to make findings of misconduct against any individual. That issue calls for a consideration of paragraph (*a*)(i)(A) of this commission's Terms of Reference, which directs me "to conduct the Inquiry without seeking to find fault on the part of any individual, community or organization, and with the overall aim of respecting conservation of the sockeye salmon stock and encouraging broad cooperation among stakeholders ..." My ruling on this application is included as Appendix 11.
- *Production of documents respecting fish health*. In September 2010, an application was made under the commission's Rules for Procedure and Practice seeking production, from the governments of Canada and British Columbia and from the BC Salmon Farmers Association, of documents related to fish health and aquaculture facilities.

Discussion Paper

On June 3, 2010, the commission published a Discussion Paper (included as Appendix 12) that outlined issues which the commission intends to investigate. This paper included a discussion of technical and scientific issues as well as issues relating to management of the fishery. Participants were invited to comment on the issues identified in the Discussion Paper both through written submissions and at two days of public hearings held on June 15 and June 16, 2010.

Evidentiary hearings

Commencing on October 25, 2010, I am conducting evidentiary hearings regarding the issues that the commission is mandated to investigate. The commission plans to conduct most of these hearings at the Federal Court, 801 – 701 West Georgia Street, Vancouver, BC. The hearing schedule is posted on the commission's website and will be updated regularly. These hearings will be conducted in accordance with the commission's Rules for Procedure and Practice.

Depending on the issue under consideration at the hearings, the commission may adopt a variety of formats, including the following:

- An individual witness, including an expert, may testify under oath or on affirmation, and then be subject to cross-examination.
- A group of witnesses, including experts, may give evidence as members of a panel.
- Policy and Practice Reports may be tendered as exhibits.
- Subject to the consent of participants, a summary of a person's interview may be filed as an exhibit without that person testifying.
- Technical and scientific witnesses may present evidence in panel discussions and forums at which they can exchange views and challenge one another's findings and conclusions in an open and non-formal setting.

Public forums

At the time of writing this report, public forums were under way at which I was able to hear from members of the public on the issues I am mandated to consider. These forums were slated to take place in summer and fall 2010 in the following 10 coastal and Fraser River communities along the sockeye salmon migratory route:

August 18	Lillooet
August 25	Campbell River
September 1	Prince Rupert
September 13	Steveston
September 14	Nanaimo
September 16	Victoria
September 20	New Westminster
September 23	Prince George
September 29	Chilliwack
October 21	Kamloops

I acknowledge with thanks the First Nations that welcomed the commission to their traditional territories. All the people who attended the public forums spoke passionately and eloquently about the importance of the Fraser sockeye fishery and offered many helpful suggestions for my consideration.

I express my sincere appreciation for their attendance and for their thoughtful presentations. Summaries of presentations made at these public forums are or will be posted on the commission's website.

Site visits

At the time of writing this report, I was in the process of visiting communities that I expected would provide me with context on and information about various aspects of the Fraser sockeye fishery. Site visits were planned for the following communities between August 12 and October 22, 2010:

August 12	Mission/Agassiz	Traditional Native fishery at Cheam Beach Mission hydroacoustic counter Inch Creek hatchery Swift Aquaculture (land-based facility)
August 19	Lillooet	First Nations fishery on the Bridge River – to observe dip net and gillnet fishing, fish drying
August 19	Yale	Qualark acoustic site
August 26	Campbell River	Marine Harvest salmon fish farm (Quadra Island)
September 1 September 2	Prince Rupert	North Pacific Cannery Heritage Museum Canadian Fishing Company Cannery
September 13	Steveston	Gulf of Georgia Cannery National Historic Site – to learn about sockeye fishing gear, technology, and equipment
September 23	Prince George	Northwood pulp mill (effluent treatment)
September 29	Maple Ridge	Alouette sockeye re-anadromization project
October 21	Harrison Mills	Weaver Creek spawning channel
October 22	Kamloops	Adams River salmon run, spawning grounds, and interpretation centre

I repeat my sincere thanks to the First Nations that welcomed the commission to their traditional territories. At most of these locations, the space available meant the number of people who could attend was limited. To ensure there is a record of what I saw and heard, a videographer recorded the proceedings. I wish to express my

appreciation to the many people who took time to assist with these site visits, which have deepened my understanding of the various aspects of the Fraser sockeye fishery.

Public submissions

Members of the public are invited to express their views on issues related to the commission's mandate by making a public submission on the commission's website[4] or by commenting on another person's submission.

As of September 15, 2010, the commission had received 153 relevant and appropriate written submissions, as set out in Table 1. Because most submissions discuss more than one sub-topic, the number next to a main topic is not the sum of its sub-topics.[5]

Table 1: Topics Raised in Written Public Submissions to Cohen Commission

Topics in Public Submissions	Submissions Referencing Topic	
	Number	Percentage
Aquaculture	**93**	**61**
Aquaculture (unspecified)	48	31
Sea lice	30	20
Disease	16	10
Waste	13	9
Pesticides/antibiotics	6	4
Aquaculture (other)	4	3
Alien species	2	1
Fraser River Watershed Impacts	**29**	**19**
Contaminants/pollution/sewage	18	12
Habitat loss	14	9
Urbanization	4	3
DFO Harvesting Responsibilities	**26**	**17**
Enforcement	10	7
Harvest management	17	11
High seas fisheries	5	3
Sport fishery	2	1

[cont'd]

4 http://www.cohencommission.ca/en/submissions/SubmissionForm.php

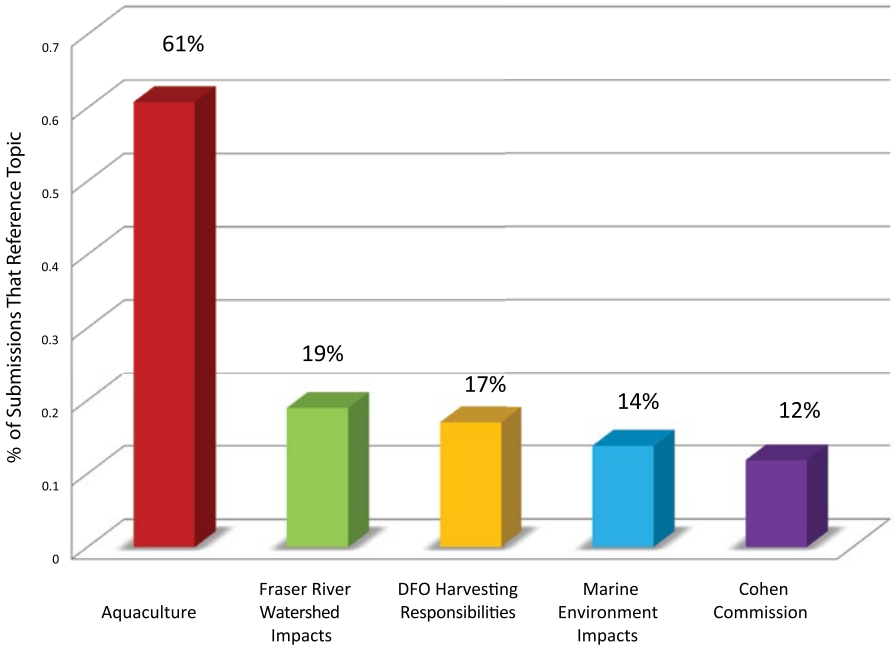
5 For each main topic set out in boldface (e.g., **Fraser River Watershed Impacts**), the number in column 2 represents the total number of separate submissions that discussed that topic. However, the numbers for all sub-topics within that main topic will typically be greater, because any one submission may discuss two or more of those sub-topics.

[cont'd]

Topics in Public Submissions	Submissions Referencing Topic	
	Number	Percentage
Marine Environment Impacts	**21**	**14**
Climate change	11	7
Food abundance	8	5
Marine ecology (other)	4	3
Cohen Commission	**18**	**12**
Scientific Advisory Panel	6	4
Commission (other)	5	3
Terms of Reference	5	3
Participant funding	2	1
Standing Ruling	1	1
DFO Organizational Structure	**17**	**11**
Organizational structure	17	11
Predation	**9**	**6**
Predation	9	6
Other	**8**	**5**
Legal Framework	**6**	**4**
Aboriginal right to fish and food security	6	4
Conditions at a Specific Location	**5**	**3**
Shuswap Lake	4	3
Adams River	1	1
Coquitlam River	1	1
DFO Protection of Wild Stocks	**4**	**3**
Wild Salmon Policy	3	2
Biodiversity protection	1	1
Species at Risk Act (SARA)	1	1
Naturally occurring diseases/viruses/ bacteria/parasites, etc.	**2**	**1**
Naturally occurring diseases/viruses/ bacteria/parasites, etc.	2	**1**

Figure 1 identifies the five most prevalent topics in public submissions.

Figure 1: Five Most Prevalent Topics in Public Submissions



Staying informed

There are several ways through which interested members of the public can stay informed about the work of the commission, including:

- attending the evidentiary hearings or reading the transcripts of those proceedings;
- reading the commission's Discussion Paper; and
- reading the Policy and Practice Reports, Scientific Reports, status reports, and reports to government, which will be posted on the commission's website.

Final report

According to the commission's Terms of Reference, I am

- to consider the policies and practices of the Department of Fisheries and Oceans (the "Department") with respect to the sockeye salmon fishery in the Fraser River – including the

Department's scientific advice, its fisheries policies and programs, its risk management strategies, its allocation of Departmental resources and its fisheries management practices and procedures, including monitoring, counting of stocks, forecasting and enforcement,

- to investigate and make independent findings of fact regarding
  - the causes for the decline of Fraser River sockeye salmon including, but not limited to, the impact of environmental changes along the Fraser River, marine environmental conditions, aquaculture, predators, diseases, water temperature and other factors that may have affected the ability of sockeye salmon to reach traditional spawning grounds or reach the ocean, and
  - the current state of Fraser River sockeye salmon stocks and the long term projections for those stocks, and
- to develop recommendations for improving the future sustainability of the sockeye salmon fishery in the Fraser River including, as required, any changes to the policies, practices and procedures of the Department in relation to the management of the Fraser River sockeye salmon fishery, ...

Findings of fact and recommendations must await my consideration of the whole of the evidence emanating from the hearings, public forums, site visits, and public written submissions. All the evidence generated by the commission's proceedings will form the basis for reaching conclusions, which will take into account the recommendations contained in past reports and the government's history of responses to these reports.

PART TWO

Previous reports and government responses

Introduction

The Terms of Reference direct me to set out in my interim report my "preliminary views on, and assessment of, any previous examinations, investigations or reports" that I consider relevant to the commission, and "the Government's responses to those examinations, investigations and reports."

Over the past three decades, there have been dozens of examinations, investigations, and reports into the Pacific fisheries, primarily focusing on DFO's management of the fishery and its legislative powers respecting harvesting, protection of habitat, protection of wild salmon stocks, and aquaculture. Some, such as Dr. Peter Pearse's 1982 report, were sweeping in nature, examining the condition, management, and utilization of all Pacific coast fisheries. Others, such as the Hon. Bryan Williams's 2005 report, which examined only the 2004 Fraser River sockeye salmon return, focused on a single event.

In May 2010, DFO provided to the commission a 289-page document entitled "Recommendations Related to Fraser River Sockeye Salmon and Responses by the Government of Canada, 1982–2010" (hereafter referred to as Recommendations and Responses). It set out the recommendations contained in 25 reports prepared between 1982 and 2005 and the federal government's initial responses drawn from various sources, including statements by the minister, and written government or DFO responses. In some cases, such as reports by the Auditor General of Canada, the government's responses were included in the reports themselves. This DFO document has been an invaluable resource for the commission. It is included on the CD appended to this report.

DFO stated that, in preparing this document, it limited its review to specific types of reports:

> The reports contained in this compilation spanned the period 1982–2005, and included those commissioned by the Government as well as those prepared for the Government including the Auditor General of Canada and the Standing Committee on Fisheries and Oceans. These reports were chosen on the basis that they focused exclusively on the Fraser River or contained significant recommendations pertaining to Fraser River sockeye. Reports that were not initiated by, or prepared for, the Government of Canada were not included in this document.

In this Part, I will refer to 22 of the 25 reports that are included in the DFO document. I have also included in my consideration reports from several other sources, including provincial auditors general, provincially appointed commissions, and reports commissioned by Aboriginal organizations and by an environmental non-governmental organization. In the case of most of these other reports, the commission is not aware of any formal Government of Canada responses to recommendations contained in them.

In deciding what previous reports to consider, I took several factors into account. Of principal interest were the reports that were relevant to the specific mandate of this commission of inquiry – the Fraser sockeye fishery. However, I also considered it important to review reports that dealt more generally with various aspects of West Coast fisheries, such as DFO management, conservation, and habitat protection, and the potential impact of open-pen salmon farms on wild salmon stocks.

This Part is divided into two sections. In the first section, I will identify each report that I have considered, will comment on each report's terms of reference, and will provide the historical context within which the report was prepared. If the federal government advised the commission of its formal response to the report, I will identify that response. The government's responses come from a variety of sources, including ministerial statements, DFO news releases or backgrounders, cabinet committee reports, and formal responses from DFO. These responses, many of which may be difficult for the public to locate, were provided to the commission by DFO in Recommendations and Responses.

In the second section, I will set out the recommendations that I consider most relevant to my mandate, followed by the Government of Canada's formal responses to those recommendations. I determined that it would be informative to cluster the recommendations contained in the previous reports and the government's responses to them according to subject matter; within each category, I then set them out chronologically, so that the reader can gain an appreciation of how analyses on discrete issues have evolved.

In most cases I will limit myself to the government's initial response to these reports, even though DFO's Recommendations and Responses also provides information about the government's "subsequent actions."

I want to make it clear that, in this section, I am presenting only what the government has said was its response to particular recommendations. Readers should not infer from this presentation that the commission has accepted or is endorsing such responses. I expect that counsel will explore during the evidentiary hearings how DFO and other government departments and agencies have dealt with some of these issues since the recommendations and initial responses were made.

In Part Three of the report, I will provide my preliminary views on and assessment of these previous reports, and of the government's responses to them.

Previous examinations, investigations, and reports

Previous reports reviewed by the commission

Table 2: Reports Reviewed by the Commission

Year	Title	Organization	Author, or committee chair	Abbreviated reference
1982	*Turning the Tide – A New Policy for Canada's Pacific Fisheries*	Commission on Pacific Fisheries Policy	Dr. Peter Pearse	Pearse (1982)
1992	*Managing Salmon in the Fraser*	Report to the Minister on the Fraser River Salmon Investigation	Dr. Peter Pearse, Dr. Peter Larkin	Pearse and Larkin (1992)
1995	*Fraser River Sockeye 1994, Problems and Discrepancies*	Report of the Fraser River Sockeye Public Review Board	Hon. John Fraser	Fraser (1995)
1995	*Report to the Minister of Fisheries and Oceans on the Renewal of the Commercial Pacific Salmon Fishery*	Pacific Policy Roundtable	Louis Tousignant	Pacific Policy Roundtable (1995)
1996	*Tangled Lines: Restructuring in the Pacific Salmon Fishery*	A Federal-Provincial Review of the Mifflin Plan		Federal-Provincial Review of the Mifflin Plan (1996)

[cont'd]

[cont'd]

Year	Title	Organization	Author, or committee chair	Abbreviated reference
1997	*Pacific Salmon: Sustainability of the Resource Base*	Report of the Auditor General of Canada		Auditor General (1997)
1998	*The West Coast Report*	Report of the Standing Committee on Fisheries and Oceans	Charles Hubbard	Standing Committee (1998)
1999	*Pacific Salmon: Sustainability of the Fisheries*	Report of the Auditor General of Canada		Auditor General (1999)
2000	*The Effects of Salmon Farming in British Columbia on the Management of Wild Salmon Stocks*	Report of the Auditor General of Canada		Auditor General (2000)
2001	*Independent Review of Improved Decision Making in the Pacific Salmon Fishery*	Institute for Dispute Resolution, University of Victoria	Stephen Owen, Maureen Maloney	Institute for Dispute Resolution (2001)
2001	*Clear Choices, Clean Waters*	Inquiry into Salmon Farming in British Columbia	Hon. Stuart Leggatt	Leggatt (2001)
2003	*The 2001 Fraser River Salmon Fishery*	Report of the Standing Committee on Fisheries and Oceans	Tom Wappel	Standing Committee (2003)
2003	*Review of the 2002 Fraser River Sockeye Fishery*	Report of the External Steering Committee	Patrick Chamut	Chamut (2003)
2004	*Treaties and Transition: Towards a Sustainable Fishery on Canada's Pacific Coast*	Report of the Federal-Provincial Task Force	Dr. Peter Pearse, Prof. Donald McRae	Pearse and McRae (2004)
2004	*Our Place at the Table: First Nations in the B.C. Fishery*	Report by the First Nation Panel on Fisheries	Russ Jones, Marcel Shepert, Neil J. Sterritt	First Nation Panel (2004)
2004	*Recommendations for Change*	Report of the Commissioner for Aquaculture Development to the Minister of Fisheries and Oceans Canada	Yves Bastien	Commissioner for Aquaculture Development (2004)

Year	Title	Organization	Author, or committee chair	Abbreviated reference
2004	*Salmon Stocks, Habitat, and Aquaculture*	Report of the Federal Commissioner of the Environment and Sustainable Development		Commissioner of the Environment and Sustainable Development (2004)
2004	*Salmon Stocks, Habitat, and Aquaculture*	Report of the Auditor General of New Brunswick		Auditor General of New Brunswick (2004)
2005	*Salmon Forever: An Assessment of the Provincial Role in Sustaining Wild Salmon*	Auditor General of British Columbia Report 5		Auditor General of British Columbia (2005)
2005	*Part One: Fraser River Sockeye Report*	2004 Southern Salmon Fishery Post-Season Review	Hon. Bryan Williams	Williams (2005)
2005	*Here We Go Again ... Or the 2004 Fraser River Salmon Fishery*	Report of the Standing Committee on Fisheries and Oceans	Tom Wappel	Standing Committee (2005)
2005	*An Assessment of Fisheries and Oceans Canada Pacific Region's Effectiveness in Meeting Its Conservation Mandate*	David Suzuki Foundation	David L. Peterson, Allen Wood, Julia Gardner	David Suzuki Foundation (2005)
2007	*Final Report,* Volume One	Special Committee on Sustainable Aquaculture, Legislative Assembly of British Columbia	Robin Austin	BC Special Committee on Sustainable Aquaculture (2007)
2009	*Final Report and Recommendations*	Report of the BC Pacific Salmon Forum	Hon. John Fraser	Fraser (2009)
2009	*Protecting Fish Habitat*	Report of the Commissioner of the Environment and Sustainable Development		Commissioner of the Environment and Sustainable Development (2009)
2010	*Priorities and Strategies for Canada's Wild Pacific Salmon and Steelhead*	Pacific Fisheries Resource Conservation Council		Pacific Fisheries Resource Conservation Council (2010)

Mandates of previous reports

Pearse (1982). Dr. Peter Pearse, a University of British Columbia natural resources economist, was appointed by the federal government in January 1981, under Part 1 of the *Inquiries Act*, to be sole commissioner of the Commission on Pacific Fisheries Policy. His terms of reference were sweeping – to examine, report on, and make recommendations concerning the condition, management, and utilization of the fisheries of the Pacific coast of Canada, including:

- the condition of the stocks of fish, current levels of utilization, and their relationship to optimal rates of use;
- the provisions for conservation, management, protection, and development of the fish resources, including the protection of their tidal and non-tidal habitat and the enhancement of salmonid stocks;
- the structure and size of the commercial fishing fleet;
- the policies and procedure for licensing commercial fishing and for regulating the size and structure of the fishing fleet; and
- the nature and amount of non-commercial fishing in tidal and non-tidal waters for salmonid species, its impact on the commercial fishery, and the policies and procedures for regulating non-commercial fishing.

He was instructed to make recommendations toward ensuring that

- the fish resources and their use make the highest possible contribution to the economic and social development of the people of Canada – this contribution may be realized in economic, recreational, and other social forms;
- the granting of fishing privileges to commercial, recreational, and Native food fishers is conducive to proper management and conservation, to an equitable division of the catch among sectors, and to economic efficiency in the development of the commercial fishing fleet;
- the charges levied by the Crown for rights to fish commercially are consistent with the value of the resources recovered;
- the vigour of the fishing industry is maintained and advanced, and its structure, ownership, and control are consistent with industrial efficiency; and
- provisions for management, enhancement, and protection of the fish resources are systematic and efficient.

Response: According to DFO's Recommendations and Responses, the government's first response to this report was contained in the June 21, 1983, Report of the Cabinet Committee on Economic and Regional Development.

Pearse and Larkin (1992). In September 1992, the minister of fisheries and oceans appointed Dr. Pearse as an independent adviser to conduct an investigation into the apparent disappearance of 482,000 sockeye salmon on their way to spawning grounds in the Fraser River system. He was directed to identify the reasons for this shortfall and to recommend any corrective measures needed for the future. The minister also appointed Dr. Peter Larkin as scientific and technical adviser. Dr. Larkin produced a separate technical appendix, entitled *Analysis of Possible Causes of the Shortfall in Sockeye Spawners.*

Response: "Statement by John C. Crosbie, Minister of Fisheries and Oceans: Action Plan in Response to the Report of the Fraser River Salmon Investigation, December 7, 1992."

Fraser (1995). In the fall of 1994, a discrepancy of an estimated 1.3 million Fraser River sockeye salmon was discovered, followed shortly thereafter by a further shortfall in the Late run, which includes the famous Adams River run. The minister of fisheries and oceans appointed the Fraser River Sockeye Public Review Board, under the chairmanship of the Hon. John Fraser, PC, QC, a former minister of fisheries and oceans and former speaker of the House of Commons. The board had three main objectives:

- to identify the reason(s) for the discrepancies in the expected and actual number of sockeye salmon arriving on the spawning grounds;
- to evaluate the accuracy of the Pacific Salmon Commission's methodology for estimating run sizes and sockeye escapement in the Fraser River; and
- to make recommendations on how any deficiencies could be corrected, beginning in 1995.

The terms of reference called for a review that would include consideration of the following areas:

- the accuracy of estimates of the number of sockeye salmon moving past the Pacific Salmon Commission's hydroacoustic facility at Mission in 1994, for each of the four major run components – Early Stuart, Early Summer, Summer, and Late Summer;
- the accuracy of estimates of the catch of sockeye salmon in the Fraser River in 1994, including an examination of the reliability of the in-river catch-monitoring program, techniques used to estimate catches, and procedures for estimating the confidence range around the catch estimates;
- the level of mortality experienced by sockeye salmon in the Fraser River and on the spawning grounds in 1994, including the causes and effect of elevated water temperatures in the Fraser River;

- the accuracy of estimates of the number of sockeye salmon on the spawning grounds in 1994, including a review of the various techniques used to enumerate sockeye salmon on the spawning grounds;
- in consultation with the Pacific Salmon Commission, an examination of the methods used by the commission to predict returning run strength and escapement, both pre-season and in-season; and
- the level and efficacy of the department's stock management, surveillance, monitoring, and enforcement activities in the Fraser River and elsewhere where relevant.

Response: *Fraser River Sockeye 1994: Detailed DFO Response to the Report of the Fraser River Sockeye Public Review Board*, 1995.

Pacific Policy Roundtable (1995). The minister of fisheries and oceans appointed a broadly based group to make recommendations on intersectoral allocations, guided by the following principles:

- conservation – to conserve and protect the fisheries resource and its habitat in trust for future generations;
- economic viability – to ensure the best use of the resource, an economically viable fishery, organized around sound business principles; and
- partnership – to create a joint vision for Pacific fisheries with stakeholders and to share responsibility for resource development and fishery management, including management costs, decisions, and accountability.

Response: According to DFO's Recommendations and Responses, the government's initial response was contained in a January 23, 1996, news release.

Federal-Provincial Review of the Mifflin Plan (1996). In 1996, the governments of Canada and British Columbia established a three-member panel to review the impact of the Mifflin Plan, the cornerstone of which was an $80 million federally funded voluntary licence retirement program or "buy-back" scheme. It also provided for single gear–type licensing, single-area licensing, and licence stacking. The panel's report was to include:

- an assessment of the short-term and longer-term impact of the plan on coastal communities, individuals, and corporate concentration;
- recommendations for determining appropriate adjustment measures; and
- proposals for improvements to the plan.

Response: According to DFO's Recommendations and Responses, the government's initial response was contained in a January 1997 backgrounder.

Auditor General (1997). According to the Auditor General of Canada, Canada's ability to sustain the Pacific salmon resource at the present level and diversity was questionable, given the various factors influencing salmon survival, many of which were beyond the government's control. Although some major salmon stocks had been built up, others were declining and many were considered threatened. There was evidence that habitat loss was contributing to these declines, but no overall status report on salmon habitat was available to assess the impact of habitat loss on the resource.

In view of the complex issues associated with the conservation and protection of the salmon resource and its habitat and the management of fisheries, the auditor general divided the audit into two phases:

- This report addressed the sustainability of the salmon resource base, with an emphasis on the conservation and protection of habitat.
- A 1999 report would address the sustainability of the salmon fisheries, including fisheries management and the allocation of catch.

Response: The government's response was contained within the Auditor General's Report.

Standing Committee (1998). During January 1998, the Standing Committee on Fisheries and Oceans visited 10 communities on the coast of British Columbia to solicit the views of fishers, fishing organizations, community leaders, community organizations, and individuals about the management of the fisheries on Canada's West Coast.

Response: *Government Response to the Fourth Report of the Standing Committee on the Fisheries and Oceans (The West Coast Report)*, April 1999.

Auditor General (1999). According to the auditor general, natural factors (such as the effects of global warming on marine and freshwater temperatures, as well as fluctuating ocean productivity), human factors (such as overfishing and loss or deterioration of habitat), and economic factors (such as commercial fleet overcapacity and competition in the marketplace from a growing salmon-farming

industry) were contributing to a decline in fishing opportunities, success rates, and value of the catch. DFO's challenge was to conserve existing stocks and rebuild those that were at risk, while maintaining viable fisheries.

The focus of this audit was to determine if the Pacific salmon fisheries were being managed to ensure the conservation of the resource base and the sustainability of the fisheries. It reviewed existing problems and actions taken by DFO to respond to the new management challenge in three major areas:

- policy development and planning;
- fisheries and information management; and
- government-stakeholder consultations.

Response: The government's response was contained within the Auditor General's Report.

Auditor General (2000). The objective of this audit was to determine whether DFO, as the department responsible for the conservation and protection of wild salmon stocks, was "meeting its obligations under the *Fisheries Act,* the *Oceans Act* and other legislation while participating in the regulation of the salmon farming industry in British Columbia."

The audit examined aspects of DFO's regulatory role in this area, including its operational responses to current and emerging environmental and ecological problems posed by the industry. The audit did not include DFO's salmon enhancement program.

In order to focus on DFO's need for compatibility of salmon-farming management with its core responsibilities for wild salmon management, the auditors asked three questions:

- Has DFO identified and evaluated the effects of salmon farming on wild stock management by following a risk management plan?
- Has DFO formulated an action plan to deal with salmon farming, together with a strategy for its integration into the wild salmon management plan(s) to ensure consistency with the established principles of conservation and the precautionary approach?
- If such an action plan exists, is DFO implementing its elements?

Response: The government's response was contained at the end of the Auditor General's Report.

Institute for Dispute Resolution (2001). In conjunction with DFO's discussion paper, "A Framework for Improved Decision-Making in the Pacific Salmon Fishery," the institute was appointed to organize a public consultation on key issues with a wide range of government and stakeholder groups, including DFO, the provincial government, local governments, First Nations, commercial fishers and processors, recreational fishers, community associations, environmental organizations, and academics. The independent review focused on three key aspects of salmon consultation processes in the Pacific Region:

- annual salmon harvest management planning;
- implementation issues associated with the Pacific Allocation and Licensing Board; and
- the policy development process for issues related to salmon fisheries management.

The institute consulted more than 350 individuals and organizations with an interest in the salmon industry.

Response: According to DFO's Recommendations and Responses, there was no formal, immediate response to this report.

Leggatt (2001). The David Suzuki Foundation established this independent inquiry in response to calls from the Auditor General of Canada and the Senate for public consultation and review. Stuart Leggatt, a retired BC Supreme Court judge, was appointed commissioner. He set his own terms of reference and guidelines. This "citizen's inquiry" asked for community and public input on the salmon-farming industry, to help it formulate recommendations to be passed on to the prime minister of Canada, the premier of British Columbia, and the public.

Response: The commission is not aware of any federal government response to this report.

Standing Committee (2003). Despite substantial runs of several species of salmon on the Fraser River, the BC commercial salmon-fishing fleet was effectively shut out of the fishery in the 2001 fishing season. Some sectors of the fleet had minimal openings, while others did not fish at all. Between 1998 and 2001, the commercial fishery was virtually shut down. The impact on the lives of the fishers and other workers who depend on the commercial fishery was devastating. At the request of concerned fishers, the Standing Committee on Fisheries and Oceans conducted a study to determine why this shutdown

happened and what might be done to prevent such failures from recurring in the future.

The committee met with representatives of the fishing industry over two days of hearings in Steveston and Richmond, BC. It also held a hearing with DFO officials and a separate hearing with representatives of the BC Aboriginal Fisheries Commission.

Response: *Government Response to the 6th Report of the Standing Committee on Fisheries and Oceans – The 2001 Fraser River Salmon Fishery*, 2003.

Chamut (2003). In 2002, the abundance and timing of some sockeye salmon stocks returning to the Fraser River were dramatically different from pre-season forecasts. Controversy arose over the appropriate conservation measures for the resource, the management of the fishery, and the response of DFO to those changed circumstances. The timeliness and accuracy of information, the decision-making process – particularly in the face of uncertainty – and the consultation processes all came into question.

In September 2002, the minister of fisheries and oceans ordered a post-season review. Patrick Chamut, the assistant deputy minister of fisheries management, chaired an external steering committee composed of members from the Province of British Columbia, the Pacific Fisheries Resource Conservation Council, First Nations, commercial and recreational organizations, the Pacific Salmon Commission, a conservation organization (the Sierra Club), and the department's regional director general (Pacific Region).

The intent of the review was to focus on Fraser River sockeye management, with particular emphasis on

- conservation objectives
- consultation processes
- risk management
- adequacy of data
- decision-making processes
- enforcement
- DFO's management process

The objective was to develop recommendations to improve future management of Fraser River sockeye and the fisheries that depend on those stocks.

Response: *Status of Implementation of 2002 Fraser River Sockeye Review Recommendations*, December 3, 2003.

Pearse and McRae (2004). In July 2003, the federal minister of fisheries and oceans and British Columbia's minister responsible for treaty negotiations and minister of agriculture, food and fisheries established an independent two-person task force consisting of Dr. Peter Pearse and international law professor and former law dean Donald McRae. The reason for the inquiry was the need to examine carefully the changes taking place in the fisheries – where those changes were leading, and how they could be reconciled with the public interest in both treaty settlements and prosperous, sustainable fisheries.

The terms of reference included:

- defining a broad vision of the post-treaty fishery, including identifying how fish will be shared among treaty and non-treaty participants and associated management challenges;
- examining management challenges associated with post-treaty fisheries and identifying equitable arrangements that will provide for sustainable, integrated fisheries management for treaty and non-treaty fisheries;
- identifying approaches to offset impact on existing fish harvesters who are affected by the reallocation of fish to meet treaty obligations;
- proposing means to enhance the economic performance of the fishery, including the design of fishing arrangements that provide secure long-term access to harvesters, as well as co-operative initiatives to support a sustainable fishery; and
- undertaking other works as the parties deemed necessary.

The reviewers were asked to define a "vision" of the fisheries in a post-treaty era and to make recommendations that would provide certainty for all participants in the fisheries, ensure conservation of the resource, provide for sustainable use and effective management, improve the economic performance of the fisheries, and provide equitable arrangements among fishers and fair treatment of those adversely affected by treaty settlements.

Response: According to DFO's Recommendations and Responses, the government's initial response to this report was contained in a May 5, 2004, news release.

First Nation Panel (2004). First Nations were concerned that the Canadian and BC governments did not consult with them prior to the naming of the Pearse and McRae task force, and that no First Nation leader was appointed to it. In late 2003, the federal government agreed, at the request of the BC First Nations Summit and the BC Aboriginal Fisheries Commission, to fund a parallel process. The three-member First Nation Panel on Fisheries was appointed by a steering committee made up of leaders of the First Nations Summit and the Aboriginal Fisheries Commission.

The panel was asked

- to articulate a vision for the future management and allocation of the fisheries and to identify what principles would help to achieve that vision; and
- to describe a workable framework for management that would provide some certainty to users in terms of access and use of fisheries resources.

The panel held public meetings in seven BC communities; considered written and oral submissions; and commissioned reports on the case law surrounding Aboriginal rights to fish, on an analysis of treaties and other processes relating to fisheries allocation and management, on analyses of situations in other jurisdictions, and on an analysis of various fisheries in different parts of British Columbia.

Response: According to DFO's Recommendations and Responses, the government's initial response to this report was contained in the same May 5, 2004, news release as the Pearse and McRae report.

Commissioner for Aquaculture Development (2004). The Office of the Commissioner for Aquaculture Development was established by the minister of fisheries and oceans in December 1998 to advise the minister on matters pertaining to aquaculture in Canada. The commissioner was asked to champion aquaculture within the federal government and to accelerate the implementation of the Federal Aquaculture Development Strategy, launched by DFO in 1995. In 2004, the commissioner prepared a report for the minister, giving a long-term vision for aquaculture in Canada and providing the minister with specific recommendations on the appropriate federal role to help achieve this vision and fully implement the Federal Aquaculture Development Strategy.

Response: The commission is not aware of a federal government response to this report.

Commissioner of the Environment and Sustainable Development (2004). The commissioner (a position within the Office of the Auditor General) undertook this follow-up study, which was performed concurrently with related audit projects undertaken by the auditors general of New Brunswick and British Columbia (see below); it focused on the action taken by DFO on key observations and recommendations made by the Auditor General of Canada in the 1997, 1999, and 2000 reports:

- in 1997, when the auditor general reported that Pacific salmon stocks and habitat were under stress;
- in 1999, when the auditor general found that Pacific salmon fisheries were in trouble – the long-term sustainability of the fisheries was at risk because of overfishing, habitat loss, and other factors; and
- in 2000, when the auditor general reported that DFO was not fully meeting its legislative obligations to protect wild Pacific salmon stocks and their habitat from the effects of salmon aquaculture operations.

Consequently, this review assessed DFO's progress in conserving and protecting salmon stocks and their habitat, ensuring sustainable use of salmon fisheries resources, and regulating salmon aquaculture in British Columbia and New Brunswick.

Response: The government's response was contained within the commissioner's report.

Auditor General of New Brunswick (2004). This study was performed concurrently with the related audit projects undertaken by the commissioner of the environment and sustainable development and the Auditor General of British Columbia. It focused on the key risks associated with the salmon aquaculture industry in New Brunswick which could potentially have a negative impact on the sustainability of salmon cage culture operations and the extent to which those risks were being managed.

The objective was to determine whether New Brunswick programs ensured that New Brunswick salmon cage culture operations were economically, environmentally, and socially sustainable.

Response: The commission is not aware of any federal government response to this report.

Auditor General of British Columbia (2005). This study was performed concurrently with the related audit projects undertaken by the commissioner of the environment and sustainable development and the Auditor General of New Brunswick. It examined British Columbia's programs for protecting and restoring salmon habitat and for preventing and mitigating the potential impact of salmon aquaculture on wild salmon stocks. The examination concentrated on the five main species of wild salmon and focused on the four core ministries and two agencies responsible for habitat and fish protection, as well as for land and resource management as it affected wild salmon.

The purpose of the audit was to assess whether the provincial government had effective programs in place to ensure the sustainability of wild salmon in British Columbia.

Response: The commission is not aware of any federal government response to this report.

Williams (2005). During the 2004 Fraser River sockeye run, an estimated 1.3 million fish were unaccounted for. When DFO found no conclusive explanation for this phenomenon, the minister appointed an independent committee, chaired by former BC Supreme Court Chief Justice Bryan Williams, QC, to evaluate the performance of the southern BC salmon fisheries and provide conclusions and recommendations to the minister.

The committee consisted of 15 members of the southern section of the Integrated Harvest Planning Committee, established in 2002. The members, appointed by the minister, represented commercial fishers, First Nations fisheries, recreational fishers, the Marine Conservation Caucus, and the Province of British Columbia.

The committee's terms of reference described the scope of the committee's mandate as follows:

> It will assess the extent to which objectives were met; identify key factors which constrained performance; and provide recommendations to overcome constraints and guide future management. In particular the review will focus on pre-season planning and the adequacy of consultation processes; establishment of conservation objectives; application of risk management principles; adequacy and timeliness of in-season data; in-season processes for decision making; and enforcement and compliance measures.

The committee was instructed to

- evaluate the performance of each fishery (or group of fisheries) included in the southern integrated fisheries management plan, addressing such questions as whether the pre-season planning process was adequate, whether in-season data required for management were timely and accurate, and what could be done to improve pre-season planning and in-season management; and
- examine the conduct of the Fraser River sockeye fishery in 2004, including an assessment of conservation objectives, scientific advice and risk management strategies, in-season management and consultation processes, and enforcement.

The committee identified four issues relating to the Fraser River sockeye salmon fishery in 2004 that would require careful analysis:

- high temperature of the Fraser River;
- accuracy of the count either at Mission or in the spawning grounds;

- illegal fishing and unreported catch from legal fisheries; and
- adequacy of management of the fishery by DFO.

The committee was unable to complete its review of the entire South Coast within the time allotted. Accordingly, this report (Part One) dealt only with the Fraser River sockeye run. Part Two of the committee's report, dealing with other species of South Coast salmon, was never completed.

Response: *Building Capacity and Trust: Response by Fisheries and Oceans Canada to the 2004 Southern Salmon Fishery Post-Season Review – Fraser River Sockeye Report*, June 2005.

Standing Committee (2005). According to the Standing Committee on Fisheries and Oceans, preliminary escapement estimates for Fraser River sockeye in 2004 suggested a major ecological disaster was unfolding:

- Of the 182,000 Early Stuart sockeye that were counted at the Mission hydroacoustic station, only 9,244 arrived at the spawning grounds.
- The total Fraser River sockeye run reported that only 530,000 spawners arrived in 2004, as compared to 2,353,000 in 2000, the year of the parental spawners.
- Based on these tragically low spawning numbers, there would probably not be enough sockeye salmon to support commercial, recreational, or Aboriginal fishing in the Fraser River in 2008.
- Run sizes for this four-year cycle of Fraser River sockeye salmon were unlikely to return to 2004 levels until at least 2020.

In December 2004, the committee travelled to British Columbia, where it held three days of hearings and met with representatives of the auditors general of Canada and British Columbia, commercial and recreational fishing sectors, unions, First Nations, the Pacific Salmon Commission, the Pacific Fisheries Resources Conservation Council, scientists, and officials from the RCMP and DFO.

Response: *Government Response to the 2nd Report of the Standing Committee on Fisheries and Oceans entitled: Here We Go Again ... Or the 2004 Fraser River Salmon Fishery*, March 2005.

David Suzuki Foundation (2005). The foundation retained three consultants to undertake research into DFO's performance in implementing its conservation mandate in the Pacific Region. DFO's conservation responsibilities include

conservation of populations, stocks, and species (fish, marine mammals, invertebrates, and marine plants); habitat (freshwater fish habitat and marine ecosystems); and fisheries. The overall approach was to analyze DFO's performance against mandated direction for conservation, using case studies and examples that demonstrate effectiveness and challenges. The main sources of information were websites, literature, DFO budgetary records, advice from a group of experts in an interactive panel, and interviews.

Response: The commission is not aware of any federal government response to this report.

BC Special Committee on Sustainable Aquaculture (2007). In November 2005, the Legislative Assembly appointed an all-party Special Committee on Sustainable Aquaculture to examine, inquire into, and make recommendations with respect to sustainable aquaculture in British Columbia, including:

- the economic and environmental impact of the aquaculture industry in British Columbia;
- the economic impact of aquaculture on British Columbia's coastal and isolated communities;
- sustainable options for aquaculture in British Columbia that balance economic goals with environmental imperatives, focusing on the interaction of aquaculture, wild fish, and the marine environment; and
- British Columbia's regulatory regime as it compares to other jurisdictions.

The special committee heard from 275 individuals and organizations at 21 public meetings and received 814 written submissions. Committee members visited 16 aquaculture-related sites, which included salmon farms, closed containment and manufacturing facilities, processing facilities, research facilities, and shellfish facilities. Its members also toured the Broughton Archipelago. The committee made 52 recommendations. It concluded that

> British Columbia has a unique opportunity to protect and enhance our wild salmon populations and marine ecosystems while developing a thriving, innovative aquaculture industry. If the finfish aquaculture industry is to expand and prosper it must minimize its impact on wild salmon and ecosystems. … In all cases First Nations with cultural knowledge of the areas must be fully involved and capacity provided to ensure this can occur.

Response: The commission is not aware of any federal government response to this report.

Fraser (2009). In December 2004, the premier of British Columbia established the independent BC Pacific Salmon Forum, chaired by the Hon. John Fraser, PC, QC, with the following members: John Woodward, Jim Lornie, Teresa Ryan, Christina Burridge, Harry Nyce, Sr., and Jeremy Maynard.

The forum's mandate was to

- develop policy recommendations to protect and enhance the viability of wild salmon stocks and the economic, social, and environmental benefits to British Columbians;
- enhance the economic, social, and environmental sustainability of aquaculture for all coastal communities; and
- increase public confidence in fisheries management generally, and aquaculture in particular, in the marine environment.

Forum members met with more than 200 individuals and groups, attended more than 30 conferences and workshops, and made 10 presentations. The forum worked with more than 80 researchers from a variety of research institutions, scientific disciplines, and perspectives; hosted nine research meetings; and funded more than 35 individual research projects, in addition to technical reviews and reports. The forum received scientific support from a multidisciplinary science advisory committee.

Response: The commission is not aware of any federal government response to this report.

Commissioner of the Environment and Sustainable Development (2009). This audit examined how the Department of Fisheries and Oceans and Environment Canada carried out their respective responsibilities for fish habitat protection and pollution prevention under the *Fisheries Act*, with particular attention to the Habitat Policy and the Compliance and Enforcement Policy. The audit also looked at the two departments' arrangements with others, such as provinces and stakeholders, that supported the administration and enforcement of these provisions. The audit focused mainly on fish habitat in fresh water and estuaries, rather than the marine environment.

Response: The government's response was contained within the commissioner's report.

Pacific Fisheries Resource Conservation Council (2010). Since the council was established in 1998, its mandate has been to provide public information and offer strategic advice to federal and provincial ministers responsible for protecting and sustaining wild salmon and steelhead stocks and habitats. The council has published 69 scientific, technical, and policy reports, advisories, and other papers. Its 2010 report draws from all of those reports to present summaries and compilations of the several themes, findings, and recommendations.

Response: The commission is not aware of any federal government response to this report.

Recommendations of the reports, and the government's responses

The examinations, investigations, and reports discussed in this interim report have resulted in more than 700 recommendations being made respecting the Pacific fishery. Most of those recommendations were directed at DFO, focusing on its management of the fishery and its legislative powers respecting harvesting, protection of habitat, protection of wild salmon stocks, and aquaculture.

In this section, I will summarize those recommendations that are most germane to the mandate of this commission of inquiry – the causes of the decline in numbers of Fraser River sockeye salmon. Where the Government of Canada, DFO, or the minister of fisheries and oceans formally responded to those recommendations, I will summarize those responses.

Organization and administration

Legislative framework and departmental mandate

In 1982, Dr. Peter Pearse made several policy reform recommendations, including that the *Fisheries Act* should be repealed and replaced by a modern, lucid statute containing the main principles of fisheries policy for Canada. The new Act should

- include a clear statement of national fisheries policy objectives;
- set out the management responsibilities and planning procedures for DFO in a sufficiently broad scope to leave no doubt about its mandate to manage fisheries and fleet development effectively;
- commit DFO to integrated resource management and planning, setting out the arrangements for dealing with projects and developments that affect fish habitat;
- devote a separate part to Pacific fisheries, consistent with the national policy framework;

- set out the legal authority and procedures to be followed in allocating sport, commercial, and Indian fishing rights;
- provide for the appointment of a Pacific Fisheries Council and create a Pacific Fisheries Licensing Board;
- formally delegate decision-making authority to the licensing board and, where appropriate, to regional officials in DFO; and
- include a clear and consistent structure of penalties.

Dr. Pearse also recommended that a temporary minister of state for Pacific fisheries, junior to the minister of fisheries and oceans, be appointed and given responsibility for implementing reforms in Pacific fisheries policy. A full-time policy and planning group within DFO's Pacific Region should assist the temporary minister of state in implementing policy reforms. Also, new Pacific fisheries regulations should be passed under the new Act, containing administrative detail ancillary to the Act and policies that must be adjusted quickly in response to changing conservation and management needs.

Response: The government agreed in 1983 to streamline the body of regulations governing the Pacific fisheries, but decided to delay implementation, pending reform of licensing policy. In 1984, cabinet approved the following policy objectives for the Pacific fishery:

- conserve, protect, and develop the fisheries resource and its habitat, so the various objectives for the use of the fishery can be achieved;
- create a policy environment to support an economically viable, self-sustaining West Coast fishery and protect Native participation in this fishery;
- maintain an equitable share of the common resource for the Native food fishery and the regionally important recreational fishery; and
- introduce a licensing and/or royalty framework that places a reasonable part of the cost on those who benefit from the fishery.

In 2001, the Leggatt Inquiry into Salmon Farming in British Columbia agreed with witnesses who maintain that DFO's promotion and support of aquaculture conflicts with its responsibility to protect wild salmon stocks. This inquiry also agreed that the department must adopt a precautionary approach and give priority to wild salmon stocks, free of the conflicting responsibility of promoting the salmon-farming industry. It recommended that

- responsibility for promotion of aquaculture be removed from DFO; and
- government regulators increase monitoring and regulation of salmon farming.

In 2007, the BC Special Committee on Sustainable Aquaculture concluded that British Columbia has a unique opportunity to protect and enhance its wild salmon populations and marine ecosystems while developing a thriving and innovative aquaculture industry. With respect to the regulatory regime, the special committee recommended that there must be a clear division between the Ministry of Agriculture and Lands and the Ministry of Environment. Programs that promote aquaculture development should be within the Ministry of Agriculture and Lands. All protection, regulation, and monitoring of the aquaculture industry must be within the mandate of the Ministry of Environment.

Departmental structure, management, and budget

In 1982, Dr. Peter Pearse made several recommendations respecting administration, including the following:

- The office of the assistant deputy minister for the Pacific Region should be located in Ottawa.
- The staffing and financial resources provided to the Pacific Region relative to other regions, and to the Ottawa headquarters of DFO, should be thoroughly assessed in the context of a financial and administrative review of the department.
- An associate director general should be appointed to assist the director general of the region, especially in regard to internal operations and administration.
- The government should initiate a thorough zero-base review of the administration, staffing, and financial support for each program of the entire department.
- DFO should designate a policy and planning group, consisting of senior officers, with specific responsibility for strategic long-range planning for fisheries management and administration in the region.

Response: In 1983, the government agreed that a policy and planning group should be created in DFO's Pacific Region, charged specifically with the overall coordination of all policy development activities in this region. Such a policy and planning group was subsequently established. It also agreed that an administrative and financial review of DFO in the Pacific Region should be undertaken.

In 1998, the Standing Committee on Fisheries and Oceans made several recommendations respecting the management of DFO, including the following:

- The government should completely restructure the department in order to manage the fishery resource at source, including relocating all but a small number of ministerial staff to the regions.

Response: DFO stated that some restructuring had occurred, and the department was becoming a more geographically based field organization, designed to be more responsive to the concerns of local communities. Only 11 percent of departmental employees were located in Ottawa, while 23 percent worked in the Pacific Region. Moreover, "the development of resource management plans takes place in regions and in most cases, fishing plans are approved in the regions."

- DFO should include stakeholders and the provinces as active participants in the management of the fishery.
  Response: DFO recognized that improved consultation processes are essential to responding to public expectations and maintaining confidence. It had created an open decision-making process with more public participation, involvement, and co-operative management on the part of all sectors / stakeholders. As examples of specific action, DFO cited implementation of the Pacific Fisheries Resource Conservation Council and increased stakeholder participation in the Pacific Science Advice Review Committee.
- DFO should undertake a complete review of its processes for formulating fisheries policy and for consultation, in order to rebuild the lost trust between the government and the fishing community.
  Response: DFO agreed that improving its processes for formulating policy and for consultation was necessary to rebuild lost trust. To that end, the minister released a major policy statement in October 1998 entitled *A New Direction for Canada's Pacific Salmon Fisheries* (which outlined 12 principles to guide the policy for fisheries management in the future), as well as a discussion paper in December 1998 entitled "An Allocation Framework for Pacific Salmon, 1999–2005."
- DFO's scientific arm must be better funded and must have autonomy from the government to eliminate political interference.
  Response: DFO recognized the importance of funding for science and was considering several options, including finding new sources of funding, obtaining information from industry and stakeholders, and working in co-operation with users of the fishery resource. In support of sound and timely advice based on the most complete scientific information possible, DFO has structured peer-review processes that make information available to the public through the Pacific Science Advice Review Committee. In addition, the Pacific Fisheries Resource Conservation Council provides a vehicle for public discussion of information on the status of fishery stock and acts as an open and transparent agency for scientific information that is important for conservation of the resource.

In 1999, the Auditor General of Canada reported that there was a gap between DFO's high-level policy commitments to sustainable development, biodiversity conservation, and stakeholder partnerships and its ability to meet those commitments. The regional office's dilemma was that it was putting a significant amount of money into managing the Pacific salmon commercial fishery ($85 million for 1998–99, including habitat, enhancement, science, and salmon management) for a declining economic return. The auditor general recommended that, as a basis for setting priorities in the allocation of resources to meet the demands of the New Direction policy, DFO should complete risk assessments in areas where management information is incomplete or lacking.

Response: DFO agreed. The salmon assessment frameworks being prepared will be critical to identifying priorities. In addition, DFO will be initiating a review of the salmon management process. Resources, from budget, reallocation, and other sources, would be directed according to priority.

In 2003, the House of Commons Standing Committee on Fisheries and Oceans recommended that funding be restored to DFO at levels adequate to the tasks of "restoring science and enforcement programs critical to the conservation of the resource, habitat protection, enhancement and recruitment of professional fisheries managers and prosecution of commercial and recreational fisheries."

Response: The government recognized the importance of science and enforcement in supporting conservation and fisheries management. However, it has limited funding and must set priorities. DFO is reviewing budget allocations and programs throughout the department to ensure that resources are allocated to the highest-priority activities and that they are managed effectively.

In 2005, the Williams Southern Salmon Fishery Post-Season Review Committee concluded that clear deficiencies in management structure and budgeting process at DFO had contributed to the 1.3 million "missing salmon" in 2004. It heard that administrative responsibilities had grown over recent years: for example, Coast Guard, oceans management, aquaculture management, *Species at Risk Act*, recognition of Aboriginal rights under the *Constitution Act, 1982*, climate change, growth in recreational demand, and increasing habitat pressures. Budget increases over the previous seven years, from $125 million to $150 million, had all been used for office staff and additional layers of bureaucracy, with no new funding for operating and/or capital expenditures. The goal of managing fisheries and the resource to ensure sustainability and best use had shifted in recent

years to attempts to satisfy the demands of a host of stakeholders by developing policies and processes for public input. In terms of organization within DFO, the broad array of divisions with separate responsibilities and a variety of reporting relationships bred problems. Although attempts to involve stakeholders in planning and decision making appeared to result in more co-operation, their net effectiveness in delivering DFO's core mandate was less clear. The committee recommended that

- DFO should hire an independent consultant to provide guidance to senior management during the Pacific Region's reassessment of its core mandate with respect to management of Fraser River sockeye salmon and on devising a management organizational structure that best supports that mandate.
- Although public involvement is a "good thing," ultimately the public expects DFO to maintain responsibility for successful resource management. Collaborative approaches and consultation should be evaluated against the goals set for fisheries management, and should be compared with the costs and benefits of in-house or independent delivery of programs.
- DFO has insufficient resources to meet its core mandate for developing, managing, and controlling Fraser River sockeye salmon fisheries and for conserving the resource. It should make a submission for more funds, and an appropriate outside agency should undertake an objective examination of the region's financial situation.
- The Canadian consultative and management structures for all fisheries that have an impact on Fraser River sockeye salmon should be integrated with the Canadian section of the Fraser River Panel of the Pacific Salmon Commission. In addition, the Canadian chair of the Fraser River Panel should be the senior authority on all fisheries management decisions relating to Fraser River sockeye throughout the South Coast and should be empowered to make those decisions on a timely basis.

Response: DFO disagreed with the recommendation that it reassess its core mandate respecting management of Fraser River sockeye salmon. Although it would be open to reviewing its organizational structure, any review would have to consider the full scope of the department's mandate. DFO agreed with the suggestion that integrated management plans should be developed. It develops annual integrated fisheries management plans within a framework that sets measurable goals, analyzes options, and evaluates results. The newly formed salmon Integrated Harvest Planning committees should assist in bringing some additional rigour as well as consensus-based public input and accountability to developing fishery management plans, the evaluation of those plans post-season, and the provision of advice for future improvements.

Over the medium to long term, DFO envisioned that consultation and public advice forums will provide for comprehensive shared decision making and full co-management of the resource, recognizing that the

minister retains the final authority. In 2004, the department established the Integrated Harvest Planning Committee to provide formal advice and to make recommendations on operational decisions related to salmon harvesting. This input is part of the process to establish a more streamlined and representative cross-sectoral advisory process for harvest planning, management, and post-season review.

DFO agreed that there is a need to provide additional resources for some key programs, including fisheries enforcement, catch monitoring, and salmon stock assessment. In 2005, additional resources will be provided to improve all these programs on the Fraser River. However, it must be understood that the public expectation for providing resources will always be greater than government's ability to deliver. Thus, long-term funding mechanisms must include the development of strong and durable partnership arrangements with outside agencies such as the Pacific Endowment Fund, the Pacific Salmon Foundation, and the Fraser Basin Council.

The Williams Post-Season Review Committee also observed that its was the fourth review in 12 years of the management of the Fraser River sockeye salmon. Four broadly recurring themes – enforcement; management and accountability; information and communications; and environmental conditions – had led to 96 recommendations. The committee recommended that DFO form a cross-sectoral committee to produce a work plan for addressing the completeness of responses to past recommendations and for responding to "new" recommendations contained in the current review.

Response: DFO disagreed, stating that the current review determined that it had responded to most of the recommendations. The review provided a thorough assessment of Fraser River sockeye salmon issues in 2004 and a solid basis from which to move forward. It highlighted challenges such as mixed-stock fishery complexities, competing stakeholder aspirations, environmental deterioration, diminishing budgets, information and communication challenges, and changing demographics as core issues. Fundamental reforms had been identified to resolve the problems underlying the circumstances of the 2004 Fraser sockeye fishery. The minister's April 14, 2005, announcement of Pacific fisheries reform already laid out a strategy to guide the work that was required. In addition, extensive work was identified to resolve longstanding conflicts between First Nations and non-Aboriginal interests. DFO agreed that new institutional arrangements should be considered to address the serious relationship issues that had been identified.

In 2005, the Standing Committee on Fisheries and Oceans recommended that the Government of Canada mandate an independent body to review the reports that

had been written over the preceding 12 years about the management of the Fraser River sockeye salmon fishery and to determine which recommendations had been, or should be, effectively implemented.

Response: DFO did not agree, noting that the 2004 Williams Post-Season Review Committee had reviewed these earlier reports: "The Williams report notes that DFO has responded to most of the recommendations of the earlier reviews (i.e., 1994 and 2002)." It added that the reports of both Mr. Williams's committee and the standing committee provided a thorough assessment of the 2004 Fraser River sockeye salmon issues, along with a solid basis from which to move forward with required changes. The minister's April 14, 2005, announcement of Pacific fisheries reform would lay out a strategy for the fundamental changes that were required to get to the root causes of problems in the salmon fishery.

In 2010, the Pacific Fisheries Resource Conservation Council stated:

> Several Council reports have reflected the disappointment and anxiety of many British Columbians with the federal and provincial budget reductions for salmon and steelhead, particularly relating to activities aimed at their conservation. The elimination of long-standing assessment, enumeration, restoration and habitat protection programs and support over the past decade has created a clear public impression that fisheries conservation has become secondary among the federal and provincial government activities in British Columbia. Even the Wild Salmon Policy, which has been the lynchpin of the federal government's west coast salmon management program, has been chronically starved for funding.

Co-management and advisory processes

In 1982, Dr. Peter Pearse made a series of recommendations respecting consultative arrangements. Among them was the recommendation that DFO articulate general policy and procedures for effective consultation with the interested public, including the following:

- A consultative or advisory body should be appointed to deal with each branch of fisheries policy in which there is a distinct and focused public interest.
- Each consultative body should have clear, written terms of reference to govern its deliberations and a specified line of reporting and accountability.
- Members of consultative bodies should be formally appointed by the minister or an official delegated by the minister for specific terms. They should be reimbursed for the expenses they incur in participating in meetings.

- The membership of any consultative body intended to provide advice on policies that require balancing conflicting interests should not include delegates who are answerable to the interested groups.
- The government should replace the existing Minister's Advisory Council with a new Pacific Fisheries Council. The council should be provided for in legislation, and its terms of reference should embrace all matters that fall within the responsibility of the minister as they relate to Pacific fisheries. The council should be empowered to consider industrial policies, international arrangements, or other questions when they are referred to it by the minister.
- A special advisory committee should be appointed for each of the significant fisheries that have special regulatory policies, including mariculture, the sport and Indian fisheries, and the separately licensed commercial fisheries. These committees' terms of reference should direct their attention to the coast-wide problems of managing specific fisheries. Members should be appointed by the minister or the director general for definite terms, drawing on representatives of organized groups.
- Three regional fisheries conservation committees should be appointed, one each for the north, south, and Fraser River administrative areas. These committees' terms of reference should direct their attention to matters relating to enhancement and habitat management in the relevant area.
- Local advisory committees should be appointed to deal with special fisheries' habitat or management problems in particular areas where these problems cannot be adequately dealt with by the fisheries advisory committees or the fisheries conservation committees. These committees' terms of reference should be defined geographically as well as with respect to the specific problems to be considered. Committee members should be appointed by the minister, director general, or area manager for definite terms, drawing on representatives of local interest groups.

Response: In 1983, the government agreed with the need to reorganize the consultative process – details were already under discussion with interested parties. The government also agreed with the need to create a new and vigorous public information program. In 1984, the government announced that, starting in 1985, DFO would establish area committees to advise and consult on fisheries management and other matters of common concern to fishers. With the establishment of the Pacific Salmon Commission in 1985, expert panels would provide recommendations and comment on the management of the fisheries in their areas of responsibility before and after each season's harvest. In 1987, the Pacific Regional Council was established to replace the former Minister's Advisory Council. The new council's mandate was to provide the minister with policy advice on major long-term issues affecting the BC fishery.

Dr. Pearse also made recommendations respecting federal arrangements with British Columbia, including the following:

- The Government of Canada should invite the Government of British Columbia to join in a comprehensive intergovernmental agreement on fisheries matters. It should comprise a master or framework agreement providing for supplementary agreements on matters such as a renewed Salmonid Enhancement Program, an inventory of aquatic habitats, co-operative arrangements for habitat management and pollution control, provincial responsibilities in administering and regulating freshwater fisheries, and division of administrative responsibilities for mariculture and the gathering of statistical data on marine fisheries.
- The Government of Canada should invite the Government of British Columbia to co-operate in establishing a Canada–British Columbia Fisheries Committee, consisting of the deputy ministers responsible for fisheries in the two governments and other members mutually agreed upon. The committee's responsibility would be to assist the two governments in negotiating an intergovernmental agreement, to coordinate and oversee the implementation of the agreement, and to provide for consultations on other fisheries matters of mutual interest.

Response: In 1983, the government announced that discussions with British Columbia would be initiated following cabinet approval of negotiating strategies. In 1986, DFO and the BC Ministry of Environment signed a memorandum of understanding on the coordination of fisheries programs under the General Fisheries Agreement. This memorandum was intended to facilitate co-operation and coordination in the planning and application of fisheries resources management policies and programs in British Columbia.

In 1999, the Auditor General of Canada reported that, although DFO saw consultation as a first step toward a closer working relationship with its stakeholders, leading eventually to co-management through regional boards, stakeholders continued to complain about its actual consultation processes. DFO recognized the need for a fundamental review and revision of its present approach to public involvement in the management of salmon fisheries. The auditor general recommended that DFO should

- evaluate its consultation process, with the input of stakeholders, to identify where improvements are needed before it finalizes its improved decision-making policy;
  Response: Consistent with this recommendation, DFO was planning to obtain stakeholders' and public input on how to improve the consultative process before finalizing the improved decision-making policy.
- intensify its efforts to develop common objectives and integrated strategies with the Province of British Columbia to conserve the resource base and promote sustainable fisheries.

Response: Over the preceding two years, the federal and provincial governments had been jointly implementing the Canada–British Columbia Agreement on the Management of Pacific Salmon Fishery Issues. Additional work on coordinating their efforts in both enforcement and habitat management and restoration was under way.

In 2001, the University of Victoria's Institute for Dispute Resolution made numerous recommendations respecting DFO's consultation and decision-making processes, including the following:

- improve standards of practice within consultation processes and commit to a set of principles and a code of conduct that address fundamental issues of mistrust; and
- establish a planning and policy development system that clarifies when and how important decisions are made and how interested parties may participate.

The institute recommended that all parties commit to a code of conduct for inclusive, transparent, and accountable participation processes. It provided an initial code of conduct based on principles for an effective representation process and for its implementation.

Response: There was no formal, immediate response to the institute's report. According to DFO's Recommendations and Responses, the department published a national *Consultation Toolbox* and *Consultation Framework* in 2004 that includes guiding principles and approaches to developing trust through effective engagement. In the same year, DFO's Pacific Region developed a Policy to Govern Pacific Region Advisory Bodies, including a set of principles and a code of conduct for advisory groups, which contains many of the recommendations in the institute's report. DFO established a consultation secretariat while the independent review was in progress to coordinate and support regional departmental consultation on a wide range of policy issues.

In 2003, the Chamut External Steering Committee noted widespread concern about inadequate consultation respecting management of the Pacific salmon fisheries, including pre-season development of the Integrated Fisheries Management Plan and the in-season management of the fishery. It recommended that, to facilitate improved and transparent consultation, new advisory processes be developed by

the fall of 2003 for the provision of advice on policy issues and harvest planning.

- A policy steering committee should be established that represents the full range of interests for the conservation and management of Pacific fisheries resources: First Nations, commercial and recreational fishing sectors, conservation organizations, community groups, and the provincial government. This committee would provide a venue for broadly based dialogue with DFO on major policy matters affecting the fishery, including a Wild Salmon Policy, risk management, and socio-economic objectives.
- Two new salmon-harvest planning committees (north and south) should be established to provide advice to DFO on the development of integrated fisheries management plans.

Response: DFO stated that a draft action plan and decision note were prepared in September 2003, but, after the Regional Policy Branch assessed regional policy gaps, it was determined that the structure necessary to deal with high-level policy gaps might benefit from a different approach from that recommended by the external steering committee. A revised decision note detailing a policy forum process that would occur on an as-required basis would be prepared, leading to subsequent implementation. DFO reported that steps were under way for stakeholders to designate representatives to the Integrated Harvest Planning Committee.

The Chamut External Steering Committee also recommended the following with respect to Fraser River First Nations:

- The Fraser River First Nations watershed process should be further supported by ensuring that technical support is provided for continued improvements in the efficiency of annual management planning and consultation processes.
- Support should be provided to coastal First Nations who choose to form an aggregate body representing First Nations communities.

Response: DFO responded that the watershed process was supported through the Fraser River Aboriginal Fisheries Secretariat, for which the department provided funding and technical support. In addition, coastal First Nations had formed a society with the initial focus of conducting successful co-operative food, social, and ceremonial fisheries in a manner consistent with the purse-seine test fisheries.

In 2004, Dr. Peter Pearse and Prof. Donald McRae noted that, during the past decade, the adoption of individual quotas in some fisheries had led to a significant move toward co-operative management. Engaging those who hold the rights to harvest fish in the management of their fisheries was seen as the most promising trend, one that

should be developed further by strengthening the role of various fisheries associations. They recommended:

- The minister of fisheries and oceans should issue a policy statement declaring that the government supports co-management as a means of improving the management of fisheries.
- DFO should issue clear instructions about procedures for establishing fisheries associations.
- Membership in a fisheries association should be required of anyone participating in a particular commercial fishery, and associations should be authorized to levy fees on their members to cover the cost of their work.
- Co-management arrangements should be firmly established in law.

Accountability to Parliament

In 2003, the House of Commons Standing Committee on Fisheries and Oceans recommended that DFO should report annually to the standing committee on the progress made in dealing with the issues and problems raised concerning the Fraser River salmon fishery and that the report also be tabled in Parliament.

Response: The government stated that it would be inappropriate to select only the Fraser River salmon fishery for a report to Parliament, given that it implements 175 fishing plans each year and that the Fraser River salmon fishery (which is only one of many components of the West Coast salmon fisheries) is managed under the Canada–US Pacific Salmon Treaty. DFO already provided extensive information through its annual Integrated Fisheries Management Plan, which includes a post-season review section that describes the conduct of the fishery in the context of all the objectives that were identified the previous year.

Independent oversight

In 1995, the John Fraser Sockeye Public Review Board concluded that the objective of sustainable fisheries management would be advanced by the creation of an independent body to act as a public watchdog agency, with no vested interest except the health of the fish and their habitats. It recommended the establishment of a Pacific Fisheries Conservation Council, which would report to ministers and the public annually and from time to time as appropriate.

Response: DFO responded that it supported the concept and would explore it in the imminent roundtable process examining fleet capacity reduction and allocation issues.

In 1996, the Federal-Provincial Review of the Mifflin Plan, a comprehensive plan by the minister of fisheries and oceans to revitalize the West Coast commercial salmon fishery, recommended action on the suggestion that was made in the 1994 Fraser River Sockeye Public Review Board report: that a Regional Conservation Council be established to act as a public watchdog for the fishery.

Response: In 1998, the minister of fisheries and oceans created the Pacific Fisheries Resource Conservation Council, with a mandate to

- provide strategic advice regarding stock conservation and enhancement; habitat restoration, protection, and improvement; and fisheries conservation objectives (including identifying stocks in need of conservation actions and stocks where there was insufficient information to assess their conservation status);
- describe the effects of conditions in freshwater and marine ecosystems on the conservation of Pacific salmon;
- review and make recommendations pertaining to research programs, stock and habitat assessments, enhancement initiatives, and government policies and practices related to conservation of Pacific salmon and their freshwater and ocean habitat;
- integrate scientific information with the knowledge and experience of First Nations, stakeholders, and other parties;
- alert the minister of fisheries and oceans and the public on issues that threaten the achievement of departmentally defined conservation objectives for Pacific fish populations or their freshwater or ocean habitat; and
- provide information to governments and the public on the status of Pacific salmon stocks and their freshwater and ocean habitat in order to enhance understanding and support for fish conservation and habitat protection.

Pacific Salmon Treaty

In 1998, the Standing Committee of Fisheries and Oceans recommended that the government take immediate actions against the United States in order to preserve depleted coho salmon stocks and to facilitate a Pacific Salmon Treaty resolution.

Response: DFO responded that Canada's goal is to arrive at a long-term arrangement with the United States that addresses conservation concerns and encourages collaboration to protect threatened salmon stocks. Before the 1998 season, in order to advance conservation of weak sockeye runs, Canada succeeded in concluding fishing arrangements with the United States which capped the US harvest of Fraser sockeye and delayed the start of US fishing from early July until later.

Habitat management, conservation, restoration, and enhancement

In 1982, Dr. Peter Pearse made 23 recommendations for habitat management, including the following:

- The Government of Canada should invite the Government of British Columbia to participate in a joint program aimed at compiling a comprehensive inventory of fish habitats in freshwater streams and estuaries in the province. The inventory should describe the biophysical characteristics of individual areas of fish habitat and include an assessment of their potential for producing fish.
- The policy of DFO should be to ensure that the total fish production capacity in the region will not be diminished as a result of industrial and other activities that impinge on fish habitat. Identifiable and measurable harm to fish habitat should be tolerated for any particular development only if the damage is fully compensated through expanded fish production capacity elsewhere.
- DFO should adopt an explicit policy for assessing proposed developments that threaten fish habitat and for determining compensation where required, based on the following precepts:
    - In considering proposals for new developments, DFO should investigate their impact on fish habitat and all feasible means of avoiding or minimizing harm to fish.
    - Developers should be required to adopt all reasonable measures to avoid or to mitigate damage to fish habitat.
    - If such measures are insufficient to prevent habitat damage, DFO should be authorized (but not required) to approve the development, but only if the loss in fish production capacity is fully compensated through increased fish production capacity elsewhere. The compensation should take the form of new fish production by the developer or cash equivalent to enable DFO to replace the equivalent of the lost productive capacity. Cash compensation should be placed into a new Pacific fisheries conservation fund, to be administered by DFO. Money paid into the fund should be spent only on habitat improvement and other fish production measures.
- If it is deemed to be in the public interest to exempt any development proposal from the provisions for mitigation and compensation in respect of damage to fish habitat, the decision should be made by the federal cabinet, not by DFO.
- The minister (or delegate) should have the explicit authority to convene public hearings concerning any proposed project or development that might threaten fish habitat.
- DFO should develop, in co-operation with the province, a program to ensure systematic monitoring of all industrial and other operations in the Pacific Region which have the potential for inflicting significant damage to fish habitat.

- Before charges are laid under the habitat protection provisions of the *Fisheries Act*, the circumstances should be reviewed by senior regional officers of DFO, including the director general, the director of the Habitat Management Branch, and the chief of enforcement, to ensure consistency in applying the law.
- DFO should produce operating guidelines to assist industrial operators in avoiding damage to fish habitat; before any charges are laid, the extent to which such guidelines have been adhered to should be considered.
- Exclusive administrative responsibility over all habitat protection provisions in the *Fisheries Act* and over the *Ocean Dumping Control Act* in the Pacific Region should be assigned to DFO, together with related staff and funds.

Response: In 1983, the government agreed that habitat protection operations should be strengthened and stated that several of Dr. Pearse's other recommendations were under review. In 1984, DFO and British Columbia's Ministry of Environment, Lands and Parks jointly launched the Fish Habitat Inventory and Information Program, the primary goal of which was to compile a comprehensive inventory of the quality, quantity, and productive capability of fish habitats in the freshwater, estuarine, and marine environments of British Columbia. In 1986, the minister presented to Parliament DFO's Policy for the Management of Fish Habitat.

Dr. Peter Pearse made 13 recommendations respecting salmonid enhancement, including the following:

- The Salmonid Enhancement Program should proceed with planned projects, according to its established priorities.
- A concerted effort should be devoted to monitoring and comprehensively evaluating the results of projects already in place. Careful attention should be paid in these evaluations to the implications of enhanced stocks for fisheries management.
- Planning for future enhancement should proceed, with appropriate funding, for the next two years as determined with the advice of the Salmonid Enhancement Board.
- Priorities for future enhancement should be linked to the emerging results of current projects as revealed by careful monitoring and evaluation. Major projects of a kind that have yet to prove themselves or that depend on uncertain information raise problems of mixed fishing and manageability, and they should be postponed until these questions are resolved. Correspondingly higher priority should be accorded to well-proven techniques, smaller and less risky projects, and works based on relatively solid information.
- Artificial enhancement projects should be approved only if investigation reveals that equivalent net gains cannot be achieved through improved fisheries management or reduced fishing pressure.

Response: According to DFO's Recommendations and Responses, the government agreed in 1983 to continue the Salmonid Enhancement Program, initially at a modest level. In 1984, DFO announced new funding of $44 million to carry the program through a two-year transition phase. In 1986, the minister of fisheries and oceans announced cabinet approval of additional funding of $20 million to enable the program to operate fully in 1986–87. In 1987, additional funding of $208 million over the next five years was announced.

In 1995, the John Fraser Sockeye Public Review Board made a series of recommendations on environmental issues, including the following:

- DFO should urge the Greater Vancouver Regional District and the Province of British Columbia to install, without further delay, a secondary sewage treatment facility at Annacis Island.
  Response: DFO not only agreed but included the Lulu Island facility as well.
- DFO should develop a predictive water temperature model for the Fraser River and its major sockeye tributaries, and the resulting information should be used for in-season risk-aversion management.
  Response: The model under development would be implemented by 1996. Temperature probes were in place throughout the Fraser basin and would provide data in real time. Criteria would be developed to adjust in-season fishing plans during periods of severe environmental conditions.
- Federal, provincial, and local governments should join forces to develop effective policies and plans in the Fraser River basin designed to
  - better treat and control the discharge of effluent into the Fraser River watershed;
  - see to the implementation of responsible forestry practices in line with the new provincial Forest Practices Code;
  - continue to remove in-river obstacles that impede the migration and spawning of anadromous species; and
  - regulate urban development in the Fraser River watershed so as to be compatible with environmental priorities.

  Response: DFO responded: "The Fraser Basin Management Board already brings federal, provincial, Aboriginal and local governments together and will be encouraged, hopefully with the support of the BC Minister, to focus on this recommendation."
- DFO should conduct further research on a variety of issues.
  Response: Research was currently under way on the effect of logging on water temperature and the effects of multiple sublethal stresses on migrating salmon. Research would be undertaken on ways to mitigate adverse water temperatures and to improve survival at all stages in the life span. In order to

improve pre-season forecasting, additional work would also be done on the Johnstone Strait diversion rate.

In 1997, the Auditor General of Canada examined DFO's activities in conserving the Pacific salmon habitat. The auditor general reported that the Policy for the Management of Fish Habitat (1986) established a "net gain" objective – increasing the amount of habitat available to salmon by conserving existing habitat, restoring damaged habitat, and, where possible, developing new habitat. It concluded that DFO had not prepared an overview report on the status of fish habitat conservation in Canada, nor had it yet developed an acceptable, standardized measure of habitat productivity. The auditor general made a series of recommendations, including the following:

- DFO should give the collection and management of information on Pacific salmon stocks and habitat a high priority in order to meet the needs of resource managers in the field and any reporting requirements on the status of the resource.
  Response: DFO would continue to give high priority to the collection and management of information on Pacific salmon stocks and habitat.
- DFO should clarify the extent to which it intends to apply sustainability and genetic diversity practices to the management of individual salmon stocks and their habitats.
  Response: DFO would continue to apply the Policy for the Management of Fish Habitat to the habitat of BC salmon stocks.
- DFO should develop more explicit operational objectives and targets to address sustainability and genetic diversity of salmon stocks for inclusion in fishing plans. The linkage between harvest management and fish production, including enhancement as well as habitat protection, needs to be strengthened.
  Response: The linkage between harvest management and fish production, including enhancement as well as habitat protection, will be strengthened further.

The auditor general also recommended that

- DFO should increase its level of participation in regional and community-based planning initiatives.
- DFO should work with the Province of British Columbia to improve efficiencies in the development referral system, subject to an appropriate accountability framework being put in place to satisfy the department's national mandate for habitat protection.
- In implementing the development referral program, DFO should devote more time and effort to compliance monitoring and follow-up in order to assess the

effects of its habitat management decisions and its performance toward the achievement of "no net loss" of habitat.
- DFO should review the performance of existing co-operative arrangements in British Columbia and build on those models that have produced positive results in habitat conservation.
- Agreements setting up such co-operative arrangements should contain a statement of objectives, a clear definition of roles and responsibilities, expected results and requirements for program coordination, and performance reporting and evaluation.
- DFO should review the effectiveness of its Habitat Policy and Habitat Management Program and develop a strategic approach to guide its negotiation of a new subagreement on habitat conservation and protection with British Columbia.

Response: DFO's single response to the preceding six recommendations stated that it was undertaking an internal review of the Habitat Management Program in the Pacific Region to provide strategic direction for program delivery. This review would be a component of the 1997 Canada–British Columbia Agreement, which was expected to result in a coordinated and balanced habitat management program in British Columbia.

In 1998, the Standing Committee on Fisheries and Oceans was told that all levels of government had failed in their responsibilities to protect and restore the salmon habitat. It recommended that the government review its policies respecting habitat restoration and protection, enforcement, and fish hatcheries and that additional human resources be provided at the local level for habitat restoration.

Response: DFO responded that initiatives under the new *Oceans Act*, such as the oceans strategy, integrated management plans, and marine-protected areas, offered a new and significantly different approach to habitat protection – and that they would be developed and expanded. Since 1996, DFO had funded programs valued at $18 million, and an additional $20 million would be spent over the next three years. Also, DFO would facilitate the development of watershed councils representing all local interests, including those whose activities have an impact on fish habitat. Stewardship coordinators would be recruited to work with the watershed councils, as would habitat auxiliaries to work with industry to promote awareness of habitat issues, in order to avoid damage and to monitor works that may have an impact on habitat. DFO would continue to support habitat restoration work where required, its first priority being to support projects that will help to conserve and rebuild threatened salmon stocks. Some of these projects would offer employment opportunities for displaced fishers. DFO agreed that there was a need to improve its policies

related to fish hatcheries, which would be addressed in its forthcoming Wild Salmon Policy paper.

In 1999, the Auditor General of Canada concluded that, given the need to satisfy conservation requirements while optimizing fishing opportunities, a better understanding of the genetic diversity of stocks is essential. DFO's Pacific Region office indicated that, to protect genetic diversity, it would manage salmon on the basis of Conservation Units – groupings of stocks with related genetic characteristics – similar to those adopted in the United States. The auditor general made several recommendations:

- In order to protect the genetic diversity of salmon stocks, DFO should move quickly to determine Conservation Units for all five species.
  ***Response*:** DFO agreed with the need to continue efforts to determine Conservation Units for Pacific salmon. Work on coho salmon stocks was most advanced at that point, reflecting immediate conservation concerns. Initial plans for Conservation Units for all species were to be completed in priority sequence as quickly as resources permitted, then continually upgraded as new information became available.
- DFO should produce comprehensive, integrated status reports on stocks and habitats based on the new Conservation Units for each salmon species. The report should be updated annually and used in developing, implementing, and evaluating fisheries management plans.
  ***Response*:** DFO agreed that there was a need to improve the integration of information about stock and habitat assessment in order to help guide decisions about fisheries management. This process would be consistent with the ecological approach to fisheries management to which the department is committed and it would be implemented in a staged manner. DFO agreed that integrated reports should be produced on a regular basis, with more frequent reviews in special circumstances, but it questioned whether an annual reporting system provided the appropriate time frame for regular reporting.

In 2003, the Chamut External Steering Committee recommended that DFO conduct consultations on a Wild Salmon Policy with First Nations, harvesters, and other interest groups, including conservation organizations. The policy should provide a framework for defining conservation objectives for naturally spawning salmon and direction for resource management (Conservation Units and reference points), habitat protection, enhancement, and aquaculture.

Response: DFO responded that development of the Wild Salmon Policy had been slowed by internal debate at all levels over several key policy issues, specifically what level of genetic diversity to conserve, the implications of the *Species at Risk Act*, and the development of an open and transparent planning process to consider social, economic, and biological factors. The Wild Salmon Policy was adopted on May 31, 2005.

In 2004, the commissioner of the environment and sustainable development made the following recommendations:

- DFO should finalize the Wild Salmon Policy to define conservation objectives and provide direction for the management of fisheries, protection of habitat, and salmon enhancement.
  Response: DFO responded that it was nearing completion of a draft Wild Salmon Policy. Following regional and national review and approval, the policy would go to consultation and final departmental approval, then be released to the public.
- DFO should collect and analyze information to provide up-to-date assessments on habitat conditions.
  Response: DFO responded that it "collects habitat information in partnership with community groups, the Province of British Columbia, and industry sectors. These assessments are accessible in a variety of ways, including watershed atlases and on-line digital mapping. The assessments will continue and expand as new partnerships are developed."

The commissioner also reported that the overall objective of the 1986 Policy for the Management of Fish Habitat is to achieve an overall net gain or increase in the amount of habitat available to salmon. However, there are indications that habitat loss is continuing and the Habitat Policy does not seem to be working. Until recently, DFO and the Province of British Columbia jointly operated a project referral system under which individuals, companies, or agencies referred land, river, and marine development projects to them for review to determine whether changes to fish habitat were likely to occur. The province now uses a results-based approach to protecting fish habitat, and the department consequently needs to realign its regulatory review efforts toward those projects and areas with the greatest risk to fish habitat. The commissioner recommended that

- DFO coordinate its efforts with the Province of British Columbia, using a risk-based approach that would both complement the provincial approach and satisfy its own mandate to manage and protect fish habitat.

Response: DFO stated that it was implementing a science-based risk management framework that focused on the highest risks to fish habitat. It was expected that the 2000 federal-provincial Agreement on Fish Habitat Management would be renewed and that the governments would collaborate in the development of the new provincial riparian areas regulation that would deal with setback requirements.

In 2005, the Auditor General of British Columbia made several recommendations to help ensure that the province could effectively manage its responsibilities to sustain wild salmon. The auditor general recommended that the province

- develop, in conjunction with DFO, a clear vision (with goals and objectives) for sustaining wild salmon and provide public policy direction about what is an acceptable risk to salmon habitat and what is an acceptable loss of salmon runs;
- develop, in conjunction with DFO, an overarching strategy to manage wild salmon sustainability;
- identify a lead provincial agency to coordinate efforts for sustaining wild salmon and to rationalize the committee structures;
- coordinate a review of the way recent legislative changes have affected wild salmon and examine the outcomes of provisions that are not being put into force;
- ensure that initiatives aimed at preventing impact to salmon habitat incorporate best-management practices along with measurable indicators and results that are linked to appropriate regulations;
- review provincial compliance and enforcement programs within various resource management agencies to ensure that sufficient resources for creating deterrents are maintained and establish a clear policy and decision framework for identifying and approving escalating compliance and enforcement actions;
- ensure that provincial agencies work together to develop methodology and indicators to enable periodic assessment of the effectiveness of legislative provisions for habitat protection in meeting goals to sustain wild salmon;
- institute a program to rank restoration priority, formulate a multi-year restoration program, and determine the effectiveness of restoration programs;
- through the Ministry of Sustainable Resource Management,
    - determine, in conjunction with related provincial agencies and federal partners, consistent data standards for collecting and storing information, including wild salmon data; and
    - ensure that a program is in place to attest the accuracy, completeness of data, and timely accessibility of information for decision makers and users;

- assess the resource requirements needed to deal with wild salmon issues; and
- develop a monitoring system and indicators to measure and report on the overall progress for sustaining wild salmon on a timely basis.

In 2005, the assessment by the David Suzuki Foundation of DFO's performance on its conservation mandate included the following conclusions:

- DFO has inadequate information to carry out its conservation-related responsibilities.
- DFO does not conduct its operations in a transparent manner, nor does it provide enough meaningful and timely information on its conservation performance to its various audiences.
- DFO does not have an adequate budget to carry out its conservation responsibilities effectively.
- Political influence too often interferes with and limits DFO's ability to carry out its conservation responsibilities.
- DFO does not appear to be performing effectively in the many areas where it shares responsibility with other agencies, departments, and levels of government;
- Bureaucratic complexity often limits DFO's ability to carry out its conservation-related responsibilities.
- Conflicting, changing, and expanding mandates and direction create a confused work environment that limits conservation performance.
- In many instances, DFO does not effectively enforce the laws related to conservation.

The foundation stated that implementation of the following general recommendations by DFO Pacific Region would provide the basis for significant improvements in the region's ability to implement its conservation mandate:

- provide clear, quantified, transparent, publicly understandable goals and performance measures, which would be progressively applied, to guide the conservation and management of fish, fish habitat, and fisheries;
- make those who use or have an impact on fish, fish habitat, and fisheries pay for authorization, mitigation, monitoring, and researching their impact;
- adopt, co-operatively with the provincial government, a meaningful zoned fish habitat protection system based on land / water use co-planning that will treat those who make small or large habitat impacts fairly, including moving ahead on marine-protected areas and other fisheries–protected areas;
- document and regularly report, co-operatively with the province, on all planned and inadvertent changes, including reductions or relaxations in requirements for monitoring or enforcement of conservation provisions for fish populations, habitats, or ecosystems;

- establish and adequately fund an arm's length / independent accountability and reporting process to monitor and report on the conservation and management of fish, fish habitat, and fisheries; and
- establish and maintain a coherent and consistent fisheries, habitat, and water-quality enforcement program.

In 2005, the Williams Post-Season Review Committee reviewed studies documenting the negative impact of increased river water temperature on migrating salmon. The committee concluded that high water temperature is an extremely serious problem for Fraser River sockeye, as it may lead to fungal, bacterial, and parasitic infections, delayed migration, increased physiological stress, decrease in energy reserves needed to reach spawning grounds, increased delayed mortality following non-lethal fisheries encounters, and direct mortality. The committee made several recommendations:

- The accumulation of degrees of water temperature encountered per day (i.e., number of days times water temperature) should be considered as an approximation of the environmental stress experienced by migrating Fraser River sockeye salmon and should inform in-season management decisions.
- New and properly designed research is required on Early Stuart, Early Summer, and Summer runs to complement the work done on Late-run sockeye, in order to determine any stock-specific effects of high water temperature on migrating and spawning success.
- The feasibility of modifying existing flow-control / hydro facilities and water-use agreements should be investigated, particularly those that might decrease Fraser mainstem and tributary temperatures during high-temperature years.
- The riparian habitat in tributary watersheds throughout the Fraser basin should be protected and restored, in order to reverse the warming effect that lack of cover creates through the disruption of the hydrologic cycle.
- In extreme warm-water years, fisheries managers should take additional actions to ensure that adequate and appropriate numbers of fish enter the river. Once the fish are in the river, actions such as providing a specific time and area conservation corridor are needed to create the opportunity for sockeye salmon to migrate with a minimal amount of stress caused by fishing in the river.

Response: DFO reported that several improvements to forecasting river temperature were planned for 2005: to develop long-range (months) and medium-range (weeks) forecasts of environmental conditions as an early warning system for managers, and to improve the short-range (10 days) forecasting of environmental conditions. The department's Environmental Watch Program generates forecasts of Fraser River environmental conditions, including the average lower-river temperature and flow conditions experienced by major Fraser River sockeye salmon management groups. The current

temperature network consists of logger stations between the Lower Fraser and Stuart River, including 15 DFO stations and 10 Environment Canada stations, plus thermistor chains in major lake systems to provide temperature–depth profiles. DFO agreed that new research on Early Stuart, Early Summer, and Summer runs is a high priority.

For 2005, departmental and Pacific Salmon Commission funding had been secured to conduct an exploratory radio-tagging program in order to assess the feasibility, using telemetry studies, of estimating mortality due to fishing and non-fishing factors. In 2006–7, a multi-stock telemetry project was proposed to estimate all sources of mortality. DFO agreed that the protection and rehabilitation of riparian habitat is important to provide shade, food, and protective cover for salmon, particularly juveniles. The degree to which the absence of riparian cover contributes to the warming of both tributary and mainstem portions of the river is not well understood, relative to other drivers such as weather patterns, drought, and global climate change. DFO's Environmental Process Modernization Plan and other initiatives provide a comprehensive framework for the protection of fish habitat, including riparian habitat. The department disagreed with the committee's recommendation to modify existing flow-control / hydro facilities. Numerous Nechako River studies on the influence of cooling summer flows demonstrate a negligible influence on Fraser mainstem temperatures. Any such initiatives would require the involvement of provincial authorities, private interests, and Crown agencies.

In 2005, the Standing Committee on Fisheries and Oceans concluded that, in 2004, Fraser River water temperatures during the migration of Early Stuart, Early Summer, and Summer runs were well above the average temperature of the preceding 60 years. At times they reached or exceeded the maximum temperatures recorded during these same 60 years. Elevated water temperature amplifies the incidence of diseases among salmon, impairs swimming performance, and reduces their ability to recover from net encounters, all potentially leading to increased mortality. The committee recommended that DFO and the Fraser River Panel of the Pacific Salmon Commission adopt and use more stringent guidelines for closing the fishery when water temperatures reach dangerous levels.

Response: DFO agreed. The primary tool used in-season to mitigate against environmental conditions such as water temperature was the Environmental Management Adjustment model, which is used to forecast the impact of freshwater temperatures on migrating salmon. It allows managers to estimate the number of salmon at risk under certain water temperature conditions and to increase the spawning objective and adjust the fisheries accordingly. The model provides a basis for precautionary-based fisheries management. DFO is

improving the Environmental Management Adjustment model to develop long-range (months), medium-range (weeks), and short-range (10 days) forecasts of environmental conditions.

The standing committee also recommended that DFO collect and analyze information to provide up-to-date assessments on habitat conditions and Pacific salmon stocks that are below departmental targets and declining.

Response: DFO generally agreed. There is a need to improve the integration of salmon stock and habitat information in order to guide fisheries decisions – a goal consistent with the ecological approach to fisheries management to which the department is committed. However, it will be implemented in a staged process over time, not annually. The Wild Salmon Policy will establish a framework to further focus efforts on stocks and habitat that are at the highest risk. As Conservation Units are formalized under the Wild Salmon Policy for each salmon species, reports on habitat and stock status will be based on these Conservation Units.

In 2007, the BC Special Committee on Sustainable Aquaculture concluded that British Columbia has a unique opportunity to protect and enhance its wild salmon populations and marine ecosystems while developing a thriving, innovative aquaculture industry. To that end it made 52 recommendations, including several respecting wild salmon enhancement:

- The Ministry of Environment should take a lead role in creating a living rivers strategy to improve British Columbia's river systems with scientifically based standards for watershed management, enhancement to fish habitat, and a 10-year program to correct past damage.
- Enhancement projects such as stream restorations should be given a 250 metre clearance and a guarantee that no development can take place so as to undo the work of salmon enhancement.
- The provincial government should establish Marine Protected Areas representing a minimum of five times the area licensed for aquaculture in each area.

In 2009, the BC Pacific Salmon Forum stated:

> For many years watersheds have been managed in response to industry applications. Various resource users – forest and power

> generation companies, farmers, ranchers, shellfish and finfish growers, road builders, oil, gas, mining and transportation companies – have sought government licences and permits to alter landscapes and water flows to meet their respective needs. These licences are administered by a variety of ministries or agencies. No single provincial agency measures the incremental and cumulative effects of all these individual decisions on watersheds, nor is government able to assess the capacity of watersheds to accommodate these demands while maintaining their ecological functioning condition.

The forum recommended that the BC government apply an ecosystem-based approach to managing all resources in watersheds and marine environments. The forum further recommended that the provincial government immediately enter into agreements with the federal government to strengthen and implement habitat restoration and enhancement programs to maintain, rebuild, or restore natural biodiversity and abundance of wild salmon.

To do so, the province would need to shift to a new governance system to ensure that British Columbia's wild and farmed salmon resources and habitat are managed in accordance with ecosystem-based principles. A new BC Water and Land Agency should be created to ensure consistency in applying ecosystem indicator values for all land and watersheds, and in the marine environment, to all resource industries, including aquaculture, thereby ensuring that the cumulative effects of multiple decisions do not exceed established ecosystem health indicators. All levels of government would need to collaborate on pilot watershed governance projects designed specifically to strengthen the ecosystem management of watersheds.

In 2009, the commissioner of the environment and sustainable development found that 10 percent of development projects assessed by the Habitat Management Program will have harmful effects on fish habitat. If damage to fish habitat cannot be avoided, a *Fisheries Act* authorization – a ministerial permission to harm habitat – may be issued. If such an authorization is foreseeable, then there must be an environmental assessment under the *Canadian Environmental Assessment Act*, which ultimately results in a report and a determination about the likelihood that the project will cause significant adverse environmental effects. The commissioner issued several findings.

- Because there were numerous inadequacies in the manner in which these projects were assessed, in the substantive decisions, and in the documentation, the commissioner recommended that, in order to make consistent decisions on project referrals and in accordance with departmental expectations, DFO should ensure that an appropriate risk-based quality-assurance system is in place to review these decisions.

Response: DFO accepted this recommendation and stated that, by March 2010, it would implement a risk-based quality assurance system to verify that documentation standards were being applied consistently by staff.

- Because DFO did not have a risk-based approach to monitoring proponents' compliance with the terms and conditions of ministerial authorizations and letters of advice, it should accelerate the implementation of its Habitat Compliance Decision Framework. It should also determine whether the required mitigation measures and compensation are effective in meeting the "no net loss" principle.
  Response: DFO agreed with this recommendation and committed to implementing the framework fully by March 2010. It also agreed to report annually thereafter on the results of project-monitoring activities.
- Owing to a lack of documentation in files of possible violations of section 35(2) of the *Fisheries Act,* the commissioner could not determine whether DFO was following its Compliance and Enforcement Policy. Thus, the commissioner recommended that DFO should ensure that its enforcement quality assurance and control processes were sufficient to demonstrate that its actions had been taken in accordance with this policy.
  Response: DFO accepted this recommendation and committed to establishing, disseminating, and communicating an operational protocol to the regions by August 31, 2010.
- DFO lacked information on fish stocks, quantity and quality of fish habitat, contaminants in fish, and overall water quality. It therefore lacks the scientific information needed to establish a baseline for the state of Canada's fish habitat. DFO's ongoing challenges in collecting data and selecting habitat indicators mean that it still does not know whether it is progressing toward the Habitat Policy's long-term objective of a net gain in fish habitat. The commissioner recommended that the department develop habitat indicators to apply in ecosystems with significant human activity and that it use these indicators to assess whether it is making progress on the Habitat Policy's long-term objective.
  Response: DFO agreed but cautioned that this task will require significant new scientific understanding to ensure that the indicators adopted do in fact tell us what we need to know about the health of the aquatic ecosystem. It also committed to determining by March 2010, what actions are required to fully implement the Habitat Policy.

The commissioner also directed several recommendations at Environment Canada, which has, since 1978, been responsible for the administration of the pollution prevention provisions of the *Fisheries Act*. These recommendations included the following:

- Environment Canada should set out clear objectives and results expectations for its *Fisheries Act* responsibilities and establish accountability for achieving the desired results.
  Response: Environment Canada agreed and committed to putting in place a Results-Based Management and Accountability Framework by March 2010.

- Environment Canada should identify significant risks associated with non-compliance with the *Fisheries Act*, including determining whether there are significant risks to fish habitat that are not being addressed by the combination of its own administration and enforcement of the Act and the administration and enforcement of other federal and provincial legislation.
  Response: Environment Canada agreed and stated that, by March 2011, it would complete the review of risks and risk management activities and would adjust departmental work plans as required.
- Environment Canada should review existing *Fisheries Act* regulations, guidelines, and best-management practices to ensure that they are adequate, up to date, relevant, and enforceable.
  Response: Environment Canada agreed, stating that, by March 2012, it would complete its review of four outdated regulations and either update or repeal them.

In 2010, the Pacific Fisheries Resource Conservation Council spoke in support of the precautionary approach:

> In its reports, the Council promoted the precautionary approach, realizing that the decisions of governments will take into account many factors beyond conservation objectives and criteria. While the precautionary approach calls for a low-risk or no-risk position, governments are inevitably under pressure to account for economic benefits and social objectives that, in most respects, counter the environmental objectives.
>
> Adherence to the precautionary approach requires governments to err on the side of conservation and environmental values, and it should not be surprising that this rarely occurs or that exceptions predominate, given the pressure for economic development. While the precautionary approach describes an ideal context, it provides insufficient guidance to governments trying to accommodate conflicting objectives that pit environmental versus economic values.
>
> The notion of sustainability – environmental protection that meets present needs without compromising future generations – more accurately describes the position taken by the Council in more recent reports and policy advice.

The Conservation Council also made several references to freshwater mortality:

- **Human effects on ecosystems** – The Council has issued a number of reports that chronicle the salmon impact of damming, dyking, dredging, filling and channelizing in freshwater habitat.

> Urbanization and agricultural development have encroached on riparian areas and have led to a variety of changes that affect salmon productivity and migrations. ... The Council's reports on salmon habitat have included several recommendations to mitigate the effects of forestry, mining, aquaculture and petroleum development. These have included measures to design resource extraction practices and adopt planning to minimize the environmental effects of water run-off, discharges into streams and contaminants.
> - **Climate change impact** – The effect of climate change on Pacific salmon and steelhead freshwater habitat has been a matter of enduring interest to the Council. The impact of warmer water temperatures, wider variability of flows, and growing unpredictability of seasonal variations have been observed in relation to climate change.
> - **Water access and sharing** – Examples of water shortages and growing conflicts over access to water for fish and other uses have been examined by the Council in several reports. ... The Council has suggested several measures to deal with the emerging need to ration water resources in a way that is more fair and equitable, and to accommodate salmon and steelhead needs with recognition of the importance of maintaining healthy fish populations. One of the particularly important proposed measures is to establish a hydrological budgeting process that would enable all water uses and users to be considered in a rationally developed plan.

The Conservation Council also commented on the importance of marine environment research:

> The Council's reports acknowledged the difficulties of conducting ocean research relating to wild Pacific salmon. ... In light of the limited opportunities to carry out direct observations of salmon in ocean research, scientists have worked for the past two decades towards the development of modeling of salmon ocean habitat as a way to understand those ecosystems. The models attempt to account for all of the primary contributing factors and identify the intricate webs of influences and responses.
>
> Considerable advances have been made at the conceptual level in building the models of salmon ocean production, and beginning to express them in quantitative terms. The Council's reports dealing with the modeling of salmon ocean life-stages have included a strong endorsement of increased financial support by government agencies and charitable environmental foundations for this work.
>
> In a recent report, the Council presented the case for consolidating Canada's research resources on ocean climate change into a research institute dedicated to considering climate variations on oceanic salmon production. The literature review on which that proposal was based

identified the significant Canadian expertise in the field that could be harnessed into a new research institute to focus and coordinate the effort.

Harvest management

Planning and assessment

In 1982, Dr. Peter Pearse made recommendations respecting fisheries management, including the following:

- DFO should formulate and publish long-term plans and objectives for managing each of the major species and for ensuring the most beneficial use of the resources. These objectives should include quantitative targets for production by species and management regions.
- To provide the background information needed to formulate long-term plans for salmon, DFO should prepare and publish within 12 months a salmon resource analysis, documenting the condition of the stocks, the opportunities for developing them, and an outline of the options for future management of the salmon fisheries. The document should include:
  - an assessment of the state of the salmon stocks in as much detail as information allows and an appraisal of the adequacy of this information;
  - a review of the problems arising from current fishing patterns;
  - alternative proposals for improving conservation through modifying fishing and management practices; and
  - a review of the implications of enhancement plans for effective fisheries management techniques.
- By 1985, in anticipation of the regional reorganization of the commercial salmon fleet, DFO should formulate and publish a long-term plan for salmon fisheries management. This plan should contain quantitative targets for salmon production by species and management regions based on full use of the existing productive capacity of the natural habitat and enhancement opportunities.

Response: In 1983, the government agreed that DFO needed to modernize its stock management systems and procedures, giving special attention to the acquisition and analysis of statistical data, research on and assessment of the condition of fish stocks, long-term planning for stock management, and procedures during the fishing season. Full implementation would take several years. Beginning in 1984, DFO developed Salmon Stock Management Plans, which contain long-term plans and objectives for major salmon stocks on the Pacific coast.

In 1999, the Auditor General of Canada concluded that more comprehensive reports were needed on individual stocks, or on groups of stocks within the proposed Conservation Units, to facilitate salmon fisheries management under the New Direction policy. The auditor general recommended that DFO should ensure that the responsibilities of the Pacific Scientific Advice Review Committee are in line with the needs outlined in the department's 1998 major policy statement, *A New Direction for Canada's Pacific Salmon Fisheries*, by

- requiring the committee to produce comprehensive integrated reports on stock and habitat status, taking into account traditional knowledge; and
- expanding the committee's area of reporting to cover individual salmon stocks or groups of stocks under proposed Conservation Units.

Response: DFO agreed. It would be moving to ensure that the salmon stock status reports produced by the Pacific Scientific Advice Review Committee incorporated habitat status information. The committee was already responsible for incorporating traditional knowledge in its assessments and for reporting on the status of individual stocks or groups of stocks. Stock status reports would be aligned with Conservation Units, once they were defined.

In 2003, the Chamut External Steering Committee emphasized the need for DFO to develop a policy on wild salmon that explicitly defined conservation objectives for naturally spawning salmon. It recommended that the department conduct consultations on a Wild Salmon Policy and associated guidelines with First Nations, harvesters, and other interest groups, including conservation organizations, and that the policy be finalized by the end of 2003. This policy should provide the framework for defining conservation objectives of naturally spawning salmon and should include direction for resource management (Conservation Units and reference points), habitat protection, enhancement, and aquaculture.

Response: DFO stated that development of this policy was slowed by internal debate at all levels over several key policy issues – specifically, what level of genetic diversity to conserve, the implications of the *Species at Risk Act*, and the development of an open and transparent planning process to consider social and economic factors in addition to biological ones. The department hoped to complete an internal review by March 31, 2004, and to release the policy to the public and initiate consultation as soon as possible thereafter.

In 2004, the commissioner of the environment and sustainable development recommended:

- DFO should finalize the Wild Salmon Policy so as to define conservation objectives and provide direction for the management of fisheries, protection of habitat, and salmon enhancement.
  Response: DFO stated that it was nearing completion of the Wild Salmon Policy. Following regional and national review and approval, the policy would go through consultation and final departmental approval, after which it would be released as soon as possible. The department also observed that "in virtually all salmon fisheries in British Columbia, exploitation rates are dramatically lower than a decade ago. While there have been important conservation successes, the cost to industry has been high, and as a result, the Department has come under continued pressure to relax conservation measures."
- DFO should collect and analyze information to provide up-to-date assessments on habitat conditions and Pacific salmon stocks that are below departmental targets and declining.
  Response: DFO responded that it

> collects habitat information in partnership with community groups, the Province of British Columbia, and industry sectors. These assessments are accessible in a variety of ways, including watershed atlases and on-line digital mapping. The assessments will continue and expand as new partnerships are developed.
>
> Recently developed planning tools, in conjunction with the Pacific Scientific Advice Review Committee, provide a basis for the prioritization of salmon stock assessment activities, with focus on key fisheries and weaker stocks that may be at risk.

In 2005, the Standing Committee on Fisheries and Oceans expressed agreement with the 2004 recommendation by the commissioner of the environment and sustainable development and recommended that DFO collect and analyze information to provide up-to-date assessments on habitat conditions and Pacific salmon stocks that are below departmental targets and declining.

Response: DFO generally agreed. There is a need to improve the integration of salmon stock and habitat information and to guide fisheries decisions – an objective consistent with the ecological approach to fisheries management to which the department is committed. However, it will be implemented in a staged process over time, not annually. The Wild Salmon Policy will establish a framework to further focus efforts on stocks and habitat that are at the highest risk. As Conservation Units are formalized under the Wild Salmon Policy for

each salmon species, reports on habitat and stock status will be based on these Conservation Units.

In 2010, the Pacific Fisheries Resource Conservation Council stated:

> Several Council reports, particularly during the five-year period to 2004, focused on stock status issues in the southern and central coastal regions of British Columbia. Those reports dealt exhaustively with the ways in which trends appeared to be developing, and documented various conditions that needed to be addressed. Virtually all of these reports lamented the problem of the lack of information required to make sound, evidence-based resource management decisions. Basically, the reports cited a chronic lack of adequate salmon and steelhead enumeration and data.

Pre-season planning

In 1982, Dr. Peter Pearse recommended that pre-season planning should be based on an examination of alternative management strategies prepared in the course of the annual scientific assessment of the stocks.

In 1999, the Auditor General of Canada reported that DFO was committed to moving away from its existing fishing plan process toward a long-term planning process for salmon management. The change would be implemented through Integrated Fisheries Management Plans, which would integrate the activities and specialized knowledge of every departmental sector involved and use broader consultation with stakeholders beyond those with direct fishing interests. The auditor general made these recommendations:

- DFO should ensure that Integrated Fisheries Management Plans include formal recovery plans for stocks at risk.
  Response: DFO agreed in principle. Beginning in 1998, fishery restrictions were introduced that curtailed harvest by all sectors and involved fishery closures and adjustments to the area, timing, and gear specifications of permitted fisheries. Initiatives to improve salmon habitat had also been authorized, and projects in support of selective fishing practices had been conducted.
  The department would develop recovery plans consistent with these specifications when they were available and would include them in the plans.
- DFO should facilitate the application of the precautionary principle to salmon

> fisheries management by establishing catch levels and conservation limits for individual stocks or groups of stocks.
> ***Response:*** This recommendation was consistent with the Wild Salmon Policy under development by DFO. The policy, which was based on the precautionary approach, would establish escapement levels and target harvest rates that would ensure long-term sustainability. This work goes hand in hand with the requirement to establish Conservation Units and would be a central feature of departmental science input to fisheries management.

The Auditor General of Canada also recommended that DFO should, as soon as possible, act on its proposal to establish an independent allocation board.

Response: DFO agreed. It stated that it was developing an implementation plan to establish an allocation board. The final draft of its policy plan, An Allocation Policy for Pacific Salmon, which was soon to be released, provided for an allocation board and outlined its basic goals.

In 2003, the House of Commons Standing Committee on Fisheries and Oceans recommended that DFO should provide more stable access to the resource for the commercial and recreational fisheries.

Response: The government referred to the Pacific Region's 1999 Allocation Policy for Pacific Salmon:

> It states that conservation of the Pacific salmon is the primary objective and will take precedence in managing the resource. After conservation requirements are met, the policy sets out a reasonable, balanced approach to harvest allocations. It provides for the priority of First Nations' food, social, and ceremonial requirements and any rights that may be defined by treaties. It also sets out a clear policy on allocation between the fishing sectors, and within the commercial sector. When there is extremely low abundance and when conservation of stocks is at risk, as occurred with Fraser River sockeye in 2001, stable access to fishing opportunities cannot be provided.

The government added that the joint federal-provincial task force on approaches to ensure an integrated and economically viable marine fisheries sector in British Columbia, which is consistent with agreements on Aboriginal land claims, will assist governments in implementing comprehensive solutions to the challenges faced in developing a post-treaty fishery.

In 2003, the Chamut External Steering Committee made a series of recommendations respecting the Integrated Fisheries Management Plan and pre-season planning:

- Pre-season development of the Integrated Fisheries Management Plan should clearly define the priority of conservation and include other key matters such as a description of domestic and international commitments, decision rules that will guide in-season management, and a description of socio-economic objectives.
- Pending completion of a Wild Salmon Policy, DFO should consult with First Nations and other stakeholders on escapement targets to guide resource management for the 2003 fishery and on management objectives for Cultus Lake and Sakinaw Lake sockeye.
- All harvesting plans should ensure that, after conservation objectives have been addressed, priority access is granted for food, social, and ceremonial fisheries.
- DFO should initiate consultations with the Sport Fishing Advisory Board to address concerns regarding the regulation of the recreational fishery and possible impediments to the provision of stable and predictable opportunities for the recreational harvest of sockeye.

Response: DFO reported that it held 31 meetings with stakeholders in developing the 2003 Integrated Fisheries Management Plan. The plan identified stocks of concern, the department's proposed approach to deal with these stocks, decision rules to guide the fishery, and fishery-specific plans where possible. Work had begun to develop a science-based risk assessment framework for the 2004 plan. Work was under way to develop the analytical tools to establish the probabilities of extirpation associated with a range of harvesting regimes. Work had also begun to include socio-economic objectives in the 2004 plan. Pre-season consultations on Fraser River sockeye salmon escapement goals were carried out with all harvesters, and three forums provided guidance concerning the development of long-term escapement goals. Consultations took place with the Sport Fish Advisory Board regarding plans for 2003, and an in-season sockeye communication working group was created.

In 2010, the Pacific Fisheries Resource Conservation Council stated:

> Predicting salmon productivity and returns is a notoriously difficult task, as the estimates of Fraser River sockeye returns over the past decade have vividly shown. Prediction is made all the more difficult by changing ecological conditions and factors such as

climate change. The various theories and calculations that underpin salmon management information systems are typically flawed and increasingly irrelevant for some crucial stocks.

Efforts must be made to improve pre-season forecasts for many species and runs in order to prevent false expectations by the fishing industry and allay public concerns about the effectiveness of salmon conservation efforts. ...

The Council has urged the continuation of investment by governments and the fishing sector to improve the performance of predictive tools through better assessment information and modeling. The Council has also urged greater public empathy for the difficulty in predicting abundance when faced with mutable natural conditions that cause variability in salmon returns. ...

One of the Council's early reports also explained an important aspect in the variability of salmon returns that was claimed to be related to fishing limitations that allowed "too many" salmon to spawn, undermining the productivity of the offspring. The Council's report on the matter debunked this theory, pointing out that there is a leveling off of production in high-escapement conditions, but no evidence of these situations leading to stock collapses.

In-season management

In 1982, Dr. Peter Pearse made the following recommendations respecting in-season management:

- In each area, a salmon management unit, reporting to the area manager, should be formed and assigned responsibility for in-season management of the salmon fisheries.
- DFO should, as expeditiously as possible, upgrade the statistical collection processing and storage system for in-season salmon fishery management, taking full advantage of advanced technology in data processing and remote terminal accessibility.
- DFO should explore the feasibility of test-fishing programs in which commercial fishing vessels conduct experimental fishing according to departmental specifications in return for all or part of their catches.
- DFO should thoroughly review its provisions for in-season management of the salmon fisheries with a view to establishing systematic procedures, including specifications for in-season field programs of test fishing and monitoring; procedures for recommending and authorizing in-season variations in regulations; and procedures for ensuring full documentation of in-season investigations, regulatory actions, and appraisals of their results.

In 1995, the John Fraser Sockeye Public Review Board found that, although DFO and the Pacific Salmon Commission had informal practices and ideas for dealing with in-season management uncertainties, they had no formal, universally accepted, publicly available policy – there had never been a thorough study of the risks associated with the present management regime. The board recommended that the department and the Pacific Salmon Commission adopt a risk-aversion management strategy because of the great uncertainty in stock estimates, in-season catch estimates, and environmental problems, so that conservation goals were achieved before any other priorities were addressed.

Response: Starting in 1995, DFO would

- develop pre-season management plans based on the lower range of pre-season stock forecasts;
- adjust escapement targets in-season, based on extreme environmental factors such as high water temperatures and adverse flow conditions; and
- reduce the harvest rates and employ management measures, up to and including closure of the fishery, when there is uncertainty as to run size.

In 2003, the House of Commons Standing Committee on Fisheries and Oceans recommended that DFO invest in more research to improve the run forecast system, including the test-fishing system.

Response: The government stated that a workshop, held in April 2003 to discuss opportunities to improve in-season run-size estimates, led to four proposals being incorporated into the Pacific Salmon Commission's data-gathering program for 2003.

In 2003, the Chamut External Steering Committee concluded that improvement was required to in-season data collection on the abundance and timing of runs. It recommended that DFO work with the Pacific Salmon Commission, First Nations, and stakeholders to develop more accurate in-season estimates through improvements to existing test fisheries, development of new test fisheries, environmental-monitoring programs, use of stock assessment fisheries, use of traditional knowledge and on-water information, and more accurate and timely catch reporting.

Response: DFO stated that it had implemented four measures to improve in-season run-size estimates:

- additional test fisheries that will improve in-season test fishing in the Lower Fraser River;
- small-fleet purse-seine fisheries in Juan de Fuca and Johnstone straits designed to simulate a regular commercial fishery;
- a small gillnet fishery in Johnstone Strait designed to provide an independent estimate of the Early Summer run size; and
- First Nations food, social, and ceremonial fishery by purse-seine, structured to augment the regular purse-seine test fisheries authorized by the Fraser River Panel in Juan de Fuca and Johnstone straits.

In 2010, the Pacific Fisheries Resource Conservation Council stated:

> The easy blame for salmon problems attributed to fishing practices and harvesting levels has blinded many British Columbians to the importance of dealing with other factors that put the future of Pacific salmon at serious risk. The growing competition for water extraction and the exploitation of river and riparian resources, such as gravel and other sediments, are now more serious threats to the long-term sustainability of salmon than harvesting. The Council's reports have explained that the perception of salmon harvest as the primary culprit for Pacific salmon needs to be balanced by the recognition of those other effects and the need for solutions other than simply reducing or eliminating commercial, sport or First Nations fishing opportunities.

Escapement enumeration and post-season management

In 1982, Dr. Peter Pearse recommended that DFO should implement an annual review and consultation as part of the process of formulating management plans for each fishery. The review should include:

- an annual scientific assessment of the status of the stocks and of the effects of the fisheries upon them;
- an evaluation of the preceding year's fishing plan, including the changes made to it, estimates of catches of major stocks, and spawning escapements; and
- a review of this information with the relevant fishery advisory committee and subsequent preparation of a fishing plan for the next season indicating the targets for catches and spawning escapements in each fishery.

Dr. Pearse also recommended that DFO should strengthen its programs of collecting and collating information on salmon escapements and spawning by these means: requiring those who collect the data in the field to document the

methods they use in estimating spawning, developing a central data system to systematically collate and store spawning records, developing new and consistent techniques for estimating spawning activity, and assembling historical information on salmon spawning for particular streams and publishing the results in close liaison with the intergovernmental aquatic habitat inventory program.

In 2005, the Williams Post-Season Review Committee for 2004 concluded that 2,334,000 sockeye salmon passed the Mission hydroacoustic station. It was estimated that the catch upstream of Mission was 486,000, which meant that there should have been a final spawning escapement of 1,848,000. However, the final spawning escapement was determined to be only 523,797, which meant that 1,324,203 fish were unaccounted for. The committee concluded that the Mission count was not a major problem and that two important factors explained this difference: the environmental conditions were more severe than the historical data indicated (i.e., more fish succumbed to warm water and the associated impact), and the catch upstream of Mission was larger than shown. The committee made three recommendations:

- An additional split-beam hydroacoustic system should be installed at the Mission site, and additional counting stations should be considered for the confluence of the Harrison River and either Boston Bar or Qualark.
- Existing assessment programs should continue to receive funding from Canada and the United States, including 12-hour turnaround, real-time monitoring for faster and more accurate data of the migrating stocks.
- The First Nations food, social, and ceremonial harvest in marine waters should be incorporated as part of the test-fishing program on a long-term basis.

Response: DFO stated that, in 2005, as a result of discussions and collaborative research with the department, the Pacific Salmon Commission undertook preliminary work to establish a side-looking acoustic system using DIDSON imaging sonar technology on the north bank of the river. In 2008, a permanent facility was constructed. The present configuration of the acoustic systems at Mission consists of a shore-based split-beam system on the south bank, covering a 100–150 metre cross-section; a shore-based DIDSON system on the right bank covering a 75 metre cross-section; and the downward-looking vessel-based split-beam system covering the middle portion of the river. DFO also stated that it was unlikely that it would consider installation of another hydroacoustic site at either Boston Bar or Qualark, given the annual operating cost of $120,000, and questioned whether a further site at the confluence of the Harrison River would provide a significant improvement. DFO also noted that acoustic sites are a bilateral responsibility under the Pacific Salmon Treaty

DFO reported that, in 2005, it would take steps to improve real-time catch reporting (authorized and unauthorized), in-season assessment estimates, and

the timeliness of estimates of environmental impact. The department stated that it supported the First Nations Marine Society food, social, and ceremonial fishery and that this new test fishery was an important component of in-season sockeye stock assessment.

In 2005, the Standing Committee on Fisheries and Oceans recommended that DFO

- equip the Mission hydroacoustic station with the latest technology; and
- establish additional acoustic estimation stations at various strategic locations in the Fraser and Thompson rivers to accomplish quantitative estimates of fish and their stock identity.

Response: DFO responded that, in 2004, a new sampling scheme became the primary source of in-season estimates at the Mission facility. A joint department / Pacific Salmon Commission team is evaluating further improvements, such as a further hydroacoustic split-beam counting device on the north shore of the river at Mission. In 2005–6, the department will conduct a cost-benefit analysis of adding a station at either Boston Bar or Qualark. In 2005, work plans include an evaluation of DIDSON (sonar) technology – an alternative acoustical method – at the Harrison River–Fraser River confluence.

Harvesting

Commercial, including licensing and gear types

In 1982, Dr. Peter Pearse made more than 60 recommendations respecting commercial licensing and rationalizing the fisheries, including the following:

- Commercial fishing licences should be issued for each species of fish separately, unless compelling technical or managerial reasons exist for authorizing fishing for two or more species under a single licence.
- Canada's Pacific coast should be divided into three broad zones for commercial licensing purposes: waters north of Cape Caution, the inside waters south of Cape Caution, and the waters of the west coast of Vancouver Island.
- A Pacific Fisheries Licensing Board should be created under legislation as a Crown corporation.
- A full-time executive director should be appointed by the board to oversee its day-to-day operations and to decide initially all questions that arise concerning commercial licences. The executive director should be responsible to the board and have sufficient staff and facilities to carry out the board's responsibilities.

- The Pacific Fisheries Licensing Board should hear all appeals from decisions of its executive director concerning licensing, and decisions of the board should be final and binding.
- Appeals to the minister of fisheries and oceans should be discontinued.
- The presentation of all appeals to the board and all board decisions should be open to the public.
- A target fleet should be defined as the objective for fleet adjustment by the end of a 10-year transitional period ending December 1992. The target should be 50 percent of the present capacity licensed to fish in each of the two fisheries (salmon and roe-herring), and the same proportion of each major gear sector. After 1986, the target for the salmon fishery should apply separately to each licensing zone.

Response: In 1983, the government agreed with the objectives of fleet reduction, but disagreed with the method. It disagreed with competitive bidding, but limited-term licences and financial compensation for fishers who voluntarily relinquished their fishing privileges ("buy-back") were still under review. The government agreed with the need to modernize all commercial licensing provisions but disagreed with some of the proposed details. It also agreed with strengthened licensing administration and with opening the licence appeals process to public scrutiny but disagreed with establishing a Crown corporation.

In June 1984, the minister announced a plan, A New Policy for Canada's Pacific Salmon Fisheries, and tabled draft legislation to provide for the restructuring of the Pacific fishery. However, the bill was not passed.

In 1995, the Pacific Policy Roundtable recommended that the minister of fisheries and oceans appoint an independent adviser to provide him with recommendations on the very complex and difficult issue of intersectoral allocations.

Response: DFO announced that Dr. Art May had been appointed to serve as an independent adviser to review long-term fisheries allocations on the West Coast.

The roundtable also recommended that the renewal of the Pacific salmon commercial fishery should be based on common elements from the three gear panel reports, including:

- an endorsement of the principles of conservation, viability, and partnerships;
- stability and security of access;
- only one commercial fishery and one manager (DFO);
- the need for significant fleet reduction and a belief that action is required before the 1996 season;

- an industry-run licence retirement program, with governments providing financial contributions, to be part of the fleet-reduction plan; and
- tax incentives to facilitate fleet reductions.

Response: In 1996, DFO minister Fred Mifflin announced a plan to revitalize the West Coast commercial salmon fishery and enhance conservation and sustainable use of the resource. The minister said that a reduction of 50 percent in the capacity of the commercial salmon fleet was necessary over the long term. The $80 million voluntary licence retirement was designed to take an equitable and immediate step in this direction by reducing the number of licences in the salmon fleet and, simultaneously, minimizing the impact on licence values.

In 1998, the Standing Committee on Fisheries and Oceans was told that although the Mifflin Plan may have reduced the size of the fleet, it had not reduced capacity because of both licence stacking and a disproportionate reduction of the commercial fleet. It recommended that the government implement a salmon licence buy-back and readjustment program for the West Coast to continue the downsizing of the fleet and that the focus of the buy-back be a reduction of capacity in the net fleet.

Response: DFO responded that the minister had, on October 14, 1998, announced a new Pacific salmon licence retirement program, to be operated as a voluntary, multiple-round reverse auction. The department would also conduct broad-based consultations to confirm a new direction for British Columbia's Pacific salmon fishery. The consultations are intended to provide fishers who are uncertain whether to stay in the fishery with the necessary information on the salmon allocation process to make decisions for their future.

Between 1995 and 1998, DFO conducted five consultation processes to review options to resolve allocation issues. The areas studied included allocation within the commercial sector (intrasectoral), allocation between the commercial and recreational sectors (intersectoral), and a review of the Aboriginal pilot sales program. The consultation processes and resulting reports were conducted by Dr. Art May (1996), James Matkin (1997), Stephen Kelleher (1997 and 1998), and Samuel Toy (1998).

Response: In December 1998, the minister of fisheries and oceans released a paper entitled "Allocation Framework for Pacific Salmon 1999–2005," following which DFO held extensive consultations with First Nations, commercial and recreational fishing organizations, community representatives, and the

Government of British Columbia. In October 1999, DFO released its Allocation Policy for Pacific Salmon, which DFO described as representing a long-term salmon allocation policy containing a series of principles for sharing harvestable surpluses of Pacific salmon among First Nations, recreational, and commercial users.

In 1999, the Auditor General of Canada made several recommendations:

- DFO should assess the risks to conservation of allowing selective fishing in the commercial and recreational fisheries, given the lack of reliable information on long-term mortality rates of released salmon. It should then build adequate safeguards into fishing plans to protect stocks at risk.
  Response: DFO responded that it was continuing studies to improve understanding of the mortality of salmon released following capture in commercial, recreational, and First Nations fisheries. The knowledge gained through these studies would be incorporated into future fisheries management plans. Current management plans took account of expected mortalities based on existing knowledge.
- DFO should specify a fleet-reduction target and timetable that are consistent with its objectives of conservation, selective fishing, and cost recovery, and work to complete fleet reduction according to this timetable.
  Response: DFO agreed. In 1996, a multi-year salmon fleet-reduction target of 50 percent was established. This target would be reviewed, taking into account various factors, in particular, the requirement to fish selectively in order to meet conservation objectives and harvest diversification opportunities.

In 2003, the House of Commons Standing Committee on Fisheries and Oceans recommended that DFO consider more flexible approaches to the management of fisheries along the lines proposed by the Area E Gillnetters Association.

Response: The government agreed with the importance of having flexible approaches to the management of fisheries and reported that it had worked with the various commercial fleet segments on the development and implementation of new measures, such as revising the trigger for starting pilot sale fisheries in the Lower Fraser River, harvesting of small surpluses in accordance with a proposal from the Area E fleet, and proposing an Area E small-fleet opportunity that would allow for a limited harvest of Chinook salmon.

In 2004, Dr. Peter Pearse and Prof. Donald McRae asserted that the commercial salmon fishery was verging on bankruptcy owing to overfishing and depleted stocks, overexpanded fishing fleets, low earnings, unstable employment, and internal conflict. They concluded that sweeping changes were required to respond to new challenges, such as treaty settlements, stricter requirements for resource conservation, and reduced abundance of fish (believed to be mainly a result of prolonged cyclical decline in the productivity of the ocean). Based on the Nisga'a Treaty and six other agreements in principle, the pattern is for most agreements to include provision for an Aboriginal food fishery (food, social, and ceremonial) in the treaty itself, and for a commercial fishery to be included in a separate harvest agreement, which specifies a percentage of the total allowable catch and provides for catch monitoring, fisheries management, and the location of permitted fishing. To meet these challenges, Pearse and McRae concluded that a different management approach was required – the fundamental need was to find a way to adjust the number of vessels that fish to fit the circumstances of each fishery. They made the following recommendations:

- DFO should be granted authority to specify the maximum number of vessels that may fish in any opening of the fishery.
- Each area harvest committee should be free to decide how the limited number of vessels will be selected,
- The current "catch as much as you can" salmon-licensing system should be replaced by a system based on defined shares of the catch, which has proven to be successful in the individual quota system in other fisheries. To that end, DFO should reaffirm its coast-wide allocation policy, including the allocation of salmon among the three commercial sectors. Next, the shares of individual salmon fishers that will form the basis of a catch-share system should be determined by the fishers themselves, through area harvest committees. Each fisher's share of the area allowable catch should be fixed and incorporated into new long-term and transferable quota licences.

In 2005, the Williams Post-Season Review Committee found that sockeye returning to the Fraser system encounter a series of harvest efforts involving several types of fishing gear, which have a cumulative effect on total harvest and incidental mortality. The committee made two recommendations:

- Research should be conducted to verify whether the selective placing of set nets deprives fish of resting places (or forces them to swim in the faster and more turbulent midstream waters), thereby having an adverse impact on upstream migration. Departmental policy should ensure the existence of "conservation corridors" for the fish destined for spawning grounds.

- Research is also needed into the relationship between gillnet mesh size and the desired spawning ground–gender ratio.

Response: DFO did not agree with these recommendations. Food, social, and ceremonial fisheries are accorded priority over other harvest opportunities, and if these agreed objectives are not being met, other harvest sectors may have to be constrained before in-river First Nations fisheries could be altered in a significant way. Fisheries throughout the migration route all have an impact on Fraser River salmon stocks. Current management frameworks take into account the cumulative impact on stocks, and fishing times / locations are governed accordingly. With respect to gillnet mesh size, DFO is not aware of the issue of "gender imbalance" on the spawning grounds. If a chronic or pressing issue is identified, it would have to be researched, but elements other than mesh size (e.g., gillnet-hang ratio; length, depth, and fishing times) would also have to be considered. In 2005, DFO, in co-operation with the First Nations, will undertake a preliminary study on the impact of drift and set gillnets in the Fraser River above Mission.

In 2005, the Standing Committee on Fisheries and Oceans was concerned about the use of drift gillnets on the Fraser River above Mission. It recommended that such fishing be disallowed, pending completion of a study into the impact (including the "drop rate") of drift gillnets and set gillnets in the Fraser River on the mortality of migrating salmon and of any compounding effects of elevated water temperature.

Response: DFO agreed and stated that, beginning in 2005, the department would, in co-operation with the First Nations, undertake an exploratory study on the impact of drift and set gillnets in the Fraser River above Mission. The study will have to be conducted for more than one year to obtain reliable results, and studying the relationship between gear types and any compounding effects from elevated water temperatures will require longer-term study. DFO did not agree with an immediate ban but would, pending completion of the study, continue to assess on a case-by-case basis whether the use of drift gillnets can be authorized in Aboriginal fisheries above Mission.

Aboriginal entitlements and Aboriginal commercial fisheries programs

In 1982, Dr. Peter Pearse made 13 recommendations respecting what was then called the Indian fishery, including the following:

- DFO should allocate a specific quantity of fish to be available annually to each Indian band involved in the Indian fishery.
- The quantity and kind of fish to be allocated to each band should be determined through negotiations with the bands, primarily with reference to their catches in recent years but also taking into account special circumstances relating to population trends and economic opportunities.
- DFO should be committed to giving the catch allocated to Indian bands priority over the commercial and sport fisheries. If in any year a band fails to harvest its allocation because of conservation measures imposed by the department, and if the department is unable to provide an alternative source of fish, DFO should be required, in subsequent years, to make up the deficiency plus an amount to compensate the band for the delay in obtaining its catch.
- Each band should be given opportunity to choose whether its entitlement to fish will be allocated through Indian fishing permits or a new Indian fishery agreement:
    - Indian fishing permits should be issued annually to individual fishers directly by DFO or through band councils. Permits should authorize Indians to take fish for food and ceremonial purposes only. They should specify the quantity and composition of the authorized catch and the location, time, and method of fishing as required for management purposes.
    - DFO should be authorized to enter into Indian fishery agreements with Indian bands which carry terms of 10 years and, under fisheries management plans, specify the band's allocation of fish, authorize harvest according to an annual fishing plan determined jointly by the band and the department, and, where appropriate, authorize the band to engage in enhancement activities on or near its reserves and to augment its allocated catch by a portion of the enhanced stocks. These agreements should exempt the band from restrictions on the sale of fish under agreed monitoring and marketing arrangements.
- Band councils should be encouraged to take responsibility for administrative and supervisory functions associated with Indian fisheries.
- DFO should encourage Indian organizations to participate in mariculture and ocean ranching through carefully selected mariculture leases.
- DFO and the Department of Indian and Northern Affairs should, in consultation with Indian organizations, explore means of providing technical, financial, and educational assistance to enable Indians to develop opportunities under Indian fishery agreements and mariculture leases.

Response: The government stated that, for further information on policy work in the 1980s related to First Nations fisheries, one should see the March 13, 1986, discussion paper entitled "A Policy for BC Indian Community Salmon Fishery."

Dr. Pearse also made recommendations respecting Indians in the commercial fisheries, including the following:

- The federal government should proceed toward implementing the Indian Fishermen's Economic Development Program (IFEDP) as quickly as possible.
- The Department of Indian and Northern Affairs should provide staff and resources for the purpose of monitoring the financial performance of Indian fishing operations under the IFEDP.
- Licences held by Indian fishing corporations should not be transferable to non-Indians, and licensing policies should be developed to enable such licences to be leased to individual Indians.
- The Department of Indian and Northern Affairs should provide Indians and Indian corporations with the financial assistance they need to compete successfully in the proposed periodic reissuing of licences by competition.

Response: In 1983, the government agreed with the need to reform policy respecting the Indian fisheries – policy options were under review. The government was also reviewing, in conjunction with the Department of Indian and Northern Affairs, implementation of the Indian Fishermen's Economic Development Program. In 1985, the Native Fishing Association was created with funding of $11 million, to be used for debt relief, vessel and licence purchases, vessel upgrades, and training.

In 1992, Dr. Peter Pearse and Dr. Peter Larkin concluded that the 480,000 returning sockeye which DFO had identified as "unaccounted for" could, in fact, be accounted for. About half had died from natural causes or from fishing-induced mortality (e.g., died in nets or from stress after escaping from nets). The other half had been caught in the Fraser River. Pearse and Larkin stated: "We cannot say who took the unrecorded catch, whether they were Indians or not, what portion was taken in the Agreement area, how they were disposed of, or where they went. Nor can we say whether they were caught illegally." They described the 1992 season as not so much a crisis in salmon management as a crisis of policy, caused primarily by last-minute implementation of the June 29, 1992, Aboriginal Fisheries Strategy, which, among other things, resulted in special agreements with a few Indian communities in the Lower Fraser River for one-year pilot projects for the sale of fish. They concluded that such agreements can be reconciled with proper management of the resource, but only if all parties are committed to conservation, different Indian groups work together, fishers and managers are accountable, and strict enforcement, good communication, and consultative structures are all in place. In addition, Native guardians require better training, and designated landing sites must be specified.

Response: In response to the Pearse and Larkin report, in December 1992 the minister of fisheries and oceans announced an action plan that included the following measures:

- The government would enter into consultation with the 97 chiefs of the Fraser River First Nations, to work toward an allocation framework embracing the whole Fraser watershed.
- The experimental pilot sales program would be extended for another year, but no agreements would be negotiated without appropriate enforcement measures to ensure compliance.
- DFO would work with the Province of British Columbia, First Nations, and the processing industry to develop a better system to license buyers of fish from Aboriginal fisheries, regulate processing and limit landing sites, and ensure accurate and timely recording of catches and sales.
- DFO would strengthen enforcement in 1993, including helicopter coverage.
- DFO would upgrade training on Aboriginal fisheries management and enforcement issues, and would train an additional 50 Native guardians.
- Additional hydroacoustical counting stations would be set up in 1993 to provide estimates of progressive escapement past Aboriginal fisheries. DFO subsequently decided to install an acoustic site near the confluence of Qualark Creek and the Fraser River.

In 1995, the John Fraser Sockeye Public Review Board made a series of recommendations about the Aboriginal Fisheries Strategy:

- DFO should ensure that Aboriginal Fisheries Strategy agreements clearly identify the minister's responsibility for conservation and that final authority to regulate and protect fish and fish habitats remains vested in the department.
  Response: DFO agreed, stating that this clause was already contained in the agreements.
- DFO should expedite implementation of an effective training program to develop fisheries management, enforcement, and administrative capacity within First Nations communities.
  Response: DFO would ensure that training in administration would be provided. DFO and the Skeena Fisheries Commission had already set up a field program, which would guide future programs elsewhere. Finally, the department would explore opportunities for programs to be delivered by accredited police agencies and post-secondary institutions.
- DFO should separate food and commercial fisheries.
  Response: DFO agreed.
- DFO should ensure that the pilot sales program is not expanded, landing sites are specified in the agreements, agreements require that all fish landings are

documented, and any undocumented sale of fish is deemed an illegal sale.
Response: DFO agreed.

- DFO should pursue a policy of purchasing licences in the commercial sector and transferring them to First Nations communities.
Response: DFO confirmed that this policy was currently being implemented.

In 1998, the Standing Committee on Fisheries and Oceans heard testimony that the pilot sales aspect of the Aboriginal Fisheries Strategy created a racially based division in the commercial sector which was seen as socially divisive – commercial fishers should all be treated on the same basis. The committee recommended that DFO reconsider its pilot sales program and that increased Aboriginal participation in the commercial fishery be achieved by buying back existing commercial licences and transferring them to First Nations fishers.

Response: DFO responded that the pilot sales program had benefited overall fisheries management efforts (e.g., by improved catch monitoring and reporting). In renegotiating the pilot sales agreements for 1999, DFO would also consider advice received from the 1997 Matkin report. Since 1993, the department had facilitated the retirement of approximately 133 commercial licences and the issuance of communal licences to Aboriginal organizations in the Pacific Region, and this program would be expanded over the next few years.

In 1999, the Auditor General of Canada reported that First Nations had assumed a major role in data collection respecting escapement, catch monitoring, and stock and habitat assessment, but that much of the data was unreliable. The auditor general recommended that DFO should evaluate the comprehensiveness and quality of data collected under the Aboriginal Fisheries Strategy and the adequacy of the standards and procedures that guide data collection, compilation, and reporting, with a view to improving and expanding the role of the strategy in this area.

Response: DFO responded that, through the Aboriginal Fisheries Strategy, the role of First Nations in data collection and reporting was evolving. First Nations were becoming more proficient at collection and reporting of data. The department acknowledged the need to define data quality standards and methods more rigorously and to establish reporting procedures. Fisheries management staff were working with the Science, Stock Assessment, and Habitat and Enhancement branches to integrate the process of collecting and reporting the data.

In 2003, the Standing Committee on Fisheries and Oceans examined complaints that the Fraser River commercial fishery had been effectively shut out in the 2001 season notwithstanding substantial runs of several species. The committee acknowledged that, in *R. v. Sparrow*,[6] the Supreme Court of Canada recognized an Aboriginal right to fish for salmon for food, social, and ceremonial purposes in areas where fishing for salmon had always constituted an integral part of the Aboriginal distinctive culture. The Court declined to consider whether there was also an Aboriginal right to fish for commercial purposes. However, in subsequent decisions (e.g., *R. v. Van der Peet*[7] and *R. v. Gladstone*[8]), the Court ruled that an Aboriginal right to sell salmon was specific to individual Aboriginal communities and had to be decided on a case-by-case basis. The committee was critical of the pilot sales component of the 1992 Aboriginal Fisheries Strategy, acknowledged by the minister of fisheries and oceans as a policy response to an extensive problem of poaching and illegal sales, because it blurred the distinction between food fish and sales fish and had the effect of giving Aboriginal participants in the pilot sales program an unfair priority in the commercial fishery. The committee made the following recommendations:

- DFO should return to a single commercial fishery for all Canadians in which all participants in a particular fishery would be subject to the same rules and regulations. Consequently, the department should bring an end to the pilot sales projects and convert current opportunities under the pilot sales program into comparable opportunities in the regular commercial fishery.
- The federal government should ensure that DFO respects the "public right to fish."
- As long as the pilot sales agreements continue, food and sale fisheries on the Fraser River and elsewhere should be kept completely separate.
- Equal priority of access to the resource should be provided to all commercial fisheries, whether public or Aboriginal Fisheries Strategy pilot sales fisheries, and all measures required for conservation purposes should be applied equally to both fisheries.
- DFO should establish realistic food fisheries and should follow through on the previous minister's commitment to ensure that food fishery access is not being abused.

Response: The federal government did not agree with the recommendation that DFO should return to a single commercial fishery and bring an end to the pilot sales program. The *Fisheries Act* allows for separate and distinct fisheries. The pilot sales program has provided guidance on the design and conduct of Aboriginal in-river commercial fisheries in advance of their implementation in treaties and has assisted in building up capability in First Nations' management of the fisheries. It has also reduced conflict with First Nations' communities over illegal sales of fish taken in food, social, and ceremonial fisheries and has improved the economic

6 [1990] 1 SCR 1075.
7 [1996] 2 SCR 507.
8 [1996] 2 SCR 723.

benefits to First Nations. Integrating the pilot sales fishery into the commercial fishery is not acceptable to affected First Nations, which want to maintain a small-boat commercial fishery in areas close to their communities. These First Nations view it as a traditional fishery and claim it as an Aboriginal right. The government agrees that, if continued, the pilot sales fishery should have equal priority with other commercial fisheries. Since the 2001 season, fishery openings in the Lower Fraser River have been announced only when there is sufficient allowable catch to provide for both a pilot sale fishery and a commercial Area E gillnet fishery.

The government's view is that the common-law public right to fish referred to by the committee may be limited or abrogated by competent legislation. All commercial and recreational fisheries are regulated and restricted by federal legislation, such as the *Fisheries Act* and regulations.

DFO did not enter into pilot sales agreements for 2003 in the Lower Fraser River because of the BC Provincial Court decision in *Kapp*.[9] It has, however, had ongoing discussions with First Nations on arrangements to provide for future commercial salmon-fishing opportunities corresponding to those in the terminated pilot sale fishing program.

DFO enters into negotiations with Aboriginal groups to set appropriate catch levels for their food, social, and ceremonial harvests. The department believes that fisheries for these purposes are well managed and monitored, although no fishery is without compliance issues.

In 2004, the First Nation Panel on Fisheries made seven recommendations:

- Canada should take steps immediately to ensure that First Nations have access to adequate quantities of fisheries resources for food, social, and ceremonial purposes.
- As a starting point and an interim measure, Canada should take immediate steps to allocate to First Nations a minimum 50 percent share of all fisheries, with the understanding that this proportion may eventually reach 100 percent in some fisheries.
- First Nations themselves must address intertribal allocations.
- Canada should immediately increase treaty settlement funds, or funds through other negotiating processes, to enable purchase or buy–back of licences and allow for the reallocation recommended above.
- Canada should immediately recognize in policy, and implement through negotiated agreements, the Aboriginal right to manage fisheries.
- Canada should clearly articulate how it will provide fisheries resources for First Nations' commercial benefit, in light of the uncertainty created by the *Kapp* decision and the loss of pilot sales.

9 [2003] 4 CNLR 238, 2003 BCPC 279 (BC Prov. Ct.); reversed (2008), 294 DLR (4th) 1 (SCC).

- A moratorium should be placed on the further introduction of individual property rights regimes such as individual fishing quotas unless First Nation interests, including allocations in those fisheries, are first addressed.

Sport fishing

In 1982, Dr. Peter Pearse made recommendations respecting the sport fishery, including the following:

- The government's policy should explicitly recognize sport fishing as a legitimate, valuable, and significant use of fish resources, and this recognition should be reflected in a commitment of staff and budget.
- Sport-fishing policy should aim at preserving the quality of sport-fishing opportunities. That implies dampening the rate of growth of sport-fishing effort and maintaining average catches until the available harvest can be increased.
- The governments of Canada and British Columbia should co-operate in integrating saltwater and freshwater sport-fishing licences, so that both can be acquired through a single document that all agents are then authorized to issue.
- For the next five years, DFO should aim at providing an annual coast-wide sport catch of 1 million salmon, of which not more than 900,000 should be taken in the Strait of Georgia and Fraser River systems.
- DFO should immediately begin to develop a comprehensive data and information system for the sport fishery.
- A central component of the information system should be an intensive and continual creel survey.
- DFO should develop a rapid data-processing system designed to integrate sport-fishing information into general salmon management planning.
- DFO should sponsor research on the value of sport-fishing opportunities on the Pacific coast and what effect regulations have on those values.

Response: According to DFO's Recommendations and Responses, the government agreed in 1983 to give greater recognition to the sport fisheries as important and valuable users of the resource. It also agreed to make database improvements and to develop policies and programs. In 1984, the government announced that a developmental policy for sport fishing would be pursued as part of the New Policy for Canada's Pacific Salmon Fisheries. In 1986, Canada's fisheries ministers released a draft policy statement for recreational fisheries entitled "A Cooperative Approach to Recreational Fisheries Management Regarding Canada."

Responsibility for salmon farms

In 1982, Dr. Peter Pearse made several recommendations for mariculture and ocean ranching.

- DFO should promote the development of mariculture on the Pacific coast by providing technical support and a system of mariculture leases.
- DFO's program for mariculture leases should include ocean-ranching operations based on development of natural stocks and artificial production.
- For the time being and until the feasibility of these ventures and regulatory method is demonstrated, DFO should approve only a few mariculture leases involving ocean-ranching operations as pilot projects.
- Mariculture or ocean-ranching operations should be authorized by DFO under mariculture leases. Each mariculture lease should designate a specific area in which its holder has the exclusive right to harvest and manage specified species of fish.
- Mariculture leases should require their holders periodically to submit plans for DFO's approval concerning the management, enhancement, and harvesting of fish under them. The duration of plans, and the frequency of obtaining approvals of them, should be determined for each lease in view of its particular circumstances. The approved management plans should form part of the lease.

Response: According to DFO's Recommendations and Responses, the government announced in 1983 that the feasibility of commercialized ocean-ranching operations was under review. Under the government's 1984 New Policy for Canada's Pacific Salmon Fisheries, the minister of fisheries and oceans would undertake an expanded program to develop new fisheries and to promote development in aquaculture and mariculture that was targeted on coastal communities and displaced fishers.

In 2000, the Auditor General of Canada recommended that DFO act immediately to strengthen monitoring and enforcement capabilities for salmon-farming operations and to expand and improve the Atlantic Salmon Watch Program to provide the information necessary to assess the effectiveness of the department's regulatory and management activities.

Response: DFO responded that it was committed to sustainable development of the aquaculture industry and was meeting its challenges through the multi-pronged action plan:

- DFO's Program for Sustainable Aquaculture (2000), a $75 million investment over five years, would improve its capacity to conduct fish habitat and environmental assessments of proposed aquaculture development, to monitor compliance with and enforce its regulatory responsibilities, and to build on its existing and growing knowledge base of the potential ecosystem impact of an expanded salmon industry.
- DFO would refine the application of section 35 of the *Fisheries Act* (harmful

alteration, disruption, and destruction of habitat) as it applies to aquaculture operations.
- DFO would develop regulations under section 36 of the *Fisheries Act* to control the deposit of any deleterious substances from aquaculture operations.
- DFO would work closely with provincial departments responsible for aquaculture to harmonize federal and provincial roles and reduce unnecessary duplication.
- DFO would work with provinces and industry to establish a national aquatic animal health program aimed at reducing the incidence of disease and the severity of the impact.
- DFO would work with the BC government, which had announced more stringent measures to help prevent fish farm escapes.
- DFO would provide additional funding to the Atlantic Salmon Watch Program for 2000–1 and increase the number of streams surveyed.

In 2000, the Auditor General of Canada reported that federal and provincial jurisdictions overlapped in the regulation of fish farming. In 1988, DFO and the Province of British Columbia entered into a Memorandum of Understanding on Aquaculture Development, under which British Columbia had primary responsibility for management and development of the aquaculture industry in consultation with the department, while the department retained regulatory responsibility in a number of areas, including conservation and protection of fish and fish habitat. DFO had no formal plan for managing risks associated with an expanded fish-farming industry. It participated in the province's 1997 Salmon Aquaculture Review, which included 49 recommendations to mitigate potential risks / effects of salmon farming on the environment. DFO accepted the review's conclusion that salmon farming poses a low risk to wild Pacific stocks. It was taking an advocacy role in aquaculture, as reflected in the Federal Aquaculture Development Strategy (and the position of commissioner for aquaculture development).

The auditor general found that DFO was not ensuring that salmon farms were monitored for effects on fish and fish habitat, with a view to enforcing the *Fisheries Act*. Nor was it currently monitoring effects on marine habitat or on juvenile or adult Pacific salmon in the vicinity of net cages. There was also a problem with the manner in which Environment Canada was carrying out its monitoring responsibilities in relation to wild salmon and their habitat – a task it was required to do under a 1985 memorandum of understanding with DFO (under which responsibility for administering section 36 of the *Fisheries Act* was delegated to Environment Canada). Consequently, the auditor general recommended action as follows:

- DFO should act immediately to strengthen its monitoring and enforcement capabilities for salmon-farming operations.
- DFO should identify areas of needed research to understand the potential effects of an expanded salmon industry. It should assign priorities to ensure the

most effective use of limited resources within the time period remaining before new farm site proposals are reviewed.
- Given that escapes of Atlantic salmon from open-net rearing facilities are expected to continue into the foreseeable future, DFO should expand and improve the Atlantic Salmon Watch Program to provide the information necessary to assess the effectiveness of its regulatory and management activities.
- DFO should take immediate action to determine how the concept of "harmful alteration, disruption or destruction of habitat" will be applied to salmon farming and how the "deposit of a deleterious substance" will be addressed, so it can provide the Province of British Columbia with comprehensive comments on potential conflicts between federal legislation and provincial regulations.

Response: DFO responded that it was committed to sustainable development of the aquaculture industry. Through its Program for Sustainable Aquaculture (2000), the department would invest $75 million over five years, including environmental and biological science ($13.75 million), strategic research and development ($20 million), measures to ensure the quality and safety of fish and fish products ($20 million), and an improved regulatory and management framework for the aquaculture sector ($21.5 million). The program will also enable the department to build on the existing and growing knowledge base of the potential ecosystem impact of an expanding salmon industry. The department is placing a priority on further addressing a number of issues related to environmental and habitat protection under sections 35 and 36 of the *Fisheries Act*. The department is committed to working with the industry and its provincial counterparts to reduce the risk of farmed fish escapes, which currently represents only 0.3 percent of the total harvest. The department has provided additional funding to the Atlantic Salmon Watch Program. However, the chances of finding escaped salmon are low, and extensive funding required for comprehensive monitoring would divert investments otherwise available to restore habitat and protect wild stocks – activities with proven benefits.

In 2001, the Leggatt Inquiry into Salmon Farming in British Columbia concluded that escapes of farm fish, disease transfer, and pollution that flows from net cages to the surrounding marine systems are the root cause of most of the environmental damage attributed to the industry. However, closed-loop containment systems, on land or at sea, that isolate the salmon farm from the marine environment by replacing net cages with impermeable structures prevent waste from being discharged into the environment and will resolve most of the problems. The inquiry recommended that all net-cage salmon farms be removed from the marine environment by 2005 or be converted into closed-loop containment systems.

The Leggatt Inquiry also concluded that, notwithstanding the 49 recommendations made by the provincial Salmon Aquaculture Review, many of those recommendations had not been acted on, and many other environmental issues remained unresolved.

The inquiry felt that it would not be prudent to lift the 1995 moratorium or allow any further expansion until the industry made significant progress at existing farm sites, including an end to net-cage salmon farming. The inquiry recommended that the moratorium on new farm sites should be maintained, with no further expansion at existing sites, and that the Salmon Aquaculture Review be completed and updated.

The Leggatt Inquiry report discussed the precautionary principle, which it defined in the following terms: "[R]isks to the environment or human health should be managed despite the lack of scientific proof that damage has occurred or will occur." The inquiry recommended that the precautionary principle should apply to the regulation of the salmon-farming industry.

In 2004, the federal commissioner for aquaculture development (within DFO) prepared a long-term vision for aquaculture in Canada, with specific recommendations on the appropriate federal role to help achieve this vision and fully implement the Federal Aquaculture Development Strategy. The commissioner reported on the importance of aquaculture in Canada and globally, and added:

> Through the managed production of fish, shellfish and aquatic plants, aquaculture presents a sustainable means to enhance the productivity of Canada's fish and seafood sector and provide social and economic stability in our coastal and rural communities. It will also provide an opportunity to regain our former lead position in the international seafood trade.

The commissioner argued that, although DFO's regulatory role is of paramount importance in securing public confidence in aquaculture and helping the industry earn its social licence, it is urgent that the federal government recognize the agricultural nature of aquaculture and establish a public policy and regulatory environment that distinguishes aquaculture from fisheries and that establishes the rights of aquaculturists to manage their private stocks according to agronomy principles and market forces instead of having to follow regulations aimed at controlling public fisheries. To that end, the commissioner made several recommendations, including the following, to the federal government:

- The government should establish regulations pursuant to section 36 of the *Fisheries Act* to authorize the deposition of deleterious substances in relation to aquaculture operations under prescribed circumstances and protocols.
- The government should establish interim guidelines for the deposition of deleterious substances used within the aquaculture sector, based on knowledge currently available in Canada and in other jurisdictions.
- The government should enact a regulation under section 43 of the *Fisheries*

Act which would allow officers discretion to avoid having to consider whether a new or proposed aquaculture operation was likely to cause a harmful alteration, disruption, or destruction under section 35 of the Act. Such discretion would be limited to situations where the new or proposed aquaculture operation explicitly subscribed to an approved code of practice that addressed fish habitat concerns.
- The government should establish a special fund to provide financial resources for development and implementation of integrated management pilot projects in areas where aquaculture is prevalent. The aim of these pilot projects is to develop tools to reduce or eliminate conflict, including establishing aquaculture-suitable zones or aquaculture-free zones, bay management projects, or other coastal land-use planning initiatives.
- The government should provide new funding to support the continued growth of the aquaculture sector.

One of the organizational scenarios proposed by the commissioner was that Agriculture and Agri-Food Canada (AAFC) be given responsibility for aquaculture development. AAFC would regard aquaculture operators as farmers and provide the same type of policy and program support to fish farmers as to terrestrial farmers. DFO would maintain its regulatory responsibilities for the protection of wild fish stocks and fish habitat. It would support AAFC's development efforts by means of a regulatory and policy framework that would be conducive to sustainable growth and development of the sector.

In 2004, the federal commissioner of the environment and sustainable development recommended that DFO collaborate with the provinces to assess and monitor salmon aquaculture in order to prevent harmful effects on wild stocks and habitat.

Response: DFO responded that it had, with British Columbia, developed a harmonized approach to manage the effects of aquaculture on fish and fish habitat. These arrangements were being formalized through letters of understanding, which would be signed by March 2005.

The commissioner also reported that there were still significant gaps in necessary research on the potential effects of salmon aquaculture in aquatic ecosystems and on wild salmon stocks, including diseases, sea lice, and escapes. The commissioner recommended that DFO set priorities and develop a long-term research plan to address knowledge gaps on the potential effects of salmon aquaculture in aquatic ecosystems and on wild salmon stocks.

Response: DFO stated that it

- had an active research program for evaluating the environmental interactions of salmon aquaculture;
- had undertaken a state-of-knowledge initiative to identify research gaps and priorities; and
- would, by March 31, 2005, finalize a state-of-knowledge work plan for scientific advice on the impact of salmon aquaculture on fish habitat, and would, working with British Columbia, industry, academics, and stakeholders, develop a research plan to address gaps in project-environment interactions related to salmon aquaculture.

The commissioner also recommended that DFO consult with Environment Canada to determine how deleterious substances from aquaculture can be controlled, monitored, and enforced.

Response: DFO and Environment Canada would continue to evaluate and improve management practices for deleterious substances related to aquaculture operations.

In 2005, the Auditor General of British Columbia made several recommendations so that the province could effectively manage its responsibilities to sustain wild salmon, including several dealing specifically with aquaculture. The auditor general recommended that the province

- take steps to resolve the aquaculture-siting issues;
- pool its research resources with those of relevant federal agencies to address more efficiently and effectively the priority knowledge gaps associated with the interaction of wild and farm salmon; and
- reassess the statutory time limit and strengthen the penalty provisions in its current aquaculture policy framework.

In 2007, the BC Special Committee on Sustainable Aquaculture concluded that British Columbia has a unique opportunity to protect and enhance its wild salmon populations and marine ecosystems while developing a thriving, innovative aquaculture industry. To that end it made 52 recommendations, including the following:

Ocean-based closed containment

- A rapid, phased transition to ocean-based closed containment should begin

immediately. Within three years, ocean-based closed containment must be developed. Once developed, industry must transition to this technology within the subsequent two years.
- To meet the initial three-year deadline, the provincial government, in partnership with the federal government and the salmon aquaculture industry, must urgently finance and conduct a full commercial-scale, ocean-based closed containment project.
- The provincial government should develop and provide incentives to the aquaculture industry to facilitate the transition to ocean-based closed containment technology.

North and Central Coast
- No new finfish sites should be approved north of Cape Caution.
- The existing Klemtu sites should be grandfathered.
- Any expansion in Klemtu, as elsewhere, must use ocean-based closed containment technology.

Siting and monitoring
Once all the existing sites have transitioned to ocean-based closed containment, the opportunity to expand to new sites with this technology can be considered, subject to conditions.

Fallowing of sites
Effective fallowing regimes must be developed to protect juvenile salmon populations during migration periods, based on the precautionary principle, the best available science, and local and cultural knowledge.

Density
There should be no increase in production levels per site or per tenure.

Regulatory regime
- There must be a clear division of responsibility between the Ministry of Agriculture and Lands and the Ministry of Environment. Programs that promote aquaculture development should be within the Ministry of Agriculture and Lands. All protection, regulation, and monitoring of the aquaculture industry must be within the mandate of the Ministry of Environment.
- Adequate resources should be distributed accordingly to ensure that a robust compliance and enforcement regime is in place with adequate monitoring and feedback.
- All fish health–management plans must be made public and easily accessible on the website of the Ministry of Environment, to increase transparency and to give greater confidence to British Columbians that all industry players are obeying best-practice standards.
- Reporting can no longer rely on industry policing itself. The government, as the regulator, must conduct random checks *without notice* to any fish-farm operators.

Sea lice and treatment

- Government should establish protocols that specifically refer to sea lice monitoring and control, including separation of generations, regular fallowing of farm sites, early harvest of two-sea-winter fish, no placement of adult fish into pens until smolts have travelled through the migratory areas, and consideration of tidal effects on disease transfer.
- Government should continue its stringent limits on the number of sea lice per fish, in accordance with the best practice in Norway.

Net treatments

During the transition to closed containment, the use of anti-fouling paint on nets must be prohibited, in order to protect the marine habitat.

Fish feed

Use of fishmeal and fish oil derived from wild sources must not exceed one pound of wild fish harvested for every pound of aquatic animals grown.

In 2009, the BC Pacific Salmon Forum recommended to the British Columbia government that it should adopt the ecosystem-based approach discussed earlier in order to address the potential impact from salmon aquaculture in the province. It would do so by

- setting performance-based indicators for farmed salmon production and supporting a coordinated area management approach in the Broughton Archipelago;
- applying the ecosystem-based approach piloted in the Broughton Archipelago to other coastal regions;
- adopting a coordinated area management approach to salmon aquaculture throughout the province; and
- adopting integrated pest management and integrated disease management approaches to salmon farm management, through working with the salmon-farming industry.

The forum also recommended that British Columbia build confidence in wild and farmed salmon management through oversight, collaboration, and improved science, with a focus on solutions as opposed to advancement of positions. This objective would be achieved by

- establishing an independent provincial regulatory oversight authority to monitor and audit decisions that affect watersheds, in accordance with proposed ecosystem-based indicators;
- establishing a science secretariat to serve as a centre for excellence for

ecosystem-based research on marine and watershed systems that support salmon; and
- encouraging third-party certification for commercial salmon fisheries and salmon aquaculture in British Columbia.

The forum found that there is no commercial-scale closed containment salmon farm growing adult salmon operating anywhere in the world. It recommended that British Columbia design and implement a commercial-scale trial of a closed containment system for raising farmed salmon. It must ensure that ecosystem-based indicators – significant reduction in the risk of lice and disease transfer to the natural environment – are effectively achieved.

Enforcement

In 1982, Dr. Peter Pearse made 25 enforcement recommendations, including the following:

- DFO should abandon its vague and inappropriate voluntary deterrence policy as its primary aim in enforcement and replace it with a vigorous and well-organized enforcement capability in line with the recommendations made below.
- In the Pacific Region, a special enforcement unit should be created whose *exclusive* responsibilities will be enforcement. Its duties should *not* include resource management.
- At Pacific Region headquarters in Vancouver, a senior enforcement officer and support staff should be appointed and placed directly in charge of all fishery enforcement officers. These officers should be responsible directly to headquarters, rather than through area managers as they are now.
- If the need arises, a special task group operating from headquarters should be created, along the lines of the disbanded General Investigation Unit, to supplement district enforcement officers during hectic periods and to investigate complex crimes when necessary.
- The *Fisheries Act* should clearly confer peace officer status on enforcement officers, other fishery officers, and fishery guardians.
- The provisions of the *Fisheries Act* that deal with obstructing fishery officers should be eliminated or redrawn to conform with the powers and rights they have under the Criminal Code as peace officers.
- DFO should pursue an aggressive policy in seizing vessels and equipment when offenders are caught and charges are laid.
- In flagrant cases, Crown counsel should oppose applications to court by the accused for the release of equipment pending trial. For others, where circumstances warrant, they should argue for substantial bonds, approximating the market value of the vessel and equipment under seizure.
- Illegally caught fish and illegal equipment should be forfeited to the Crown, as at present.

- All categories of licences – commercial, sport, and Indian – should be liable to suspension for a violation of the terms of the licence, the *Fisheries Act*, or the regulations, on the conviction of the licence holder.
- Licence cancellation should be invoked for the most flagrant of violations and recalcitrant repeat offenders.

Response: According to DFO's Recommendations and Responses, the government agreed in 1983 with the need to strengthen enforcement of the *Fisheries Act* by creating a specialized unit within the Fishery Officer Service. A special task group was created in 1985 (known as the General Investigations Services) to deal with more complex fishery investigations. Three teams were created, including a six-officer team based in the Lower Fraser River. The Criminal Code lists fishery officers as having peace officer status when performing duties under the *Fisheries Act.* In 1991, the penalty provisions in the *Fisheries Act* were increased.

In 1995, the John Fraser Sockeye Public Review Board concluded that the level of enforcement and capacity was grossly inadequate in 1994 and that, if permitted to continue, the attitudinal anarchy reflected in many user groups during 1994 would eventually destroy the fishery. In the board's view, the fundamental reason for DFO's existence was for the protection of the resources; to claim that enforcement could not be achieved for budgetary reasons was an abdication of the federal government's constitutional responsibility. The board recommended that enforcement be recognized once again as an essential element of the fishery management process, that an effective and credible enforcement level be re-established, that it expand its policy of non-criminal administrative sanctions, and that it establish an enforcement branch in the Pacific Region headed by a director with extensive law-enforcement experience.

Response: DFO reported that the Pacific Region's Conservation and Protection sector had been strengthened and was now led by a former RCMP superintendent. This sector was adding 15 new fishery officers, deploying resources strategically to target key problem areas in the mid-Fraser River and Johnstone Strait, and developing blitz-style enforcement strategies and targeting chronic offenders. It would expand its administrative sanctions program in 1995, enabling administrative removal of fishing privileges for serious conservation offences.

In 2003, the Standing Committee on Fisheries and Oceans recommended that DFO fund and support the activities of more fisheries officers. With respect to guardians established under the Aboriginal Fisheries Strategy, the committee recommended that

- a person convicted of a fisheries violation should not be designated as a guardian;
- DFO provide resources for guardians to complete all phases of their training;
- the monitoring and enforcement component be separated from the Aboriginal Fisheries Strategy agreements, and the guardian program be funded directly
  - to ensure stability of the program;
  - to provide autonomy to Aboriginal fisheries officers and guardians; and
- Aboriginal fishery officers and guardians (together with DFO's fishery officers) be responsible to the head of the department's enforcement branch.

Response: The government noted that DFO was reviewing budget allocations but cautioned that public demands for increased funding are numerous and cannot all be met. DFO screens out any guardian candidate with a fishery violation and does not designate individuals whose criminal history, including violations of the *Fisheries Act*, is felt to compromise their ability to function effectively as guardians. In the future, guardians will not be engaged in enforcement work. Fisheries enforcement rests with DFO and is undertaken by fishery officers in the Conservation and Protection Branch. DFO is recruiting Aboriginal fishery officers who will, with equivalent qualifications and training as regular fishery officers, play an enforcement role in Aboriginal fisheries.

In 2003, the Chamut External Steering Committee reported widespread concern about inadequate enforcement. It recommended that DFO consult with First Nations and stakeholders on enforcement issues and that partnership arrangements and protocols be developed or improved, wherever possible.

Response: DFO responded that pre-season meetings had taken place, several enforcement protocols had been completed or were under development, and a Lower Fraser River enforcement work plan was serving as the basis for discussion with stakeholders. Regular enforcement patrols were conducted throughout the season, with good compliance. Illegal fishing occurred on a regular basis throughout the summer in the Cheam fishery, and extensive work was now under way to build a better relationship with that community, with the aim of providing a long-term strategy for more co-operative fisheries management programs (including enforcement) in this area.

In 2005, the Williams Post-Season Review Committee identified large-scale unauthorized harvests as one of four likely causes contributing to the failure of the Fraser River sockeye to reach the spawning grounds in expected numbers in 2004. Catch-monitoring methods vary among the fishing sectors, and DFO's persistent budgetary constraints have obliged the department to structure its catch-monitoring initiatives on a "cost neutral" basis, with mixed success. The committee recommended that

- DFO convene a meeting of First Nations and other stakeholders to assess the province-wide state of catch monitoring and to examine budgets, personnel needs, transparency, accuracy, problem areas, and ways to improve monitoring programs;
- DFO restore resources for catch monitoring to an adequate level in commercial, recreational, and First Nations fisheries;
- DFO, First Nations, and stakeholders regularly review the status and adequacy of the province-wide catch-monitoring program;
- DFO retain ultimate authority and responsibility for auditing catch-monitoring reports and performance;
- DFO devise an annual pre-season strategy to develop some estimate of unauthorized fishing and fish harvest; and
- DFO make an estimate of total mortality, to include in the catch monitoring of all fisheries.

Response: DFO reported that, in March 2005, it had initiated a process to identify and implement appropriate fisheries-monitoring and catch-reporting improvements, consistent with its 2002 Fishery Monitoring and Catch Reporting Policy Framework. DFO agreed with the committee's call for collaboration and said that the Integrated Harvest Planning Committee had been established for intersector discussion and collaboration, which should include fishery monitoring and catch reporting. DFO agreed that properly funded catch-monitoring programs were a priority, and that it would be looking to partnerships, co-management, and cost-recovery arrangements to implement this objective fully. The 2002 policy framework will develop monitoring and reporting standards in all fisheries, and harvesters will be increasingly responsible to provide the department with required catch information. Appropriate levels of auditing of catch reports will remain a departmental responsibility. DFO fully supported the need for an annual estimate of unauthorized fishing. It was designing a program for the Fraser River with sufficient structure and rigour to better estimate total unauthorized harvest, including aircraft overflights during closed times.

The Williams Post-Season Review Committee also reported that it was consistently told that illegal fishing in the Fraser River was at a higher level than in previous years, with little or no enforcement. The committee concluded:

> Illegal activities along the South Coast, particularly in the lower Fraser River, were rampant in 2004 and … enforcement against these

> activities was lacking. DFO's lack of tidal water patrol vessels capable of overnight deployment places an obvious limitation on its enforcement ability, as does the scarcity of money and personnel to undertake adequate numbers of night time river patrols. The elimination of enforcement overflights is unfortunate and the increasing age and disrepair of patrol vehicles both limiting and dangerous.

The committee attributed much of the 1.3 million shortfall to two factors – extraordinarily high water temperatures and the illegal catch and sale of fish. The latter was a "very significant factor." It made several recommendations.

- DFO must properly enforce the *Fisheries Act* and Regulations, through measures including:
  - adequate presence to deter the concealment of over-harvesting of fish by participants from all sectors;
  - enforcement of the laws against the illegal sale of fish, both fish caught as part of the food, social, and ceremonial fishery and fish illegally harvested;
  - a system to accurately record illegal nets in the Fraser River, through the use of overflights; and
  - use of night patrols, particularly in areas where illegal fishing has been reported.
- DFO must ensure that adequate resources are available and that the budget and staffing available for enforcement are increased.
- DFO should empower user groups to provide enforcement within their own sectors.
- The law-enforcement status of conservation and protection officers, and their authority to conduct vehicle checks at roadblocks, should be reviewed.
- Pacific Region enforcement should be organized as a separate branch ultimately reporting to a senior person with enforcement experience who is a member of the Regional Management Committee.

Response: DFO did not agree that illegal fishing was rampant and out of control but agreed with the need to enforce the Act and Regulations properly. Increased enforcement resources will be provided on the Fraser River in 2005. Existing resources will be augmented by providing additional officers from other parts of the region, as well as additional overtime and operating funds, to allow for increased vessel, vehicle, and aerial surveillance patrols. Night patrols on the Fraser River will be expanded. DFO also supports an increased role for First Nations and other stakeholders in developing and implementing effective compliance programs, including an expansion of community and restorative justice techniques and new programs to promote stewardship. Low officer morale is acknowledged but is thought to reflect frustrations over resource levels, uncertainties around organizational change, and staffing instability, rather than a lack of policy direction. DFO acknowledged that, without legislative reform, fishery officers do not have

the authority to participate in roadblocks, nor do they have investigative body status. Both matters are being considered as part of the *Fisheries Act* review, and the national Conservation and Protection Compliance Review. DFO considers that the Act's penalty provisions are adequate and states that it will examine administrative sanctioning provisions as an alternative approach to penalties.

In 2005, the Standing Committee on Fisheries and Oceans made these recommendations:

- DFO should establish an enforcement branch in the Pacific Region which is separate from fisheries management. This new branch should be headed by a regional director, enforcement, with extensive law-enforcement experience, who would report to an assistant deputy minister, enforcement.
- DFO should restore the number of fishery officers in the Lower Fraser River area to the highest level of the 1994–2003 period.
- The Conservation and Protection Branch should be given all the resources necessary to carry on its enforcement activities and statutory responsibility to conserve the fishery, particularly during the fisheries' closed times.

Response: DFO would pilot a new line-reporting structure for its conservation and protection program in 2005. Field operations will report to the director of conservation and protection at the Vancouver regional headquarters (rather than through area directors), and the director will report to the regional director general (instead of the regional director of fisheries management). DFO did not commit itself to creating a separate enforcement branch, noting that the work of conservation and protection is intertwined with other fisheries management activities. However, organizational change is being analyzed as part of the current national compliance modernization initiative, to be completed by the end of 2005. There will be an increased enforcement presence on the Lower Fraser River in 2005 (although not to the 1994–2003 level), including vehicle and boat patrols and aircraft surveillance. DFO's objective is to increase compliance levels through strengthened enforcement, improved co-management with First Nations, and improved catch monitoring.

Research and identification of knowledge gaps

Recommendations respecting research and information gaps can also be found under other headings in this Part, such as "Habitat management, conservation, restoration, and enhancement."

In 1982, Dr. Peter Pearse made a series of research and information recommendations, including the following:

- DFO's research priorities should be determined by the requirements for effective management and conservation of Pacific fish resources and their habitats.
- DFO should immediately take steps to improve the quality and completeness of statistical information on catches by adopting modern data collection and processing technology, improving the methods of collecting and compiling statistics on commercial landings in co-operation with the government of British Columbia, improving techniques for compiling statistics on sport and Indian catches, and expanding voluntary logbook programs and instituting compulsory programs where more comprehensive information is required.
- DFO should strengthen its information on the composition of catches by reinstating the coast-wide sampling program for salmon catches and by expanding its programs for determining the racial composition of salmon catches.
- DFO should strengthen its programs of collecting and collating information on salmon escapements and spawning by requiring those who collect the data in the field to document the methods they use in estimating spawning, developing a central data system to systematically collate and store spawning records, developing new and consistent techniques for estimating spawning activity, and assembling historical information on salmon spawning for particular streams and publishing the results in close liaison with the intergovernmental aquatic habitat inventory program.
- In preparing its annual reviews, DFO should conduct a scientific assessment of the stocks and of the inferences drawn for management purposes. This assessment should involve summarizing research findings and collating statistical information on catches, fishing effort, escapements, and sampling; organizing a review of this information by the department's professional staff and other scientists; and preparing a statement of consolidated advice regarding the consequences of alternative management strategies for consideration by senior administrators.
- DFO should substantially expand and strengthen its program of scientific research on fish habitats, especially on the freshwater habitats of salmon, the effects of disturbances, and ways of mitigating them.
- DFO should organize a regular process for reviewing research activities and revising priorities with the advice of departmental managers and outside scientists. Each year it should report its research activities and plans for public information and for appraisal by the Pacific Fisheries Council.

Response: According to DFO's Recommendations and Responses, the government agreed in 1983 with the need to modernize DFO's stock management systems and procedures, special attention being given to acquisition and analysis of statistical data, research on and assessment of the condition of fish stocks, long-term planning for stock management, and procedures during the fishing season. After the signing of the 1985 Canada–US Pacific Salmon Treaty, DFO assumed responsibility for many pre- and post-season assessment activities.

In-season assessment of Fraser sockeye stock status and impact on the fishery became the mandate of the Pacific Salmon Commission and the Fraser River Panel.

In 1999, the Auditor General of Canada reported that DFO acknowledged that further improvements were needed in its catch, escapement, and habitat databases. The auditor general recommended that the department assess its information requirements in the areas of data collection, analysis, and management, in order to meet its long-term needs and to identify priorities under the New Direction policy.

Response: DFO concurred and stated that it was preparing assessment frameworks for all species of Pacific salmon. These frameworks would define the information required to ensure conservation and effective management, and would be used to determine priorities for allocation of resources under the New Direction policy. Work under the Canada–British Columbia Agreement on the Management of Pacific Salmon Fishery Issues had already resulted in significant improvements in salmon information management, and work to achieve further improvements would continue.

In 2003, the Standing Committee on Fisheries and Oceans recommended that DFO give high priority to research to determine the reason for the earlier than normal return of the Late-run sockeye.

Response: The government stated that studies on migration behaviour and in-river mortality of sockeye were conducted in 2003 in conjunction with the Pacific Salmon Commission and university partners. These studies are improving our knowledge of the cause or causes of mortality and the schedule of mortality level across the various timing strata (early, mid, and late) of the Late-run stocks, and they are providing information that can be used to explore management options to protect Late-run stocks while harvesting healthy stocks.

In 2003, the Chamut External Steering Committee recommended that monitoring and assessment studies be continued, to improve understanding of the effects of high spawner density (e.g., Adams River 2002) and of the migration behaviour and in-river mortality among Late-run sockeye.

Response: The government stated (as noted earlier) that studies on the migration behaviour and in-river mortality were conducted in 2003 in conjunction with the

Pacific Salmon Commission and university partners. DFO added that a recent assessment of the potential impact of "over-escapement" for 21 sockeye stocks in British Columbia was completed in 2004 by the Pacific Fisheries Resource Conservation Council, using the department's data. It concluded that "while there is evidence of a decrease in spawning efficiency at high spawning numbers, there is no evidence for anything like a 'collapse' or 'near collapse' of production following runs with very large numbers of spawners." DFO also cited several research studies (Cooke et al. 2004, and Hinch and Gardner 2009) and identified areas of future research activity.

In 2005, the Standing Committee on Fisheries and Oceans recommended that the Government of Canada support, fund, and collaborate with a scientific consortium established to study and fill the knowledge gaps related to the biology and the management of wild Pacific salmon, including:

- the impact of elevated temperatures in the Fraser River and other BC watersheds;
- the quantitative estimates of spawning fish; and
- the development of predictive models of river conditions.

Response: DFO agreed with the importance of the three priority areas identified by the committee, but noted that there is previous and ongoing research on all three. Collaborating with outside researchers is important, but research in these areas should not rely on the periodic interest of universities – logistical facilities and salmon expertise reside within the department already. In 2005, exploratory radio tagging, jointly funded by DFO and the Pacific Salmon Treaty Endowment Fund, is planned to assess the feasibility, using telemetry studies, of estimating mortality in Fraser River sockeye due to fishing and non-fishing factors. Forecasting is by nature inexact, and uncertainty will always exist. Further investment in information and data may reduce uncertainty and risk somewhat, but will not lead to perfectly accurate forecasts.

PART THREE

Preliminary views and assessment

Introduction

This commission's Terms of Reference direct me to set out in my interim report my "preliminary views on, and assessment of, any previous examinations, investigations or reports" that I consider relevant to the commission, as well as "the Government's responses to those examinations, investigations and reports[.]"

In determining which previous reports were relevant, I was guided by the overarching focus of my mandate – to identify the causes for the decline of Fraser River sockeye salmon and to develop recommendations for improving the future sustainability of the fishery.

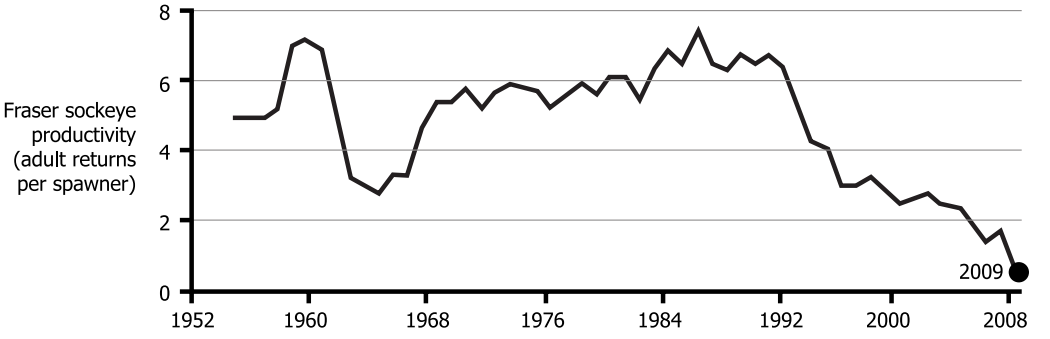
With respect to causes, the Terms of Reference specify a number of fish biology and ecosystem issues that I should consider, including the impact of environmental changes along the Fraser River, marine environmental conditions, aquaculture, predators, diseases, and water temperature. However, I am also directed to consider the policies and practices of DFO with respect to the Fraser sockeye fishery and to recommend changes to those policies and practices, if required, to improve the future sustainability of the fishery.

An appropriate starting point for my preliminary assessment is the precipitating events that brought about the establishment of this commission of inquiry. I turn now to those events.

The decline of Fraser River sockeye salmon

I understand that declines in sockeye salmon can be expressed in terms of abundance, productivity, and diversity. A recent report from the Think Tank of Scientists from Simon Fraser University in Vancouver and the Pacific Fisheries Resource Conservation Council expressed this decline by comparing the number of adult recruits to the number of spawning adults four years previously. This comparison was done on an aggregate basis, not by individual Conservation Unit. Figure 2, taken from this report, shows the measure of productivity (adult returns per spawner) between the 1950s and 2009. If the number of progeny is less than the parental numbers, the stock would appear to be in decline. Since the early 1990s, there was a steady and profound decline until 2009, to the point where the ratio of returning progeny per spawner was well below the replacement level.

Figure 2: Fraser Sockeye Adult Returns per Spawner, 1950s–2009



Source: "Adapting to Change: Managing Fraser sockeye in the face of declining productivity and increasing uncertainty," Think Tank of Scientists from Simon Fraser University and the Pacific Fisheries Resource Conservation Council, December 9, 2009, at fish.bc.ca/scientific-think-tank-analyzes-declining-fraser-river-sockeye-returns (accessed August 2010).

This decline was recognized in the preamble to the Terms of Reference: "[T]he decline in sockeye salmon stocks in the Fraser River in British Columbia has necessitated the closure of the fishery for a third consecutive year, despite favourable pre-season estimates of the number of sockeye salmon expected to return to the Fraser River[.]" This decline "has been attributed to the interplay of a wide range of factors, including environmental changes along the Fraser River, marine environmental conditions and fisheries management."

The 2010 rebound

The decline of Fraser sockeye has been, as I described earlier, steady and profound. The 2009 return of 1.7 million fish was the lowest on record. However, in 2010

Fraser sockeye are experiencing an extraordinary rebound. Before fishing began in 2010, DFO's Integrated Fisheries Management Plan forecast a return of 11.4 million Fraser sockeye, at a 50 percent probability level. By August 24, the Pacific Salmon Commission's Fraser River Panel estimated a return of 25 million fish (the largest since 1913), based on early harvesting, early escapement, and test fisheries. The panel subsequently increased that estimated return to 30 million, and later 34 million fish.

The 2010 returns demonstrate that Fraser sockeye retain the capacity to produce at historic levels, an indication of their resilience. The reasons for this dramatic improvement are as yet unclear, and it would be prudent to view the exceptional 2010 return within the context of the preceding years' steady decline in productivity. Notwithstanding the relief and excitement surrounding the 2010 return, no one is confident that the declines are a thing of the past.

Although it is too early to tell whether the high production in 2010 will be sustained into the future, it is clear that the 2009–10 variability has important implications for the commission's work. My mandate (to make findings of fact regarding the causes for the decline of Fraser sockeye and to develop recommendations for improving the future sustainability of the fishery) still remains, but that decline must now be understood and evaluated in the context of an unprecedented rebound in 2010.

As the commission explores alternative theories that might explain the historic declines in Fraser sockeye, it will be necessary to test those theories against the dramatic 2010 returns. By that, I mean that explanatory factors must take into account upswings as well as declines. The commission's scientific researchers will include, where appropriate, the 2010 return in the scope of their investigations – in particular, in the data synthesis and cumulative effects analysis project.

What the previous reports tell us

The number of previous reports and the number of recommendations contained in them are remarkable. Dr. Peter Pearse's 1982 report alone contained over 200 recommendations. More recently, the past two decades have seen at least 30 additional reports containing approximately 500 more recommendations, many of which were directed at DFO respecting its management of the fishery.

Moreover, if the number of previous reports and recommendations appears daunting, so too is the wide range of issues that were examined. Read as a whole, the previous reports touch on most major issues in fisheries management.

In considering how to approach my assessment of these previous reports, I took as my starting point Dr. Pearse's seminal 1982 study of Canada's Pacific fishery. His mandate was sweeping in scope – to examine the condition, management, and use of all Pacific fisheries, including provisions for conservation, management, protection, and development of the fish resources and the structure and size of the commercial fishing fleet. His recommendations were as broad as his

mandate, delving into habitat and management, salmonid enhancement, research, commercial licensing, fleet rationalization, mariculture, the Aboriginal fishery, the sport fishery, enforcement, consultative arrangements, and administration.

Although subsequent reports were more narrowly focused, a variety of themes emerged:

- ***Response to an immediate crisis.*** Several reports were commissioned to examine an unexpectedly low return in a specific year, such as the Pearse and Larkin report of 1992 (the apparent disappearance of 482,000 sockeye salmon on their way to the Fraser River spawning grounds), the Fraser report in 1995 (an estimated shortfall of 1.3 million Fraser sockeye), the Standing Committee's 2003 report (the closure of the commercial fishery in 2001), and the Williams and the Standing Committee's 2005 reports (an estimated 1.3 million fish unaccounted for).
- ***Fleet reduction and intersectoral allocation.*** Between 1995 and 1998, numerous reports addressed problems arising from the government's intention to reduce the capacity of the commercial salmon fleet by 50 percent (Mifflin Plan) and disputes within and among sectors over allocation.
- ***The Aboriginal role in fisheries.*** Beginning with Dr. Pearse's 1982 report, which made 13 recommendations respecting the Aboriginal fishery, numerous reports addressed issues such as the food, social, and ceremonial fishery and the 1992 Aboriginal Fisheries Strategy (including pilot sales programs). The 2004 federal-provincial task force (Pearse and McRae) was mandated to define a broad vision of the post-treaty fishery, including identifying how fish will be shared among treaty and non-treaty participants. The 2004 First Nation Panel was asked to articulate a vision for future fisheries management and allocation and to identify what principles would help to achieve that vision.
- ***Effects of salmon farms.*** In 2000, the Auditor General of Canada undertook an audit to determine whether DFO was meeting its obligations respecting conservation and protection of wild salmon stocks while participating in the regulation of the salmon-farming industry. The following year, the Leggatt Inquiry reported on community and public input respecting salmon farming. In 2004, the federal commissioner for aquaculture development prepared a long-term vision for aquaculture in Canada. The auditors general of New Brunswick (2004) and British Columbia (2005) reported on key risks associated with the salmon aquaculture industry. In 2007, the BC Special Committee on Sustainable Aquaculture concluded that the province had a unique opportunity to protect and enhance wild salmon populations and marine ecosystems while developing a thriving, innovative aquaculture industry. In 2009, the Pacific Salmon Forum recommended that British Columbia adopt an ecosystem-based approach to address the potential impact of salmon aquaculture.
- ***Conservation and habitat protection.*** In a series of reports in 1997, 1999, and 2000, the Auditor General of Canada addressed various aspects of conservation and protection of the salmon resource and its habitat. In 2004, the federal

commissioner of the environment and sustainable development focused on action that DFO had taken in response to the auditor general's recommendations. In 2005, the David Suzuki Foundation conducted a study into DFO's performance in implementing its conservation mandate in the Pacific Region. In 2009, the commissioner of the environment and sustainable development examined how DFO and Environment Canada carried out their respective responsibilities under the *Fisheries Act* for protecting fish habitat and preventing pollution.

- ***Consultative arrangements***. In 2001, DFO appointed the Institute for Dispute Resolution at the University of Victoria to develop recommendations relating to DFO's consultation processes in the Pacific Region on management planning for the annual salmon harvest.

This list indicates clearly that some issues, such as aquaculture, conservation, and habitat protection, have been examined repeatedly. An enormous amount of time and money has been invested in arriving at the recommendations contained in these previous reports, yet the decline in Fraser sockeye stocks had not abated until 2010, necessitating the closure of the fishery in 2009 for a third consecutive year. This history motivated the government to investigate the causes for the decline and led to my appointment to conduct this commission of inquiry.

Drawing conclusions from the previous reports

Although I am mindful of the detailed research and the cost involved in the production of the previous reports and the large number of recommendations generated by them, I have concluded that I should not make any findings of fact or recommendations for improving the fishery's sustainability based solely on them. In my view, it would be premature and unwise to do so for several reasons.

First and foremost, notwithstanding the best efforts of DFO and other participants, the commission has not yet received complete disclosure of documents from DFO, other government departments, or the other participants.

Second, the commission's legal team is still conducting interviews with DFO employees and others who are knowledgeable about the Fraser sockeye fishery and about fish biology and ecosystem issues.

Third, the Terms of Reference direct me to consider the policies and practices of DFO with respect to the Fraser sockeye fishery and to recommend changes, if required, to improve the future sustainability of the fishery. Before arriving at any conclusions, I should await the evidence that will flow from the hearings investigating DFO's policies, practices, and procedures.

Fourth, before making any findings or recommendations, I will need to consider the results of this commission's contracted research projects, which are described below.

Finally, findings of fact and recommendations must await my consideration of the whole of the evidence emanating from the hearings, public forums, site visits, and public written submissions. All the evidence generated by the commission's proceedings will form the basis for reaching conclusions. These conclusions will take into account the recommendations contained in past reports and the government's history of responses to these reports. In my opinion, this fair and reasonable approach should result in a set of findings and recommendations that, I trust, will end the cycle of reviewing the same issues over and over again.

How the commission used the previous reports

I turn now to an explanation of how the commission was able to make use of the previous reports and recommendations as part of its preparation for the evidentiary hearings, scheduled to commence in Vancouver on October 25, 2010.

The commission's legal team reviewed the previous reports and organized them by subject matter. In doing so, they were able to identify approximately 20 broad topics relating to fisheries management, fish biology, and the ecosystem to investigate. These topics, which were refined as the legal team's work progressed, eventually became an outline for the issues that the commission intends to investigate during its proceedings.

To carry out the commission's investigation of the issues, the legal team formed two-person groups, and the issues were divided among these groups. For any given issue, a group took on responsibility for reviewing the relevant previous report(s), searching the Ringtail Legal document management database for relevant documents, identifying persons to be interviewed, developing a witness list, and preparing to present evidence on that issue at the hearings.

In addition, the legal team identified those issues that would lend themselves to the preparation of Policy and Practice Reports, as contemplated by the commission's Rules for Procedure and Practice. The topics that may be covered in this process include the federal legislative scheme, the international law framework, habitat enhancement and restoration, the Aboriginal and treaty rights framework for the fishery, and a history of regulation of the Aboriginal sockeye salmon fishery.

Policy and Practice Reports may also be written describing the basic, uncontested facts on a number of issues, such as an outline of the different fishing sectors, the basic practices of DFO harvest management, general enforcement practices, and regulatory practices governing activities such as aquaculture, mining, and sewage disposal. These reports will be tendered as exhibits at the hearings and will ultimately inform my consideration of these issues.

The topics that were identified from a review of the previous reports also served to inform the commission's scientific research program. This program

is directed by our in-house fisheries research consultant, Dr. David Levy. Dr. Levy's detailed understanding of the previous reports guided him in the development of the commission's contracted scientific research projects. In addition, Dr. Levy was able to consult with several highly respected experts on salmon fisheries and conservation about the development of terms of reference for science projects and the scope and range of the scientific issues that the commission intended to investigate. In this manner, the commission was able to build a bridge between the legal team's investigation of issues and the commission's scientific research program.

Working together, the members of the legal and science teams are endeavouring to avoid duplicating work or revisiting issues that have been amply covered in the previous reports. The fisheries management, fish biology, and ecosystem issues that have emerged from the commission's review of the previous reports, and which will be investigated during the commission's proceedings, are those which the commission considers vital to ensuring that it is able to fulfill its mandate.

On June 15, 2010, the commission convened two days of hearings to solicit the participants' submissions on the issues the commission had identified in its Discussion Paper (see Appendix 12). In particular, we wanted to know, first, whether there were issues other than those listed in the Discussion Paper that the commission ought to investigate and, second, the relative priority of the issues that the commission ought to investigate.

As a result of this meeting, the commission received valuable input from the participants, whose suggestions led to some revisions to the list and description of the issues. On July 7, 2010, commission counsel wrote to the participants, setting out a detailed hearings plan and describing 12 technical and scientific research projects, with the names and brief biographical sketches of the proposed researchers. Commission counsel convened another meeting of the participants on July 19, 2010, after which the commission's evidentiary hearings plan and scientific research projects were finalized. These projects, most of which are due for completion by January 31, 2011, and will then be subject to peer review, are set out in Appendix 13. They are as follows:

Project 1 **Diseases and parasites:** A fish disease specialist will take a broad view of sockeye diseases and parasites that span the life cycle from egg to adult, and will evaluate the full spectrum of diseases that occur at all life history stages.

Project 2 **Effects of contaminants on Fraser River sockeye salmon:** The researcher will prepare an inventory of aquatic contaminants in the Fraser River, organized by the distribution of sockeye Conservation Units. The report will include an evaluation of pulp-mill effluent contaminants, non-point source contaminants, endocrine disruptors, and other contaminants, including sewage discharges from the Lower Mainland and other urban centres in the Fraser watershed.

Project 3 **Fraser River freshwater ecology and status of sockeye salmon Conservation Units:** The researcher will investigate several aspects of Fraser sockeye ecology, including the status of sockeye Conservation Units, a review of the industrial and urban impact on freshwater ecology and the life history of salmon, and an expert assessment of the potential impact from industrial and urban activities on Fraser sockeye during the past 30 years.

Project 4 **Marine ecology:** The researcher will review the marine ecology of Fraser sockeye to determine whether there are oceanographic factors that can explain the reduction in short-term and long-term Fraser sockeye productivity.

Project 5 **Impacts of salmon farms on Fraser River sockeye salmon:** The researcher will evaluate the linkage between salmon farm operations and Fraser sockeye spawning returns – past, present, and future. This research will consider the impact on Fraser sockeye of sea lice exposure, farm wastes that affect benthic and pelagic habitat quality, Atlantic salmon escapees, and disease (including IHN).

Project 6 **Data synthesis and cumulative impact analysis:** The researcher will synthesize information contained in the other researchers' technical reports, to address cumulative effects and to evaluate possible causes for the decline of Fraser sockeye.

Project 7 **Fraser River sockeye salmon fisheries and fisheries management:** The researcher will investigate Fraser sockeye fisheries harvesting (Aboriginal, commercial, and recreational) and fisheries management (pre-season forecasting, in-season and post-season run-size abundance estimation methods, and escapement enumeration methods). The researcher will also analyze the historical performance of the in-season assessment process, evaluate the scientific basis for determining escapement targets, evaluate the extent and impact of any over-harvesting since 1985, and summarize the current conservation status of the Cultus Lake sockeye population. Finally, the researcher will undertake a comparative analysis of sockeye fisheries' harvesting practices and fisheries management in BC's Fraser River and Alaska's Bristol Bay fisheries.

Project 8 **Effects of predators on Fraser River sockeye salmon:** The researcher will prepare a description of predation on Fraser sockeye across the geographical range of the population, focusing on marine mammal predation on adults and smolts. The researcher will also evaluate freshwater fish predation on alevins, fry, and smolts, and marine fish predation on smolts, sub-adults, and adults.

Project 9 **Effects of climate change on Fraser River sockeye salmon: literature compilation and analysis:** The researcher will compile and review all the published evidence for climate change and climate-related effects on sockeye salmon in freshwater and marine habitats across all life stages. Specifically, the researcher will look for evidence of the effects of climate-related variables such as temperature, flow, salinity, pH, currents, primary productivity, and species interactions on Fraser sockeye survival, behaviour, and distribution.

Project 10 **Fraser River sockeye production dynamics – data compilation, literature review, and reporting:** The researcher will, to the extent possible, undertake basic statistical analyses of abundance and productivity, organized by Conservation Unit. The researcher will also review previous research and data on sockeye cyclic dominance, including Fraser and non-Fraser sockeye populations (with a review of the relationship between sockeye run failures and the timing of sockeye cyclic dominant runs), and summarize the frequency and effects of over-escapement on subsequent productivity and the abundance of adult recruits.

Project 11 **Fraser River sockeye salmon: status of DFO science and management:** The researcher will prepare an analysis, including an economic analysis, of DFO activities in the management of Fraser sockeye; present DFO science and research expenditures related to Fraser sockeye; and undertake an analysis to evaluate DFO's ability to meet its stated management objectives relative to Fraser sockeye.

Project 12 **Sockeye habitat analysis in the Lower Fraser River and the Strait of Georgia:** The researcher will prepare an inventory of sockeye habitats in the Lower Fraser River (below Hope) and identify human activities that could affect them; analyze Fraser Estuary development, including the use of larger vessels, the proposed expansion of the Vancouver International Airport Fuel Delivery Project, the development of ports and bridges, and the damage from dredging; describe human activities in the Strait of Georgia that could negatively affect Fraser sockeye; evaluate coastal zone protection strategies related to shoreline development, shipping, aquaculture, and oil-tanker traffic; provide a synopsis of water quality conditions in the Strait of Georgia along the sockeye migration routes; and quantify sockeye food abundance in the Strait of Georgia in relation to the potential for food competition and limitation.

What makes this commission unique

The work of this commission is different from that of the previous reports in significant respects. This commission is the first one that

- has been specifically tasked to identify the causes for the decline of Fraser sockeye and to make recommendations for the fishery's future sustainability;
- has been specifically directed to investigate the fish biology and ecosystem issues that may have caused or contributed to the decline, including freshwater and marine environmental changes that call for a consideration of anthropogenic climate change;
- has been mandated to undertake a comprehensive consideration of DFO's past and present policies, practices, and procedures, including its scientific advice; its fisheries policies and programs; its risk management strategies; its allocation of departmental resources; and its fisheries management practices and procedures, including monitoring, counting of stocks, forecasting, and enforcement; and
- has, since Dr. Pearse's 1982 commission, been granted authority under Part 1 of the *Inquiries Act*, which authorizes the commissioner to summon witnesses to attend and give evidence under oath or affirmation and to produce documents relevant to the commission's mandate.

This commission is also unique in the degree to which it has sought input from interested parties. Far from working in isolation, the commission received the benefit of input from 21 formally recognized participants (representing 53 individuals, groups, and organizations) who represent governmental, Aboriginal, commercial fishing, sport fishing, industrial, and environmental non-governmental interests. Participants have played a key role in identifying the topics that should be investigated during the evidentiary hearings and through the scientific research projects, and they will have the right to cross-examine witnesses during the hearings. In relation to the commission's scientific research projects, participants have been invited to propose names of potential witnesses who would present differing views from those expressed by the researchers retained by the commission.

The legal landscape within which this commission operates has changed as well. In *R. v. Sparrow*,[10] the Supreme Court of Canada recognized for the first time an Aboriginal right to fish under section 35 of the *Constitution Act, 1982*, and, in the intervening two decades, considerable case law has flowed from that decision. To explore how the change in the legal landscape has made an impact on the work of the commission, I have set aside hearing days to listen to the views of participants on the Aboriginal sockeye salmon fishery.

More recently, in 2009, the Supreme Court of British Columbia[11] struck down the provincial regulatory scheme relating to finfish farming in this province –

10 [1990] 1 SCR 1075.

11 *Morton v. British Columbia (Agriculture and Lands)*, 2009 BCSC 136.

a decision that has resulted in DFO taking over responsibility for the regulation of fish farms. Obviously, this decision will bear on my consideration of the issues surrounding aquaculture.

It is also important to take into consideration modern treaties, including two recent modern treaties that have been ratified under the 1992 British Columbia Treaty Commission Agreement. These agreements provide for specified food, social, and ceremonial allocations for First Nations, as well as side agreements that provide for Aboriginal commercial fishing opportunities. In this regard, I am aware of the March 2, 2010, announcement of the minister of fisheries and oceans that the Government of Canada has deferred the negotiation of any fisheries components relating to salmon at treaty tables in British Columbia, pending the findings and recommendations of this commission.

Having set out how the previous reports have informed our process and why our work can be distinguished from the previous reports, I turn now to the way the commission will investigate the issues relating to the commission's mandate.

What the commission will investigate, and how it will proceed

While the contracted scientific research projects discussed earlier are an important component of the commission's work, I feel that the commission's consideration of fisheries management issues is of at least equal importance. Of the issues to be investigated during the commission's proceedings, well over half of them focus on various management topics. The issues to be investigated are summarized here:

- Fraser sockeye life cycle
- Conservation perspectives
- Perspectives on Aboriginal law
- DFO's organizational structure
- The Pacific Salmon Commission
- Wild Salmon Policy (Part 1)
- Overview of DFO habitat management and conservation
- Harvest management
- Harvesting
- Enforcement (fisheries)
- Habitat enhancement and restoration
- Wild Salmon Policy (Part 2)
- Protection of sockeye biodiversity
- Watershed-based planning and marine coastal planning
- Enforcement (habitat)
- Effects on habitat in the Fraser River watershed

- Predation
- Diseases, viruses, bacteria, and parasites
- Salmon farms
- Effects on habitat in the marine environment
- Population dynamics
- Other fisheries models

The commission will employ different methods of collecting evidence on the issues to be investigated: formal hearings where witnesses, including experts, will testify under oath or on affirmation and be subject to cross-examination by the participants; testimony by panels of witnesses, including experts; Policy and Practice Reports tendered as exhibits at the hearings; affidavits or summaries of evidence filed at the hearings; less formal hearings where technical or scientific witnesses may present evidence or exchange views in an open setting; public forums where members of the public may present submissions on the issues; and site visits where I can observe or be informed about aspects of the Fraser sockeye fishery relevant to my mandate.

Even though the hearings and research projects are described as distinct parts of the commission's proceedings, they will in fact be handled in a fully integrated manner. The hearings plan includes consideration of technical and scientific issues that are the subject of the research projects set out earlier. In addition, the reports generated by these projects will be tendered as exhibits, and the researchers will be available as witnesses at the hearings.

Improving the future sustainability of the sockeye fishery

The ultimate objective of the commission's mandate is to make recommendations to improve the sustainability of this important resource for future British Columbians and other Canadians. The Fraser sockeye is an iconic species of fish in Aboriginal and non-Aboriginal communities. It has been a resource at the centre of Aboriginal traditions in this province for millennia, as well as a critically important resource for the province's economy.

The steady decline of this resource over several decades has put enormous pressure on the Aboriginal and non-Aboriginal communities that depend on this resource for their food, social, and ceremonial purposes; recreational pursuits; and livelihood needs. They want answers as to why there has been a steady decline in the Fraser sockeye stocks. They also seek solutions for restoring the stocks to those levels of abundance where an ample supply of sockeye salmon served the needs of all the communities that relied heavily on it.

The issues surrounding the decline of Fraser sockeye are complex and challenging. Despite years of research and study by pre-eminent scientists and

researchers, as well as community leaders with experience in the field who have undertaken broad-ranging examinations of the topic, the fact remains that this resource was until 2010 in serious decline and the need to find solutions is urgent.

I believe there is a common will to do what is necessary to conserve Fraser sockeye stocks, and I am cautiously optimistic that, with the co-operation of the participants, recommendations will be made to satisfy our mandate of improving the future sustainability of the fishery. In saying so, I am under no illusions about the challenge that lies ahead for the commission, the controversial nature of some of the issues that must be investigated, or the long history of recommendations and responses that have been made. I believe that everyone who is interested in this resource – and that includes a wide cross-section of the citizens of British Columbia and the rest of Canada – are committed to finding and implementing solutions to achieve the goal of securing a sustainable sockeye salmon resource for generations to come.

Much work has been done by the commission to prepare for the evidentiary hearings and much work still lies ahead, but the staff and I are committed to completing our mandate successfully in as timely a manner as our resources and a fair process will permit. We sought and received an extension of time to October 29, 2010, for the filing of this interim report, which, according to the Terms of Reference, was due on August 1, 2010. We are grateful to the government for accepting our request for the extension. In our request we notified the government that we may have to apply for an extension of time for the filing of our final report, which, according to the Terms of Reference, is due May 1, 2011.

The formal hearings will get under way on October 25, 2010, continue in the fall until December 16, and resume early in the new year. We will soon have settled our hearings plan for the new year, and this plan will dictate our activities in 2011, including the publication of my final report.

If there is reason to be optimistic, it is in the willingness of all those I have come into contact with to find a way to participate in as meaningful and helpful a manner as possible. I have been well served by the commission's staff of legal and science professionals, as well as by those who have agreed to provide their services to the commission as consultants or advisers. I have also been fortunate in having a dedicated staff of administrators who toiled long hours to get the commission in operation as quickly and efficiently as possible in order to meet the tight schedule under which it is working.

From commission staff to participants to other interested citizens, we all share the common goal of doing our best to identify the causes for the decline in numbers of Fraser River sockeye salmon and to make meaningful recommendations for the fishery's future sustainability.

APPENDICES

Appendix 1 • Orders in Council and amendment

CANADA

PRIVY COUNCIL • CONSEIL PRIVÉ

P. C. 2009-1860
November 5, 2009

Whereas the decline in sockeye salmon stocks in the Fraser River in British Columbia has necessitated the closure of the fishery for a third consecutive year, despite favourable pre-season estimates of the number of sockeye salmon expected to return to the Fraser River;

Whereas that decline has been attributed to the interplay of a wide range of factors, including environmental changes along the Fraser River, marine environmental conditions and fisheries management;

Whereas the Government of Canada wishes to take all feasible steps to identify the reasons for the decline and the long term prospects for Fraser River sockeye salmon stocks and to determine whether changes need to be made to fisheries management policies, practices and procedures – including establishing a commission of inquiry to investigate the matter;

And whereas the Government of Canada has committed to full cooperation with an inquiry;

Therefore, Her Excellency the Governor General in Council, on the recommendation of the Prime Minister, hereby

(*a*) directs that a Commission do issue under Part I of the *Inquiries Act* and under the Great Seal of Canada appointing the Honourable Bruce Cohen as Commissioner to conduct an inquiry into the decline of sockeye salmon in the Fraser River (the "Inquiry"), which Commission shall

.../2

P. C. 2009-1860

(i) direct the Commissioner

(A) to conduct the Inquiry without seeking to find fault on the part of any individual, community or organization, and with the overall aim of respecting conservation of the sockeye salmon stock and encouraging broad cooperation among stakeholders,

(B) to consider the policies and practices of the Department of Fisheries and Oceans (the "Department") with respect to the sockeye salmon fishery in the Fraser River – including the Department's scientific advice, its fisheries policies and programs, its risk management strategies, its allocation of Departmental resources and its fisheries management practices and procedures, including monitoring, counting of stocks, forecasting and enforcement,

(C) to investigate and make independent findings of fact regarding

(I) the causes for the decline of Fraser River sockeye salmon including, but not limited to, the impact of environmental changes along the Fraser River, marine environmental conditions, aquaculture, predators, diseases, water temperature and other factors that may have affected the ability of sockeye salmon to reach traditional spawning grounds or reach the ocean, and

(II) the current state of Fraser River sockeye salmon stocks and the long term projections for those stocks, and

(D) to develop recommendations for improving the future sustainability of the sockeye salmon fishery in the Fraser River including, as required, any changes to the policies, practices and procedures of the Department in relation to the management of the Fraser River sockeye salmon fishery,

.../3

P. C. 2009-1860

(ii) direct the Commissioner to conduct the Inquiry under the name of the Commission of Inquiry into the Decline of Sockeye Salmon in the Fraser River,

(iii) authorize the Commissioner to consider findings, as he considers appropriate, of previous examinations, investigations or reports that may have been conducted that he deems relevant to the Inquiry and to give them any weight, including accepting them as conclusive,

(iv) direct the Commissioner to supplement those previous examinations, investigations or reports with his own investigation and to consider the Government's response to previous recommendations,

(v) authorize the Commissioner to rent any space and facilities that may be required for the purposes of the Inquiry, in accordance with Treasury Board policies,

(vi) authorize the Commissioner to adopt any procedures and methods that he may consider expedient for the proper conduct of the Inquiry, to sit at any times and in any places in Canada that he decides and to conduct consultations in relation to the Inquiry as he sees fit,

(vii) authorize the Commissioner to engage the services of any staff, experts and other persons referred to in section 11 of the *Inquiries Act* at rates of remuneration and reimbursement as approved by the Treasury Board,

.../4

P. C. 2009-1860

(viii) despite subparagraphs (v) and (vi), direct the Commissioner not to conduct any hearings during the periods beginning on February 12, 2010 and ending on February 28, 2010, and beginning on March 12, 2010 and ending on March 21, 2010, to minimize the costs of the Inquiry and the inconvenience to witnesses during the Vancouver 2010 Olympic and Paralympic Winter Games,

(ix) authorize the Commissioner to grant, to any person who satisfies him that they have a substantial and direct interest in the subject matter of the Inquiry, an opportunity for appropriate participation in it,

(x) authorize the Commissioner to recommend to the Clerk of the Privy Council that funding be provided, in accordance with terms and conditions approved by the Treasury Board, to ensure the appropriate participation of any person granted standing at the Inquiry under subparagraph (ix), to the extent of the person's interest, if the Commissioner is of the view that the person would not otherwise be able to participate in the Inquiry,

(xi) direct the Commissioner to use the automated documents management program specified by the Attorney General of Canada and to consult with records management officials within the Privy Council Office on the use of standards and systems that are specifically designed for the purpose of managing records,

(xii) direct the Commissioner, in respect of any portion of the Inquiry conducted in public, to ensure that members of the public can, simultaneously in both official languages, communicate with and obtain services from the Inquiry, including any transcripts of proceedings that have been made available to the public,

.../5

P. C. 2009-1860

(xiii) direct the Commissioner to follow established security procedures, including the requirements of the *Policy on Government Security*, with respect to persons engaged under section 11 of the *Inquiries Act* and the handling of information at all stages of the Inquiry,

(xiv) direct the Commissioner to perform his duties without expressing any conclusion or recommendation regarding the civil or criminal liability of any person or organization,

(xv) direct the Commissioner to submit, on or before August 1, 2010, an interim report, simultaneously in both official languages, to the Governor in Council, setting out the Commissioner's preliminary views on, and assessment of, any previous examinations, investigations or reports that he deemed relevant to the Inquiry and the Government's responses to those examinations, investigations and reports,

(xvi) direct the Commissioner to submit, on or before May 1, 2011, one or more reports, simultaneously in both official languages, to the Governor in Council, and

(xvii) direct the Commissioner to deposit the records and papers of the Inquiry with the Clerk of the Privy Council as soon after the conclusion of the Inquiry as is reasonably possible; and

(*b*) authorizes, pursuant to section 56 of the *Judges Act*, the Honourable Bruce Cohen of Vancouver, British Columbia, a judge of the Supreme Court of British Columbia, to act as Commissioner.

CERTIFIED TO BE A TRUE COPY–COPIE CERTIFIÉE CONFORME

CLERK OF THE PRIVY COUNCIL–LE GREFFIER DU CONSEIL PRIVÉ

CANADA
PRIVY COUNCIL • CONSEIL PRIVÉ

P. C. 2009-1861
November 5, 2009

Her Excellency the Governor General in Council,

on the recommendation of the Prime Minister, hereby

(*a*) pursuant to paragraph (*b*) of the definition "department" in section 2 of the *Financial Administration Act*, designates the Commission of Inquiry into the Decline of Sockeye Salmon in the Fraser River as a department for the purposes of that Act; and

(*b*) pursuant to paragraph (*b*) of the definition "appropriate Minister" in section 2 of the *Financial Administration Act*, designates the Prime Minister as the appropriate Minister with respect to the Commission referred to in paragraph (*a*).

CERTIFIED TO BE A TRUE COPY–COPIE CERTIFIÉE CONFORME

CLERK OF THE PRIVY COUNCIL–LE GREFFIER DU CONSEIL PRIVÉ

CANADA
PRIVY COUNCIL • CONSEIL PRIVÉ

P.C. 2010-954
July 23, 2010

Her Excellency the Governor General in Council, on the recommendation of the Prime Minister, hereby directs that a commission do issue under Part I of the *Inquiries Act* and under the Great Seal of Canada amending the commission in relation to the Commission of Inquiry into the Decline of Sockeye Salmon in the Fraser River, issued pursuant to Order in Council P.C. 2009-1860 of November 5, 2009, by replacing subparagraph (xv) with the following:

> (xv) direct the Commissioner to submit, on or before October 29, 2010, an interim report, simultaneously in both official languages, to the Governor in Council, setting out the Commissioner's preliminary views on, and assessment of, any previous examinations, investigations or reports that he deemed relevant to the Inquiry and the Government's responses to those examinations, investigations and reports.

CERTIFIED TO BE A TRUE COPY–COPIE CERTIFIÉE CONFORME

CLERK OF THE PRIVY COUNCIL–LE GREFFIER DU CONSEIL PRIVÉ

Appendix 2 • Commissioner and commission staff

The Honourable Bruce I. Cohen
Commissioner

Administration

Executive director	Dr. Leo Perra
Director, Finance and administration	Cathy Stooshnov
Manager, Documents and records	Christine Cheung
Manager, Contribution program	Andrea Nash
Legal administrative assistant	Natasha Tam
Research assistant	Ben Bisset
Webmaster	Scott Kingdon
Hearings coordinator	John Lunn
Bilingual receptionist	Nicole Lavigne
Bilingual administrative assistant	Maude Poirier

Counsel

Senior commission counsel	Brian J. Wallace, QC
Policy counsel	Keith R. Hamilton, QC
Research counsel	Meg Gaily
Associate commission counsel	Wendy Baker, QC
	Brock Martland
	Patrick McGowan
Junior commission counsel	Jennifer Chan
	Kathy Grant
	Lara Tessaro
	Dr. Maia Tsurumi

Fisheries research

Consultant	Dr. David Levy
Assistant	Patricia Woodruff

Communications

Director	Carla Shore, APR
Assistant	Alana Clement

Document reviewers

Line Christensen
Pierre Cloutier de Repentigny
Ashley Dresser
Jon Major
Michelle Zakrison

Editorial Team

Shipton, McDougall Maude Associates	Dan Liebman Mary McDougall Maude Rosemary Shipton

Proofreader — Christine Rowlands

Translation — Claire Garvey, Vancouver
Pierre Cremer, Ottawa
Translation Bureau, Ottawa

Layout and Design

KAPOW Creative	Tom Norman

Appendix 3

Commission of Inquiry into the
Decline of Sockeye Salmon in the Fraser River

RULES FOR STANDING AND FUNDING

(As amended)

A. GENERAL

1. These Rules for Standing and Funding apply to the Commission of Inquiry into the Decline of Sockeye Salmon in the Fraser River (the "Cohen Commission").

2. The commission will be conducted in accordance with Part I of the *Inquiries Act*, R.S.C. 1985, c. I-11 (the "Act") and pursuant to Order in Council PC 2009-1860 (the "Terms of Reference").

3. The commission's procedures in respect of standing and funding will be conducted in accordance with the Terms and Conditions for the Contribution Program for the Commission of Inquiry into the Decline of Sockeye Salmon in the Fraser River, dated 19 January 2010 (the "Contribution Program Terms") (as amended 4 March 2010).

4. Subject to the Act, the Terms of Reference, and the Contribution Program Terms (as amended 4 March 2010), the Rules for Standing and Funding are issued by the Honourable Bruce Cohen (the "Commissioner"), in his discretion to ensure that the inquiry is thorough, fair and timely.

5. The Commissioner may amend these Rules or dispense with their compliance as he deems necessary to ensure that the inquiry is thorough, fair and timely.

6. All applicants for standing or funding, participants, and their counsel shall be deemed to undertake to adhere to these Rules, and may raise any issue of non-compliance with the Commissioner.

7. The Commissioner may deal with any non-compliance with these Rules as he deems appropriate, including refusing or rescinding standing.

8. In these Rules, "person" includes an individual, group, government, agency, institution or other entity.

B. STANDING

9. Commission counsel, who will assist the Commissioner to ensure the orderly conduct of the inquiry, and the Government of Canada (as amended 4 March 2010) have standing throughout the inquiry.

10. Commission counsel have the primary responsibility for representing the public interest, including the responsibility to ensure that all matters that bear upon the public interest are brought to the Commissioner's attention.

11. The Commissioner may grant a person standing if he is satisfied that the person has a substantial and direct interest in the matters investigated in the inquiry or portions thereof.

12. In these Rules, persons with standing are referred to as "participants".

13. The Commissioner will determine on what terms and in which parts of the inquiry a participant may participate, and the nature and extent of such participation. The Commissioner retains the discretion to vary a participant's participation or rescind standing.

14. To apply for standing, a person must submit a written application to the Commissioner by 4 p.m. on 10 March 2010. An application should demonstrate why the person has a substantial and direct interest in the subject matter of the inquiry and outline how the applicant proposes to contribute to the inquiry. Guidelines for application format and delivery will be posted on the commission website: www.cohencommission.ca.

15. The Commissioner will determine the outcome of applications for standing on the basis of written applications, unless the Commissioner determines that an oral hearing is necessary. Any oral hearings conducted on standing will take place on 23-24 March 2010 at the Federal Court, 8th floor, 701 West Georgia Street, Vancouver, B.C., and on such other dates as the Commissioner may determine (amended 19 March 2010).

16. Where persons have shared interests in the subject matter of the inquiry, they should make a single application for standing, identifying those persons whose interests are reflected in the application.

17. The Commissioner may direct that a number of applicants share in a single grant of standing.

C. FUNDING

18. Where the Commissioner is satisfied on the evidence that a participant would not otherwise be able to participate in the inquiry, the Commissioner may recommend to the Clerk of the Privy Council that a participant receive financial assistance to pay for legal counsel to facilitate participation appropriate to the extent of a participant's interest.

19. Applications for funding recommendations may be made concurrently with applications for standing. To apply for a funding recommendation, a person must submit a written application to the Commissioner by 4 p.m. on 10 March

2010, or by such other dates as the Commissioner may determine (13 April 2010).

20. An application for a funding recommendation must be supported by an affidavit setting out the following:

> (a) facts that demonstrate the person seeking funding does not have sufficient financial resources to participate in the work of the commission without financial assistance for legal counsel, and
>
> (b) facts in relation to any other sources of funds received, expected or sought by the person in relation to legal services rendered, or to be rendered, with respect to the inquiry.

Affidavits must be in Form 1 to these Rules, or in another form as the Commissioner may determine (13 April 2010). Guidelines for application format and delivery will be posted on the commission website: www.cohencommission.ca.

21. The Commissioner will determine the outcome of applications for funding recommendations on the basis of written applications, unless the Commissioner determines that an oral hearing is necessary. Any oral hearings conducted on funding will take place on 23-24 March 2010 at the Federal Court, 8th Floor, 701 West Georgia Street, Vancouver, B.C., and on such other dates as the Commissioner may determine (amended 19 March 2010).

22. Where the Commissioner's funding recommendation is approved by the Clerk of the Privy Council, funding shall be in accordance with terms and conditions approved by the Treasury Board respecting rates of remuneration and reimbursement and the assessment of accounts.

FORM 1
(Rule 19)

COMMISSION OF INQUIRY INTO THE DECLINE OF SOCKEYE SALMON IN THE FRASER RIVER

In the matter of Her Excellency the Governor General in Council, on the recommendation of the Prime Minister, directing that a Commission do issue under Part I of the Inquiries Act and under the Great Seal of Canada appointing the Honourable Bruce Cohen as Commissioner to conduct an inquiry into the decline of sockeye salmon in the Fraser River.

AFFIDAVIT IN SUPPORT OF APPLICATION FOR FUNDING RECOMMENDATION

I, …….[*name*] of …….[*address*] in the City of

……[*city of residence*], in the Province of……..,

MAKE OATH AND SAY AS FOLLOWS:

1. [*Set out the following in sequentially numbered paragraphs: facts that demonstrate the person seeking funding does not have sufficient financial resources to participate in the work of the Commission without financial assistance for legal counsel, and facts in relation to any other sources of funds received, expected or sought by the person in relation to legal services rendered, or to be rendered, with respect to the Inquiry*.]

SWORN / SOLEMNLY AFFIRMED BEFORE ME at

…….in the Province

of …….., the ….. day of

……., 2010

……..
[*print name of deponent*]

……..
A Commissioner for taking Affidavits in
[*name of jurisdiction*]

[Original signed by Commissioner on 14 of April, 2010.]

Appendix 4

Cohen Commission
Ruling on Standing

Contents

I. Background

1. On 5 November 2009 the Governor in Council issued an Order in Council setting out the Terms of Reference for the Commission of Inquiry into the Decline of Sockeye Salmon in the Fraser River. I was appointed Commissioner under Part 1 of the *Inquiries Act*, R.S.C. 1985, c. I-11.

2. The current ruling, the first of the commission, deals with applications for standing from persons who wish to formally participate in the commission's public hearing process. Some applicants have also applied for funding under the Privy Council's contribution program. The applications for funding are not addressed in this ruling but will be the subject of a separate ruling.

II. The Subject Matter of the Inquiry

3. The preamble of Order in Council PC 2009-1860 (the "Terms of Reference") states that the commission's goals are to identify the reasons for the decline and the long term prospects for Fraser River sockeye salmon stocks, and to determine whether changes need to be made to fisheries management policies, practices and procedures.

4. The Terms of Reference direct me to inquire into the decline of sockeye salmon in the Fraser River as follows:

> Therefore, Her Excellency the Governor General in Council, on the recommendation of the Prime Minister, hereby
>
> a. directs that a Commission do issue under Part I of the *Inquiries Act* and under the Great Seal of Canada appointing the Honourable Bruce Cohen as Commissioner to conduct an inquiry into the decline of sockeye salmon in the Fraser River (the "Inquiry"), which Commission shall
>
> i. direct the Commissioner
>
> A. to conduct the Inquiry without seeking to find fault on the part of any individual, community or organization, and with the overall aim of respecting conservation of the sockeye salmon stock and encouraging broad cooperation among stakeholders,
>
> B. to consider the policies and practices of the Department of Fisheries and Oceans (the "Department") with respect to the sockeye salmon fishery in the Fraser River – including the Department's scientific advice, its fisheries policies and programs, its risk management strategies, its allocation of Departmental resources and its fisheries management practices and procedures, including monitoring, counting of stocks, forecasting and enforcement,
>
> C. to investigate and make independent findings of fact regarding
>
> I. the causes for the decline of Fraser River sockeye salmon including, but not limited to, the impact of environmental changes along the Fraser River, marine environmental conditions, aquaculture, predators, diseases, water temperature and other factors that may have affected the ability of sockeye salmon to reach traditional spawning grounds or reach the ocean, and
>
> II. the current state of Fraser River sockeye salmon stocks and the long term projections for those stocks, and
>
> D. to develop recommendations for improving the future sustainability of the sockeye salmon fishery in the Fraser River including, as required, any changes to the policies, practices and procedures of the Department in relation to the management of the Fraser River sockeye salmon fishery ...

5. Clause a.vi. of the Terms of Reference also authorize the Commissioner "to adopt any procedures and methods that he may consider expedient for the proper conduct of the Inquiry, to sit at any times and in any places in Canada that he decides and to conduct consultations in relation to the Inquiry as he sees fit."

III. The Meaning of Standing

6. Clause a.ix. of the Terms of Reference authorize "the Commissioner to grant, to any person who satisfies him that they have a substantial and direct interest in the subject matter of the Inquiry, an opportunity for appropriate participation in it."

7. In accordance with the Terms of Reference, I have adopted Rules for Standing and Funding which, as amended, provide in part as follows:

> 5. The Commissioner may amend these Rules or dispense with their compliance as he deems necessary to ensure that the inquiry is thorough, fair and timely.
>
> …
>
> 9. Commission counsel, who will assist the Commissioner to ensure the orderly conduct of the inquiry, and the Government of Canada have standing throughout the inquiry.
>
> 10. Commission counsel have the primary responsibility for representing the public interest, including the responsibility to ensure that all matters that bear upon the public interest are brought to the Commissioner's attention.
>
> 11. The Commissioner may grant a person standing if he is satisfied that the person has a substantial and direct interest in the matters investigated in the inquiry or portions thereof.
>
> 12. In these Rules, persons with standing are referred to as "participants."
>
> 13. The Commissioner will determine on what terms and in which parts of the inquiry a participant may participate, and the nature and extent of such participation. The Commissioner retains the discretion to vary a participant's participation or rescind standing.
>
> 14. To apply for standing, a person must submit a written application to the Commissioner by 4 p.m. on 10 March 2010. An application should demonstrate why the person has a substantial and direct interest in the subject matter of the inquiry and outline how the applicant proposes to contribute to the inquiry. Guidelines for application format and delivery will be posted on the commission website: www.cohencommission.ca.

> 15. The Commissioner will determine the outcome of applications for standing on the basis of written applications, unless the Commissioner determines that an oral hearing is necessary. Any oral hearings conducted on standing will take place on 23-24 March 2010 at the Federal Court, 8th floor, 701 West Georgia Street, Vancouver, B.C., and on such other dates as the Commissioner may determine.
>
> 16. Where persons have shared interests in the subject matter of the inquiry, they should make a single application for standing, identifying those persons whose interests are reflected in the application.
>
> 17. The Commissioner may direct that a number of applicants share in a single grant of standing.

8. Formal involvement in the commission's public hearings is restricted to participants. A participant is a person who makes an application for standing and who has satisfied me that it has a substantial and direct interest in the subject matter of the inquiry and who has been granted standing.

9. Participants are entitled to be self-represented or represented by counsel at the public hearings; propose witnesses to be called by commission counsel; review documents disclosed by the Department of Fisheries and Oceans ("DFO") and other participants; and make oral and written submissions. They may also be involved in evidentiary hearings by examining or cross-examining witnesses. Participants will be expected to make full disclosure to the commission of documents in their possession relevant to the subject matter of the inquiry.

10. Persons who do not receive a grant of standing may become involved in several ways; for example, by submitting written comments to the commission about any matter relevant to the Terms of Reference, submitting written comments or suggestions to the commission in response to scientific or policy reports posted on the commission's website, and attending the formal public hearings.

11. This is an inquiry, not an adversarial process with traditional parties or litigants. As such I will rely on commission counsel to assist me throughout the inquiry. The Rules for Standing and Funding reflect commission counsel's role in representing the public interest and ensuring that matters that bear upon the public interest are brought to my attention.

IV. A Substantial and Direct Interest: The Relevant Considerations for Standing

12. No precedent or single authority exists in this country to determine with precision what constitutes a "substantial and direct interest in the subject matter of the inquiry." Professor Ed Ratushny writes: "Obviously, the interest must be measured against the terms of reference, which represent the 'subject matter'." He also notes the "many diverse rulings on standing left by past commissions", and comments: "Beyond all of these approaches is an overarching discretion on the part of a commissioner to grant standing or participation in a variety of ways." (Ed Ratushny, *The Conduct of Public Inquiries: Law, Policy and Practice* (Toronto: Irwin Law Inc., 2009) at pp. 187-191.)

13. Some commissions have interpreted the phrase "substantial and direct interest" to refer to persons who have a legal, property or reputational stake in the matter of the inquiry. Commissioner Gomery in the Commission of Inquiry into the Sponsorship Program and Advertising Activities stated it this way:

> What constitutes "a substantial and direct interest in the subject matter of the Inquiry"? Based upon what has been decided in comparable cases, the interest of the applicant may be the protection of a legal interest in the sense that the outcome of the Inquiry may affect the legal status or property interests of the applicant, or it may be as insubstantial as the applicant's sense of well-being or fear of an adverse effect upon his or her reputation. Even if such a fear proves to be unfounded, it may be serious and objectively reasonable enough to warrant party or intervenor standing in the Inquiry. What does not constitute a valid reason for a participant's standing is mere concern about the issues to be examined, if the concern is not based upon the possible consequences to the personal interests of the person expressing the concern. As was stated by Campbell J. in *Range Representative on Administrative Segregation Kingston Penitentiary v. Ontario* (1989), 39 Admin. L.R. at p. 13, dealing with a coroner's inquest:
>
> > Mere concern about the issues to be canvassed at the inquest, however deep and genuine, is not enough to constitute direct and substantial interest. Neither is expertise in the subject matter of the inquest or the particular issues of fact that will arise. It is not enough that an individual has a useful perspective that might assist the coroner.
>
> This extract was cited with approval by Mr. Justice O'Connor in his Ruling dated May 4, 2004 in the context of the Arar Commission of Inquiry.
>
> This having been said, it is not possible to enumerate an exhaustive list of the factors to be taken into consideration when determining whether an applicant's interest is sufficiently substantial and direct to the subject matter of the Inquiry. The Terms of Reference, in stating that the Commissioner

> must be satisfied that an applicant has such an interest, leave me with a certain degree of discretion, which must be exercised judiciously, to decide which persons or groups shall be authorized to participate, and to what degree.
>
> [Emphasis added.]

14. In this inquiry, the Terms of Reference task me with considering a broad array of issues: science, the law, government management, aboriginal rights, history, and the environment, just to name a few. The Terms of Reference direct an inquiry addressing broad policy issues of wide concern to many members of the public. In addition, although the Terms of Reference suggest a focus on the most recent sockeye salmon returns in the Fraser River, this is not a commission of inquiry arising from a single factual incident. As a result, I view it as appropriate, and necessary, for this commission to hear from a wide range of voices.

15. In order to guide my determination of whether an applicant has a substantial and direct interest in the subject matter of the inquiry, I have reviewed the applications in the context of certain relevant considerations, including those which were set out in the Notice of Standing as follows:

- the nature and extent of the applicant's rights or interest;
- why standing is necessary to protect or advance the applicant's rights or interest;
- whether the applicant faces the possibility of adverse comment or criticism with respect to its conduct;
- how the applicant intends to participate, and how this approach will assist the commission in fulfilling its mandate;
- whether and how the applicant's participation will contribute to the thoroughness and fairness of hearings;
- whether the applicant has expertise and experience relevant to the commission's work;

- whether and to what extent the applicant's perspective or interest overlaps or duplicates other applicants'; and
- whether the applicant may participate in another capacity — for example, a research body which may be otherwise consulted by the commission, or a witness who may testify — instead of being granted formal standing.

16. Additionally, the Notice of Standing made clear to applicants the following:

> Where applicants have shared interests or a similar perspective in the subject matter of the inquiry, they should make a single application for standing, identifying those persons whose interests are reflected in the application. The Commissioner may make a grant of standing conditional upon such cooperation.

17. Accordingly, I have considered whether it is more appropriate for an applicant to become involved in the commission in ways other than through a grant of standing. I have also considered whether certain applicants who have satisfied me that they have a substantial and direct interest may appropriately share in a single grant of standing and collaborate in the hearings process. I am concerned that too many participants could make the process unwieldy and expensive, and impede the completion of the commission's work. In this regard, I am heartened by the remarkable cooperation displayed by almost all applicants who were asked to consider whether they might share a grant of standing with others to permit a more manageable and efficient process for the public hearings. During the hearing process, participants may continue to find that their interests and perspectives in relation to the Terms of Reference, if not more generally, are aligned with others', and may collaborate further so as to avoid repetition and permit efficiency in the public hearing process.

V. The Application Process

18. The commission received 49 written applications for standing by the deadline of 10 March 2010. One late application was received, for a total of 50 applications for standing. This number is significantly greater than for other federal commissions of inquiry. For example, the Commission of Inquiry into the Investigation of the Bombing

of Air India Flight 182 received 21 applications for standing; the Commission of Inquiry into the Sponsorship Program and Advertising Activities attracted a total of 15 applications for standing, as did the Internal Inquiry into the Actions of Canadian Officials in Relation to Abdullah Almalki, Ahmad Abou-Elmaati and Muayyed Nureddin; the Commission of Inquiry into the Actions of Canadian Officials in relation to Maher Arar received 24 applications for standing.

19. Before the current commission, three applications for standing were withdrawn. These applications were from the Pacific Salmon Foundation, the Association of Professional Biologists, and the Veins of Life Watershed Society. These applications are not discussed further.

20. After a review of the remaining applications, certain of the applicants were invited to attend a hearing before me on 23 March 2010 to supplement their written applications with oral submissions concerning their interest in the commission. Others were invited to attend a hearing before me on 26 March 2010 for the same purpose, and to state their positions on whether and how they might be able to collaborate with other applicants before the commission.

21. At the hearing on 23 March, only three of the twelve applicants who were invited to attend actually appeared and made oral submissions.

22. Thirty-one applicants were invited to attend the hearing on 26 March, and all appeared. Some of these applicants had already reached agreements to collaborate with one another in respect of their applications for standing; some were able to reach agreements to collaborate while at the hearing; and others asked for more time to consider reaching agreements to collaborate, in which case they were asked to advise commission counsel by 30 March 2010 of their position.

VI. Disposition of Applications for Standing

23. In arriving at my decision on whether applicants should receive a grant of standing, I have applied the directions contained in the Terms of Reference and the considerations that I have deemed relevant for a grant of standing to the content of the

written applications, as supplemented in the case of some applicants by their oral submissions at the hearings, or written submissions following the hearings.

A. Applicants Granted Participant Status

24. The following applicants have satisfied me that they have a substantial and direct interest in the subject matter of the inquiry and should receive a formal grant of standing. In many cases, I have determined that applicants should share in a formal grant of standing as joint participants. Where I have reached this conclusion, I am satisfied that the applicants' interests in the subject matter of the inquiry (as specified below) are aligned to such an extent that it is appropriate for them to collaborate as joint participants in a single grant of standing.

25. Some of the applicants advised me that while they were willing to cooperate, or share in a single grant of standing, they might need or want to participate separately through their own counsel at some point in the inquiry proceedings. As described below, often where this concern or caution has been expressed, I have nonetheless concluded it is appropriate to accord the applicants involved a single grant of standing, to be shared among them. I have done this where I have concluded that the interests of the applicants align to such an extent that it is appropriate that they act as joint participants. In so deciding, I recognize that legitimate conflicts or differences may arise. I further observe that my present articulation of the basis for a grant of standing may, through the course of the inquiry process, require variation. The ability of joint participants to make separate written submissions may well be adequate to overcome such difficulties, but if not, the affected joint participant may apply for directions.

1. Recreational and Sports Fishers

B.C. Wildlife Federation and the B.C. Federation of Drift Fishers

26. The B.C. Wildlife Federation ("BCWF") is an organization with a membership of 38,000 individuals and 130 member organizations. The BCWF purports to represent the views of sports and recreational fishers concerned about access to Fraser River sockeye and about "common property" interests in the fishery. The BCWF has participated in previous "commissions, inquiries and other resource management and review processes", and has intervened in fisheries cases related to aboriginal rights. It

indicates that it is comprised of members who have broad experience in fisheries management and habitat issues and it anticipates making submissions on "each of the issues and problems before the commission."

27. The B.C. Federation of Drift Fishers ("BCFDF") is a non-profit organization with a membership of approximately 1,000 sports fishers and anglers. Its interests lie in sustaining a healthy and vibrant sport fishery. It offers the commission its "experience in these matters and knowledge of the situation at hand", and "intelligent suggestions on what we believe needs to be done to properly measure fish stocks" and to enhance the stocks.

28. Although these applicants applied separately, they have indicated that they are willing to collaborate and share in a single grant of standing. In doing so, they have satisfied me that their substantial and direct interest is in environmental changes (including habitat) along the Fraser River, and the policies and practices of the DFO, in particular fisheries policies and programs, and fisheries management practices and procedures, including monitoring, counting of stocks, and enforcement, and that their interests align to such an extent that it is appropriate to direct they share in a single grant of standing.

2. Commercial Fisher Associations and Unions

United Fishermen and Allied Workers' Union and West Coast Trollers Area G Association

29. The United Fishermen and Allied Workers' Union ("UFAWU") is a 2,000-member-strong union representing salmon fishers of all fishing gear types, fish packing vessel crews, and workers employed in the processing of salmon. The UFAWU indicates it is concerned about the economic impact that the decline in sockeye returning to spawn has had on its members and their families. It offers the commission its "important historical and practical knowledge about Fraser River salmon runs" and other information that is not available from government sources. The UFAWU describes that it has a record of participating in public salmon fisheries reviews.

30. The West Coast Trollers Area G Association ("Area G Association") represents the interests of the commercial troll fleet off the west coast of Vancouver Island. Its

members fish in the “outside waters” (distinct from the “inside waters” closer to land) and are the only group to do so. Area G Association says up to 30 per cent of the active fleet in that area is comprised of First Nations fishers. Area G Association’s main concern is its members’ decreased allocation of sockeye and the economic consequences that this decrease has had for its members. Its application indicates that some members can no longer afford to even pay for the basic safety maintenance on their boats. Area G Association is also concerned about the health of the sockeye salmon resource. It describes its members’ experience working with First Nations as well as various salmon advisory boards and research councils.

31. These two applicants sought standing as separate participants, but have now indicated a willingness to share a single grant of standing. In doing so, they have satisfied me that their substantial and direct interest is in the policies and practices of the DFO, in particular, fisheries policies and programs and fisheries management practices and procedures including monitoring, counting of stocks, forecasting and enforcement, and that their interests align to such an extent that it is appropriate to direct that they share in a single grant of standing.

Area D Salmon Gillnet Association and Area B Harvest Committee (Seiners)

32. The Area D Salmon Gillnet Association (“Area D Association”) has 127 members and represents about half of the gillnet fishers in Area D, which extends around Vancouver Island's northern part — on the eastern side from Nanaimo to the north, and on the west coast from southern Barkley Sound to the north end. Until the decline of the sockeye, the majority of Area D's sockeye originated from the Fraser River. There have been no openings for Fraser River sockeye in Area D in the past five years. Area D Association states that it has an obvious economic interest in the sockeye fishery. Area D Association also identifies its concerns about aquaculture, given the area’s proximity to the roughly 100 fish farms on the southern B.C. coast.

33. The Area B Harvest Committee represents fishers along the south coast of B.C. who fish using purse seine nets. It says it is the largest commercial user group of Fraser River sockeye; Area B's annual allocation of the Canadian commercial total

allowable catch is approximately 50 per cent. The Area B Harvest Committee says it represents the perspective of those who depend on fishing for their livelihoods, but also those who take a long-term view of the health of this iconic resource. It is particularly concerned about the DFO's "weak stock management" policy, the decreases in the DFO's budget (meaning a loss of "money towards science, which is the basis for good management"), and salmon aquaculture.

34. Although these two applicants originally applied separately, they have indicated that they are willing to collaborate and share in a single grant of standing. In doing so, they have satisfied me that their substantial and direct interest is in investigating aquaculture as a cause of sockeye decline, and the policies and practices of the DFO, in particular fisheries policies and programs, allocation of departmental resources, and fisheries management practices and procedures including monitoring, counting of stocks, forecasting and enforcement, and that their interests align to such an extent that it is appropriate to direct that they share in a single grant of standing.

Southern Area E Gillnetters Association and the B.C. Fisheries Survival Coalition

35. This application comes from a coalition of two groups who are jointly represented. The Southern Area E Gillnetters Association represents 110 gillnetters in Area E, which is in the southern Gulf of Georgia, Juan de Fuca Strait, the west coast of Vancouver Island, and the tidal waters of the Fraser River. The B.C. Fisheries Survival Coalition ("BCFSC") is a non-profit organization comprised of three individuals; it conducts advocacy to promote the conservation and enhancement of Canadian Pacific fisheries. The BCFSC has made presentations to parliamentary committees, and intervened in court cases before the Supreme Court of Canada.

36. Together, these applicants assert a substantial and direct interest, given the particular dependence of Area E fishers on Fraser River sockeye, and given the significant capital assets these fishers have in the fishery (estimated at over $30M). They note they have materials, including Access to Information requests and information obtained "from within the DFO", that they can make available to the commission.

37. The Southern Area E Gillnetters Association and the BCFSC have satisfied me that their substantial and direct interest is in the policies and practices of the DFO, in particular fisheries policies and programs, allocation of departmental resources, and fisheries management practices and procedures including monitoring, counting of stocks, forecasting and enforcement.

3. Environmental Organizations

Conservation Coalition and David Suzuki Foundation

38. The Conservation Coalition, represented by Ecojustice, includes five conservation/environmental NGOs and one individual, who have collaborated to make an application for standing. The Coastal Alliance for Aquaculture Reform is focused on the effect of aquaculture on wild salmon. The Fraser Riverkeeper Society focuses on water quality and fish habitat of the Fraser River; it patrols by boat, responds to citizen complaints of pollution, and seeks enforcement of environmental laws. The Georgia Strait Alliance is a charity dedicated to protecting and restoring the marine environment, and promoting the sustainability of the Strait and its adjoining waters. The Raincoast Conservation Foundation seeks to investigate and understand coastal species and ecological pressures, and its flagship project is the Wild Salmon Program, which it says often results in peer-reviewed scientific studies. The Watershed Watch Salmon Society works to protect and restore B.C.'s wild salmon through scientific expertise, strategic alliances, and community outreach. Mr. Otto Langer is a fisheries biologist with over 30 years' experience with the DFO, who later worked for the David Suzuki Foundation.

39. These applicants indicate that they collectively have a shared interest in the conservation of Fraser River sockeye, the management of the fishery, and the sustainability and health of the ecosystems that support the species. They submit that they are leading voices on conservation based fisheries management and environmental protection; that they may face adverse criticism for their work and studies; and that they bring a unique perspective to the inquiry.

40. The David Suzuki Foundation (“DSF”) is a non-profit organization dedicated to finding solutions to core environmental problems in Canada. It says Pacific salmon has been a primary concern for the DSF since 1990. It has published science-based reports

and is interested in ensuring the long-term ecological, cultural and economic viability of salmon systems. DSF asserts that it offers expertise and engagement on salmon management in the Fraser River; it has a staff with science and policy expertise; and its work in relation to Fraser River sockeye could come under comment or criticism from other participants in the inquiry.

41. The Conservation Coalition and DSF each made separate applications, yet indicated a willingness to share in a grant of standing. These applicants have satisfied me that their substantial and direct interest is in the policies and practices of the DFO with respect to Fraser River Sockeye and the causes for the decline of Fraser River sockeye, and that their interests align to such an extent that it is appropriate to direct that they share in a single grant of standing.

Alexandra Morton, Raincoast Research Society, and Pacific Coast Wild Salmon Society

42. This application, made on behalf of three persons, seeks limited standing for the parts of the inquiry related to aquaculture. Ms. Alexandra Morton is a registered, professional biologist who has researched the effects of fish farms on wild salmon for over a decade. She is described as being a recognized authority on the subject, cited locally and internationally in popular media and academic journals. Her professional career and reputation are closely tied to this work and she expects her research may be the subject of criticism from other participants or witnesses. The Raincoast Research Society is the society through which some of Ms. Morton's research is conducted. It has published 17 papers on the impacts of fish farms on wild salmon. The Pacific Coast Wild Salmon Society is approximately 11,700 members strong, and was set up for advocacy purposes. It and Ms. Morton describe having advanced a court case successfully challenging the constitutionality of provincial regulation of fish farms. Both are currently engaged in a private prosecution of a fish farm for unlawful possession of wild salmon.

43. These joint applicants have satisfied me that their substantial and direct interest is in whether aquaculture is a cause for the decline of Fraser River Sockeye, and the policies and practices of the DFO insofar as they relate to aquaculture.

4. Industry Organizations

B.C. Salmon Farmers Association

44. The B.C. Salmon Farmers Association ("BCSFA") represents the salmon aquaculture industry. Its members include Creative Salmon, Grieg Seafood B.C. Ltd., Marine Harvest, Mainstream Canada, and West Coast Fish Culture (Lois Lake) Ltd. The BCSFA points to the commission's Terms of Reference, which include investigating aquaculture as a possible cause of Fraser River Sockeye decline. It indicates that researchers, environmentalists and fishers have pointed to the aquaculture industry as a major cause for the decline. Accordingly, the BCSFA and its members may face adverse comment. The BCSFA indicates that the economic value of its members' product rivals any other food production industry in B.C. Further, the BCSFA claims that its members have a substantial and direct interest in every one of the causes for decline of Fraser River sockeye because the factors affecting wild salmon also affect farmed salmon.

45. This applicant has satisfied me that its substantial and direct interest is in whether aquaculture is a cause for the decline of Fraser River Sockeye, and the policies and practices of the DFO insofar as they relate to aquaculture.

Seafood Producers Association of B.C.

46. The Seafood Producers Association of B.C. ("SPABC") represents seafood-processing interests on Canada's Pacific coast. The sector generated $638M in 2005 and employed some 3,700 people, a third of whom are aboriginal. The SPABC states that it represents eight seafood processing companies which purchase and process the majority of the salmon caught in B.C. The SPABC says it is becoming increasingly difficult, if not impossible, for salmon to contribute to the economic success of this sector, and as a result, it is difficult for processing companies to remain economically viable. The SPABC says that while seafood processing falls under provincial jurisdiction, DFO policies and practices can have significant impact on this sector.

47. This applicant has satisfied me that its substantial and direct interest is in the policies and practices of the DFO, including fisheries policies and programs and fisheries management practices and procedures related to monitoring and enforcement.

Rio Tinto Alcan Inc.

48. Rio Tinto Alcan ("RTA") operates the Kitimat smelter and the related hydropower generation system at the Kemano Powerhouse – the reservoir of which is situated at the headwaters of the Nechako River, a tributary of the Fraser. RTA is obligated through agreements with B.C. and Canada to maintain certain water releases in the Nechako system for fisheries purposes. RTA indicates that changes in DFO management practices may affect its ability to generate power and sell it, which depends on water being diverted from the Nechako Watershed. It further notes the concern that it may be subject to adverse comment from other participants.

49. This applicant has satisfied me that its substantial and direct interest is in environmental changes along the Fraser River and other factors within the Fraser River watershed including the Nechako system which affect the ability of Fraser River sockeye to reach spawning grounds or the ocean, and the policies and practices of the DFO as they relate to these subjects.

5. First Nations and Aboriginal Organizations

Maa-nulth Treaty Society, Tsawwassen First Nation and Musqueam Indian Band

50. The Maa-nulth Treaty Society represents the Iluu-ay-aht, Kar'yu:'k't'h'/Che:k:tles7et'h', Toquaht, Uchucklesaht and Ucluelet from the Pacific coast of Vancouver Island. All of these First Nations have allocations of Fraser River sockeye for food, social and ceremonial purposes. They have a treaty with Canada and B.C. which will take effect in April of 2011. They indicate that salmon form an integral part of their culture and traditions, and that fish formed a very important part of their treaty negotiations.

51. The Tsawwassen First Nation ("TFN") is a self-governing First Nation representing 410 Coast Salish people. Its territory is the lower Fraser and part of the Strait of Georgia. It has a final treaty agreement with the federal and provincial governments (the "TFN Treaty"). The TFN indicates that it has fished for salmon since time immemorial; fish are the cultural, social and economic fabric of the TFN. The TFN Treaty sets out its allocation of Fraser River sockeye for food, social and ceremonial

purposes. The TFN Treaty also allows the TFN government to make laws and regulations with respect to fisheries. The TFN has used this power to regulate licensing, trade and bartering amongst Aboriginal Peoples, penalties for offences, fisheries management, and distribution of catch. The TFN also participates in a joint fisheries committee with federal and provincial governments to assist in management of various fisheries. The TFN expects to be the subject of adverse comment from commercial fishers and people opposed to treaties.

52. The Musqueam Indian Band's (the "Musqueam") traditional territory includes the Fraser River delta. The Musqueam have fished in the Fraser River for thousands of years and sockeye is a vital part of the cultural, spiritual and economic life of the community. The Supreme Court of Canada recognized the Musqueam's right to fish for salmon in the Fraser River in *R. v. Sparrow*, [1990] 1 S.C.R. 1075. This applicant is concerned about what it calls the DFO's failure to manage the sockeye salmon fishery in accordance with proper policies and programs and the constitutional scheme of priority. The applicant also expects adverse comment from other participants, especially non-aboriginal fishers.

53. The Maa-nulth Treaty Society, TFN, and Musqueam originally brought separate applications for standing. These three bodies have now indicated a willingness to cooperate and share in a single grant of standing, although they identify a few issues where they anticipate their individual interests may differ from one another.

54. These applicants have satisfied me that their substantial and direct interest is in environmental changes along the Fraser River, and the policies and practices of the DFO with respect to Fraser River sockeye, and that their interests align to such an extent that it is appropriate to direct that they share in a single grant of standing. In so directing, I am mindful of the concern they raise, that an issue may compel a joint participant to seek to participate differently, whether by way of separate submissions or otherwise; if this occurs a joint participant may apply for directions.

Cowichan Tribes, Chemainus First Nation, Hwlitsum First Nation, Penelakut Tribe, Te'mexw Treaty Association, and the Coalition of Douglas Treaty First Nations (collectively the "Western Central Coast Salish")

55. The Cowichan Tribes (the "Cowichan") are a Coast Salish people from southern Vancouver Island, and are approximately 4,300 people strong. Fifty percent of their members live on reserve. The Cowichan claim an aboriginal right or interest in Fraser River sockeye based on "the cultural integral, pre-European contact, Cowichan practice of annually fishing, including for sockeye salmon, on the lower Fraser River and delta." The Cowichan had an historical summer settlement on Lulu Island. The Cowichan recently negotiated an allocation of Fraser River sockeye. They indicate an expertise in conservation, restoration and management of salmon stocks through their work in watersheds in the Cowichan Valley on Vancouver Island.

56. The Chemainus First Nation ("CFN") are a Coast Salish people that historically lived on Vancouver Island, the Gulf Islands and the lower Fraser River. The CFN is comprised of about 1,100 members, 635 of whom live on reserve. The CFN is in treaty negotiations with Canada and B.C. On 2 March 2010, the Government of Canada announced that it was deferring the fisheries component of treaty negotiations with B.C. First Nations until the conclusion of the Cohen Commission. Because of this, the CFN is of the view that its interests are at stake in the commission's work. The CFN asserts an aboriginal right to use Fraser River sockeye based on pre-European contact. Furthermore, the CFN says that the near total collapse of salmon runs near the Chemainus Reserve has increased its dependence on Fraser River sockeye for food, social and ceremonial needs.

57. The Hwlitsum are also Coast Salish people, comprised of 350 members. The Hwlitsum's traditional territory includes southeastern Vancouver Island, the Gulf Islands and the lower Fraser River. The Hwlitsum had an ancestral village at the mouth of the Fraser and have fished salmon since time immemorial. They are currently at stage two of the treaty process. Many members of the Hwlitsum fish sockeye for food, social and ceremonial needs, and many work in the commercial fishery. The Hwlitsum propose to make submissions about how to incorporate traditional ecological knowledge into the

management of sockeye, the unique challenges faced by aboriginal commercial salmon fishers and food, social and ceremonial fishers, and the type or quantity of sockeye to sustain their aboriginal rights.

58. The Penelakut Tribe (the "Penelakut") brought a late application for participation. The Penelakut are part of the Hul'qumi'num Treaty Group, which represents over 6,000 members from six First Nation communities (Chemainus, Cowichan Tribes, Halalt, Lake Cowichan, Lyackson and Penelakut). The Penelakut assert aboriginal rights and title to traditional territories on Vancouver Island, the lower mainland and the Gulf Islands, including areas along the Fraser River. They are at stage four of the B.C. Treaty process. The Penelakut indicate they have traditionally harvested marine resources, and that salmon remain important to them, playing a central role in their spiritual and cultural life. In addition, the Penelakut assert, the closure of the sockeye fishery has taken a great toll on the community. The Penelakut seek to offer the perspectives of elders and community members on how traditional ecological knowledge could better be incorporated into the management of fisheries. They also wish to address the challenges faced by aboriginal commercial fishers, and the necessity for salmon resources to sustain their aboriginal rights. The Penelakut seek joint standing with the Hwlitsum (and the Hwlitsum agree with this proposal).

59. The Te'mexw Treaty Association ("TTA") represents the interests of five first nations (Snaw-naw-as, T'Sou-ke, Songhees, Beecher Bay and Malahat) located in southeastern Vancouver Island. These First Nations, comprised of approximately 1068 members, are all original signatories to one or more Douglas (pre-Confederation) Treaties. The TTA says these treaties give its members a right to fish for Fraser River sockeye. Historically, all TTA member nations fished for Fraser River sockeye near their communities, and would also travel, seasonally, to the mouth of the Fraser to fish. The TTA indicates that sockeye holds particular cultural importance. It was used as a subsistence food source, and was traded. The member bands of the TTA are all allowed food, social and ceremonial allocations of Fraser River sockeye. The TTA is currently negotiating a treaty with the federal government and, given the government's recent announcement to defer negotiations of fisheries components of treaties until

completion of the Cohen Commission, the TTA feels it would be unfairly impacted if not granted standing.

60. The Coalition of Douglas Treaty First Nations comprises First Nations located on Vancouver Island (Snuneymuxw, Tsartlip, Nanoose, and Tsawout First Nations). All are Douglas Treaty signatories and claim rights to fish for Fraser River sockeye in and around Vancouver Island and the Salish Sea, including "Fraser River Approach Fisheries." The Snuneymuxw also claim a traditional summer village along the Fraser River near Fort Langley. These applicants describe having spent 150 years trying to protect these rights. They indicate they are actively involved in the management, stewardship and protection of the fisheries, and have a depth of knowledge and a unique perspective.

61. Of the Cowichan, CFN, Hwlitsum, Penelakut, TTA, and the Coalition of Douglas Treaty First Nations (collectively, the "Western Central Coast Salish"), two pairs welcome sharing in a single grant of standing: the Cowichan and CFN, and the Hwlitsum and Penelakut. The Western Central Coast Salish have indicated their willingness to cooperate and participate by way of a common approach to the hearings, unless a difference in position arises as between them. Although they say they would work together, except for the two pairs noted above, they still seek separate grants of standing.

62. Additionally, since none of the applicants included in the Western Central Coast Salish have expressed concerns about the late application of the Penelakut seeking standing and cooperating within this group of applicants, I am prepared to grant an extension of time for the application.

63. The Western Central Coast Salish have satisfied me that their substantial and direct interest is in marine environmental conditions, other factors that may have affected the ability of sockeye salmon to reach traditional spawning grounds or reach the ocean, and the policies and practices of the DFO with respect to Fraser River sockeye, and that their interests align to such an extent that it is appropriate to direct that they share in a single grant of standing. In so directing, I am mindful of the concern they raise, that an issue may compel one of these joint participants to seek to

participate differently, whether by way of separate submissions or otherwise; if this occurs, that joint participant may apply for directions.

First Nations Coalition: First Nations Fisheries Council, Aboriginal Caucus of the Fraser River Aboriginal Fisheries Secretariat, Fraser Valley Aboriginal Fisheries Society, Chehalis Indian Band, Secwepemc Fisheries Commission of the Shuswap Nation Tribal Council, Upper Fraser Fisheries Conservation Alliance, Adams Lake Indian Band, Carrier Sekani Tribal Council, and Council of Haida Nation

64. The First Nations Fisheries Council; the Aboriginal Caucus of the Fraser River Aboriginal Fisheries Secretariat; the Fraser Valley Aboriginal Fisheries Society; the Chehalis Indian Band; the Secwepemc Fisheries Commission of the Shuswap Nation Tribal Council; the Northern Shuswap Tribal Council; and the Upper Fraser Fisheries Conservation Alliance explain in their joint application for standing that Fraser River sockeye are part of the very essence and identity of aboriginal people. The dramatic decline of the stock has meant there are not enough fish to meet constitutionally protected food, social and ceremonial needs. Some of these applicants have good working relationships with the DFO. Their perspectives are said to be broad and geographically varied. The First Nations Fisheries Council and the Aboriginal Caucus of the Fraser River Aboriginal Fisheries Secretariat are themselves broad-based umbrella organizations which work with a groups of First Nations in relation to the promotion of their aboriginal rights, title and interests in fisheries matters. The other applicants are said to have fisheries-related mandates and expertise arising in the lower, middle and upper Fraser River geographical areas.

65. The Adams Lake Indian Band indicates it has relied since time immemorial on the salmon returning to their area, in the interior of the Province, to spawn. It cites evidence of the historical diet of the Secwepemc People and notes its direct interest in Fraser River sockeye for food, social and ceremonial needs. It offers the commission witnesses to speak to historical use of salmon by the Secwepemc people.

66. The Carrier Sekani Tribal Council (“CSTC”) includes eight First Nations: Burns Lake (Ts'il Kaz Koh), Nak'azdli Band, Nadleh Whut'en First Nation, Saik'uz First Nation, Stellat'en First Nation, Takla Lake First Nation, Tl'azt'en Nation, and Wet'suwet'en First

Nation. These First Nations represent a population of over 10,000 people, and combined territories of 7.87 million hectares. The CTSC's territory includes the Nechako River, an important tributary to the Fraser River. The CTSC say about 23 per cent of Fraser River sockeye are born in the Nechako and its tributaries. It is deeply concerned about the well-being of the watershed and the land. The CTSC assert that the Carrier Sekani people have strong historical, cultural and economic ties to Fraser River sockeye. They fear adverse comment from participants critical of First Nations fisheries.

67. The Council of Haida Nation is the elected governing body of the Haida Nation, located in Haida Gwaii. Fraser River salmon pass through waters of Haida Gwaii as they migrate from their feeding grounds in the North Pacific to the Fraser River. These fish are sometimes caught in net fisheries at Langara Island and Rennell Sound, and may be caught in commercial troll fisheries in Dixon Entrance and along the west coast of Haida Gwaii. The Council of Haida Nation indicates that the Haida people catch sockeye for food, social and ceremonial needs. It seeks standing as the "stewards of Haida Gwaii, its surrounding waters and … all salmon which pass through these waters." It offers the commission its "unique and traditional knowledge and experience to inquire into the collapse of the Fraser River sockeye fishery."

68. The First Nations Fisheries Council, Aboriginal Caucus of the Fraser River Aboriginal Fisheries Secretariat, Fraser Valley Aboriginal Fisheries Society, Chehalis Indian Band, Secwepemc Fisheries Commission of the Shuswap Nation Tribal Council, Upper Fraser Fisheries Conservation Alliance, Adams Lake Indian Band, CSTC, and Council of Haida Nation have satisfied me that their substantial and direct interest is in the policies and practices of the DFO with respect to Fraser River Sockeye and the causes for the decline of Fraser River sockeye, and that their interests align to such an extent that it is appropriate to direct that they share in a single grant of standing. In so directing, I am mindful of the concern raised, in particular by the CSTC, that a joint participant may feel it necessary to participate through separate counsel during the inquiry. If this occurs, that joint participant may apply for directions.

Métis Nation B.C.

69. The Métis Nation of BC ("MNBC") represents Métis citizens in B.C.; there are 35 chartered Métis Communities throughout the province. It "asserts Aboriginal rights to fishing in B.C. including the right to fish Sockeye Salmon from the Fraser River and Fraser bound Sockeye Salmon in tidal waters." MNBC indicates that the DFO "has ignored Métis Rights and Interests" in Fraser River sockeye. MNBC offers its expertise, in particular through two biologists that the MNBC Ministry of Natural Resources employs.

70. Although the MNBC's legal position and its relationship with the DFO may differ from other aboriginal groups, this applicant has satisfied me that its substantial and direct interest is in the sustainability of the sockeye salmon fishery in the Fraser River, and the policies and practices of the DFO, in particular allocation of departmental resources, fisheries management practices and procedures, and enforcement. MNBC indicated its willingness to work cooperatively with others in finding common interests, and it may prove the case during the public hearings that MNBC's interests align with those of other participants.

Sto:lo Tribal Council and Cheam Indian Band

71. The Sto:lo Tribal Council (the "Sto:lo") applies on behalf of its eight member Nations, excepting the Cheam. The Sto:lo has 3,000 members, located in the Fraser Valley between Langley and Hope. Fraser River sockeye are said to be central to Sto:lo way of life and identity. The Sto:lo indicate they have lived and fished Fraser River sockeye since time immemorial, and these fish are an essential part of their diet. The Sto:lo claim an unextinguished aboriginal right to fish for Fraser River sockeye. The Sto:lo complain that in recent years, the food, social and ceremonial fishery rights of the Sto:lo have gone unfulfilled while commercial and sports fisheries have continued. They fear adverse comment from other potential participants, such as commercial fishers.

72. The Cheam Indian Band (the "Cheam"), part of the Sto:lo Nation, originally applied separately for participant status. The Cheam's traditional territory runs about 40 km from Cheam Mountain in the south to the mountains north of Harrison Lake. The

Cheam have historically fished in the common area of Yale, part of Sto:lo territory. The Cheam describe a long-standing use of, and reliance on, the salmon, and involvement in removing gravel deposits to enhance fishing spots. The Cheam state that they are known for their fishing expertise and have a tradition of providing salmon to other indigenous peoples in the province. The Cheam claim an inherent right to fish sockeye, which has sustained them from time immemorial. The Cheam are highly critical of the DFO's conservation and management policies for Fraser River sockeye, claiming that the DFO continually allocates a disproportionate amount of sockeye to the ocean fleet, which is depleting overall sockeye stocks. The Cheam accuse the DFO of racial discrimination, and says their criticism of the DFO has made its members a focus of DFO enforcement activities. The Cheam indicate that past inquiries have focused on aboriginal fisheries, which are not the true problem.

73. The Sto:lo and the Cheam applied separately, but have now indicated that they are willing to cooperate and share in a single grant of standing. In doing so, these applicants have satisfied me that their substantial and direct interest is in environmental changes along the Fraser River, and the policies and practices of the DFO, and that their interests align to such an extent that it is appropriate to direct that they share in a single grant of standing. In so directing, I am mindful of the concern they raise, that an issue may compel one of them to seek to participate differently, whether by way of separate submissions or otherwise; if this occurs that joint participant may apply for directions.

Laich-kwil-tach Treaty Society, James Walkus and Chief Harold Sewid, Aboriginal Aquaculture Association, and Heiltsuk Tribal Council

74. The Laich-kwil-tach Treaty Society ("LKTS") is involved in treaty negotiations for three First Nations (the Wewaikai Nation, the Weiwaikum Nation and the Kwiakah Nation) whose territory includes Johnstone Strait and other waters between Vancouver Island and the mainland. The LKTS people have always harvested sockeye from the ocean for food, social and ceremonial purposes. Fraser River sockeye are central to their way of life and their ability to earn a livelihood and sustain their communities. This

aspect finds its modern expression in the member nations' involvement in the commercial fishery.

75. James Walkus and Chief Harold Sewid are First Nations men and sockeye salmon commercial fishers who have joined together to apply for standing. They state they are directly and substantially interested, and bring experience and expertise. They are located on northeast Vancouver Island and say they have been dramatically affected by the decline in Fraser River sockeye, a fish which has great significance for them and their culture.

76. The Aboriginal Aquaculture Association ("AAA") represents and serves First Nations, First Nation companies and First Nation individuals who are involved in the aquaculture industry. It fears adverse comment from those opposed to aquaculture and wants to ensure that First Nations aquaculture participants are present and can cross-examine on evidence that touches upon aquaculture. AAA says it intends to present evidence on its members' knowledge, observations and experience with the Fraser River sockeye over generations; the economic, social and cultural consequences of the decline on First Nations communities; the aquaculture practices and procedures of its members; and the social and economic impacts of the aquaculture industry on its members.

77. The Heiltsuk Tribal Council (the "Heiltsuk") indicates that its ancestral homeland is a portion of the Central Coast (characterized by inlets and channels). Migrating sockeye salmon pass directly through this territory, and sockeye salmon have been an integral part of Heiltsuk life, harvested for food, social and ceremonial purposes and more recently harvested commercially. Fishing remains the largest non-government employer for the Heiltsuk. The Heiltsuk indicate they have a background in dealings on fishery-management issues, and they have established and operated hatcheries and researched habitat issues jointly with Raincoast Conservation Society.

78. These applicants applied separately for standing. However, with the exception of the Heiltsuk, they have told me that they are willing to cooperate and share a single grant of standing (although they ask to have separate legal counsel acting together).

The Heiltsuk indicate a willingness to join with these applicants on the topic of reserve allotment, but have not yet reached a more formal arrangement.

79. These applicants have satisfied me that their substantial and direct interest is in marine environmental conditions, aquaculture, other factors that may have affected the ability of sockeye salmon to reach traditional spawning grounds or reach the ocean, and the policies and practices of the DFO, in particular allocation of departmental resources, fisheries management practices and procedures, enforcement, counting of stocks, monitoring and forecasting. Notwithstanding the fact that the Heiltsuk have not yet agreed, I am satisfied that the interests of these applicants align to such an extent that it is appropriate to direct that they share in a single grant of standing. In so directing, I am mindful of the position taken by the Heiltsuk. If a joint participant concludes it is necessary to seek to participate differently, whether by way of separate submissions or otherwise, that joint participant may apply for directions.

Musgagmagw Tsawataineuk Tribal Council

80. The Musgagmagw Tsawataineuk Tribal Council ("MTTC") speaks for four member First Nations (the 'Namgis Nation, the Gwawaenuk Tribe, the Dzawada'enuxw First Nation, and the Kwicksutaineuk Ah-Kwa-Mish First Nation). These First Nations are comprised of approximately 2,000 members, and their traditional territory is the Broughton Archipelago on the eastern side of Johnstone Strait, with the Discovery Islands to the south. They have fished salmon since time immemorial, and have come to rely almost entirely on Fraser River sockeye to meet their food, social and ceremonial needs, as a result of the decline of salmon in local rivers. The MTTC seeks to provide the commission with traditional ecological knowledge from members who have fished Fraser River sockeye in the Johnstone Strait. It also wants to provide information about the impact of salmon farms on the health of local salmon within the Broughton Archipelago, as it believes the same factors are at play for the Fraser River sockeye decline.

81. This applicant has satisfied me that its substantial and direct interest is in aquaculture, and the policies and practices of the DFO, in particular fisheries management practices and procedures, and enforcement. The MTTC indicated a

strong intention to work in conjunction with Alexandra Morton, the Raincoast Research Society, and the Pacific Coast Wild Salmon Society, and to participate with them through one counsel for hearings pertaining to aquaculture. The MTTC further indicated its interest in a limited type of participation, focusing on those topics set out in our Terms of Reference under clause a.(i.)(B), which is a self-limitation that I endorse. I encourage the MTTC to continue in its efforts to work collaboratively with other participants.

6. Other Organizations

B.C. Public Service Alliance of Canada and the Union of Environment Workers, B.C.

82. The B.C. Public Service Alliance of Canada ("PSAC") and the Union of Environment Workers, B.C. ("UEW") represent 1,500 employees employed by the DFO in British Columbia. PSAC/UEW's interests stem from their members' responsibilities for the implementation and delivery of programs in support of Canada's interest in oceans and fresh waters. They indicate their members study, conserve and protect aquatic ecosystems, conduct scientific research, help manage the commercial, recreational and aboriginal fisheries, and provide services to fishers. These applicants propose to assist the commission by bringing to light information about DFO employees, the workplace environment, and current policies and practices. The interests of DFO employees are different from the DFO as an organization. In particular, these applicants speak on behalf of the employees of the DFO who may be subject to adverse comment or criticism, and members who may be impacted by any recommendations made by the commission concerning DFO policies and practices.

83. These joint applicants have satisfied me that their substantial and direct interest is in the policies and practices of the DFO, and other issues insofar as they relate to DFO employees.

Pacific Salmon Commission

84. The Pacific Salmon Commission ("PSC") is the body formed by the governments of Canada and the United States to implement the 1985 *Pacific Salmon Treaty* and to

provide regulatory advice and recommendations to the two countries. The PSC is organized into panels, with the Fraser River Panel being responsible for in-season management of Fraser River sockeye and pink salmon fisheries in the "Fraser River Panel Area." The PSC requests standing in order to provide bilateral fisheries management information, and to correct false or misleading information related to Fraser River sockeye and the fisheries' management. The PSC indicates that it possesses a wealth of experience and expertise in fisheries management and knowledge of Canada's international obligations.

85. This applicant has satisfied me that its substantial and direct interest is in the policies and practices of the DFO with respect to the Fraser River sockeye.

Province of British Columbia

86. The Province of B.C. asserts a substantial and direct interest based on its constitutional authority over various areas which are critical to the freshwater life of sockeye salmon; based on its management of protected areas, tenured activities and waste regulation; and based on the fact that the management of fisheries is a shared responsibility in B.C.. The Province has professional and scientific staff with much expertise, and can provide relevant information. The Province points out that it may be subject to criticism from other respondents.

87. This applicant has satisfied me that its substantial and direct interest is in the policies and practices of the DFO with respect to Fraser River sockeye and the causes for the decline of Fraser River sockeye.

B. Applicants Not Granted Participant Status

88. The following persons have not satisfied me that they have a substantial and direct interest in the subject matter of the inquiry; therefore I have determined that they should not receive a formal grant of standing.

89. In all of their cases, I am satisfied that they can appropriately participate in the subject matter of the inquiry, should they choose, by taking advantage of the other options open to them: they are invited to make a written public submission on issues dealt with by the inquiry; to attend the public hearings, particularly when an issue of

interest to them is being addressed; and to contact commission counsel if they wish to supply information, or to discuss any issue relating to the subject matter of the inquiry.

Rafe Mair and Damien Gillis

90. Mr. Rafe Mair is a well-known former lawyer, MLA, and broadcaster in British Columbia. Mr. Damien Gillis is a film-maker. These two applicants have applied jointly for standing. In their application, they identify their opposition to fish farming and offer their perspectives on issues of aquaculture. Mr. Gillis has campaigned against fish farms, "whose lice have destroyed untold hundreds of thousands of B.C. salmon." He has worked on this issue abroad, in Norway and Chile, as well as in Canada. Mr. Mair served as provincial Minister of the Environment in the late 1970s, and in that capacity signed the Salmonid Enhancement Program. He has focused on many environmental issues, and recently served as Official Spokesperson for the Save Our Rivers Society.

91. Mr. Gillis and Mr. Mair indicate in their application that they "have both spoken far and wide on fish matters and appeared at meetings both official and unofficial." They add that they have both written extensively on Pacific salmon. I recognize that these applicants have a longstanding, genuine and serious concern about these issues, but as noted earlier, concern alone cannot support a grant of standing. Moreover, it does not appear from their application materials that they face the prospect of criticism arising from issues covered by the commission's Terms of Reference. Nor am I persuaded that they offer a unique perspective that would otherwise be missed in the course of the inquiry. Thus, I respectfully deny their application for standing and urge them to make use of the public submissions process to ensure that their concerns are brought to the commission's attention.

David Ellis

92. Mr. David Ellis is currently a bookseller and sports fisherman; he has worked in the past as a consultant, commercial salmon fisher, and head of a committee on the status of endangered species. In his application, he expresses concerns about fish farms and fisheries management. He seeks to make two presentations to the commission: one on the lack of scientific knowledge about "biological interaction between Fraser sockeye and farmed salmon" and another about the "long term

management" of the fishery. In my view Mr. Ellis does not have a substantial and direct interest in the subject matters of the commission, but I encourage Mr. Ellis to make use of the public submissions process to make the points referred to in his application.

Steve Bergh

93. Mr. Steve Bergh is a commercial fisher who holds an Area H troll licence and is a member of the Area H Harvest Committee. He offers the commission his expertise on the migration of Fraser River sockeye, and says he can answer questions about the health of those stocks. While I recognize that he may have relevant information, his participation in the hearing process will likely be duplicative given the breadth of perspectives represented by applicants who have been granted standing. I suggest that Mr. Bergh provide information to the commission through the public submissions process.

Jack Emberly

94. Mr. Jack Emberly applies as a "non-aligned citizen" whose concerns stem from his discovery of approximately 100,000 dead fish fry in May 2009 while canoeing in the North Alouette River. Mr. Emberly is frustrated by the way the DFO and Environment Canada handled his complaints about the dead fry. He focuses his application on a 1985 Memorandum of Understanding between the DFO and Environment Canada, concerning how these federal departments respond to information from the public and how fish deaths are investigated. There is, in his application, no clear link to sockeye salmon. Although he may have insights into how the DFO and Environment Canada interact with each other and the public, these views are more appropriately gathered by commission counsel – if his evidence is compelling, he may be called to testify.

David Loewen

95. Mr. David Loewen was raised on Haida Gwaii and has been involved with Pacific salmon for much of his life as a fisheries technician; non-profit project manager doing stream and habitat restoration; and Sierra Club executive member. He engaged in "the Wild Salmon Cycle" and biked 10,000 kilometres across western North America to raise awareness about the plight of salmon populations. He is a speaker and writes a blog called "Salmon Guy"; he also works as a consultant in Prince George. Mr. Loewen

feels he has "interests" in the commission's work, but acknowledges his "rights" are limited to the right to catch fish. While commendably engaged as an activist and writer, I have concluded that Mr. Loewen does not have a substantial and direct interest and that his comments and views can more appropriately be made through a written public submission.

Dave Smith

96. Mr. Dave Smith from Maple Ridge describes his community's involvement with enhancement activities including hatcheries along the north side of the lower Fraser River. He "would like to talk about some of the issues, dilemmas, concerns and accumulative problems", some of which he lists. He wishes to "make a presentation" to the commission. While Mr. Smith states general concerns, I am not satisfied that he has a substantial and direct interest in the subject matter of the inquiry. Mr. Smith is invited to make a written public submission.

B.C. Wilderness Tourism Association

97. The B.C. Wilderness Tourism Association ("BCWTA") seeks the opportunity to present a submission "as one of the business stakeholders impacted." Its application for standing discusses the importance of wild salmon to plant and animal life in B.C. It says if wild salmon are lost, industries such as fishing and tourism will also be lost. The annual spawning season presents an exceptional opportunity for wildlife viewing, nature study and photography. These are high-value tourism products; more than 1.2 million tourists spend approximately $1.5 billion on nature-based tourism each year in B.C. The BCWTA points to fish farms and the attendant sea lice as a source of concern.

98. Although the BCWTA has a different perspective from other applicants, I am not convinced that this is a voice that requires participant status to be heard, particularly given the Association's stated interest in making a public submission to the commission.

Fraser River Salmon Table Society

99. The Fraser River Salmon Table Society ("FRSTS") applies for standing but indicates it does not have counsel nor does it have the capacity to have someone attend court daily. The FRSTS would like to present its members' views and experience

directly, and believes the only way to be guaranteed to do so is by being granted standing. The FRSTS says it represents the best example of collaborative management in the Fraser Basin. Its mission is to foster mutual respect and increased understanding, in order to reduce conflict, reach better management decisions, improve the health of salmon stocks and their habitat, and achieve greater economic opportunity for all involved. The FRSTS's board draws from conservation, First Nations, and commercial and sport fishing.

100. I am not satisfied that the FRSTS has a substantial and direct interest in the inquiry, and I suggest it make use of the public submissions process.

Native Brotherhood of B.C.

101. The Native Brotherhood of BC (the "Brotherhood") was founded in 1931 as an organization to represent Native communities and Native fishers. It has engaged over many years with government, communities, fishers, and shore workers. The Brotherhood wishes to make a formal presentation to convey the perspectives of its coastal communities and fishers, and to suggest an approach to rectify the issues and problems in B.C.

102. In my view, the presentation described by the Brotherhood would be more appropriately made through the public submissions process.

Salmon Enhancement Habitat Advisory Board

103. The Salmon Enhancement Advisory Board ("SEHAB") describes itself as the "voice of the volunteer community." It is funded and supported by the DFO (Pacific Region)'s Oceans, Habitat and Enhancement Branch. It is the body coordinating and working with community partners and volunteers who assist DFO staff. It comprises some 20,000 volunteer stewards. It does advisory work and is involved in some 200 restoration projects, 110 enhancement facilities, and 110 education/public awareness initiatives. SEHAB says it will "introduce the need for a paradigm shift in the way the Department attempts to achieve its mandate", and "will speak to the intrinsic value of Fraser Sockeye."

104. In my view, the values held by SEHAB members will be adequately reflected by other participants in the hearing process, but I invite this applicant to make use of the public submissions process.

VII. Summary

105. I have made 20 single grants of standing for participation in the inquiry as set out in the table below. Many of them are shared among applicants who originally applied for standing individually.

Table of Participants Granted Standing

	Participant or Joint Participants
1	Government of Canada
2	Province of British Columbia
3	Pacific Salmon Commission
4	B.C. Public Service Alliance of Canada Union of Environment Workers B.C.
5	Rio Tinto Alcan Inc.
6	B.C. Salmon Farmers Association
7	Seafood Producers Association of B.C.
8	Aquaculture Coalition: Alexandra Morton Raincoast Research Society Pacific Coast Wild Salmon Society
9	Conservation Coalition: Coastal Alliance for Aquaculture Reform Fraser Riverkeeper Society Georgia Strait Alliance Raincoast Conservation Foundation Watershed Watch Salmon Society

	Participant or Joint Participants
	Mr. Otto Langer David Suzuki Foundation
10	Area D Salmon Gillnet Association Area B Harvest Committee (Seine)
11	Southern Area E Gillnetters Association B.C. Fisheries Survival Coalition
12	West Coast Trollers Area G Association United Fishermen and Allied Workers' Union
13	B.C. Wildlife Federation B.C. Federation of Drift Fishers
14	Maa-nulth Treaty Society Tsawwassen First Nation Musqueam First Nation
15	Western Central Coast Salish First Nations: Cowichan Tribes Chemainus First Nation Hwlitsum First Nation Penelakut Tribe Te'mexw Treaty Association Other Douglas Treaty First Nations who applied together (the Snuneymuxw, Tsartlip and Tsawout)
16	First Nations Coalition: First Nations Fisheries Council Aboriginal Caucus of the Fraser River Aboriginal Fisheries Secretariat Fraser Valley Aboriginal Fisheries Society Northern Shuswap Tribal Council

	Participant or Joint Participants
	Chehalis Indian Band
	Secwepemc Fisheries Commission of the Shuswap Nation Tribal Council
	Upper Fraser Fisheries Conservation Alliance
	Adams Lake Indian Band
	Carrier Sekani Tribal Council
	Council of Haida Nation
17	Métis Nation British Columbia
18	Sto:lo Tribal Council
	Cheam Indian Band
19	Laich-kwil-tach Treaty Society
	James Walkus and Chief Harold Sewid
	Aboriginal Aquaculture Association
	Heiltsuk Tribal Council
20	Musgagmagw Tsawataineuk Tribal Council

Signed 14 April 2010.

The Honourable Bruce I. Cohen
Commissioner

Appendix 5

Cohen Commission
Ruling on Application to Vary Standing Brought by Heiltsuk Tribal Council

I. Background

1. On 15 April 2010, I released my ruling determining which applicants would be granted standing as "participants" for the Commission of Inquiry into the Decline of Sockeye Salmon in the Fraser River (the "Standing Ruling"). In the case of the Heiltsuk Tribal Council ("Heiltsuk"), I determined they should be part of the same participant group as the Laich-kwil-tach Treaty Society ("LKTS"), James Walkus and Chief Harold Sewid, and the Aboriginal Aquaculture Association ("AAA"). I described this standing group in the Standing Ruling, at para. 78, in these terms:

> These applicants applied separately for standing. However, with the exception of the Heiltsuk, they have told me that they are willing to cooperate and share a single grant of standing (although they ask to have separate legal counsel acting together). The Heiltsuk indicate a willingness to join with these applicants on the topic of reserve allotment, but have not yet reached a more formal arrangement.

I went on to observe, in para. 79:

> Notwithstanding the fact that the Heiltsuk have not yet agreed, I am satisfied that the interests of these applicants align to such an extent that it is appropriate to direct that they share in a single grant of standing. In so directing, I am mindful of the position taken by the Heiltsuk. If a joint participant concludes it is necessary to seek to participate differently, whether by way of separate submissions or otherwise, that joint participant may apply for directions.

2. The Heiltsuk now bring an application seeking to vary the Standing Ruling, to permit them full participant status in the commission. These are my reasons on the Heiltsuk's application.

II. The Application

3. The Heiltsuk seek to vary the Standing Ruling, so as to be afforded full and separate participant status for stewardship issues and aquaculture. They are content to work with the other members of the participant group on the issue of reserve allotment.

However, the Heiltsuk say that there is a direct conflict between themselves and other members of their participant group on the topic of aquaculture. Citing *R. v. Neil*, 2002 SCC 70, they submit no single counsel could represent persons adverse in interest. On the topic of stewardship, they wish "to address historical and modern stewardship through information unique to [the Heiltsuk]".

4. Other members of the Heiltsuk's standing group were apprised of this application and offered their input. The LKTS, the AAA and Chief Sewid advised through counsel that they support the Heiltsuk's application. They suggest that separate standing would make good practical sense and would avoid existing and potential conflicts within the standing group. I am advised that James Walkus has elected not to proceed as a participant despite being granted standing with this group.

III. Discussion

5. I was unaware of the Heiltsuk's present concern until after my Standing Ruling. The Heiltsuk did not mention their opposition to aquaculture in their detailed original application for standing. They were silent on the topic in that original application for standing, apart from two passing references to fish farms – one in describing research that related to fish farms, and the other in including fish farms in a list of "a range of potential impacts" on salmon stocks. As well, on 26 March 2010, 31 applicants attended a hearing before me, and many indicated their willingness to join together with other applicants for a grant of standing. These applicants recognized that the public interest favours an efficient and workable process, and that serious practical difficulties would have arisen from having 30 or 40 separate participants. I heard from almost all of the 31 applicants attending that session, but did not hear directly from counsel for the Heiltsuk. Mr. Donovan, addressing the commission as counsel for the LKTS, made reference to some opposition to aquaculture among possible co-participants, but it was not clear whether this included the Heiltsuk (Transcript, 26 March 2010, p. 20, ll. 16-26). After the 26 March 2010 hearing, in further written submissions dated 29 March 2010, the Heiltsuk reported having "explored building coalitions with the Council of Haida Nation, the Aboriginal Aquaculture Association and the Musgagmagw Tsawataineuk

Tribal Council". In that letter, they offered specific submissions on reserve allotment, sport fishing and community impact, but again failed to mention aquaculture as a topic of interest or importance.

6. Leaving this aside, I accept that the Heiltsuk now find themselves in a situation where there is a conflict, and that they genuinely wish to participate with respect to aquaculture. Their position on an important component of this commission — one listed in the Terms of Reference — is directly at odds with that of the AAA. Although it might well be the case that the traditional test involving "adversity in interest" cannot be transposed directly into the public-hearing *milieu*, I accept that in this case, there are diametrically opposed positions that would create a significant difficulty for a single lawyer. In my view, the test for a conflict of interest is met here. Importantly, the conflict is not hypothetical, contingent, or unrealized. It exists, and must be addressed.

7. The question becomes, how can this conflict be addressed in a manner that is both responsive and responsible? As the Heiltsuk indicate in their submission, the real difficulty is that a lawyer may be asked to cross-examine and make submissions on two sides of an issue. The remedy must overcome that situation, and yet not overshoot the objective. The solution, I conclude, is to permit the Heiltsuk to appear by way of separate counsel for the evidentiary hearings which deal specifically with the topic of aquaculture. I will return to the question of the appropriate remedy after I discuss the other aspect of the Heiltsuk's application.

8. While aquaculture is a present conflict, I am not persuaded that the same may be said of the broad topic of "stewardship issues". The Heiltsuk refer to stewardship issues and practices, and indicate they have a significant and unique body of information about traditional and modern stewardship. I appreciate and expect that the Heiltsuk's particular knowledge and experience will inform any submissions they make to the commission; their experiences in dealing with the DFO are certainly relevant. However, I think that knowledge and those experiences — even if distinct and different from those of their joint participants — can be presented alongside the experiences of the other joint participants within their standing group. As contemplated in the original standing

ruling, the participant group's submissions can be supplemented by written submissions on the issues of particular concern to the Heiltsuk.

9. In short, I see the proposed information relating to stewardship as *complementing* rather than conflicting with the participant group's expected approach. Moreover, unlike the topic of aquaculture, any conflict on this topic is, at this juncture, speculative and unrealized.

10. Given these comments, the appropriate remedy is to focus on the particular difficulty arising from the conflict relating to aquaculture. I see no need for a variation in the Standing Ruling to accommodate the Heiltsuk's interest in addressing their stewardship experience.

11. I therefore order that the Heiltsuk may participate by way of separate counsel specifically for the evidentiary hearings pertaining to aquaculture, but that otherwise they remain part of the standing group.

IV. Conclusion

12. The Terms of Reference for this commission (cl. a(ix)) authorize me to grant, to any person who satisfies me they have a substantial and direct interest in the subject matter of the inquiry, "an opportunity for appropriate participation". I am prepared to vary the Standing Ruling to the extent necessary to overcome the Heiltsuk's conflict with others in their standing group on the aquaculture issue. They may participate by way of separate counsel specifically for evidentiary hearings pertaining to aquaculture. Otherwise, they remain part of the standing group and may participate within that group on all other issues. In my view, this approach overcomes the difficulty raised and provides for the Heiltsuk's appropriate participation in the inquiry's process.

Signed __ May 2010.

_____
The Honourable Bruce I. Cohen
Commissioner

[Original signed by Commissioner 10 May 2010]

Appendix 6

Cohen Commission
Ruling on Application to Vary Standing
Brought by Douglas Treaty First Nations

1. On 15 April 2010, I released my ruling determining which applicants would be granted standing as "participants" for the Commission of Inquiry into the Decline of Sockeye Salmon in the Fraser River (the "Standing Ruling"). In the case of the applicants, Snuneymuxw, Tsartlip, and Tsawout First Nations (collectively the "Douglas Treaty First Nations"), I determined they should be part of the same participant group as the Cowichan Tribes, Chemainus First Nation, Hwlitsum First Nation, Penelakut Tribe and the Te'mexw Treaty Association (the "Western Central Coast Salish").

2. The Douglas Treaty First Nations, by way of letter from their counsel Ms. Gaertner dated 7 May 2010, now apply for a variation of the Standing Ruling, such that they are placed in the same participant group as, and share a single grant of standing with, the First Nations Coalition instead of the Western Central Coast Salish. The First Nations Coalition, represented by Ms. Gaertner, is comprised of 10 aboriginal organizations, tribal councils, and Indian Bands.

3. As the Douglas Treaty First Nations is simply seeking to change participant groups, rather than create a new grant of standing, it does not appear that such a change raises concerns about the commission's administrative burden or efficiencies in the hearing process. Further, I understand from Ms. Gaertner's request that the other members of the First Nations Coalition are content with this addition to their standing group. Moreover, there does not appear to be any adverse effect on the Western Central Coast Salish as a result of having one less joint participant in that standing group.

4. For all these reasons, I am prepared to grant the Douglas Treaty First Nations' request. I order that the Standing Ruling be varied such that the Douglas Treaty First Nations are now part of the First Nations Coalition.

Signed ____ May 2010

_____
The Honourable Bruce I. Cohen, Commissioner

[Original signed by Commissioner 11 May 2010]

Appendix 7

Cohen Commission
Ruling on Application to Vary Standing
Brought by Laich-kwil-tach Treaty Society and Heiltsuk Tribal Council

1. On 15 April 2010, I released a ruling in which I determined, *inter alia*, that various applicants would participate by joining with others in participant groups (the "Standing Ruling"). Since then, I have issued two additional rulings arising from difficulties within one participant group — that being the Laich-kwil-tach Treaty Society ("LKTS"), Aboriginal Aquaculture Association ("AAA"), Chief Harold Sewid, and Heiltsuk Tribal Council ("Heiltsuk"). It has become apparent that the difficulties within this participant group are such that it is not feasible for them to pool resources and share counsel as a single participant.

2. I appreciate that counsel have given their best effort to overcoming these difficulties, but that they have been unable to resolve them. Reluctantly, I accept that this participant group is not working; conflicts within the group are a distraction from the substantive issues arising in this inquiry.

3. In light of this, I am prepared to grant the application to sever the Heiltsuk from this participant group, which results in the Heiltsuk obtaining individual standing as a participant.

4. I am gratified by the extent to which so many of the persons before the commission have worked together in participant groups, even when those alignments were not of their choosing. I am slow to take a step that may impair the efficiency of the commission by adding a further participant, and I expect all participants to pursue the issues of significance to them efficiently, working with other participants wherever possible and ensuring there is no duplication of effort.

5. I order that the previous participant group (LKTS, AAA, Chief Sewid and Heiltsuk), be split into two groups: (1) the LKTS and AAA along with Chief Sewid; and (2) the Heiltsuk.

6. Each of these new participant groups will receive a share of the funding allotted to the original group. I do not recommend additional funding as a result of this ruling.

7. In my original funding recommendation, I recommended 421 senior-counsel hours and 749 junior-counsel hours to the standing group as a whole, as well as an additional 195 counsel hours so that the Heiltsuk could participate separately on the topic of aquaculture (see my Funding Recommendations Summary, released 9 June 2010, at para. 51: www.cohencommission.ca/en/Rulings.php).

8. I have determined that it is appropriate to divide the hours that were approved for the original participant group to reflect that the majority of the joint participants remain in

one participant group, but that the Heiltsuk now form a distinct participant group. Accordingly, I have allocated 2/3 of the hours approved for the original participant group to the new participant group comprised of the LKTS, AAA and Chief Sewid, and 1/3 to the Heiltsuk as set out in the tables below. The combined total hours is the same as the hours previously allocated for the original participant group. I similarly have determined that the funding for disbursements and travel costs should be divided in the same manner (i.e., a 2/3 and 1/3 split). The funding cost to the contribution program is the same despite the dissolution of the original participant group.

(1) LKTS, AAA and Chief Sewid

Activity	Hours for Senior Counsel	Hours for Junior Counsel
Preparation for hearings	38	144
Attendance at hearings	108	56
Interviews	18	72
Meetings and other occasions arranged or deemed necessary by the Commissioner	50	50
Preparation of submissions	20	72
Review of materials	50	192
Application for standing	20	n/a
Release of interim report	10	n/a
Release of final report	10	n/a
TOTAL:	324	586

(2) Heiltsuk Tribal Council

Activity	Hours for Senior Counsel	Hours for Junior Counsel
Preparation for hearings	19	72
Attendance at hearings	54	28
Interviews	9	36
Meetings and other occasions arranged or deemed necessary by the Commissioner	25	25

Activity	Hours for Senior Counsel	Hours for Junior Counsel
Preparation of submissions	10	36
Review of materials	25	96
Application for standing	10	n/a
Release of interim report	5	n/a
Release of final report	5	n/a
TOTAL:	162	293

Signed ____ August 2010

_____
The Honourable Bruce I. Cohen,
Commissioner

[Original signed by Commissioner 23 August 2010]

Appendix 8 • Participants Granted Standing

1 Government of Canada

2 Province of British Columbia

3 Pacific Salmon Commission

4 BC Public Service Alliance of Canada
Union of Environment Workers BC

5 Rio Tinto Alcan Inc.

6 BC Salmon Farmers Association

7 Seafood Producers Association of BC

8 Aquaculture Coalition:
Alexandra Morton
Raincoast Research Society
Pacific Coast Wild Salmon Society

9 Conservation Coalition:
Coastal Alliance for Aquaculture Reform
Fraser Riverkeeper Society
Georgia Strait Alliance
Raincoast Conservation Foundation
Watershed Watch Salmon Society
Mr. Otto Langer
David Suzuki Foundation

10 Area D Salmon Gillnet Association
Area B Harvest Committee (Seine)

11 Southern Area E Gillnetters Association
BC Fisheries Survival Coalition

12 West Coast Trollers Area G Association
United Fishermen and Allied Workers' Union

13 BC Wildlife Federation
BC Federation of Drift Fishers

14 Maa-nulth Treaty Society
Tsawwassen First Nation
Musqueam First Nation

15 Western Central Coast Salish First Nations:
Cowichan Tribes
Chemainus First Nation
Hwlitsum First Nation
Penelakut Tribe
Te'mexw Treaty Association

16 First Nations Coalition:
First Nations Fisheries Council
Aboriginal Caucus of the Fraser River Aboriginal Fisheries Secretariat
Fraser Valley Aboriginal Fisheries Society
Chehalis Indian Band
Secwepemc Fisheries Commission of the Shuswap Nation Tribal Council
Upper Fraser Fisheries Conservation Alliance
Adams Lake Indian Band
Carrier Sekani Tribal Council
Council of Haida Nation
Other Douglas Treaty First Nations who applied together (the Snuneymuxw, Tsartlip and Tsawout)

17 Métis Nation British Columbia

18 Sto:lo Tribal Council
Cheam Indian Band

19 Laich-kwil-tach Treaty Society
Chief Harold Sewid
Aboriginal Aquaculture Association

20 Heiltsuk Tribal Council

21 Musgagmagw Tsawataineuk Tribal Council

Appendix 9

Cohen Commission

Summary of Commissioner's Recommendations to Privy Council Office Concerning Participant Funding

TABLE OF CONTENTS

I. INTRODUCTION

1. On 5 November 2009 the Governor in Council issued an Order in Council setting out the Terms of Reference for the Commission of Inquiry into the Decline of Sockeye Salmon in the Fraser River. I was appointed Commissioner under Part 1 of the *Inquiries Act*, R.S.C. 1985, c. I-11.

2. On 15 April 2010, I released my Ruling on Standing (the "Standing Ruling") in which I made 20 grants of standing, many of them to groups of joint participants. In the Standing Ruling, I noted that many of the applicants for standing had also applied for funding under the Privy Council's Contribution Program. This document describes those funding applications and my recommendations for funding as made to the Privy Council (the "Funding Recommendations").

3. For ease of reference, I have reproduced the summary table of participants granted standing below, with one modification pertaining to the Coalition of Douglas Treaty First Nations, which I discuss later. The Standing Ruling describes each participant and the extent of their interests in the subject matters of the inquiry as I have determined them.

TABLE OF PARTICIPANTS GRANTED STANDING

	Participant or Joint Participants
1	Government of Canada
2	Province of British Columbia
3	Pacific Salmon Commission
4	B.C. Public Service Alliance of Canada Union of Environment Workers B.C.
5	Rio Tinto Alcan Inc.
6	B.C. Salmon Farmers Association
7	Seafood Producers Association of B.C.
8	Aquaculture Coalition: Alexandra Morton Raincoast Research Society Pacific Coast Wild Salmon Society
9	Conservation Coalition: Coastal Alliance for Aquaculture Reform Fraser Riverkeeper Society Georgia Strait Alliance Raincoast Conservation Foundation Watershed Watch Salmon Society Mr. Otto Langer David Suzuki Foundation

	Participant or Joint Participants
10	Area D Salmon Gillnet Association
	Area B Harvest Committee (Seine)
11	Southern Area E Gillnetters Association
	B.C. Fisheries Survival Coalition
12	West Coast Trollers Area G Association
	United Fishermen and Allied Workers' Union
13	B.C. Wildlife Federation
	B.C. Federation of Drift Fishers
14	Maa-nulth Treaty Society
	Tsawwassen First Nation
	Musqueam First Nation
15	Western Central Coast Salish First Nations:
	Cowichan Tribes
	Chemainus First Nation
	Hwlitsum First Nation
	Penelakut Tribe
	Te'mexw Treaty Association
16	First Nations Coalition:
	First Nations Fisheries Council
	Aboriginal Caucus of the Fraser River Aboriginal Fisheries Secretariat
	Fraser Valley Aboriginal Fisheries Society
	Northern Shuswap Tribal Council
	Chehalis Indian Band
	Secwepemc Fisheries Commission of the Shuswap Nation Tribal Council
	Upper Fraser Fisheries Conservation Alliance
	Adams Lake Indian Band
	Carrier Sekani Tribal Council
	Council of Haida Nation
	Other Douglas Treaty First Nations who applied together (the Snuneymuxw, Tsartlip and Tsawout)
17	Métis Nation British Columbia
18	Sto:lo Tribal Council
	Cheam Indian Band
19	Laich-kwil-tach Treaty Society
	James Walkus and Chief Harold Sewid
	Aboriginal Aquaculture Association
	Heiltsuk Tribal Council
20	Musgagmagw Tsawataineuk Tribal Council

4. By clauses vi, ix and x, the Terms of Reference,

> vi. authorize the Commissioner to adopt any procedures and methods that he may consider expedient for the proper conduct of the Inquiry, to sit at any times and in any places in Canada that he decides and to conduct consultations in relation to the Inquiry as he sees fit,
>
> …
>
> ix. authorize the Commissioner to grant, to any person who satisfies him that they have a substantial and direct interest in the subject matter of the Inquiry, an opportunity for appropriate participation in it,
>
> x. authorize the Commissioner to recommend to the Clerk of the Privy Council that funding be provided, in accordance with terms and conditions approved by the Treasury Board, to ensure the appropriate participation of any person granted standing at the Inquiry under subparagraph (ix), to the extent of the person's interest, if the Commissioner is of the view that the person would not otherwise be able to participate in the Inquiry.

5. In accordance with the Terms of Reference, I have adopted Rules for Standing and Funding which, as amended, provide in part as follows:

> 3. The commission's procedures in respect of standing and funding will be conducted in accordance with the Terms and Conditions for the Contribution Program for the Commission of Inquiry into the Decline of Sockeye Salmon in the Fraser River, dated 19 January 2010 (the "Contribution Program Terms").
>
> …
>
> 5. The Commissioner may amend these Rules or dispense with their compliance as he deems necessary to ensure that the inquiry is thorough, fair and timely.
>
> …
>
> 10. Commission counsel have the primary responsibility for representing the public interest, including the responsibility to ensure that all matters that bear upon the public interest are brought to the Commissioner's attention.
>
> …
>
> 18. Where the Commissioner is satisfied on the evidence that a participant would not otherwise be able to participate in the inquiry, the Commissioner may recommend to the Clerk of the Privy Council that a participant receive financial assistance to pay for legal counsel to facilitate participation appropriate to the extent of a participant's interest.
>
> …
>
> 20. An application for a funding recommendation must be supported by an affidavit setting out the following:
>
> > (a) facts that demonstrate the person seeking funding does not have sufficient financial resources to participate in the work of the commission without financial assistance for legal counsel, and

(b) facts in relation to any other sources of funds received, expected or sought by the person in relation to legal services rendered, or to be rendered, with respect to the inquiry. …

21. The Commissioner will determine the outcome of applications for funding recommendations on the basis of written applications, unless the Commissioner determines that an oral hearing is necessary. …

22. Where the Commissioner's funding recommendation is approved by the Clerk of the Privy Council, funding shall be in accordance with terms and conditions approved by the Treasury Board respecting rates of remuneration and reimbursement and the assessment of accounts.

6. Additionally, the Privy Council's Contribution Program Terms provide in part as follows:

Recommendations

11. The Commissioner shall make his recommendations in writing to the Clerk of the Privy Council for review.

12. The Commissioner shall base his recommendations on the degree of participation appropriate to the individual's interest.

13. The Commissioner shall, in making his recommendations to the Clerk of the Privy Council, include the following elements to ensure that such recommendations are in compliance with the terms and conditions of this Program.

(a) A confirmation that the individuals have standing;

(b) A confirmation that the Commissioner is satisfied that the individual or individuals would not be able to participate appropriately in the work of the Commission without financial assistance for legal counseling;

(c) The number of junior and/or senior counsel, the number of hours, and the type of activities authorized;

(d) Whether or not disbursement costs and inter-city travel costs will be reimbursed to the legal counsel.

II. THE APPLICATION PROCESS

7. Initially, many applicants for standing also applied for funding. After the Standing Ruling was released on 15 April 2010, commission counsel sought revised funding applications from nearly all the applicants for funding. In some cases, the commission required new applications because the Standing Ruling directed participants to share grants of standing, changing the footing on which the initial funding applications had been made. In other cases, commission counsel suggested, and I agreed, that I required additional information in order to make a recommendation. In many cases the original funding applications and supporting affidavits

failed to provide sufficient detail to permit me to assess the application thoroughly. The revised affidavits and applications were of great assistance to me in considering this matter.

8. In preparing the funding recommendations that follow, I have borne in mind a number of considerations. The numbers of hours I have set out in the recommendations are the product of an assessment by commission staff of the appropriate participation of each participant (or group of joint participants) to the extent of that participant's interest, as that interest is described in the Standing Ruling. I agree with their assessment and have adopted it in making my funding recommendations. In recommending a number of hours for funding, the commission has estimated the number of hearing days for each topic identified in the commission's terms of reference, applied those estimates to the interests identified for participants in the Standing Ruling, and then added a fair amount for preparation time for counsel outside of the hearings. As the commission is currently involved in reviewing documentary production and framing issues for hearings, the numbers necessarily reflect a high degree of estimation. The commission has applied these principles for estimating the number of hours for participants consistently to all the applications.

9. The commission's approach is to look to junior counsel for much of the preparation work, but to increase the proportion of funding for attendance at hearings by senior counsel. I believe the approach taken is a fair and reasonable one for staffing participation in an inquiry of this nature. The commission has allotted 80 per cent of the recommended time for an applicant to preparation (60 per cent to junior counsel and 20 per cent to senior counsel) and 20 per cent of the recommended time to attendance at hearings (7 per cent to junior counsel and 13 per cent to senior counsel). Preparation time has been further subdivided and allotted to different activities, with a further additional amount added uniformly to all recommendations, in order to account for meetings and other occasions at which participants' counsel will be asked to attend.

10. These funding recommendations reflect the overriding premise for a commission of inquiry, set out in our Rules for Standing and Funding, that "commission counsel have the primary responsibility for representing the public interest, including the responsibility to ensure that all matters that bear upon the public interest are brought to the Commissioner's attention." In our hearings, commission counsel are responsible for organizing and leading all the evidence, and are primarily responsible for document review, which in this case is a very large undertaking. Participants will be provided with what commission counsel identify as being key documents and witness materials. Participants may assist in identifying witnesses and evidence, but the primary responsibility lies with commission counsel. While participants will

have access to the documents disclosed to the commission, these funding recommendations do not anticipate that each participant will separately undertake the same degree of document review as commission counsel. The aim is to provide adequate funding for participants to access documents, but in a context where they already have the key documents and intended hearing exhibits identified to them in advance by commission counsel.

11. Similarly, these funding recommendations reflect the fact that it is unnecessary for all participants' counsel to attend all of the commission's hearing days. While participants are welcome to attend or have their counsel attend any of the hearings at their own cost, I am only recommending funding for attendance of counsel on those hearing days where the participant's interest, as set out in the Standing Ruling, is directly engaged. Transcripts of the hearings will be made available to participants as soon as possible after each hearing day, removing any need for counsel to conduct a "watching brief" of hearings, and permitting an efficient means of monitoring the proceedings.

III. Funding Recommendations

12. The interests of all the following participants and joint participants are such that their appropriate participation in the inquiry requires the assistance of counsel. Based on the evidence of each participant or group of joint participants described below in this section, I am satisfied that they would not be able to participate appropriately in the inquiry without financial assistance.

13. Further, for each participant or group of joint participants described below, I recommend that necessary disbursement costs and intercity travel costs be reimbursed to legal counsel in accordance with guidelines set out by the Contribution Program. I have estimated travel costs for participants whom I understand to have counsel from outside Vancouver (where the hearings will be held), based on counsel's attendance for those portions of the hearings in which their clients have a direct interest. I have also recommended a sum for travel costs to enable all counsel to travel to meet their clients in person, where and when it is necessary to do so. I am advised that the specific figures for disbursement and travel costs will be communicated to participants as they arrange funding under the Contribution Program.

14. The Contribution Program envisions that a successful applicant for standing may be recommended for up to 10 hours' time for legal fees involved in bringing its standing application. This 10-hour figure may be varied in exceptional circumstances. I am satisfied that there *are*

exceptional circumstances arising for those applicants who applied separately, through separate counsel, but who have now joined in a single grant of standing. These applicants have put in considerable effort — preparing their initial applications; attending a hearing devoted to ascertaining which applicants might join together; and then providing additional applications and affidavits in response to requests from commission counsel to re-apply for funding in light of the Standing Ruling and the general concern that many of the original affidavits lacked sufficient detail to justify a funding recommendation. These are unusual circumstances that, in my view, make it appropriate that 10 hours of legal funding be recommended for *each* successful application for standing, where counsel was used to prepare the applications, irrespective of whether some of those applications have resulted in shared grants of standing. This approach, reflected in my recommendations below, results in some standing groups receiving more than 10 hours for standing applications.

15. Finally, in some cases participants have reported that they have a limited ability to contribute to the non-legal costs of their participation in the inquiry. In the case of the applicants listed below, I am prepared to treat any such amounts as contributions in-kind, given that the hearing process may require much work beyond that performed by legal counsel. In all cases, participants have an ongoing duty to advise the commission of any change in their ability to defray legal costs. If a participant's fundraising achieves greater success than anticipated, or their financial position changes, I expect that participant to advise the commission of this fact, at which point I may consider the import.

16. As a final preliminary remark, I have not provided the content of the detailed affidavit evidence received by the commission, in the discussion that follows. I have identified the affiant but said no more. I have taken this approach because of the confidentiality attaching to the financial information of the applicants. I have, however, summarized this confidential information in making my recommendations to the Privy Council.

Pacific Salmon Commission

17. The Pacific Salmon Commission ("PSC") has standing before the commission based on its substantial and direct interest in the policies and practices of the Department of Fisheries and Oceans Canada (the "DFO") with respect to Fraser River sockeye. The PSC provided an affidavit sworn by its Executive Secretary Don Kowal.

18. I recommend that the PSC receive funding for one senior and one junior counsel for the number of hours indicated below, which reflects the extent of its interest as I have determined it.

Activity	Hours for Senior Counsel	Hours for Junior Counsel
Preparation for hearings	59	175
Attendance at hearings	127	68
Interviews	29	88
Meetings and other occasions arranged or deemed necessary by the Commissioner	25	25
Preparation of submissions	29	88
Review of materials	78	234
Application for standing	10	n/a
Release of interim report	5	n/a
Release of final report	5	n/a
TOTAL:	367	678

Alexandra Morton, Raincoast Research Society, and Pacific Coast Wild Salmon Society

19. Alexandra Morton, Raincoast Research Society and Pacific Coast Wild Salmon Society collectively share a grant of standing before the commission based on their substantial and direct interest in whether aquaculture is a cause for the decline of Fraser River Sockeye, and the policies and practices of the DFO insofar as they relate to aquaculture. Alexandra Morton provided an affidavit in support of this application.

20. I recommend that these applicants receive funding for one senior and one junior counsel for the number of hours indicated below, which reflects the extent of their interest as I have determined it.

Activity	Hours for Senior Counsel	Hours for Junior Counsel
Preparation for hearings	23	70
Attendance at hearings	51	27
Interviews	12	35
Meetings and other occasions arranged or deemed necessary by the Commissioner	25	25
Preparation of submissions	12	35
Review of materials	31	94
Application for standing	10	n/a

Activity	Hours for Senior Counsel	Hours for Junior Counsel
Release of interim report	5	n/a
Release of final report	5	n/a
TOTAL:	174	286

CONSERVATION COALITION

21. Members of the Conservation Coalition (comprised of the Coastal Alliance for Aquaculture Reform, the Fraser Riverkeeper Society, the Georgia Strait Alliance, the Raincoast Conservation Foundation, the Watershed Watch Salmon Society, Mr. Otto Langer and the David Suzuki Foundation) collectively share a grant of standing before the commission based on their substantial and direct interest in the policies and practices of the DFO with respect to Fraser River sockeye and the causes for the decline of Fraser River sockeye.

22. Each of the Conservation Coalition's members presented affidavit evidence concerning their financial situation. I received sworn affidavits from: Jay Ritchlin, director of marine and freshwater conservation program for the David Suzuki Foundation; Catherine Stewart, coordinator for the Coastal Alliance for Aquaculture Reform; Lauren Hornor, executive director of the Fraser Riverkeeper Society; Stan Prosboszcz, fisheries biologist for the Watershed Watch Salmon Society; Michele MacDuffee, biologist and wild salmon campaigner for the Raincoast Conservation Foundation; Christianne Wilhelmson, executive director of the Georgia Straight Alliance; and Otto Langer on his own behalf.

23. I recommend that these applicants receive funding for one senior and one junior counsel for preparation for the number of hours indicated below, which reflects the extent of their interest as I have determined it.

Activity	Hours for Senior Counsel	Hours for Junior Counsel
Preparation for hearings	90	270
Attendance at hearings	195	105
Interviews	45	135
Meetings and other occasions arranged or deemed necessary by the Commissioner	25	25
Preparation of submissions	45	135
Review of materials	120	360

Activity	Hours for Senior Counsel	Hours for Junior Counsel
Application for standing	10	n/a
Release of interim report	5	n/a
Release of final report	5	n/a
TOTAL:	540	1030

AREA D SALMON GILLNET ASSOCIATION AND AREA B HARVEST COMMITTEE (SEINERS)

24. The Area D Salmon Gillnet Association and Area B Harvest Committee collectively share a grant of standing before the commission based on their substantial and direct interest in investigating aquaculture as a cause of sockeye decline, and the policies and practices of the DFO, in particular fisheries policies and programs, allocation of departmental resources, and fisheries management practices and procedures including monitoring, counting of stocks, forecasting and enforcement. I received affidavits from Ryan McEachern, treasurer of the Area D Salmon Gillnet Association, and from Chris Ashton, executive director of the Area B Harvest Committee.

25. I recommend that these applicants receive funding for one senior and one junior counsel for preparation for the number of hours indicated below, which reflects the extent of their interest as I have determined it.

Activity	Hours for Senior Counsel	Hours for Junior Counsel
Preparation for hearings	55	164
Attendance at hearings	119	65
Interviews	27	82
Meetings and other occasions arranged or deemed necessary by the Commissioner	25	25
Preparation of submissions	27	82
Review of materials	74	220
Application for standing	10	n/a
Release of interim report	5	n/a
Release of final report	5	n/a
TOTAL:	347	638

Southern Area E Gillnetters Association and the B.C. Fisheries Survival Coalition

26. The Southern Area E Gillnetters Association and the B.C. Fisheries Survival Coalition collectively share a single grant of standing before the commission. This standing group's substantial and direct interest is in the policies and practices of the DFO, in particular fisheries policies and programs, allocation of departmental resources, and fisheries management practices and procedures including monitoring, counting of stocks, forecasting and enforcement. I received an affidavit from Philip Eidsvik, a director of both applicant organizations.

27. I recommend that this funding group receive funding for one senior and one junior counsel for the number of hours indicated below, which reflects the extent of its interest as I have determined it.

Activity	Hours for Senior Counsel	Hours for Junior Counsel
Preparation for hearings	46	138
Attendance at hearings	100	53
Interviews	23	69
Meetings and other occasions arranged or deemed necessary by the Commissioner	25	25
Preparation of submissions	23	69
Review of materials	61	183
Application for standing	10	n/a
Release of interim report	5	n/a
Release of final report	5	n/a
TOTAL:	298	537

United Fishermen and Allied Workers' Union and West Coast Trollers Area G Association

28. The United Fishermen and Allied Workers' Union ("UFAWU-CAW") and West Coast Trollers Area G Association ("Area G Association") collectively share a single grant of standing before the commission. This standing group's substantial and direct interest is in the policies and practices of the DFO, in particular fisheries policies and programs, allocation of departmental resources, and fisheries management practices and procedures including monitoring, counting of stocks, forecasting and enforcement. I received affidavits from UFAWU-CAW president Irvin Figg and from Kathy Scarfo, president of the Area G Association.

29. I recommend that this funding group receive funding for one senior and one junior counsel for the number of hours indicated below, which reflects the extent of its interest as I have determined it.

Activity	Hours for Senior Counsel	Hours for Junior Counsel
Preparation for hearings	41	124
Attendance at hearings	90	48
Interviews	21	62
Meetings and other occasions arranged or deemed necessary by the Commissioner	25	25
Preparation of submissions	21	62
Review of materials	55	166
Application for standing	10	n/a
Release of interim report	5	n/a
Release of final report	5	n/a
TOTAL:	273	487

THE B.C. WILDLIFE FEDERATION AND THE B.C. FEDERATION OF DRIFT FISHERS

30. The B.C. Wildlife Federation ("BCWF") and the B.C. Federation of Drift Fishers ("BCFDF") collectively share a single grant of standing before the commission. This standing group's substantial and direct interest is in environmental changes (including habitat) along the Fraser River, and the policies and practices of the DFO, in particular fisheries policies and programs, and fisheries management practices and procedures including monitoring, counting of stocks, and enforcement. I received affidavits from Patricia MacAhonic, executive director of the BCWF, and from Grant Roadknight, vice president of the BCFDF.

31. I recommend that this funding group receive funding for one senior and one junior counsel for the number of hours indicated below, which reflects the extent of its interest as I have determined it.

Activity	Hours for Senior Counsel	Hours for Junior Counsel
Preparation for hearings	44	130
Attendance at hearings	94	50
Interviews	21	65

Activity	Hours for Senior Counsel	Hours for Junior Counsel
Meetings and other occasions arranged or deemed necessary by the Commissioner	25	25
Preparation of submissions	21	65
Review of materials	58	172
Application for standing	10	n/a
Release of interim report	5	n/a
Release of final report	5	n/a
TOTAL:	283	507

MAA-NULTH TREATY SOCIETY

32. The Maa-nulth Treaty Society shares a single grant of standing before the commission with the Tsawwassen First Nation and the Musqueam Indian Band. This standing group's substantial and direct interest is in environmental changes along the Fraser River, and the policies and practices of the DFO with respect to Fraser River Sockeye.

33. The Tsawwassen First Nation and the Musqueam Indian Band have informed me that they are not applying for funding at this time, but that they may seek funding at a later date. However, the Maa-nulth Treaty Society has applied for funding to support its participation as a joint participant within this standing group. I received an affidavit from Daniel Legg, the fiscal negotiator for the First Nations of the Maa-nulth Treaty Society.

34. I recommend that the Maa-nulth Treaty Society receive funding for one senior and one junior counsel. However, to reflect the fact that standing is shared with two other joint participants, I only recommend funding up to one third of the amount I would have recommended for a full grant of standing based on the interests of these joint participants. I recommend funding the Maa-nulth Treaty Society for the number of hours indicated below, which reflects the extent of its interest as I have determined it, and which represents one third of a full funding grant for this standing group.

Activity	Hours for Senior Counsel	Hours for Junior Counsel
Preparation for hearings	22	66
Attendance at hearings	47	26
Interviews	11	33

Activity	Hours for Senior Counsel	Hours for Junior Counsel
Meetings and other occasions arranged or deemed necessary by the Commissioner	8	8
Preparation of submissions	11	33
Review of materials	29	88
Application for standing	10	n/a
Release of interim report	5	n/a
Release of final report	5	n/a
TOTAL:	148	254

Cowichan Tribes, Chemainus First Nation, Hwlitsum First Nation, Penelakut Tribe, and Te'mexw Treaty Association (collectively the "Western Central Coast Salish")

35. Members of the Western Central Coast Salish collectively share a single grant of standing before the commission. This standing group's substantial and direct interest is in marine environmental conditions, other factors that may have affected the ability of sockeye salmon to reach traditional spawning grounds or reach the ocean, and the policies and practices of the DFO with respect to Fraser River sockeye.

36. In the Standing Ruling, I determined that the Coalition of Douglas Treaty First Nations was part of this participant group. Since the Standing Ruling, however, the Coalition of Douglas Treaty First Nations applied for, and was granted, a move from participation in this group, to participation in another group, the First Nations Coalition, described next.

37. I received affidavits from Ernest Elliot, general manager of Cowichan Tribes ("Cowichan");Ronda Jordan, the finance manager of the Chemainus First Nation ("Chemainus"); Alan Grove, director of Operations for the Hwlitsum First Nation; and Chief Earl Jack of the Penelakut Tribe.

38. I recommend that this funding group receive funding for one senior and one junior counsel. However, to reflect the fact that standing is shared with one joint participant who has not sought funding (the Te'mexw Treaty Association), I only recommend funding up to four fifths (80 per cent) of the amount I would have recommended for a full grant of standing based on the interests of these joint participants. I recommend funding this standing group for the number of

hours indicated below, which reflects the extent of its interest as I have determined it, and which represents 80 per cent of a full funding grant for this standing group.

Activity	Hours for Senior Counsel	Hours for Junior Counsel
Preparation for hearings	54	165
Attendance at hearings	118	64
Interviews	27	82
Meetings and other occasions arranged or deemed necessary by the Commissioner	25	25
Preparation of submissions	27	82
Review of materials	74	219
Application for standing	40	n/a
Release of interim report	5	n/a
Release of final report	5	n/a
TOTAL:	375	637

FIRST NATIONS FISHERIES COUNCIL, ABORIGINAL CAUCUS OF THE FRASER RIVER ABORIGINAL FISHERIES SECRETARIAT, FRASER VALLEY ABORIGINAL FISHERIES SOCIETY, CHEHALIS INDIAN BAND, SECWEPEMC FISHERIES COMMISSION OF THE SHUSWAP NATION TRIBAL COUNCIL, THE NORTHERN SHUSWAP TRIBAL COUNCIL, UPPER FRASER FISHERIES CONSERVATION ALLIANCE, ADAMS LAKE INDIAN BAND, CARRIER SEKANI TRIBAL COUNCIL, COUNCIL OF HAIDA NATION, AND THE COALITION OF DOUGLAS TREATY FIRST NATIONS (COLLECTIVELY THE "FIRST NATIONS COALITION")

39. The members of the First Nations Coalition collectively share a single grant of standing before the commission. This standing group's substantial and direct interest is in the policies and practices of the DFO with respect to Fraser River sockeye, and the causes of decline for Fraser River sockeye. As noted above (at para. 36), the First Nations Coalition now also includes the Coalition of Douglas Treaty First Nations, as a result of their application to move from another participant group to this one.

40. I have received affidavit evidence from the following members of the First Nations Coalition: Brian Toth, executive director of the Upper Fraser Fisheries Conservation Alliance; Brenda McCorquodale, executive director of the First Nations Fisheries Council; Neil Todd of the Fraser River Aboriginal Fisheries Secretariat; Ernie Crey, director of the Fraser Valley

Aboriginal Fisheries Society; Bonnie Leonard, tribal director of the Shuswap Nation Tribal Council; Terry Teegee, vice-tribal chief of the Carrier Sekani Tribal Council; Yvonne Smith, executive director of the Northern Shuswap Tribal Council; William T. Charlie, chief and CEO of the Chehalis Indian Band; Charlie Andrew, councillor of the Adams Lake Indian Band; and Lisa Edwards, senior financial officer of the Council of Haida Nation. From the Coalition of Douglas Treaty First Nations, I have received affidavit evidence from: Chief Douglas White III Kwulasultun of the Snuneymuxw First Nation; Chief Alan Claxton of the Tsawout First Nation; and Chief Ivan Wayne Morris, of the Tsartlip First Nation.

41. The First Nations Coalition has suggested that it is an exceptional case given the number of joint participants within the coalition, the breadth of issues upon which the coalition has standing, and the geographic diversity of the coalition members. The First Nations Coalition seeks funding for two senior and two junior lawyers, seeks to have one senior and one junior attend all the hearings, and seeks an additional senior lawyer to be present for up to 50 per cent of the hearings to ensure that, if necessary, members of the coalition can seek separate representation if needed.

42. I agree that exceptional circumstances exist for this group, but I am not prepared to recommend funding to the full extent sought. I am of the view that one senior counsel and two junior counsel would be appropriate for this group. At this time, I am prepared to recommend funding for two counsel, no more, to attend for the First Nations Coalition on hearing days. In summary, I recommend that this standing group receive funding for one senior and two junior counsel for the number of hours indicated below, which reflects the extent of its interest as I have determined it.

Activity	Hours for Senior Counsel	Hours for Junior Counsel #1	Hours for Junior Counsel #2
Preparation for hearings	90	235	235
Attendance at hearings	300	150	150
Interviews	45	118	117
Meetings and other occasions arranged or deemed necessary by the Commissioner	25	13	13
Preparation of submissions	45	117	118
Review of materials	120	280	280
Application for standing	40	n/a	n/a
Release of interim report	5	n/a	n/a

Activity	Hours for Senior Counsel	Hours for Junior Counsel #1	Hours for Junior Counsel #2
Release of final report	5	n/a	n/a
TOTAL:	675	913	913

MÉTIS NATION BRITISH COLUMBIA

43. The Métis Nation British Columbia ("MNBC") has standing before the commission based on its substantial and direct interest in the sustainability of the sockeye salmon fishery in the Fraser River, and the policies and practices of DFO, in particular allocation of departmental resources, fisheries management practices and procedures, and enforcement. I received an affidavit from Corazon David, chief financial officer of the MNBC.

44. I recommend that the MNBC receive funding for one senior and one junior counsel for preparation for the number of hours indicated below, which reflects the extent of its interest as I have determined it.

Activity	Hours for Senior Counsel	Hours for Junior Counsel
Preparation for hearings	30	89
Attendance at hearings	64	35
Interviews	15	45
Meetings and other occasions arranged or deemed necessary by the Commissioner	25	25
Preparation of submissions	15	45
Review of materials	39	118
Application for standing	10	n/a
Release of interim report	5	n/a
Release of final report	5	n/a
TOTAL:	208	357

STÓ:LO TRIBAL COUNCIL AND CHEAM INDIAN BAND

45. The Stó:lo Tribal Council ("STC") and Cheam Indian Band (the "Cheam") collectively share a single grant of standing before the commission. This standing group's substantial and direct interest is in environmental changes along the Fraser River, and the policies and

practices of the DFO with respect to Fraser River sockeye. I received affidavits from Grand Chief Clarence Pennier of the STC and from June Quipp, councillor of the Cheam.

46. The STC and the Cheam request funding for two co-counsel, both of whom are junior in years of call, and seek an equal division of labour between their two counsel. I recommend that this funding group receive funding for two junior counsel for the number of hours indicated below, which reflects the extent of its interest as I have determined it.

Activity	Hours for Junior Counsel 1	Hours for Junior Counsel 2
Preparation for hearings	133	134
Attendance at hearings	110	109
Interviews	65	65
Meetings and other occasions arranged or deemed necessary by the Commissioner	25	25
Preparation of submissions	65	65
Review of materials	175	175
Application for standing	10	10
Release of interim report	5	n/a
Release of final report	n/a	5
TOTAL:	588	588

Laich-kwil-tach Treaty Society, Chief Harold Sewid, Aboriginal Aquaculture Association, and Heiltsuk Tribal Council

47. As a result of the Standing Ruling, the Laich-kwil-tach Treaty Society, James Walkus and Chief Harold Sewid, the Aboriginal Aquaculture Association, and the Heiltsuk Tribal Council were to collectively share a single grant of standing before the commission. This standing group's substantial and direct interest is in marine environmental conditions, aquaculture, other factors that may have affected the ability of sockeye salmon to reach traditional spawning grounds or reach the ocean, and the policies and practices of the DFO, in particular allocation of departmental resources, fisheries management practices and procedures, enforcement, counting of stocks, monitoring and forecasting.

48. I am now advised that James Walkus has decided not to exercise his joint participant status and is not pursuing an application for funding.

49. I received affidavits from Nancy Henderson, the Laich-Kwil-Tach Treaty Society's administrator; Chief Richard Harry, president and executive director of the Aboriginal Aquaculture Association ("AAA"); and Chief Harold Sewid. I also received an affidavit from Chief Councillor Marilyn Slett, of the Heiltsuk Tribal Council.

50. The Heiltsuk Tribal Council applied to vary my Standing Ruling, and in a separate ruling, I agreed that the Heiltsuk Tribal Council could participate by way of separate counsel specifically for hearings pertaining to aquaculture, but that otherwise they remained part of the same standing group. I have allocated the hours as amongst the various members of this standing group on this basis. As other members of this standing group likewise sought to participate on the issue of aquaculture, their hours reflect this proposed involvement for them as well.

51. I recommend that this funding group receive funding for one senior and one junior counsel for the number of hours indicated below, which reflects the extent of its interest as I have determined it. As described above, I recommend funding for one lawyer to act for the Heiltsuk Tribal Council separately, on the topic of aquaculture.

Activity	Hours for Senior Counsel	Hours for Junior Counsel	Hours for Heiltsuk Tribal Council's separate representation on aquaculture
Preparation for hearings	65	195	36
Attendance at hearings	140	76	30
Interviews	32	97	18
Meetings and other occasions arranged or deemed necessary by the Commissioner	25	25	25
Preparation of submissions	32	97	18
Review of materials	87	259	48
Application for standing	30	n/a	10
Release of interim report	5	n/a	5
Release of final report	5	n/a	5
TOTAL:	421	749	195

MUSGAGMAGW TSAWATAINEUK TRIBAL COUNCIL

52. The Musgagmagw Tsawataineuk Tribal Council ("MTTC") has standing before the commission based on its substantial and direct interest in aquaculture, and the policies and practices of DFO, in particular fisheries management practices and procedures, and enforcement. I received an affidavit from Carole Perrault, the general manager of the MTTC.

53. I recommend that the MTTC receive funding for one senior and one junior counsel for preparation for the number of hours indicated below, which reflects the extent of its interest as I have determined it.

Activity	Hours for Senior Counsel	Hours for Junior Counsel
Preparation for hearings	20	59
Attendance at hearings	43	23
Interviews	10	30
Meetings and other occasions arranged or deemed necessary by the Commissioner	25	25
Preparation of submissions	10	30
Review of materials	26	79
Application for standing	10	n/a
Release of interim report	5	n/a
Release of final report	5	n/a
TOTAL:	154	246

IV. APPLICANT NOT RECEIVING A FUNDING RECOMMENDATION

SEAFOOD PRODUCERS ASSOCIATION OF B.C.

54. The Seafood Producers Association of B.C. ("SPABC") has standing before the commission based on its substantial and direct interest in the policies and practices of the DFO, including fisheries policies and programs and fisheries management practices and procedures related to monitoring and enforcement.

55. Christopher Sporer, a self-employed consultant providing services to sectors in the commercial fishing industry in B.C., has, through his company, been retained by the SPABC. Mr. Sporer provided affidavits and testified orally before me. Given the confidentiality attaching

to the information provided to me, I have not described his evidence or my analysis of it in this document.

56. I am not prepared to recommend that the SPABC receive funding for legal counsel. I will communicate directly with the SPABC to provide my reasons for this decision.

9 June 2010

_____
The Honourable Bruce I. Cohen
Commissioner

[Original signed by Commissioner 9 June 2010]

Appendix 10

Commission of Inquiry into the Decline of Sockeye Salmon
in the Fraser River

RULES FOR PROCEDURE AND PRACTICE

(As amended)
September 9, 2010

A. GENERAL

1. These Rules for Procedure and Practice apply to the Commission of Inquiry into the Decline of Sockeye Salmon in the Fraser River (the "commission" or "inquiry").

2. The commission will be conducted in accordance with Part I of the *Inquiries Act*, R.S.C. 1985, c. I-11 (the "Act") and pursuant to Order in Council PC 2009-1860 (the "Terms of Reference").

3. Subject to the Act and the Terms of Reference, the conduct of and procedure to be followed at the inquiry are under the control and discretion of the Honourable Bruce I. Cohen (the "Commissioner").

4. The Commissioner may amend or supplement these Rules or dispense with their compliance as he deems necessary to ensure that the inquiry is thorough, fair and timely.

5. In these Rules, "person" includes an individual, group, government, agency, institution or other entity. Persons with a grant of standing are referred to as "participants". Participants who share a single grant of standing are also referred to as "joint participants", and they together comprise a "standing group."

6. The Commissioner will determine on what terms and in which parts of the inquiry a participant may participate, and the nature and extent of such participation. The Commissioner retains the discretion to vary a participant's participation or rescind standing. The issue of standing and the Commissioner's recommendations for funding assistance for participants are governed by the commission's Rules for Standing and Funding, a separate document which supplements these Rules.

7. All participants, witnesses and their counsel shall agree to adhere to these Rules, and may raise any issue of non-compliance with the commission.

8. The Commissioner may deal with any non-compliance with these Rules as he deems appropriate, including by rescinding standing of a participant, imposing restrictions on a participant, or excluding any person from

participation in or attendance at commission hearings and public consultations.

9. Commission counsel have the primary responsibility for representing the public interest, including the responsibility to ensure that all matters that bear upon the public interest are brought to the Commissioner's attention.

10. Commission counsel will communicate with participants primarily by email. Notice or service by email shall be considered adequate notice or service. All participants must identify to commission counsel the email address they wish to use for this purpose. Joint participants must identify a single counsel or law firm as the contact for their standing group, and provide a single email address for delivery.

B. DOCUMENT PRODUCTION

11. In these Rules, the term "documents" is intended to have a broad meaning, and includes the following forms: written, electronic, audiotape, videotape, digital reproductions, photographs, maps, graphs, spreadsheets, microfiche and any data and information recorded or stored by means of any device.

12. As soon as possible after being granted standing, but subject to Rule 14, a participant shall do the following:

(a) identify to the commission documents in its possession or under its control relevant to the subject matter of the inquiry; and

(b) if requested to do so, provide copies of any such documents to the commission. Wherever possible, documents shall be provided electronically.

13. Wherever possible, commission counsel will seek to reach an agreement with a participant concerning which documents need to be produced to the commission.

14. Unless a different procedure is set out in the *Canada Evidence Act*, R.S.C. 1985, c. C-5, where the Commissioner requires the production of documents under Rule 12 and the participant to whom the requirement is directed objects to the production of any document(s) on any ground of privilege,

(a) The participant shall specify the privilege claimed and the basis for the claim;

(b) The participant and commission counsel shall attempt to resolve the issue of privilege informally;

(c) If the participant maintains his or her claim of privilege, and the matter cannot be resolved informally, the participant may apply, in compliance with Part H of these Rules, to the Commissioner for a ruling;

(d) The Commissioner may, if necessary, inspect the document(s) and may rule on the claim, or refer the matter to the Federal Court for determination under section 18.3 of the *Federal Courts Act*, R.S.C. 1985, c. F-7; and

(e) If the claim of privilege is dismissed, the document(s) shall be produced to commission counsel.

15. Upon the request of commission counsel, a participant shall provide the commission a true copy or the original of any document disclosed under Rule 12.

16. Subject to Rule 17, the commission shall treat all documents it receives as confidential, unless and until they are made part of the public record, or until the Commissioner otherwise determines. This does not preclude commission counsel from showing a document to a potential witness, in respect of an interview pursuant to Rule 21.

17. Commission counsel will provide documents and information to counsel for both participants and witnesses upon their executing a written undertaking that the documents and information will be kept confidential and used only for the purposes of the inquiry, unless and until the documents or information are or become part of the public record. Counsel may provide such documents and information to their clients only upon the clients executing a written undertaking to the same effect. The commission may require that documents provided and all copies thereof be returned to it, or confidentially destroyed.

Participant Requests for Documents

18. Where a participant believes that documents in the possession of another participant are necessary and relevant to the inquiry, a participant may ask commission counsel to request specific documents from another participant. Commission counsel may accede to or decline such a request.

19. Where the participant has asked commission counsel to request documents from another participant and commission counsel has declined to do so, the participant may apply, in compliance with Part H of these Rules, to the Commissioner for an order that the other participant produce the documents in issue.

20. A participant ordered to produce documents under Rule 19 shall provide those documents to the commission. The commission will then produce those documents to all participants.

C. INTERVIEWS

21. Commission counsel may interview any person who has information or documents that have any bearing upon the subject matter of the inquiry. Commission counsel may interview the same person more than once. Persons who are interviewed are entitled, but not required, to have legal counsel present. Participation in interviews is voluntary.

22. Commission counsel may prepare a formal summary of a witness's expected testimony based on an interview (a "Summary"). If commission counsel determines that an interviewee will be called as a witness, before that witness testifies, commission counsel will provide a copy of any Summary relating to that witness to the witness and to participants having an interest in the subject matter of the witness's evidence.

D. POLICY AND PRACTICE REVIEW

23. Commission counsel may review previous examinations, investigations and reports related to the decline of sockeye salmon in the Fraser River, and the Government's responses to previous recommendations.

24. The goal of any review will be to identify the policies and practices of the Department of Fisheries and Oceans (the "Department") with respect to the sockeye salmon fishery in the Fraser River – including the Department's scientific advice, its fisheries policies and programs, its risk management strategies, its allocation of Departmental resources and its fisheries management practices and procedures, including monitoring, counting stocks, forecasting and enforcement.

25. The review may consist of document review and interviews by commission counsel. Commission counsel may prepare reports setting out the information derived from the review and the source(s) of that information ("Policy and Practice Reports").

26. In advance of the Policy and Practice Reports becoming exhibits before the Commissioner, the commission may provide an opportunity to participants to comment on the Policy and Practice Reports. Participants may also propose witnesses for commission counsel to call during the hearings, to support, challenge, or comment upon the Policy and Practice Reports.

27. The Policy and Practice Reports will not necessarily represent the views of the Commissioner but are intended to inform the Commissioner's deliberations. The Policy and Practice Reports will be posted on the commission's website. The Commissioner may consider the Policy and Practice Reports to make findings of fact and recommendations.

E. SCIENTIFIC REVIEW

28. The commission may engage experts to conduct scientific and other expert reviews into the decline of Fraser River sockeye salmon. These reviews may include the impact of environmental changes along the Fraser River, marine environmental conditions, aquaculture, predators, diseases, water temperature and other factors that may have affected the ability of sockeye salmon to reach traditional spawning grounds or reach the ocean, the current state of Fraser River sockeye salmon stocks, and the long term projections for those stocks.

29. The experts may prepare reports setting out their opinions ("Scientific Reports"). Where possible, the experts will seek to resolve any inconsistencies prior to finalizing the Scientific Reports.

30. In advance of the Scientific Reports becoming exhibits before the Commissioner, the commission may provide an opportunity to participants to comment on the Scientific Reports. Participants may also propose witnesses for commission counsel to call during the hearings to support, challenge, or comment upon the Scientific Reports.

31. The Scientific Reports will not necessarily represent the views of the Commissioner but are intended to inform the Commissioner's deliberations. The Scientific Reports will be posted on the commission's website. The Commissioner may consider the Scientific Reports to make findings of fact and recommendations.

F. PUBLIC INVOLVEMENT

32. Any member of the public and any participant may make a submission, in writing, to the commission dealing with any matter related to the commission's mandate.

33. The Commissioner may set deadlines by which submissions must be received, and may set requirements for the format of such submissions.

34. The Commissioner may convene public forums relating to the subject matter of the inquiry. The format of any public forums will be tailored to the topics discussed, and may vary.

35. The Commissioner will determine whether, and on what terms, persons who have made a written submission and other members of the public may participate in any public forums that are convened.

36. Any public forums held may be recorded at the discretion of commission counsel.

37. The commission may post submissions received and recordings made through the public involvement process on the commission's website (the "Public Submissions"). The Public Submissions will not necessarily represent the views of the Commissioner.

38. The commission may provide an opportunity for participants to comment on the Public Submissions. The Commissioner may consider the Public Submissions to make findings of fact and recommendations.

G. HEARINGS

39. The Commissioner will conduct hearings as set out in these Rules.

40. The Commissioner will set dates, hours and places for the hearings, and will publish this information on the commission's website.

41. The Commissioner may receive any evidence that he considers helpful in fulfilling the mandate of the commission whether or not such evidence would be admissible in a court of law.

42. Once final, any Policy and Practice Reports and any Scientific Reports are exhibits before the Commissioner, without the necessity of being introduced into evidence through a witness.

43. The Commissioner may consider findings, as he considers appropriate, of other examinations or investigations that may have been conducted into any of the questions set out in paragraph (a) of the Terms of Reference, and to give them the weight he considers appropriate, including accepting them as conclusive.

Public and Media Access to Hearings

44. Commission hearings are open to the public unless the Commissioner makes an order prohibiting a person, class of persons or the public from attending a hearing if the Commissioner is satisfied that such an order is appropriate.

45. The Commissioner may order that testimony and/or submissions not be published.

Video and Audio Recordings

46. The Commissioner may impose restrictions on the video and audio recording of the hearings by the public or media and may, on application, order that there be no video or audio recording of some or all of a witness's testimony or of the proceedings.

7

Witnesses

47. Commission counsel may call witnesses to give evidence on any matter relevant to the Terms of Reference, or to support, challenge, or comment upon the Policy and Practice Reports and the Scientific Reports.

48. In the normal course, a witness will give evidence at a hearing under oath or upon affirmation. However, in special circumstances and on application by a witness, the Commissioner may admit evidence not given under oath or affirmation.

49. Commission counsel may issue and serve a subpoena or summons upon a witness.

50. A witness may be called more than once.

51. A witness is entitled to have his or her own counsel appear before the Commissioner while the witness testifies.

52. Participants may propose witnesses to be called as part of the inquiry. Participants will provide commission counsel, in a timely way, the names, addresses, telephone numbers and email addresses if known, of all witnesses they believe the Commissioner ought to hear. If possible, participants will provide statements of the anticipated evidence of the proposed witnesses and copies of the documents relevant to the witness's testimony, including those to which they would refer.

53. Commission counsel may decline to call a witness proposed by a participant. If the participant believes that the witness's evidence is necessary, the participant may apply, in compliance with Part H of these Rules, to the Commissioner for an order that commission counsel call that witness.

Oral Examination

54. In the normal course, commission counsel will call and lead the witnesses who testify before the commission. Unless the Commissioner determines otherwise, commission counsel are entitled to adduce evidence through leading questions.

55. Counsel for a participant or witness may apply, in compliance with Part H of these Rules, to the Commissioner to lead a particular witness's evidence. If counsel is granted the right to do so, examination shall be confined to the normal rules governing the examination of one's own witness in court proceedings, unless otherwise directed by the Commissioner.

56. The Commissioner will determine the order and extent of cross-examination by each participant, and may direct counsel for a participant having common interests with the witness to adduce evidence through non-leading questions.

57. Unless the Commissioner orders otherwise, the order of examinations of a witness will be as follows:

(a) Commission counsel will lead the witness in direct examination;

(b) Counsel for the witness will examine the witness;

(c) Counsel for participants will cross-examine the witness;

(d) Counsel for the witness will re-examine the witness; and

(e) Commission counsel will re-examine the witness.

58. If counsel for a witness applies for and is granted the right to lead a witness in direct examination, commission counsel will examine the witness immediately following direct examination. The order of re-examination remains as set out in Rule 57.

59. Counsel who calls a witness, whether commission counsel or otherwise, will provide reasonable notice in writing to the commission and participants with an interest, of the subject matter of the proposed evidence of the witness.

60. A document may not be put to a witness unless it has previously been provided to commission counsel.

61. Before using a document for purposes of cross-examination, counsel shall provide reasonable notice to the witness and to all participants having an interest in the subject matter of the proposed evidence.

62. For the purpose of these Rules, the Commissioner has discretion to determine, as to both timeliness and content, what constitutes reasonable notice, and whether the introduction of subject matter or a document to a witness should be denied, allowed, or allowed on terms that he considers fair.

Panels of Witnesses

63. The Commissioner may permit a witness to give evidence as a member of a panel of witnesses and may modify these Rules to accommodate the introduction of documents and oral examination where witnesses are testifying as part of a panel.

H. APPLICATIONS

64. Rules 65 to 72 do not apply to applications for standing or to applications for funding recommendations. Applications for standing or funding are governed by the Rules for Standing and Funding.

65. A participant may apply to the Commissioner for an order or direction by delivering an application, together with all supporting materials required to allow for a full consideration of the application, including any necessary affidavits, to the commission.

66. All applications and responses to applications shall be delivered to the commission by email addressed to applications@cohencommission.ca and shall be provided in Microsoft Word or .pdf format. The subject line of the email delivering an application must read, "Application Re: [*insert the subject of application*]."

67. The commission shall promptly, by email, deliver to each participant who has provided the commission with an email address for delivery all materials received by the commission, or generated by commission counsel, pursuant to Rules 65, 69, 70, and 71.

68. Participants are entitled to respond to a Rule 65 application where their grant of standing identifies them as having an interest in the subject matter of an application.

69. Unless otherwise directed by the Commissioner, responses to a Rule 65 application shall be delivered to the commission no later than 3 business days following delivery of the application to participants by the commission.

70. Unless otherwise directed by the Commissioner, the applicant shall deliver any reply submissions to the commission no later than 3 business days following delivery of any responses to the commission.

71. Commission counsel may provide the Commissioner with any submissions or materials commission counsel deem relevant and necessary to the proper resolution of the application.

72. The Commissioner may make an order or direction based on the written material filed or, at his discretion, after hearing oral argument.

Appendix 11

The Commission of Inquiry into the Decline of Sockeye Salmon in the Fraser River

Ruling on Interpretation of Terms of Reference

The Application:

1. By letter dated June 17, 2010, the participants, the Public Service Alliance of Canada and the Union of Environment Workers ("PSAC/UEW") asked me to interpret the commission's Terms of Reference. Specifically, the letter requests confirmation that the wording directing me to conduct this inquiry "without seeking to find fault on the part of any individual, community or organization" prohibits me from making a finding of misconduct as the term 'misconduct' is defined in *Canada (Attorney General) v. Canada (Commission of Inquiry on the Blood System),* [1997] 3 S.C.R. 440 ("*Krever*"). In *Krever* at paragraph 40, Cory J. adopted from the Concise Oxford Dictionary (8th ed. 1990) the definition of misconduct as "'improper or unprofessional behaviour' or 'bad management'."

2. PSAC/UEW requested, and I agreed, to treat their letter as an application. On June 23, 2010, commission counsel distributed a copy of the letter to all of the other participants and asked those who supported the applicants' position to provide written submissions by July 7; those who had a different position were to provide written submissions by July 21; and any reply submissions were to be filed by July 23.

3. Commission counsel also asked the participants to address in their submissions whether it is appropriate for me to make a ruling on this issue at this stage of the process, and I considered those submissions. The issue raised by this application relates to an important aspect of my jurisdiction and my ruling may provide participants with some guidance in the conduct of the evidentiary hearings. I am satisfied that it is appropriate for me to rule on the application at this stage of the commission's process.

Appointment

4. On November 5, 2009, the Governor in Council issued an Order in Council setting out the Terms of Reference for the Commission of Inquiry into the Decline of Sockeye Salmon in the Fraser River. I was appointed Commissioner under Part 1 of the *Inquiries Act*, R.S.C. 1985, c. I-11 (the "*Act*").

5. The press release of November 6, 2009 announcing my appointment as commissioner contains the following paragraph: "Justice Cohen has been appointed as Commissioner under Part 1 of the *Inquiries Act*, with all the powers set out in the *Act*, including the authority to hold hearings, summon witnesses and gather evidence needed to conduct the inquiry."

Terms of Reference:

6. The preamble to the Terms of Reference contains three paragraphs:

> Whereas the decline in sockeye salmon stocks in the Fraser River in British Columbia has necessitated the closure of the fishery for a third consecutive year, despite favourable pre-season estimates of the number of sockeye salmon expected to return to the Fraser River;
>
> Whereas that decline has been attributed to the interplay of a wide range of factors, including environmental changes along the Fraser River, marine environmental conditions and fisheries management;
>
> Whereas the Government of Canada wishes to take all feasible steps to identify the reasons for the decline and the long term prospects for Fraser River sockeye salmon stocks and to determine whether changes need to be made to fisheries management policies, practices and procedures – including establishing a commission of inquiry to investigate the matter;

7. The Terms of Reference,

a...

i. direct the Commissioner

A. to conduct the Inquiry without seeking to find fault on the part of any individual, community or organization, and with

the overall aim of respecting conservation of the sockeye salmon stock and encouraging broad cooperation among stakeholders, [emphasis added]

B. to consider the policies and practices of the Department of Fisheries and Oceans (the "Department") with respect to the sockeye salmon fishery in the Fraser River – including the Department's scientific advice, its fisheries policies and programs, its risk management strategies, its allocation of Departmental resources and its fisheries management practices and procedures, including monitoring, counting of stocks, forecasting and enforcement,

C. to investigate and make independent findings of fact regarding

I. the causes for the decline of Fraser River sockeye salmon including, but not limited to, the impact of environmental changes along the Fraser River, marine environmental conditions, aquaculture, predators, diseases, water temperature and other factors that may have affected the ability of sockeye salmon to reach traditional spawning grounds or reach the ocean, and

II. the current state of Fraser River sockeye salmon stocks and the long term projections for those stocks, and

D. to develop recommendations for improving the future sustainability of the sockeye salmon fishery in the Fraser River including, as required, any changes to the policies, practices and procedures of the Department in relation to the management of the Fraser River sockeye salmon fishery.

The emphasized language from paragraph a.i.A appears to be unique to this commission.

Submissions in support of the application:

8. The Province of British Columbia (the "Province") agreed with the position taken by PSAC/UEW. It submits paragraph a.i.A constitutes "sufficient intent to demonstrate"

that I am required to proceed on the basis I will not make findings of misconduct on the part of any person, community or organization, as "misconduct" is used in *Krever*. While the Province acknowledges that, "generally, an inquiry established under the *Inquiries Act* allows the Commissioner to make findings of misconduct", it is the Province's position that:

> The intent of these provisions, especially (a)(i)(A) by referring to "without seeking to find fault on the part of any individual, community or organization" and the additional wording "and encouraging broad cooperation among the stakeholders" is a clear direction that the Commission should not find fault/misconduct on the part of any individual, community or organization. …. These words indicate an intention that the Commission is to function as a collaborative process, rather than an adversarial one.

9. The Province supports its submission that I am not to make findings of fault or misconduct by asserting that I have been given the express power to investigate and make findings of fact in paragraph a.i.C of the Terms of Reference "only with respect to scientific issues of 'causes' and 'current' state and projections."

Submissions opposing the application:

10. Of the remaining participants, the following filed submissions which took a position different from that of the applicants and the Province: the Government of Canada ("Canada"); the West Coast Trollers Area G Association and United Fishermen and Allied Workers' Union ("Area G Association" and "UFAWU"); the Conservation Coalition; the Sto:lo Tribal Council and Cheam Indian Band ("STC" and "Cheam"); the Aquaculture Coalition; and the First Nations Coalition.

11. Each of these participants submitted that the wording in paragraph a.i.A does not constrain my ability to make findings of misconduct under the *Act*.

12. Canada approaches the interpretation of paragraph a.i.A by considering the nature of this commission, as reflected in the Terms of Reference. Canada submits the words in English, "without seeking to find fault on the part of any individual, community or organization" and in French "en se gardant de jeter le blâme sur quelque individu,

communauté ou organisation" are there to provide guidance to me that the inquiry should focus on the substantive issues without casting blame.

13. Canada asserts that a "spectrum exists between public inquiries that might be referred to as 'study inquiries' and public inquiries that are focused on investigating potential misconduct". According to Canada, this commission falls "somewhere in the middle of this spectrum" which is demonstrated by the following:

- paragraph a.i.C which directs me to investigate and make independent findings of fact, "which confirms that there is indeed a fact-finding aspect to the Commission";
- paragraphs a.i.B and a.i.D. which provide that "the Commission is to 'consider policies and practices' and to 'make recommendations' clearly signal that the Commission is also a 'study inquiry'"; and
- the fact that this commission is not established under Part II of the *Act*, "which in light of para. 36 of *Krever* suggests that the conduct of individuals is not the predominant purpose of the Commission".

14. Canada submits:

> 14. Perhaps most importantly, the Terms of Reference that direct the commissioner to conduct the commission "without seeking to find fault" on the part of any individual, community or organization do not oust the ability of the Commissioner to make [findings of misconduct]. Indeed, this provision does not by its own terms purport to do so. Rather, it provides the Commissioner with guidance as to the nature of the inquiry, namely, that it is a "study inquiry" as much as it is a fact finding inquiry, such that findings of misconduct should not be the predominant purpose of the Commission.
>
> 15. Accordingly, depending on the findings of fact that arise throughout the course of the inquiry, it is possible that the Commissioner will determine that a finding of misconduct is warranted. Canada submits that, if such a situation arises, the Commissioner is not prohibited from making a finding of misconduct, provided that procedural safeguards, including those required under section 13 of the *Inquiries Act*, are met.

15. The Aquaculture Coalition referred me to the dictionary definition of "seek" in its submissions:

> 6. The dictionary definition of "to seek" is to: "try to find, look for …; make a search or inquiry for, attempt to discover …" On a plain reading, pursuant to [*Krever*], Term a.i.A directs the Commission to refrain from focusing or aiming the inquiry toward finding fault but does not restrict the Commission from making findings of fault or misconduct, as they arise and are necessary to fulfill the larger purposes of the Inquiry.

16. The submission of Area G Association and UFAWU referred me to paragraph 38 of *Krever*, in which the Supreme Court of Canada, discussing the *Act*, provides some guidance:

> Section 13 of the Act makes it clear that commissioners have the power to make findings of misconduct. In order to do so, commissioners must also have the necessary authority to set out the facts upon which the findings of misconduct are based, even if those facts reflect adversely on some parties. If this were not so, the inquiry process would be essentially pointless. Inquiries would produce reports composed solely of recommendations for change, but there could be no factual findings to demonstrate why the changes were necessary. If an inquiry is to be useful in its roles of investigation, education and the making of recommendations, it must make findings of fact. It is these findings which will eventually lead to the recommendations which will seek to prevent the recurrence of future tragedies.

Reply Submission of PSAC/UEW:

17. In their reply submission, the applicants reasserted their position that the only reasonable interpretation and application of the Terms of Reference is one that prevents me from making findings of misconduct. PSAC/UEW responded to the submissions that the words "seeking to find fault" do not prevent "making findings of fault", arguing that this would allow me "to do by the backdoor what [I] cannot do through the front door." In the submission of PSAC/UEW, the application of the principles from *Krever* is limited where the commission's Terms of Reference, as here, contain a direction "to conduct the inquiry without seeking to find fault":

> Certainly section 13 enshrines the right of a person to natural justice before a commission which has the jurisdiction to make findings of misconduct.

> That is, it provides that a commission with the authority to find misconduct cannot do so without providing notice and full opportunity to be heard. However, that provision cannot be read to empower each and every commission with the jurisdiction to make findings of misconduct. One must always return to the terms of reference of a commission to see if the Governor in Council bestowed upon the commission that authority.
>
> The Terms of Reference necessarily can and do limit the scope of the Commission as to what it may or may not do.
>
> Certainly one could read … [*Krever*] to stand for the proposition that, but for an express provision in the terms of reference, a commission appointed pursuant to the *Inquiries Act* has the authority to make findings of misconduct. But, [*Krever*] cannot be read so broadly as stating that regardless of the terms of reference a commission always has the jurisdiction to make findings of misconduct. As stated above, the Krever Commission's terms of reference did not expressly restrict that commission from seeking to find fault by any person.
>
> The Terms of Reference of this Commission are best understood as the Governor in Council's direct response to [*Krever*]: that it has decided not to empower the Commission to make findings of fault, including misconduct, against any person unlike the Krever Commission which had such power.

Analysis

18. This application calls upon me to interpret the Terms of Reference and, specifically, the wording of paragraph a.i.A.

19. In carrying out my task of interpreting the wording of paragraph a.i.A I am guided by the text, The Law of Public Inquiries in Canada, (Toronto: Carswell, 2010) where the author, Simon Ruel, describes the interpretation of terms of reference of commissions of inquiry at p. 19, as follows:

> Commissions of inquiry must act within the confines of the legal authorities creating them. They are captive of their terms of reference. …
>
> Some rules of interpretation of the terms of reference of commissions of inquiry may be drawn from the case of *Bisaillon c. Keable*: [citation omitted] (1) the preamble of the order in council may be used to circumscribe the scope of an inquiry; (2) the terms of reference should be considered as a whole and portions of the mandate of an inquiry should not be read in isolation; and (3) the terms of reference should be given the benefit of a

reasonable interpretation.

20. Thus, my approach to interpreting paragraph a.i.A is that the Terms of Reference should be read as a whole, and that they should be given a reasonable, and internally consistent, interpretation.

21. There are certain key words contained in the Terms of Reference which I think inform my interpretation of paragraph a.i.A:

a. the preamble to the commission's Terms of Reference provides, *inter alia*, that the decline in sockeye salmon stocks in the Fraser River has been attributed to the interplay of a wide range of factors, including environmental changes along the Fraser River, marine environmental conditions and fisheries management; and that the Government of Canada wishes to take all feasible steps to identify the reasons for the decline and to determine whether changes need to be made to fisheries management policies, practices and procedures;

b. paragraph a.i.A, in addition to directing me to conduct the inquiry without seeking to find fault, also directs me to conduct the inquiry with the overall aim of encouraging broad cooperation among stakeholders;

c. paragraph a.i.B directs me to consider the policies and practices of the Department of Fisheries and Oceans with respect to the sockeye salmon fishery in the Fraser River;

d. paragraph a.i.C directs me to investigate and make independent findings of fact regarding the causes for the decline of Fraser sockeye salmon including a wide range of factors and to make findings of fact regarding the current state of the fishery and its long term projections;

e. paragraph a.i.D directs me to develop recommendations for improving future sustainability of the sockeye salmon fishery in the Fraser River, including any changes to policies, practices and procedures of the DFO in relation to management of the fishery.

22. The position of the applicants is essentially that the authorization to carry out my directions under the above-mentioned paragraphs of the Terms of Reference does not include me being able to find fault, meaning misconduct as that term is defined in *Krever*, on the part of any individual, community or organization.

23. With respect, I disagree with the interpretation of paragraph a.i.A submitted by the applicants. That paragraph does not state "without finding fault on the part of any individual, community or organization," which the Government of Canada could easily have provided. In my opinion, the words "without seeking to find fault" are not tantamount to stating "without finding fault", particularly when read in the context of the Terms of Reference as a whole.

24. In my opinion, the words in paragraph a.i.A provide me with a clear direction that this inquiry is not to focus on assigning fault to any individual, community or organization, but rather to encourage cooperation among the stakeholders with the overall aim of the inquiry to respect conservation of the Fraser River sockeye salmon fishery. The Terms of Reference when considered as a whole reflect that the Government of Canada recognizes the importance of Fraser River sockeye salmon to the stakeholders in the fishery, and the historical tensions between those with different interests in and perspectives toward the fishery, and the impact on all of the stakeholders arising from the declines in the fishery. An inquiry into the fishery focused on finger-pointing would obviously be counterproductive to achieving the aim of the inquiry.

25. However, in my opinion, the background to my appointment, together with the language used both in the preamble to and the provisions of the Terms of Reference when considered as a whole, also reflect that to the extent the evidence leads me to a conclusion that any individual, community or organization has engaged in conduct which, directly or indirectly, is a factor causing or contributing to the decline of Fraser River sockeye salmon; or that the conduct of any individual, community or organization forms a basis for making recommendations to change policies, practices and procedures in relation to the management of the fishery, then I am authorized to make findings or recommendations based upon that conduct.

26. Moreover, to the extent that any of my findings or recommendations flowing from the Terms of Reference may imply misconduct on the part of any individual, community

or organization, then I am satisfied that if I am considering making such a finding or recommendation I am required to comply with s. 13 of the *Act* which provides:

> No report shall be made against any person until reasonable notice has been given to the person of the charge of misconduct alleged against him and the person has been allowed full opportunity to be heard in person or by counsel.

27. Therefore, if in carrying out my mandate I conclude that I may make findings or recommendations which may reflect adversely on any individual, community or organization, then the procedural safeguards provided for in s. 13 will become engaged.

28. Finally, this ruling should not be read as inviting questioning during the evidentiary hearings the sole aim of which is to expose misconduct on the part of any individual, community or organization. On the contrary, I expect participants and their counsel, through their lines of inquiry, to cooperatively strive to assist me in fulfilling my directions under the Terms of Reference. I also expect counsel for the commission and participants to be vigilant in conducting their lines of inquiry to respect the overarching objective of the inquiry which is to identify the causes for the decline of the fishery and to develop recommendations for improving its future sustainability.

Signed 15 September 2010

The Honourable Bruce I. Cohen
Commissioner

[Original signed by Commissioner 15 September 2010]

Appendix 12

COHEN COMMISSION OF INQUIRY

INTO THE DECLINE OF SOCKEYE SALMON IN THE FRASER RIVER

- DISCUSSION PAPER -

ISSUES THAT THE COMMISSION INTENDS TO INVESTIGATE

June 3, 2010

TABLE OF CONTENTS

A. ESTABLISHMENT OF THE COMMISSION

In November 2009 the Governor General in Council issued an Order in Council establishing this Commission of Inquiry (the "commission"), and appointing BC Supreme Court Justice Bruce Cohen as sole Commissioner (the "Commissioner"), under Part 1 of the *Inquiries Act*[1], to inquire into the decline of sockeye salmon in the Fraser River.

The same Order in Council set the commission's Terms of Reference[2] that, in brief, direct the Commissioner:

A. To conduct the Inquiry without seeking to find fault on the part of any individual, community or organization, and with the overall aim of respecting conservation of the sockeye salmon stock and encouraging broad cooperation among stakeholders;

B. To consider the policies and practices of the Department of Fisheries and Oceans (the "Department")[3] with respect to the sockeye salmon fishery in the Fraser River – including the Department's scientific advice, its fisheries policies and programs, its risk management strategies, its allocation of Departmental resources and its fisheries management practices and procedures, including monitoring, counting of stocks, forecasting and enforcement;

C. To investigate and make independent findings of fact regarding:
   i. the causes for the decline of Fraser River sockeye salmon including, but not limited to, the impact of environmental changes along the Fraser River, marine environmental conditions, aquaculture, predators, diseases, water temperature and other factors that may have affected the ability of sockeye salmon to reach traditional spawning grounds or reach the ocean, and
   ii. the current state of Fraser River sockeye salmon stocks and the long term projections for those stocks; and

D. To develop recommendations for improving the future sustainability of the sockeye salmon fishery in the Fraser River including, as required, any changes to the policies, practices and procedures of the Department in relation to the management of the Fraser River sockeye salmon fishery. . . .

1 R.S. 1985, c. I-11.
2 The complete Terms of Reference are included as Appendix 1.
3 In this Discussion Paper, the acronym "DFO" will be used to denote the Department of Fisheries and Oceans.

The Terms of Reference also authorize the Commissioner to grant, to any person who satisfies him that they have a substantial and direct interest in the subject matter of the Commission, an opportunity for appropriate participation in it.

Formal involvement in the commission's public hearings is restricted to participants. Participants are entitled to be self-represented or represented by counsel at the public hearings; to propose witnesses to be called by Commission counsel; to review documents disclosed by DFO and other participants; and to make oral and written submissions. They may also be involved in evidentiary hearings by examining or cross-examining witnesses. Participants are expected to identify to the commission documents in their possession relevant to the subject matter of the commission and, if requested to do so, provide copies to the commission.

The commission received 50 applications for standing. In a written Ruling dated April 14, 2010,[4] the Commissioner made 20 single grants of standing for participation in the commission, and set out his reasons for doing so. Many of these grants of standing are shared among applicants who originally applied for standing individually. The complete list of participants granted standing is set out in Appendix 2.

The Commissioner has made recommendations to the Clerk of the Privy Council that funding be provided, in accordance with terms and conditions approved by the Treasury Board, to ensure the appropriate participation of some of those granted standing at the commission. At the time of writing, the Clerk of the Privy Council had not announced funding decisions.

B. THE DECLINE OF FRASER RIVER SOCKEYE SALMON

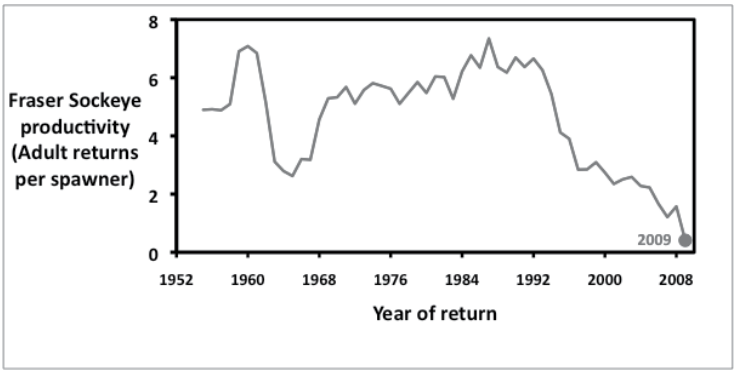
According to the preamble to the Terms of Reference, "the decline in sockeye salmon stocks in the Fraser River in British Columbia has necessitated the closure of the fishery for a third consecutive year, despite favourable pre-season estimates of the number of sockeye salmon expected to return to the Fraser River". This decline "has been attributed to the interplay of a

[4] Available at http://www.cohenCommission.ca/en/pdf/StandingRuling.pdf. See also two Rulings on Applications to Vary Standing, dated May 10 and 11, 2010.

wide range of factors, including environmental changes along the Fraser River, marine environmental conditions and fisheries management".

Declines in sockeye salmon can be expressed in terms of abundance, productivity and diversity. A recent Think Tank of Scientists from Simon Fraser University and the Pacific Fisheries Resource Conservation Council described this decline by comparing the number of adult recruits to the number of spawning adults four years previously. Graph 1, taken from the Think Tank's report, shows this measure of productivity (adult returns per spawner) between the 1950s and 2009.[5] If the number of progeny is less than the parental numbers, this suggests that the stock is in decline. Since the early 1990s, there has been a steady and profound decline, and now the ratio of returning progeny per spawner is well below the replacement level.

Graph 1: Fraser River sockeye salmon adult returns per spawner, 1950s-2009



[5] See "Adapting to Change: Managing Fraser sockeye in the face of declining productivity and increasing uncertainty," Think Tank of Scientists from Simon Fraser University and the Pacific Fisheries Resource Conservation Council, December 9, 2009 – http://www.fish.bc.ca/scientific-think-tank-analyzes-declining-fraser-river-sockeye-returns

C. THE COMMISSION'S PROCESSES

In carrying out its mandate, the commission plans to engage in a variety of activities, including the following:

1. Opening hearings

Beginning on June 15, 2010, the commission plans to hold several days of hearings at the Federal Court, 801 – 701 West Georgia Street, Vancouver, B.C. These hearings will provide participants with an opportunity to make submissions on the issues on which the commission should focus, such as:

- Whether there are issues, other than those in this discussion paper, that the commission ought to investigate, and
- The relative priority of the issues that the commission ought to investigate.

2. Interim report

The Commissioner is directed to submit an interim report, simultaneously in both official languages, to the Governor General in Council on or before August 1, 2010, setting out his preliminary views on, and assessment of, any previous examinations, investigations or reports that he considers relevant to the commission, and the Government's responses to those examinations, investigations, and reports.

3. Evidentiary hearings

Beginning in September 2010, the commission plans to conduct evidentiary hearings regarding the issues that the commission is mandated to investigate. The commission plans to conduct most of these hearings at the Federal Court in Vancouver. A tentative schedule for September 2010 is set out in Appendix 3.

These hearings will be conducted in accordance with the commission's *Rules for Practice and Procedure* that is posted on the commission's website: www.cohencommission.ca.

The commission may adopt a variety of formats, depending on the issue under consideration, including the following:

- an individual witness, including an expert, may testify under oath or on affirmation, and then be subject to cross-examination; or
- a group of witnesses, including experts, may give evidence as members of a panel.

4. Public forums

The commission plans to conduct public forums in several coastal and Fraser River communities for the purpose of hearing from members of the public on the issues the Commissioner is mandated to consider. The commission plans to summarize presentations made at these public forums, and to post them on the commission's website.

5. Site visits

The Commissioner plans to visit various sites that are important to some aspect of the Fraser River sockeye salmon fishery, and to video record site visits, if possible.

6. Final report

The commission's Terms of Reference specify the matters that are to be included in the commission's final report or reports. In addition to making independent findings of fact regarding the causes for the decline of Fraser River sockeye salmon, the Commissioner is directed in paragraph a.i.D.,

> to develop recommendations for improving the future sustainability of the sockeye salmon fishery in the Fraser River including, as required, any changes to the policies, practices and procedures of the Department in relation to the management of the Fraser River sockeye salmon fishery. . .

In making his independent findings of fact and developing his recommendations, the Commissioner will give careful consideration to all the testimony given and other evidence tendered during the evidentiary hearings, submissions made by members of the public, and closing written and oral submissions made by participants.

7. Public involvement

There are a variety of ways in which interested members of the public can stay informed about the work of the commission, including:

- attending the hearings and public forums, and
- reading the transcripts or summaries of these proceedings, and the scientific reports, that will be posted on the commission's website.

Members of the public are also invited to express their views on issues related to the commission's mandate, by making a public submission on the commission's website – http://www.cohenCommission.ca/en/submissions/SubmissionForm.php.

D. MANAGEMENT OF FRASER RIVER SOCKEYE SALMON

Paragraph a.i.B. of the Terms of Reference specifically directs the commission to inquire into DFO's management of the Fraser River sockeye salmon fishery,

> to consider the policies and practices of the Department of Fisheries and Oceans (the "Department") with respect to the sockeye salmon fishery in the Fraser River – including the Department's scientific advice, its fisheries policies and programs, its risk management strategies, its allocation of Departmental resources and its fisheries management practices and procedures, including monitoring, counting of stocks, forecasting and enforcement . . . .

In response to this direction, the commission intends to consider the following:

1. DFO's organizational structure

- National and regional leadership;
- Funding, budgeting and allocation of departmental resources;[6]
- DFO's relationship with:
    - Province of British Columbia, First Nations, Pacific Salmon Commission, scientific researchers, stakeholders (including fishers and environmental non-governmental organizations); and

[6] This issue may also be the subject of a technical paper prepared for the Commission by an external researcher.

- Other federal departments and agencies, including Indian and Northern Affairs, Foreign Affairs, Environment Canada, Transport Canada, and Canadian Environmental Assessment Agency;

- Information management and data management; and
- DFO's management approach, including its policy framework, research initiatives and scientific advice, risk management (including scientific uncertainty and the precautionary approach), and permitting.

2. Harvesting

- Fishing sectors – allocations, locations, methods, and regulations including licensing and levels of the harvest, for the Aboriginal, commercial, and recreational fishing sectors.
- Harvest management tools, including:
  - Pre-season planning, including forecasting (including run size estimates and diversion rates) and sustainability plans (including escapement targets and total allowable catch);
  - In-season management, including the roles of DFO and the Pacific Salmon Commission, and an examination of the counting of stocks (including test fisheries, hydroacoustics, and visual counts), data analysis and response (including the Management Adjustment Model), closures (for all runs or runs with mixed stocks), and gear types/impacts;
  - Post-season review, including assessing the fishery and escapement; and
- Harvest-related enforcement, including consideration of catch monitoring, illegal fishing and/or under-reporting, enforcement measures (including officer presence, hotlines, penalties, and prosecution), and gear types, whether occurring in in-river, coastal or high seas areas.

3. Conservation

- Habitat enhancement and restoration, including fishways, spawning grounds and channels, lake enrichment, and hatcheries;

- Protecting salmon and salmon biodiversity, including consideration of the Wild Salmon Policy, conservation units, mixed stock protections and the *Species At Risk Act*[7];
- Conserving habitat and ecosystems, both freshwater and marine, including consideration of the *Oceans Act*[8]; and
- Habitat-related enforcement, including action taken under two provisions of the *Fisheries Act*[9]:
    - Section 35 – destruction of fish habitat (including application of DFO's Habitat Policy); and
    - Section 36 – deposit of deleterious substances.

E. FISH BIOLOGY AND ECOSYSTEM ISSUES

Paragraph a.i.C. of the Terms of Reference specifically directs the commission to investigate and make independent findings of fact regarding:

> I. the causes for the decline of Fraser River sockeye salmon including, but not limited to, the impact of environmental changes along the Fraser River, marine environmental conditions, aquaculture, predators, diseases, water temperature and other factors that may have affected the ability of sockeye salmon to reach traditional spawning grounds or reach the ocean; and
>
> II. the current state of Fraser River sockeye salmon stocks and the long term projections for those stocks. . . .

1. Fish biology and ecosystem issues research projects

In addition to the management issues discussed earlier, the commission will also investigate the fish biology and ecosystem issues that may be relevant to the recent sockeye salmon decline and the future sustainability of Fraser River sockeye salmon. The commission will contract out, to recognized experts, research projects on a wide range of fish biology and ecosystem issues, as summarized below. The proposed research is limited to secondary investigations based on existing studies and data. The issues to be examined may change, based on input received from participants and the commission's Scientific Advisory Panel (discussed later). The scientific reports will be provided to participants and posted on the commission's website.

---

7 S.C. 2002, c. 29
8 S.C. 1996, c. 31.
9 R.C. 1985, c. F-14.

- ***Water pollution***– Contaminants originating from pulp mills, sewage treatment plants, and non-point sources are present in the Fraser River in measurable concentrations. These contaminants can act synergistically to impact fry, smolts or adults, and environmental variables (e.g., temperature) can modify their toxicity. *The commission intends to prepare an inventory of such aquatic contaminants in the Fraser River in relation to the distribution of sockeye CUs, and to compare toxicology data to Fraser River water quality conditions.*
- ***Salmon farms*** – *The commission intends to examine whether there is a linkage between salmon farm operations and Fraser River sockeye survival, including reductions of sockeye smolt survival from sea lice exposure, impacts of farm wastes on seabed and ocean habitat quality, effects of Atlantic salmon escapes on Fraser River sockeye, as well as any potential for the spreading of disease. Other salmon species will be considered insofar as they inform the analysis of Fraser River sockeye. The commission also intends to evaluate several salmon farm management methods for mitigating risks to Fraser River sockeye, including the use of closed containment marine and land-based systems, scheduling of net pen harvesting to reduce contact with sea lice, manipulation of maturation schedules, optimizing densities, reduction of farm production, re-locating farms, and the use of pesticides such as SLICE to control sea lice.*
- ***Logging*** – A predominant industrial activity in the Fraser River watershed, logging can influence watershed dynamics and fish habitat through sediment deposition in channels, channel instability, the destabilization of stream banks, and changes in water flow, temperature, and quality. As well, the mountain pine beetle infestation (and consequential road building and stream crossing activities associated with salvage logging) impacts on fish habitats via changes to water flows and temperatures – infested forests have higher water tables, faster snow melt, higher spring floods, more flash flooding, and erosion.[10] *The commission plans to summarize the logging history of the Fraser River watershed, and to evaluate the exposure of sockeye CUs to logging impacts in relation to spawning, incubation, rearing and migratory habitats. Additionally, the effects of Fraser Estuary log storage on juvenile and adult sockeye habitats will be evaluated.*

[10] Pacific Fisheries Resource Conservation Council. 2008. Mountain Pine Beetle: salmon are suffering too. www.fish.bc.ca

- ***Hydro*** – There are numerous independent power projects (IPPs) in the Fraser watershed located adjacent to salmon habitats, and others are proposed. *The commission intends to identify and map the distribution of current and proposed IPPs in relation to Fraser River sockeye CUs, and to determine Fraser River sockeye habitat management implications. The commission plans to assess the status of Stuart, Stellako and Nadina CUs that are exposed to the Kemano Hydroelectric Project impacts, and to also evaluate the effectiveness of managing reservoir flows for temperature control.*
- ***Urbanization and agricultural activities*** – Population centres along the Fraser River, from Prince George to Greater Vancouver, sit adjacent to mainstem or tributary habitats. They collectively generate impacts such as changes in hydrology, sewage inputs, toxic contaminants from motor vehicles and industrial discharges, as well as damage to habitat (e.g., gravel mining and dredging in the Lower Fraser River below Hope, and residential and port development). In addition, agricultural activities (e.g., pesticide and fertilizer runoff, and extraction of groundwater), and unmanaged cattle grazing (e.g., riparian habitat degradation, and reduction in canopy shading) may impact fish habitat. *The commission intends to examine whether migrating Fraser sockeye smolts and adults are vulnerable to these effects.*
- ***Climate change effects (freshwater and marine)*** – Climate change, whether from human activity or natural causes, may be affecting Fraser River sockeye. In freshwater habitats, river water temperatures have increased, hydrology effects are becoming evident, and winters are becoming warmer,[11] which may lead to reduced snow packs, earlier spring freshet and reduced summer flows. In the marine environment, there are conflicting predictions about whether climate change will lead to an increase or decrease in Pacific salmon production[12] – one scenario proposes that sockeye marine habitats would diminish and move northwards in response to warming. *The commission plans to evaluate evidence for present and future climate change effects on Fraser River sockeye in freshwater and marine habitats, including water temperature, flow, salinity, currents, fish behaviour, distribution, and productivity.*

---

11 Morrison, J., M.C. Quick and M.G.G. Foreman. 2002. Climate Change in the Fraser River Watershed: flow and temperature projections. Journal of Hydrology 263: 230-244.

12 Beamish, R.J. (Ed.) 2008. Impacts of Climate and Climate Change on the Key Species in the Fisheries in the North Pacific. PICES Sci. Rep. No. 35, 217 pp.

- ***Diseases and parasites*** – When adult sockeye enter the Lower Fraser River, they are especially susceptible to the *Parvicapsula minibicornis* parasite, which can sometimes cause fatal kidney failure. The unusually early freshwater migration by late-run sockeye can also lead to high levels of pre-spawning mortality in certain years. In addition, sockeye smolts can be infected with *Parvicapsula*[13] in the Strait of Georgia. *The commission plans to engage a veterinary scientist to examine the impacts of this and 30 other parasites, and approximately 10 diseases, on Fraser River sockeye salmon in both freshwater and marine environments.*
- ***Predators*** – Fraser River sockeye (alevins, fry, smolts, sub-adults and adults) are vulnerable to fish and mammalian predators. Marine mammal predators congregate in near-shore zones adjacent to the Fraser River, high densities of seals and sea lions are present in the Strait of Georgia, and resident killer whales are salmon feeders although they tend to feed preferentially on Chinook salmon. Other potential marine predators include Humboldt squid. In fresh water, DFO is currently removing northern pikeminnow predators from Cultus Lake, as part of the sockeye recovery program. *The commission intends to investigate the impacts of fish and marine mammal predators on Fraser sockeye populations, to evaluate the role of predation in the decline of sockeye numbers.*
- ***Non-retention fisheries*** – All three sectors of the Fraser River fishery intercept sockeye during closed periods, while targeting other species. These fish, which must be released, can be stressed, injured or mortally wounded, thereby affecting sockeye populations during low abundance periods. Aboriginal dip net fishers targeting Chinook salmon, recreational anglers targeting Chinook, and commercial fishers targeting pink salmon can intercept sockeye when sockeye are scarce. *The commission intends to investigate the consequences of non-retention fisheries on sockeye physiology, survival and abundance.*
- ***Cumulative impacts*** – Although the research issues discussed above will consider impacts in isolation from each other, the reality is that Fraser River sockeye experience a suite of impacts both simultaneously and sequentially, which can interact to amplify the effects of individual stressors. *The commission intends to evaluate these cumulative impacts to determine their role in Fraser River sockeye declines.*

[13] St-Hilaire, S., M. Boichuk, D. Barnes, M. Higgins, R. Devlin, R. Withler, J. Khattra, S. Jones and D. Kieser. 2002. Epizootiology of *Parvicapsula minibicornis* in Fraser River sockeye salmon, *Oncorhynchus nerka* (Walbaum). Journal of Fish Diseases 25, 107-120.

2. Background

To provide context for the assessment of potential causes for the decline discussed above, the commission intends to examine the following:

- ***Status of Fraser River sockeye Conservation Units*** – Canada's Wild Salmon Policy defines Conservation Units (CUs) as discrete populations of wild salmon that are isolated genetically and geographically from other populations.[14] *The commission intends to evaluate the status of all 36 sockeye CUs in the Fraser River watershed. Once the CUs have been assessed, the research will investigate factors influencing their status.*
- ***Freshwater ecology*** – The quality and amount of freshwater habitats and migration corridors for Fraser River sockeye, both as juveniles and as adults, have a profound influence on production. *The commission intends to compile and analyze existing information on freshwater ecology, including habitat quantity and quality; impacts and causes for premature migration of adult (Late Run) sockeye from marine areas into freshwater; extent of en-route mortality and pre-spawning mortality; freshwater predation impacts on sockeye smolts and adults; and impacts of diseases on sockeye smolts and adults in the freshwater environment.*
- ***Marine ecology*** – Much of the inter-annual survival variation in Fraser River sockeye may be associated with marine environmental conditions. One recent analysis[15] concluded that reduced productivity in 2009 occurred after the juvenile fish began their migration toward the sea in 2007, that is, their freshwater outmigration, their migration through the Strait of Georgia and Johnstone Strait, and during their marine life history spent along the continental shelf and within the North Pacific. *The commission's research, stratified by habitat type (coastal marine and offshore marine), will set out basic life history information, and intends to examine matters such as migration routes; North Pacific Ocean regime shifts and inter-annual variability; effects of ocean productivity variations; the Johnstone Strait diversion rate; marine predation; and impacts of diseases on sockeye smolts and adults in the marine environment.*
- ***Production dynamics*** – Sockeye CUs have different dynamics, both within and between watersheds. Many Fraser River sockeye populations show characteristic four-year cycles

[14] http://www.pac.dfo-mpo.gc.ca/publications/pdfs/wsp-eng.pdf

[15] http://www.fish.bc.ca/scientific-think-tank-analyzes-declining-fraser-river-sockeye-returns

(and alternate dominant, sub-dominant and two off-cycle years) with several orders-of-magnitude differences in abundance between years.[16] *The commission intends to address questions such as the following:*

- *Is the reduction in Fraser River sockeye productivity unique to the Fraser River, or is it occurring more broadly across the geographical range of the species?*
- *How does the rate of decline in Fraser River sockeye productivity compare with other populations?*
- *Are there stock differences in productivity decreases within Fraser River sockeye?*
- *Can shifts in the timing of cyclic dominance patterns present as run failures?*
- *How do density-dependent survival effects influence production?*

3. Scientific Advisory Panel

To assist the commission in identifying and examining fish biology and ecosystem issues that may be relevant to the decline of Fraser River sockeye salmon stocks, and in peer-reviewing the contracted researchers' scientific reports, the commission has created a Scientific Advisory Panel, consisting of the following six members:

- **Dr. Carl Walters**, a professor at the University of British Columbia's Fisheries Centre;
- **Dr. Brian Riddell**, the C.E.O. and President of the Pacific Salmon Foundation;
- **Dr. Paul LeBlond**, an ocean scientist and professor emeritus in physics and oceanography at the University of British Columbia;
- **Dr. John Reynolds**, a professor at Simon Fraser University, where he holds the Tom Buell B.C. Leadership Chair in Salmon Conservation and Management;
- **Dr. Patricia Gallaugher**, Director of Continuing Studies in Science, Director of the Centre for Coastal Studies, and Adjunct Professor in Biosciences at Simon Fraser University; and
- **Dr. Thomas Quinn**, a professor at the University of Washington in the School of Aquatic and Fishery Sciences.

[16] Ricker, W.E. 1997. Cycles of abundance among Fraser River sockeye salmon *(Oncorhynchus nerka)*. Can. J. Fish. Aquat. Sci. 54: 950-968.

Appendix 1. Commission of Inquiry's Terms of Reference

Terms of Reference for the Commission of Inquiry into the Decline of Sockeye Salmon in the Fraser River

Whereas the decline in sockeye salmon stocks in the Fraser River in British Columbia has necessitated the closure of the fishery for a third consecutive year, despite favourable pre-season estimates of the number of sockeye salmon expected to return to the Fraser River;

Whereas that decline has been attributed to the interplay of a wide range of factors, including environmental changes along the Fraser River, marine environmental conditions and fisheries management;

Whereas the Government of Canada wishes to take all feasible steps to identify the reasons for the decline and the long term prospects for Fraser River sockeye salmon stocks and to determine whether changes need to be made to fisheries management policies, practices and procedures – including establishing a commission of inquiry to investigate the matter;

And whereas the Government of Canada has committed to full cooperation with an inquiry;

Therefore, Her Excellency the Governor General in Council, on the recommendation of the Prime Minister, hereby

a. directs that a Commission do issue under Part I of the *Inquiries Act* and under the Great Seal of Canada appointing the Honourable Bruce Cohen as Commissioner to conduct an inquiry into the decline of sockeye salmon in the Fraser River (the "Inquiry"), which Commission shall
    i. direct the Commissioner
        A. to conduct the Inquiry without seeking to find fault on the part of any individual, community or organization, and with the overall aim of respecting conservation of the sockeye salmon stock and encouraging broad cooperation among stakeholders,
        B. to consider the policies and practices of the Department of Fisheries and Oceans (the "Department") with respect to the sockeye salmon fishery in the Fraser River – including the Department's scientific advice, its fisheries policies and programs, its risk management strategies, its allocation of Departmental resources and its fisheries management practices and procedures, including monitoring, counting of stocks, forecasting and enforcement,
        C. to investigate and make independent findings of fact regarding
            I. the causes for the decline of Fraser River sockeye salmon including, but not limited to, the impact of environmental changes along the Fraser River, marine environmental conditions, aquaculture, predators, diseases, water temperature and other

factors that may have affected the ability of sockeye salmon to reach traditional spawning grounds or reach the ocean, and

II. the current state of Fraser River sockeye salmon stocks and the long term projections for those stocks, and

D. to develop recommendations for improving the future sustainability of the sockeye salmon fishery in the Fraser River including, as required, any changes to the policies, practices and procedures of the Department in relation to the management of the Fraser River sockeye salmon fishery,

ii. direct the Commissioner to conduct the Inquiry under the name of the Commission of Inquiry into the Decline of Sockeye Salmon in the Fraser River,

iii. authorize the Commissioner to consider findings, as he considers appropriate, of previous examinations, investigations or reports that may have been conducted that he deems relevant to the Inquiry and to give them any weight, including accepting them as conclusive,

iv. direct the Commissioner to supplement those previous examinations, investigations or reports with his own investigation and to consider the Government's response to previous recommendations,

v. authorize the Commissioner to rent any space and facilities that may be required for the purposes of the Inquiry, in accordance with Treasury Board policies,

vi. authorize the Commissioner to adopt any procedures and methods that he may consider expedient for the proper conduct of the Inquiry, to sit at any times and in any places in Canada that he decides and to conduct consultations in relation to the Inquiry as he sees fit,

vii. authorize the Commissioner to engage the services of any staff, experts and other persons referred to in section 11 of the *Inquiries Act* at rates of remuneration and reimbursement as approved by the Treasury Board,

viii. despite subparagraphs (v) and (vi), direct the Commissioner not to conduct any hearings during the periods beginning on February 12, 2010 and ending on February 28, 2010, and beginning on March 12, 2010 and ending on March 21, 2010, to minimize the costs of the Inquiry and the inconvenience to witnesses during the Vancouver 2010 Olympic and Paralympic Winter Games,

ix. authorize the Commissioner to grant, to any person who satisfies him that they have a substantial and direct interest in the subject matter of the Inquiry, an opportunity for appropriate participation in it,

x. authorize the Commissioner to recommend to the Clerk of the Privy Council that funding be provided, in accordance with terms and conditions approved by the Treasury Board, to ensure the appropriate participation of any person granted standing at the Inquiry under subparagraph (ix), to the extent of the person's interest, if the Commissioner is of the view that the person would not otherwise be able to participate in the Inquiry,

xi. direct the Commissioner to use the automated documents management program specified by the Attorney General of Canada and to consult with records management officials within the Privy Council Office on the use of standards and systems that are specifically designed for the purpose of managing records,

xii. direct the Commissioner, in respect of any portion of the Inquiry conducted in public, to ensure that members of the public can, simultaneously in both official languages, communicate with and obtain services from the Inquiry, including any transcripts of proceedings that have been made available to the public,

xiii. direct the Commissioner to follow established security procedures, including the requirements of the *Policy on Government Security*, with respect to persons engaged under section 11 of the *Inquiries Act* and the handling of information at all stages of the Inquiry,

xiv. direct the Commissioner to perform his duties without expressing any conclusion or recommendation regarding the civil or criminal liability of any person or organization,

xv. direct the Commissioner to submit, on or before August 1, 2010, an interim report, simultaneously in both official languages, to the Governor in Council, setting out the Commissioner's preliminary views on, and assessment of, any previous examinations, investigations or reports that he deemed relevant to the Inquiry and the Government's responses to those examinations, investigations and reports,

xvi. direct the Commissioner to submit, on or before May 1, 2011, one or more reports, simultaneously in both official languages, to the Governor in Council, and

xvii. direct the Commissioner to deposit the records and papers of the Inquiry with the Clerk of the Privy Council as soon after the conclusion of the Inquiry as is reasonably possible; and

b. authorizes, pursuant to section 56 of the *Judges Act*, the Honourable Bruce Cohen of Vancouver, British Columbia, a judge of the Supreme Court of British Columbia, to act as Commissioner.

Appendix 2. Participants and joint participants granted standing

1. Government of Canada

2. Province of British Columbia

3. Pacific Salmon Commission

4. B.C. Public Service Alliance of Canada
   Union of Environment Workers B.C.

5. Rio Tinto Alcan Inc.

6. B.C. Salmon Farmers Association

7. Seafood Producers Association of B.C.

8. Aquaculture Coalition:
   - Alexandra Morton
   - Raincoast Research Society
   - Pacific Coast Wild Salmon Society

9. Conservation Coalition:
   - Coastal Alliance for Aquaculture Reform
   - Fraser Riverkeeper Society
   - Georgia Strait Alliance
   - Raincoast Conservation Foundation
   - Watershed Watch Salmon Society
   - Mr. Otto Langer
   - David Suzuki Foundation

10. Area D Salmon Gillnet Association
    Area B Harvest Committee (Seine)

11. Southern Area E Gillnetters Association
    B.C. Fisheries Survival Coalition

12. West Coast Trollers Area G Association
    United Fishermen and Allied Workers' Union

13. B.C. Wildlife Federation
    B.C. Federation of Drift Fishers

14. Maa-nulth Treaty Society
    Tsawwassen First Nation
    Musqueam First Nation

15. Western Central Coast Salish First Nations:
    - Cowichan Tribes
    - Chemainus First Nation
    - Hwlitsum First Nation
    - Penelakut Tribe
    - Te'mexw Treaty Association

16. First Nations Coalition:
    - First Nations Fisheries Council
    - Aboriginal Caucus of the Fraser River Aboriginal Fisheries Secretariat
    - Fraser Valley Aboriginal Fisheries Society
    - Northern Shuswap Tribal Council
    - Chehalis Indian Band
    - Secwepemc Fisheries Commission of the Shuswap Nation Tribal Council
    - Upper Fraser Fisheries Conservation Alliance
    - Adams Lake Indian Band
    - Carrier Sekani Tribal Council
    - Council of Haida Nation
    - Other Douglas Treaty First Nations who applied together (the Snuneymuxw, Tsartlip and Tsawout)

17. Metis Nation British Columbia

18. Sto:lo Tribal Council
    Cheam Indian Band

19. Laich-kwil-tach Treaty Society
    Chief Harold Sewid
    Aboriginal Aquaculture Association
    Heiltsuk Tribal Council (but may participate by way of separate counsel specifically for evidentiary hearings pertaining to aquaculture)

20. Musgagmagw Tsawataineuk Tribal Council

Appendix 3. Tentative schedule for evidentiary hearings for September 2010

Date(s)	Issue
September 7, 8	DFO organizational and management/oversight structure and arrangements
September 13, 14	Pacific Salmon Commission and Pacific Salmon Treaty
September 15 – 27	Wild Salmon Policy and habitat conservation

Evidentiary hearings are planned to continue through the fall of 2010, excluding October 1 to 19. Schedules for subsequent months will be circulated later.

Appendix 13

TECHNICAL AND SCIENTIFIC RESEARCH PROJECTS

TABLE OF CONTENTS

PROJECT 1
DISEASES AND PARASITES

OBJECTIVE

A veterinary scientist is required to prepare a technical report evaluating the effects of parasites and diseases on Fraser River sockeye salmon and their role in the 2009 run failure.

SCOPE OF WORK

The veterinary scientist will take a broad view of sockeye diseases and parasites that span the life cycle from egg to adult. The scientist will evaluate the full spectrum of diseases that occur at all life history stages.

The role and impact of parasites and diseases caused by other agents on the overall mortality schedule of Fraser sockeye salmon will be evaluated both qualitatively and quantitatively by review and analysis of fish disease data, the peer-reviewed literature and government documents.

RESEARCHER

Dr. Michael Kent, Professor, Departments of Microbiology and Biomedical Sciences, College of Veterinary Medicine, Oregon State University. His research interests are in fish diseases and parasitology.

BIOGRAPHY

- Aquaculturist, Hubbs-Seaworld Research Institute, San Diego, 1980-1981.
- Staff Research Associate, University of California, San Diego, Office of Animal Resources, 1981-1982
- Ph.D. Graduate Student (Sea Grant Trainee), University of California, Davis, Department of Medicine, School of Veterinary Medicine, 1982-1985
- Research Scientist, Battelle Marine Research Laboratory, Sequim, Washington, 1986-1988.

- Research Scientist, Fish Health, Parasitology, and Genetics Section, Department of Fisheries and Oceans, Pacific Biological Station, Nanaimo, B.C., 1988-1999.
- Head, Fish Health, Parasitology, and Genetics Section, Aquaculture Division, Department of Fisheries and Oceans, Pacific Biological Station, Nanaimo, B.C., 1997-1999.
- Director, Center for Fish Disease Research, Oregon State University, 1999-2007.
- Associate Professor, Departments of Microbiology and Fisheries and Wildlife, Oregon State University, Corvallis, Oregon, 1999-2001.
- Professor, Departments of Microbiology and Fisheries and Wildlife, Oregon State University, 2001-2007.

While with DFO between 1988 and 1999, Dr. Kent worked extensively on sockeye salmon parasitology and diseases.

PROJECT 2
EFFECTS OF CONTAMINANTS ON FRASER RIVER SOCKEYE SALMON

BACKGROUND

An inventory and evaluation of the effects of contaminants in the Fraser River is required to determine their importance on the ecology and survival of Fraser sockeye and to determine their role in the reductions in Fraser sockeye abundance.

OBJECTIVE

To prepare a technical report containing a contaminant inventory and an evaluation of the effects of contaminants on Fraser River sockeye salmon.

SCOPE OF WORK

The Contractor will prepare an inventory of aquatic contaminants in the Fraser River in relation to the distribution of sockeye Conservation Units. This will include an evaluation of pulp mill effluent contaminants, non-point source contaminants, endocrine disruptors and other contaminants. It will also include sewage discharges from the Lower Mainland and other urban centres in the Fraser Watershed.

The Contractor will compare toxicology data for sockeye to Fraser River water quality conditions, in order to evaluate lethal and sub-lethal impacts of aquatic contaminants.

The Contractor will develop an overall assessment for the suite of contaminants and natural substances (e.g. suspended sediments) that are encountered by juvenile and adult sockeye salmon.

The Contractor will evaluate the extent to which reductions in Fraser sockeye abundance are associated with contaminant conditions in the Fraser River.

The Contractor will reference reports prepared by Dr. Peter Ross, Inst. of Ocean Sciences, and the Siska First Nation concerning contaminant concentrations in Fraser sockeye salmon.

RESEARCHER

Don MacDonald, principal of MacDonald Environmental Sciences Limited, Nanaimo, B.C.

BIOGRAPHY

Mr. MacDonald offers scientific expertise in the fields of environmental chemistry, fishery/forestry interactions, water quality/water use interactions, sediment quality assessment, environmental quality guidelines, ecosystem-based management, ecological risk assessment, and natural resource damage assessments.

MacDonald Environmental Sciences Limited (MESL) was formed in 1989 to offer specialized consulting services related to the assessment and management of aquatic and terrestrial ecosystems.

PROJECT 3

FRASER RIVER FRESHWATER ECOLOGY AND STATUS OF SOCKEYE SALMON CONSERVATION UNITS

BACKGROUND

The Contractor is to investigate several aspects of Fraser sockeye ecology, including the status of sockeye conservation units, a review of industrial and urban impacts on freshwater ecology and salmon life history, and an expert assessment of potential impacts from industrial and urban activities on Fraser River sockeye during the last 30 years.

OBJECTIVES

- To evaluate the status of all of the 36 sockeye Conservation Units and sockeye sub-stocks within CUs in the Fraser River Watershed.
- To evaluate Fraser River sockeye salmon ecology and survival in freshwater environments.
- To evaluate industrial and urban activities (except pollution, but including impacts from Mountain Pine Beetle and the associated salvage logging) in the Fraser River Watershed and their potential effects on Fraser sockeye.
- To evaluate the impacts of surfacewater and groundwater diversions on Fraser sockeye production and survival.

SCOPE OF WORK

DFO has identified salmon CUs and has developed a methodology for determining "CU benchmarks." There are 2 CU benchmarks – upper and lower – which can be used to define the status of CUs. To date, the CU benchmark methodology has not been applied to Fraser sockeye CUs. The Contractor will be required to evaluate the DFO methodology to determine its applicability and feasibility for defining the status of Fraser sockeye CUs.

Alternative methodologies for determining CU status, for example those based on escapement, production or other databases, will also be critically evaluated. The Contractor will determine the status of CUs, or if that is not feasible due to information gaps, logical groupings of CUs represented by specific stocks.

Once the status of the CUs has been determined, then hypotheses will be developed to explain the trends and status of the CUs, focusing on industrial and urban stressors pertaining to the freshwater part of the salmon life cycle.

Existing information on freshwater production will be compiled and analyzed, noting the limitations of existing information. Key variables will include:

- Habitat quantity and quality for eggs, alevins, fry, smolts and adults
- Impacts to stock status and potential causes of premature migration of adult (Late Run) sockeye into freshwater
- Extent of en-route mortality and pre-spawning mortality
- Freshwater predation impacts on sockeye smolts and adults
- Impacts of diseases on sockeye smolts and adults in the freshwater environment.

The logging history of the Fraser River watershed will be summarized with particular attention to logging effects adjacent to Fraser sockeye habitats, with potential impacts on sockeye spawning and rearing habitats during the last 30 years. Literature analysis and evaluation of existing data sets will be undertaken to summarize the understanding of logging impacts on Fraser sockeye. The exposure of sockeye CUs to logging impacts will be evaluated in relation to spawning, incubation, rearing and migratory habitats. Lastly, the research will summarize the effects of Fraser Estuary log storage on juvenile and adult sockeye. A review of the potential current and future impacts of Mountain Pine Beetle on Fraser sockeye CUs will be undertaken as a part of this research.

Evaluation of mining impacts on Fraser sockeye requires consideration of historical mines, presently operating mines, mines currently proposed for development and mining exploration activities. Historical mines include gold mines in the central interior

region developed during the Gold Rush, while presently-operating mines include gold-copper properties adjacent to sockeye waterways. Ongoing gravel mining operations in the Lower Fraser River could potentially impact sockeye migratory habitats. The Contractor will evaluate the potential risks to sockeye salmon associated with historic and current mining operations in the Fraser Watershed as well as from mining exploration activities, focusing on evidence of potential impacts on sockeye spawning and rearing habitats during the last 30 years. The Contractor will also note proposed mining operations with potential future impacts.

In regards to the Kemano Project, the Contractor will prepare a summary of the effectiveness of water regulation to achieve temperature objectives of less than 20^{o}C at the Stuart-Nechako confluence during sockeye migrations, and will also assess the status of Stellako and Nadina CUs that are affected by the development.

The Contractor will review all other hydro projects that impact sockeye salmon in the Fraser Watershed, e.g. Bridge-Seton system.

The distribution of Independent Power Projects in relation to sockeye CUs will be determined and mapped by the Contractor, and their potential implications for sockeye habitat and habitat management will be discussed.

The Contractor will review potential effects on migrating sockeye smolts and adults from urbanization. This will include the effects of dredging in the Lower Fraser River below Hope.

The Contractor will evaluate the potential impacts of agricultural activities on sockeye habitats.

RESEARCHER

Dave Marmorek, ESSA Technologies Ltd.

COMPANY PROFILE

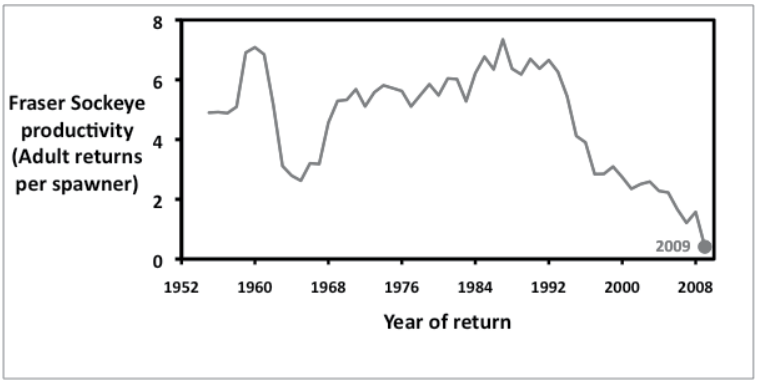
ESSA is an independent Canadian company originally incorporated in 1979 under the name ESSA Environmental and Social Systems Analysts Ltd. Its corporate mission is "to bring together people, science and analytical tools to sustain healthy ecosystems and human communities". The head office is in Vancouver, with regional offices in Victoria, the Greater Toronto Area, and Ottawa. ESSA has a diverse range of clients, from government agencies, development banks and international funding institutions, to the private sector and non-governmental organizations (NGOs). In addition to its North American consulting practice, ESSA maintains an active international focus. ESSA has conducted over 1,800 projects in the fields of environmental and natural resources management. In the environmental services domain, ESSA combines scientific expertise, advanced tools for systems analysis, and innovative communication techniques to provide services for its clients.

PROJECT 4
MARINE ECOLOGY

BACKGROUND

Most Fraser River sockeye salmon spend two years in the marine environment, first passing through the Strait of Georgia, then onto the continental shelf and eventually to the Alaska Gyre. Therefore, the ecology of Fraser River sockeye salmon in the ocean requires study to determine whether there are causal factors to explain: (1) the extremely low productivity associated with the 2009 return, and (2) the general pattern of declining productivity that has been observed during the last 15 years, as shown below:

Fraser River sockeye salmon productivity (adult returns per spawner, all stocks combined).



OBJECTIVE

To prepare a Technical Report that provides a review of the marine ecology of Fraser River sockeye salmon and to determine whether there are oceanographic factors that can explain the reduction in the short- and long-term Fraser sockeye productivity.

SCOPE OF WORK

Topics to be described by the Contractor will be stratified by habitat type: coastal and offshore. Key variables to be analyzed will include:

- Basic life history information about Fraser River sockeye salmon including feeding, growth rates, predation, behaviour and overwintering areas,
- Migration routes of Fraser River sockeye salmon,
- Roles of ocean/climate in determining Fraser River sockeye salmon marine survival,
- Effects of variations in ocean productivity on Fraser River sockeye salmon survival,
- Trends and predictability in the northern diversion rate and causal mechanisms,
- Sockeye food abundance in relation to the potential for food competition and limitation.

The Contractor will review proceedings and reference the Pacific Salmon Commission workshop held on June 15-16, 2010 in Nanaimo: "Pacific Salmon Commission Workshop to Examine the Decline in Survival of Fraser River Sockeye".

Set out below is a draft Table of Contents for the contract report:

The Decline of Fraser River Sockeye Salmon in Relation to North Pacific Marine Ecology

1. Introduction

- Fraser sockeye run failed in 2009 and productivity, measured as recruits per spawner, has been declining since the mid 1980's
- Cohen Commission is preparing a systematic review, based on existing scientific information, including historical data, of the suite of potential factors that may have contributed to the failure of the 2009 Fraser sockeye run and the longer term decline in productivity, including both freshwater and marine factors
- For the 2005 brood year, evidence implicates a marine factor which is associated with the sockeye smolts that entered the coastal marine environment in 2007
- PICES involvement and approach
- Analysis to be stratified into 3 spatial areas: 1. coastal marine (Strait of Georgia, Queen Charlotte Strait/Sound), 2. offshore marine (Alaska Gyre), 3. return migration.

2. Fraser River Sockeye Salmon Marine Life History

2.1 Coastal

- o Distribution and migration
  - o Behaviour
  - o Factors affecting

- o Diet/feeding
- o Growth
- o Survival

2.2 Offshore
- o Distribution and migration
  - o Behaviour
  - o Factors affecting
- o Diet/feeding
- o Growth
- o Survival

2.3 Return Migration
- o Timing
- o Diet/feeding
- o Growth
- o Survival
- o Landfall
- o Trends and predictability in the Johnstone Strait diversion rate and causal mechanisms

3. Oceanographic Conditions – Past and Future
- Brief overview of North Pacific environmental conditions and their influence on Pacific salmon
- North Pacific Ocean regime shifts and inter-annual variability in Fraser River sockeye marine survival
- Effects of ocean productivity variations on sockeye survival
- Evaluation of period between 2007-2009 (analysis of Project Argo data during this period and review of PICES ecosystem status report, 2003-2008)
- Speculation on state of the NE Pacific in 2040-2050 based on output from high resolution coupled ocean-atmosphere model of the Northeast Pacific (NEP5).

4. Discussion
- Can the decline in Fraser sockeye in 2009 be explained by the conditions the fish experienced in the marine environment?
- Is there any evidence for declines in marine productivity or changes in Fraser sockeye distribution that can be associated with the 15 year gradual decrease in Fraser sockey productivity?

RESEARCHERS

Members of the PICES Team on this project will include:

- Dr. Skip McKinnell – Team Leader, Deputy Executive Secretary, PICES
- Dr. Enrique Curchitser – Rutgers University, Ocean/Climate Modeler, and author of the Northeast Pacific hi-resolution ocean model
- Dr. Masahide Kaeriyama – Salmon Biologist, Hokkaido University Graduate School of Fisheries
- Dr. Kees Groot – formerly with DFO, sockeye salmon expert
- Dr. Katherine West Myers, University of Washington's High Seas Salmon Research Program.

COMPANY PROFILE

PICES (http://www.pices.int), the North Pacific Marine Science Organization, is an intergovernmental scientific organization that was established and held its first meetings in 1992. Its present members are Canada, People's Republic of China, Japan, Republic of Korea, Russian Federation, and the United States of America. The purposes of the Organization are as follows:

- Promote and coordinate marine research in the northern North Pacific and adjacent seas, especially northward of 30 degrees North
- Advance scientific knowledge about the ocean environment, global weather and climate change, living resources and their ecosystems, and the impacts of human activities
- Promote the collection and rapid exchange of scientific information on these issues.

The goal is to advance scientific knowledge and capacity available to the members, including information on human activities affecting, and affected by marine ecosystems, and to provide a mechanism for collaboration among scientists in addressing timely and critical scientific questions.

The PICES mission is built upon five central themes: (A) Advancing scientific knowledge; (B) Applying scientific knowledge; (C) Fostering partnerships; (D) Ensuring a modern organization in support of PICES activities; and (E) Distributing PICES scientific knowledge. Specific goals are identified within each of these themes. The actions and activities required to meet each of these goals will change over time, and will be described and updated regularly in Action Plans of PICES' permanent committees.

PROJECT 5

IMPACTS OF SALMON FARMS ON FRASER RIVER SOCKEYE SALMON

BACKGROUND

An evaluation of the impacts of salmon farms on Fraser sockeye is required to determine their importance on the ecology and survival of Fraser sockeye and their potential role in the reductions in Fraser sockeye abundance.

OBJECTIVE

To prepare a technical report containing a review and evaluation of the effects of salmon farms on Fraser River sockeye salmon, including an analysis of the positions taken by the salmon farming industry and critics of sea-cage salmon farming.

SCOPE OF WORK

The Contractor will evaluate the linkage between salmon farm operations and Fraser sockeye spawning returns – past, present, and future. This research will consider the impact on Fraser sockeye of sea lice exposure, farm wastes that affect benthic and pelagic habitat quality, Atlantic salmon escapees and disease (including IHN).

The focus will be on Fraser sockeye – other salmon species will be considered insofar as an argument can be made that they inform the analysis of sockeye. The practicality and outcome of salmon farm management methods for mitigating risks to Fraser sockeye will be evaluated. This will include the use of closed containment systems, scheduling of net pen harvesting to reduce contact with sea lice, re-locating farms, compressing maturation schedules, optimizing densities and the use of SLICE to control sea lice.

The Contractor will evaluate our present ability to estimate the extent to which reductions in Fraser sockeye abundance are associated with salmon farms, taking into account the range of other factors that may affect sockeye abundance.

RESEARCH METHODS AND SOURCES OF INFORMATION

The Contractor will draw on peer-reviewed journal articles, non-peer-reviewed reports and articles ("grey" literature), documents and data obtained by the Commission, and interviews with individual scientists, representatives of the salmon farming industry and NGOs. The report will consider all sources of information, including the international experience.

RESEARCHER

To be determined.

PROJECT 6
DATA SYNTHESIS AND CUMULATIVE IMPACT ANALYSIS

BACKGROUND

The Commission has engaged other Contractors to prepare technical reports covering scientific topics related to the Commission's mandate. A synthesis of this information is required to address cumulative impacts and to evaluate possible causes for the decline of Fraser sockeye salmon.

The Contractor is to integrate the research results of the other Contractors, and to carry out cumulative impact assessment.

OBJECTIVE

To provide data synthesis and integration services to the Cohen Commission and to lead the preparation of cumulative impact analysis involving all of the Science Contractors.

SCOPE OF WORK

Following the submission by Contractors of Progress Reports on November 1, 2010, the Contractor will analyze and organize information on explanatory factors, to assess their correlative strength with patterns of change in sockeye stock productivity during different life history stages. This will involve the preparation of a computer model to track the relative influence of different variables, and their interactions, that can affect Fraser sockeye salmon. This material will be developed and returned to the Contractors by December 15, 2010. The Contractors' Final Reports, which are due December 15, 2010, will be utilized to clarify the full range of factors, and their interactions, that impact Fraser sockeye.

RESEARCHER

Dave Marmorek et al., ESSA Technologies Ltd.

COMPANY PROFILE

ESSA is an independent Canadian company originally incorporated in 1979 under the name ESSA Environmental and Social Systems Analysts Ltd. Its corporate mission is "to bring together people, science and analytical tools to sustain healthy ecosystems and human communities". The head office is in Vancouver, with regional offices in Victoria, the Greater Toronto Area, and Ottawa. ESSA has a diverse range of clients, from government agencies, development banks and international funding institutions, to the private sector and non-governmental organizations (NGOs). In addition to its North American consulting practice, ESSA maintains an active international focus.

ESSA has conducted over 1800 projects in the fields of environmental and natural resources management. In the environmental services domain, ESSA combines scientific expertise, advanced tools for systems analysis, and innovative communication techniques to provide services for its clients.

Additional Methodological Details

Cumulative Impact Analysis. The Contractor will take a life history approach to cumulative impact analysis, examining the suite of stressors potentially affecting each life history stage, and how those stressors have changed over the period of interest (i.e., early 1990's until the present). The Contractor will use the results of each investigator's work to illustrate the magnitude of each stressor over space and time, and its potential for delayed effects on subsequent life history stages (e.g., acquisition of a disease at one life history stage may not cause mortality until other stressors such as high temperatures affect a later life history stage). The intent is to illustrate these *potential* cumulative impacts through a series of integrative frameworks, such as:

a) a life history diagram showing the impacts of different stressors, with arrows of different thickness indicating the strengths of different pathways (including both direct and delayed effects);
b) time series graphs showing changes in a series of indicators for different stressors, placed on a map of the sockeye's life history, showing all indicators on a consistent relative scale (e.g. scaled to 1 based on the maximum value over the time series);
c) similar time series graphs of the changes in productivity indicators for different sockeye salmon stocks; and
d) analyses of the evidence for and against different hypotheses, building on the June 15-17 PSC workshop.

Computer Model. Each of the investigators gathering information on different stressors will assemble indicators of those stressors, organized into a spreadsheet with a consistent format (i.e., stressor by year by stock), specifically the 19 Fraser River sockeye stocks for which productivity indicators have been assembled by the Pacific Salmon Commission. For some stressors (e.g. impacts on freshwater spawning and rearing habitat), these indicators may be stock-specific. For other stressors (e.g. fish farms, oceanographic conditions, mammalian predators) many stocks will need to be grouped, as the independent effects on different stressors are unknown. The ability to explain the patterns of change in both Fraser sockeye stocks and other stocks of interest outside the Fraser (valuable to create contrast) will be explored using a multiple regression approach or perhaps other multivariate techniques. It is expected that there will be some serious challenges in completing this analysis due to both data gaps, and insufficient degrees of freedom for strong statistical inference. However, this effort will serve to illustrate the challenges in deducing the relative impacts of different stressors.

PROJECT 7
FRASER RIVER SOCKEYE FISHERIES AND FISHERIES MANAGEMENT

BACKGROUND

The Contractor is to investigate sockeye fisheries harvesting and fisheries management with a view to informing the Commission about their role in the reduction in Fraser sockeye productivity, and particularly the collapse of the 2009 return.

OBJECTIVES

To prepare a review of fisheries for Fraser sockeye, including First Nations, commercial and recreational fisheries.

To undertake a functional description of fisheries management for Fraser River sockeye salmon.

SCOPE OF WORK

Fisheries Harvesting

The Contractor will summarize the time series of Fraser sockeye fisheries openings in the 3 sectors, First Nations, Commercial, and Recreational, over the period 1980–2009.

First Nations fishery

The Contractor will summarize the food, social, ceremonial and commercial harvest levels of Fraser River sockeye allocated to First Nations (through treaty, fisheries agreement, communal fishing licence or other program or agreement), and the actual harvest levels achieved, according to fishing location and method, for the period 1980-2009. The formal and informal structure of the First Nations fishery will be characterized.

The Contractor will describe and evaluate the accuracy, precision and reliability of methods for making catch estimates.

Commercial fishery

The Contractor will summarize the target and achieved allocations of Fraser River sockeye to the commercial sector, according to fishing method (troll, seine and gillnet), for the last 30 years.

The Contractor will describe and evaluate the accuracy, precision and reliability of methods for making catch estimates.

Recreational fishery

The Contractor will describe and summarize the daily and annual catch limits for recreational fishers of Fraser River sockeye set for the last 30 years.

The Contractor will describe and evaluate the accuracy, precision and reliability of methods for making catch estimates, including consideration of the creel survey.

All sectors

The Contractor will describe and summarize the consequences of non-retention fisheries (First Nations, commercial, recreational) on sockeye physiology, survival and abundance.

Fisheries Management

The Contractor will describe and evaluate the accuracy, precision and reliability of pre-season forecasting methods. This work will include a description of the application of pre-season forecasting in harvest management.

The Contractor will also describe and evaluate the accuracy, precision and reliability of other methods, if any, that are available for pre-season forecasting not historically or currently used by DFO and the Pacific Salmon Commission.

The Contractor will describe and evaluate the accuracy, precision and reliability of in-season run-size abundance estimation methods. This work will include a description of the application of in-season and post-season run-size abundance estimation in harvest management.

The Contractor will also describe and evaluate the accuracy, precision and reliability of other methods, if any, that are available for in-season and post-season run-size abundance estimation not historically or currently used by DFO and the PSC.

The Contractor will describe and evaluate the accuracy, precision and reliability of in-season and post-season escapement enumeration methods used historically and currently by DFO and the PSC.

The Contractor will also describe and evaluate the accuracy, precision and reliability of other methods, if any, that are available for enumerating sockeye not historically or currently used by DFO and the PSC.

The Contractor will analyze historical performance of the in-season assessment process, to include changes in estimates of in-season run sizes, with particular emphasis on how long it has taken within each season to correctly assess the final in-season run size. The key issue to be described is how quickly the in-season assessment process can respond, to meet escapement goals.

The Contractor will evaluate the scientific basis for determining escapement targets. The current and historical effectiveness of fisheries management, including reliance on the Fraser River Sockeye Spawning Initiative (FRSSI), to achieve sockeye escapement goals for individual CUs will be evaluated.

The extent and impact of any overharvesting from 1985 to present will also be evaluated.

Cultus Lake

The Contractor will summarize the current conservation status of the Cultus Lake sockeye population, previously assessed by COSEWIC[1] to be endangered, and will evaluate whether DFO's recovery efforts have been effective in meeting stated recovery objectives. The Contractor will identify what recovery actions were available but not pursued by the Recovery Program.

Comparative Analysis of Bristol Bay (Alaska) and the Fraser River

Fisheries Harvesting

In order to provide a comparison, the Contractor will describe the sockeye salmon fishery in the Fraser River and Bristol Bay, both in freshwater and marine areas, broken down by commercial, First Nations and recreational fishing sectors.

In order to provide a comparison, the Contractor will describe, in a summary fashion, the government agencies, allocations, locations, methods, regulations (including licensing), and levels of harvest related to the sockeye salmon fisheries in the Fraser River and Bristol Bay, both in marine and freshwater areas.

Fisheries Management

The Contractor will identify the key information requirements for sockeye fisheries management in the Fraser River and in Bristol Bay.

The Contractor will contrast the accuracy and precision of pre-season forecasting methods in the Fraser River and Bristol Bay sockeye fisheries. This work will include a description of the application of pre-season forecasting in harvest management.

The Contractor will describe and evaluate the accuracy and precision of in-season run-size abundance estimation methods in the Fraser River and Bristol Bay sockeye fisheries.

[1] Committee on the Status of Endangered Wildlife in Canada.

For both the Fraser River and Bristol Bay fisheries, the Contractor will analyze historical performance of the in-season assessment process, to include changes in estimates of run sizes with particular emphasis on how long it has taken within each season to correctly assess the final in-season run size. The key issue to be described is how quickly the in-season assessment process can respond to errors in preseason forecasts so as to meet escapement goals.

The Contractor will describe and evaluate the accuracy, precision and reliability of in-season and post-season escapement enumeration methods used in the Fraser River and Bristol Bay.

The Contractor will develop rebuilding strategies for Fraser River sockeye.

RESEARCHERS

- Karl K. English (team leader), senior fisheries scientist, and Past President of LGL Limited.
- Robert C. Bocking, fisheries biologist, and Vice-President (Fisheries), LGL Limited.
- Dr. Tim C. Edgell, ecologist and analytical biologist.

COMPANY PROFILE

LGL Limited, incorporated in 1971, is a Canadian company, with offices in Sidney, British Columbia, King City, Ontario, and St. John's, Newfoundland, and wholly-owned subsidiaries in Anchorage, Alaska, and Ellensburg, Washington.

LGL maintains an in-house staff of over 100 professionals with expertise in a broad range of disciplines, including fish, birds, mammals (terrestrial and marine) and freshwater, marine and wetland ecology; disturbance effects; environmental impact assessment and environmental planning; and data analysis.

PROJECT 8
EFFECTS OF PREDATORS ON FRASER RIVER SOCKEYE SALMON

OBJECTIVE

A technical report is required containing an evaluation of the effects of predators on Fraser River sockeye salmon.

SCOPE OF WORK

The Contractors will prepare a description of predation on sockeye salmon across the geographical range of the population, focusing on marine mammal and fish predation on adults and smolts.

A fisheries biologist (Dr. V. Christensen) will prepare an evaluation of freshwater fish predation on alevins, fry and smolts, and marine fish predation on smolts, sub-adults and adults. This evaluation will include a report that includes digital copies of figures and tables.

The marine mammal biologist (Dr. A. Trites) will assume responsibility for integrating the fisheries biologist fish predation assessment with the marine mammal predation assessment. An overall assessment of predation will be developed for the suite of predators that are encountered by juvenile and adult sockeye salmon.

The Contractors will evaluate the extent to which reductions in sockeye abundance are associated with predators in the Fraser River and in the marine areas frequented by Fraser sockeye.

RESEARCHER 1

Dr. Andrew Trites, Professor and Director of the Marine Mammal Research Unit, Fisheries Centre, University of British Columbia, and Research Director for the North Pacific Universities Marine Mammal Research Consortium, Fisheries Centre, U.B.C.

BIOGRAPHY

Dr. Trites' main area of research is the interaction between marine mammals and commercial fisheries. This includes the population biology and bioenergetics of seals, sea lions and whales, and involves a combination of field, captive and computer studies (data analysis and simulation modeling).

RESEARCHER 2

Dr. Villy Christensen, Professor, University of British Columbia Fisheries Centre

BIOGRAPHY

Dr. Christensen works with ecosystem modeling and has a background in fisheries research. His research since 1990 has centered on understanding how human exploitation impacts aquatic ecosystems, and utilizes ecosystem modeling as the main tool.

PROJECT 9
EFFECTS OF CLIMATE CHANGE ON FRASER RIVER SOCKEYE SALMON: LITERATURE COMPILATION AND ANALYSIS

BACKGROUND

A review of the evidence for the occurrence and effects of climate change on Fraser River sockeye is required, to evaluate the importance of the climatic trends on their ecology and survival and to determine the role of climate in the Fraser River sockeye run failure of 2009.

OBJECTIVE

To compile the scientific and grey literature on the documented and projected effects of climate-related variables and climate change on Pacific Salmon with a particular focus on sockeye salmon, and where possible Fraser River sockeye salmon, in freshwater and marine environments across all life stages.

SCOPE OF WORK (1)

The Contractor will compile all published evidence for climate change and climate related effects on sockeye salmon in freshwater and marine habitats across all life stages.

Literature will be compiled from the primary scientific peer-reviewed sources (found using ISI Web of Knowledge and Aquatic Sciences database, and Fisheries Abstracts database) and from grey literature (e.g., technical reports by government and fishery management agencies, theses).

Key words in the literature search will include but not be limited to effects of climate-related variables such as temperature, flow, salinity, pH, currents, primary productivity and species interactions on Fraser River sockeye survival, behaviour and distribution in both freshwater and marine habitats and life stages in each environment.

Literature will also be sought in this compilation related to how Pacific salmon (especially sockeye salmon) are or may be showing potential adaptive responses to climate change, or climate-related variables, and for how potential mitigation measures could be taken by salmon management agencies.

SCOPE OF WORK (2)

The Contractor will review published evidence for climate change effects on Fraser River sockeye in freshwater and marine habitats across all life stages, based on a literature database created by Dr. Scott Hinch (see Scope of Work (1)). The review will also consider projected impacts of climate change on Fraser River sockeye in the future.

The review will look specifically for evidence of the effects of climate-related variables such as temperature, flow, salinity, pH, currents, primary productivity and species interactions on Fraser River sockeye survival, behaviour and distribution. Climate change effects will be separated into freshwater and marine habitats and life stages in each environment.

The review will also look for evidence for potential adaptive responses of Fraser River sockeye to climate change and for potential mitigation measures that could be taken by management agencies.

RESEARCHERS

Scope of Work (1) - Dr. Scott Hinch, Department of Forest Sciences, University of British Columbia.

Scope of Work (2) – Dr. Eduardo Martins, Post-Doctoral Fellow, Department of Forest Sciences, University of British Columbia.

BIOGRAPHIES

Professor Hinch's research program links ecology, behaviour and physiology involving large field and modeling projects. For over a decade, Prof. Hinch has investigated

hypotheses about the role that environmental conditions have on energy utilization strategies in up-river migrating and spawning salmon. He pioneered the use of electromyogram (EMG) physiological telemetry to study reach-specific energetic costs and observe swimming tactics, and developed under water stereovideographic systems to examine precise linkages between behaviour, hydraulic features and energy use.

Dr. Martins is a Post-Doctoral Fellow working with Professor Scott Hinch, UBC Dept. of Forest Sciences. He was senior author of a report on the effects of river temperature and climate warming on stock-specific survival of adult migrating Fraser River sockeye salmon. He recently attended the International Symposium on Climate Change Effects on Fish and Fisheries in Sendai, Japan where he delivered a paper on effects of river temperature and climate warming on Fraser sockeye.

PROJECT 10
FRASER RIVER SOCKEYE PRODUCTION DYNAMICS – DATA COMPILATION, LITERATURE REVIEW, AND REPORTING

BACKGROUND

An evaluation of sockeye production dynamics in the Fraser River is required to evaluate the trends in Fraser sockeye survival, and to compare reductions in Fraser sockeye abundance and productivity with those in other sockeye watersheds.

OBJECTIVES

To prepare a technical report evaluating various aspects of sockeye production dynamics in the Fraser River and other systems, as well as compile and contribute appropriate data to a comparison of time-varying productivity in Fraser sockeye with other sockeye populations.

To undertake analytical evaluations of sockeye production dynamics in the Fraser River and other sockeye systems.

SCOPE OF WORK (1)

The Contractor will procure the relevant up-to-date data sets on Fraser River sockeye, by Conservation Unit, covering the period from the mid-1950's through to the present, and to the extent possible will undertake basic statistical analyses of abundance and productivity by Conservation Unit. The historical temporal and spatial patterns in abundance of Fraser sockeye adult recruits (i.e., catch plus escapement) and productivity (adult recruits per effective female spawner) will be summarized from historical data series, starting with the earliest data available (1950s in many Fraser sockeye Conservation Units) and including the recent decade of data up to the present, which were not included in the Fraser River sockeye part of the Dorner et al. (2008, Can. J. Fish. Aquat. Sci., 65:1842) data set. These data and basic analyses will serve as input to other work to be done with another Contractor and collaborator, Dr. Brigitte Dorner.

To support a comparison of sockeye population dynamics across the geographical range of the species, the Contractor will also obtain up-to-date data over the last decade to add to the Dorner et al. (2008) data set on non-Fraser sockeye populations in North America. That data set ended with the late 1990s/early 2000s. The Contractor will also obtain data on sockeye populations in Asia and determine whether they are of high enough quality to be useable in this context. If so, they will be included in the comparisons across sockeye stocks of time-varying Ricker *'a'* parameter estimates that will be led by another Contractor and collaborator, Dr. Brigitte Dorner. Those comparisons will contrast the production dynamics of Fraser River sockeye with these other sockeye populations.

The Contractor will also review previous research and data on sockeye cyclic dominance, including Fraser and non-Fraser sockeye populations. The relationship between sockeye run failures and timing of sockeye cyclic dominant runs will be reviewed.

The Contractor will also summarize the frequency and effects of over-escapement on subsequent productivity and abundance of adult recruits.

SCOPE OF WORK (2)

The Contractor will undertake analyses of Fraser sockeye abundance and productivity in relation to the distribution of sockeye Conservation Units. This will involve procuring the relevant Fraser River sockeye data sets and performing the appropriate statistical analyses. Effective female spawners will be used as the measure of spawner abundance. Analyses will include standard estimation of parameters for the Ricker spawner-recruit model and use of a Kalman filter with a time-varying *'a'* parameter and a random-walk system equation for describing temporal variations in *'a'*. Dr. Catherine Michielsens at the Pacific Salmon Commission has recently used this Dorner et al. (2008, Can. J. Fish. Aquat. Sci., 65:1842) Kalman filter method to estimate such historical patterns in Fraser sockeye *'a'* parameters, so this step will only be repeated to

the extent that the Contractor will need those numbers to compare with analogous estimates for sockeye populations in non-Fraser systems in Scope of Work (1).

The production dynamics of Fraser River sockeye will be compared to sockeye populations across the geographical range of the species. Production dynamics of all sockeye populations, Fraser as well as non-Fraser, will be described in terms of time series of adult recruits, recruits per spawner (or per effective female spawner in the case of Fraser sockeye), and estimates of the Ricker *'a'* parameter derived from a Kalman filter, which is composed of a time-varying *'a'* parameter and a random-walk system equation.

The analysis will include assessment of the strength and temporal predictability of delayed density-dependent effects, which are not represented in simpler stock recruitment models and productivity trend estimation.

RESEARCHERS

Scope of Work (1) - Dr. Randall M. Peterman, Professor in the School of Resource and Environmental Management at Simon Fraser University, Burnaby, British Columbia.
Scope of Work (2) - Dr. Brigitte Dorner, Post-Doctoral Fellow, Simon Fraser University, Burnaby, British Columbia.

BIOGRAPHIES

Dr. Peterman is a Professor in the School of Resource and Environmental Management at Simon Fraser University (Burnaby, British Columbia, Canada). He holds a Canada Research Chair in Fisheries Risk Assessment and Management and is Director of the Cooperative Resource Management Institute, a unit on campus that facilitates collaboration among university researchers, resource management agencies, and industry. His research focuses on quantitative methods to improve the understanding and management of fish populations, particularly in the presence of uncertainties and conservation risks. His research group specializes in developing and applying quantitative methods to improve fisheries management. Dr. Peterman has served on

various policy advisory groups and helped to write the 1995 United Nations Food and Agriculture Organization's (FAO) "Precautionary Approach to Fisheries."

Dr. Dorner has an M.Sc. in Computing Science (1994, Simon Fraser University), and a Ph.D. in Resource and Environmental Management (2002, Simon Fraser University). She works as a post-doctoral fellow with Dr. Peterman, in dynamics and management of Pacific salmon, including comparative analysis of time trends in salmon productivity. Her areas of specialty include Salmon Ecology, Fisheries Management, Operating Models, Management Strategy Evaluation, Landscape Ecology, Forest Ecology, Spatial Statistics, Spatial Modeling, GIS, and Remote Sensing.

PROJECT 11
FRASER RIVER SOCKEYE SALMON: STATUS OF DFO SCIENCE AND MANAGEMENT

BACKGROUND

Evaluations are needed to assess DFO management and science expenditures over time as they relate to Fraser sockeye salmon.

The demographic of scientists within DFO Science Branch also requires evaluation so that long term capacity to undertake Fraser sockeye science research can be addressed.

OBJECTIVES

To prepare an analysis, including an economic analysis, of DFO activities in Fraser sockeye management.

To present DFO science and research expenditures related to Fraser sockeye.

To undertake an analysis to evaluate DFO's ability to meet its stated management objectives relative to Fraser sockeye.

SCOPE OF WORK

The Contractor will summarize stated DFO management objectives for Fraser sockeye over the period 1985 through to the present.

The Contractor will describe and summarize DFO budgets and expenditures related to sockeye science and management activities for the period 1985 through to the present, estimating expenditures in 2010 dollars so as to provide a basis for comparison.

The Contractor will evaluate the ability of DFO to achieve its stated management objectives for Fraser sockeye over the period 1985 through to the present.

The Contractor will deliver three reports:

- "Evaluation of management expenditures," by October 15, 2010,
- "Description of DFO Fraser River sockeye science and research expenditures," by December 17, 2010, and
- "Description of DFO's ability to carry out applied sockeye research and management," by December 17, 2010.

RESEARCHERS

This investigation will be undertaken by 3 analysts:

- Dr. Edwin Blewett, President of Counterpoint Consulting Inc, holds a PhD in economics from the University of British Columbia (1982) where he specialized in econometrics and statistics, public finance and microeconomic theory. After four years as a senior economist with DFO, Edwin started his consulting practice in 1987. Edwin has a diverse skill set ranging from economic analysis and econometric forecasting to market research and evaluation.
- Bert Ionson is a retired DFO Regional Salmon Manager. Throughout his career he worked with First Nations and commercial and recreational fishermen in the planning and management of their fisheries as well as developers and land owners in fish habitat related issues. As well, in many of these positions, he had a role in developing and implementing fisheries policies (mostly focused on salmon).
- Michael Staley has served as a fisheries advisor to various Aboriginal groups including the B.C. Aboriginal Fisheries Commission, the First Nations Summit Task Groups, the Fraser River Aboriginal Fisheries Secretariat and the First Nations Marine Society. He has been responsible for fisheries analyses and advice to First Nations throughout British Columbia. Since 1995 he has served as a member of the Fraser Panel Technical Committee of the Pacific Salmon Commission.

PROJECT 12
SOCKEYE HABITAT ANALYSIS IN THE LOWER FRASER RIVER AND THE STRAIT OF GEORGIA

BACKGROUND

Information is needed to assess sockeye habitat quality and quantity in the Lower Fraser River and the Strait of Georgia where most Fraser Watershed human development activities are concentrated.

OBJECTIVES

To describe historical trends in development activities in the Lower Fraser and the Strait of Georgia that impact sockeye habitats.

To quantify the sockeye habitats that are exposed to human development activities, including urban impacts and to determine the severity of impacts from those activities.

To describe linkages between Fraser sockeye declines and human development activities in the Lower Fraser River and the Strait of Georgia.

SCOPE OF WORK

Prepare a habitat inventory for sockeye habitats in the Lower Fraser River (below Hope) and identify human activities that could affect them.

Analyze Fraser Estuary development including impacts of larger vessels e.g., oil tankers, proposed expansion of Vancouver Airport Fuel Delivery Project, development of ports, bridges and damage from dredging.

Describe human activities in the Strait of Georgia and identify those which could negatively affect sockeye salmon. Evaluate Coastal Zone protection strategies related to shoreline development, shipping, aquaculture and oil tanker traffic.

Integrate information from Projects 2 and 3 related to sewage runoff, gravel mining and Fraser River channel morphology changes.

Provide a synopsis of water quality conditions in the Strait of Georgia along the sockeye migration routes.

Quantify sockeye food abundance in the Strait of Georgia, in relation to the potential for food competition and limitation.

RESEARCHER

To be decided.

Glossary

Cross references are given in italic type.

adult: mature.

alevin: salmon hatchling, with a large yolk sac for nourishment (Quinn 2005). See also *fry*.

anadromous species: fish species that migrate from salt water to spawn in fresh water (dictionary.com).

anthropogenic: caused or produced by humans (dictionary.com).

aquaculture: the managed production of fish, shellfish, and aquatic plants.

benthic habitat: ecological region at the lowest level of a lake or ocean. See also *fish habitat*; *pelagic habitat*.

closed containment facilities: *aquaculture* facilities that physically separate fish from the external environment. See also *open-pen salmon farms*.

conservation: the protection of species, their habitats, and *ecosystems* from excessive rates of extinction (Wikipedia). See also *benthic habitat*; *fish habitat*; *pelagic habitat*.

DFO: Department of Fisheries and Oceans / Fisheries and Oceans Canada; the federal agency responsible for managing *Pacific salmon* and their habitats (Labelle 2009).

DIDSON system: Dual-frequency IDentification SONar, which provides high-definition sonar images.

dip net: a major fishing technique used in the Fraser Canyon to catch large numbers of chinook and sockeye salmon. While standing above the current in the river narrows, the fisher dips a large net attached to the end of a pole into the water, traps fish inside, and hauls them out (SFU Virtual Museum website).

diversion rate: percentage of sockeye which migrate through the northern route (Johnstone Strait) as opposed to the southern route (Strait of Juan de Fuca).

Early Stuart run: the first Fraser River sockeye stock to migrate upriver in the summer. This run, which consists of 32 stocks and spawns in the Stuart River, undertakes the longest migration of all Fraser River salmon and reaches its

spawning beds (in streams tributary to south Takla Lake and Middle River) in the first half of August (Schubert 1998; Kiessling et al. 2004). See also *Early Summer*, *Summer*, and *Late* runs.

Early Summer run: This run, consisting of 34 sockeye stocks from Pitt River and the North and South Thompson rivers, spawns throughout the Fraser River system. The fish migrate through the Lower Fraser River from mid-July to mid-August and spawn from late August to mid-September (Schubert 1998; Labelle 2009). See also *Early Stuart*, *Summer*, and *Late* runs.

ecosystem: a complex system consisting of all the organisms that live in a particular area, as well as all the non-living, physical components of the environment with which the organisms interact (Wikipedia).

enhancement: manufactured alterations to natural habitats; or the application of artificial culture techniques to increase the abundance of juvenile salmon (e.g., spawning channels, hatcheries, and fertilization) (Labelle 2009).

escapement: the number of fish that escape from a fishery (Labelle 2009).

exploitation rate: the portion of all *adult* fish returning to their natal streams which are captured in a fishery (Labelle 2009).

finfish: in Canadian *aquaculture*, finfish are fish (primarily *salmonids*) raised in captivity for harvesting (finfish aquaculture includes Atlantic salmon, chinook salmon, coho salmon, steelhead, rainbow trout, brook trout, Arctic char, and tilapia).

fish habitat: places that supply fish with their life-cycle requirements for food, shelter, reproduction, and movement (DFO website). See also *riparian habitat*.

fisheries: activities involving the capture of wild fish which lead to harvesting. Canada has three types of fisheries: Aboriginal, commercial, and *recreational* (or sport) (DFO website, FAO website). See also *food, social, and ceremonial (FSC) fishery*; *gear*.

food, social, and ceremonial (FSC) fishery: First Nations' fishery for food, social, and ceremonial use. The Aboriginal right to fish for these three purposes has priority over all other uses of the fishery and is second only to *conservation* requirements (DFO website). See also *fisheries*.

fry: When the *alevin* has used up its yolk sac and is ready to feed on its own, it wriggles up through the gravel and emerges into the stream or lake as a fry (Quinn 2005).

gear: Commercial salmon licences are issued for three gear types: *purse-seine*, *gillnet*, and *troll*.

gillnet: a rectangular net that hangs in the water and is set from the stern or bow of a fishing vessel. When fish swim headfirst into the net, their gills get entangled in the mesh (DFO website).

harvest management: the management of the different *fisheries* of *Pacific salmon*.

harvest rate: the percentage of fish in a fishing area (defined by *gear*, location, and timing) that is killed in the fishery; also, the percentage of a single age class of fish that are harvested by all *fisheries* (Labelle 2009).

hydroacoustic: active sound in water (sonar) that is used to study fish. Acoustic echosounders transmit pulses of acoustic energy into the water; when an acoustic pulse encounters an object, it is reflected back to the transducer. This process is used to evaluate fish biomass and spatial distributions, as well as to count passing fish (HTI website).

infectious hematopoietic necrosis (IHN) disease: a viral disease that generally affects *adults* returning to spawn or *fry* at emergence. Of the *Pacific salmon* species, sockeye is the most susceptible (Warren 1983; Amos et al. 1989; Traxler et al. 1993).

in-season management: During the season, run sizes are determined through science-based procedures and other sources such as test fisheries, counting devices, and fish wheels. These in-season run sizes are used to determine the opening dates for the *fisheries* (DFO website).

Late run: consists of 52 sockeye stocks that migrate through the Lower Fraser River from August to mid-October and spawn from late September to late November. Late-run sockeye tend to hold at the mouth of the Fraser River for three to six weeks before moving upstream. These stocks spawn in the Lower Fraser, Harrison-Lillooet, Thompson, and Seton-Anderson systems and include the Cultus Lake and Harrison River stocks (Schubert 1998; Labelle 2009). See also *Early Stuart, Early Summer*, and *Summer* runs.

Lower Fraser River: from the mouth of the Fraser River in the Strait of Georgia to below Hope, BC.

mainstem: the principal channel in a drainage basin which carries the greater part of the river flow. All the tributary streams in a drainage basin flow into the mainstem (Wikipedia).

mariculture: the cultivation, management, and harvesting of marine organisms in their natural habitat or in specially constructed rearing units. The end product is cultivated in seawater (FAO website). See also *aquaculture*.

mature: See *adult*.

Native fishery guardian program: Aboriginal communities select candidates for training as fisheries' guardians; these candidates are trained to monitor fisheries, collect harvest data, conduct patrols with DFO staff over the area of the fishery, and report on all Aboriginal and non-Aboriginal fishery activities. The guardians then receive limited enforcement powers under the *Fisheries Act* and are employed by their communities to monitor and control fishing and to conduct other fishery management activities (DFO website).

non-point source: water pollution that comes from many diffuse potential sources (e.g., agriculture, urban runoff, mines, septic systems). When rainfall or snowmelt moves over and through the ground, it picks up and carries away pollutants that get deposited in lakes, rivers, wetlands, and coastal waters (Wikipedia; United States Environmental Protection Agency website).

open-pen salmon farms: circular or square net cages that are open to the environment. See also *closed containment facilities*.

overflights: flights that take place during the fishing season. There are usually two flights per week (one on the weekend, one during the week) that survey the entire study area, count the number of rods actively fishing, and record the results by fishing site and technique (DFO Fraser River stock assessment report).

Pacific salmon: includes fish in the genus *Oncorhynchus* – sockeye / kokanee, coho, chinook, pink and chum salmon, rainbow / steelhead trout, and cutthroat trout (Quinn 2005).

pelagic habitat: ecological region in the water column of coastal, ocean, or lake waters (Wikipedia). See also *benthic habitat*; *fish habitat*.

pilot sales programs (Aboriginal fishery): allows certain First Nations to sell all or part of the fish they catch using their communal fishing licences (DFO website).

population: a localized interbreeding group of fish that is largely isolated from other groups. *Pacific salmon* populations have local adaptations to their natal stream environment because of their homing migration (Labelle 2009).

precautionary principle: erring on the side of caution and conservation (Labelle 2009). "[R]isks to the environment or human health should be managed despite the lack of scientific proof that damage has occurred or will occur" (Leggatt 2001).

purse-seine fisheries: Using a small skiff, fishers set their nets in a circle around a group of fish, then draw the bottom edges together to form a "purse" and prevent the fish from escaping.

re-anadromization project: an attempt to turn salmonids with a non-anadromous life cycle (due to a barrier preventing access to saltwater) back into fish with an oceangoing life history – for example, freshwater resident kokanee back into anadromous sockeye salmon. Examples include the Pelton Round Butte Project and projects at Alouette and Coquitlam reservoirs and at Lake Toro, Japan. See also *anadromous species*; *salmonid*.

recreational or sport fishing: harvesting fish for personal use, fun, or challenge. This sector does not include sale barter or trade of all or part of the catch (FAO website). All recreational fishers must possess a valid sport fishing licence, but there is no limit on entry into this fishery (DFO website).

recruitment: the number of young fish that enter adulthood / maturity (as compared to the number of spawning fish that produced them four years previously) (FAO website). See also *adult*.

resource management: the management of natural resources, such as *fisheries*, with a focus on sustainable development to conserve and preserve natural resources (Wikipedia); departmental actions, policies, and programs that directly or indirectly affect wild *Pacific salmon* through their habitats and *ecosystems* (DFO website). See also *conservation*.

riparian habitat: the areas of vegetation bordering on streams, lakes, and wetlands which link water to land. These areas directly influence and provide *fish habitat* (BC Ministry of Environment website).

run size: one or more stocks of the same species that survive natural mortality agents and return to a given freshwater system in a given year (DFO website; Quinn 2005).

salmonid: ray-finned fish in the family Salmonidae. It includes salmon, trout, chars, freshwater whitefish, and grayling (DFO website).

sector: the three different fisheries (Aboriginal, commercial, and recreational), and the subdivisions within them (e.g., commercial: *gillnet*, *purse-seine*, *troll*).

selective fishing: the harvest of surplus target species while minimizing the catch of other species (especially species or stocks of *conservation* concern) (DFO and FAO websites).

smolt: a juvenile salmon that has completed its freshwater rearing and migrates to the marine environment; in this transitional stage, the fish becomes physiologically

capable of balancing salt and water in the marine environment (DFO website; Quinn 2005). See also *alevin*; *fry*.

spawning escapement: the number of salmon that escape all *fisheries* and other mortality and return to the spawning grounds (DFO website).

stewardship: acting responsibly to conserve fish and their habitat for present and future generations (DFO website). See also *conservation*; *fish habitat*.

sub-adult: immature.

Summer run: consists of 33 sockeye stocks that spawn in the Chilcotin, Quesnel, Nechako, and Stuart systems. These fish migrate through the Lower Fraser River from mid-July to early September and spawn from early September to early October (Schubert 1998). See also *Early Stuart*, *Early Summer*, and *Late* runs.

tagging program: includes coded-wire tags (small metal tags with encoded information indicating the origin and year of release of the fish) and mark-recapture studies (a stock assessment program in which salmon are captured and marked, and then an attempt is made to recapture both tagged and untagged fish in order to generate an estimate of the total population).

telemetry studies: where an animal is fitted with a small radio transmitter and released; the unique radio signal from this transmitter can be monitored to provide a study of animal movements and survival (Pollock et al. 1989).

thermistor chains: sensors that collect temperature data.

total allowable catch (TAC): the total catch that may be harvested from a stock. This number is determined by analytical procedures in order to achieve management objectives (DFO website).

troll: a type of fishing that uses hooks and lines suspended from large poles which extend from the fishing vessel as it moves through the water (DFO website).

two-sea-winter fish: fish that spent two summers and two winters in the ocean before returning to spawn (Burgner 1991).

wild salmon: salmon that have spent their entire life cycle in the wild and are the offspring of naturally spawning fish that also lived continuously in the wild (DFO website; Labelle 2009).

zero-base review: a review in which all costs or activities must be considered and justified, and not simply factored in because they figure in current or previous plans (CIPFA website).

References

Amos, K.H., K.A. Hopper, and L. LeVander. 1989. Absence of infectious hematopoietic necrosis virus in adult sockeye salmon. *Journal of Aquatic Animal Health* 1: 281–83.

Burgner, R.L. 1991. Life history of sockeye salmon (*Oncorhynchus nerka*). In C. Groot and L. Margolis, eds. *Pacific salmon life histories*. Vancouver: UBC Press.

Kaeriyama, M., S. Urawa, and T. Suzuki. 1992. Anadromous sockeye salmon (*Oncorhynchus nerka*) derived from nonanadromous kokanee: life history in Lake Toro. *Scientific Reports of the Hokkaido Salmon Hatchery* 46: 157–74.

Kiessling, A., K. Lindahl-Kiessling, and K.-H. Kiessling. 2004. Energy utilization and metabolism in spawning migrating Early Stuart sockeye salmon (*Oncorhynchus nerka*): the migratory paradox. *Canadian Journal of Fisheries and Aquatic Sciences* 61: 452–65.

Labelle, M. 2009. *Status of Pacific salmon resources in southern British Columbia and the Fraser River basin*. Vancouver: Pacific Fisheries Resource Conservation Council.

Leggatt, S.M. 2001. Clear choices, clean waters: the Leggatt inquiry into salmon farming in British Columbia. *Report and Recommendations*.

Pollock, K.H., S.R. Winterstein, C.M. Bunck, and P.D. Curtis. 1989. Survival analysis in telemetry studies: the staggered entry design. *The Journal of Wildlife Management* 53: 7–15.

Quinn, T.P. 2005. *The behavior and ecology of Pacific salmon and trout*. Seattle: University of Washington Press.

Schubert, N.D. 1998. The 1994 Fraser River sockeye salmon (*Oncorhynchus nerka*) escapement. *Canadian Technical Reports of Fisheries and Aquatic Sciences* 2201.

Traxler, G.S., J.R. Roome, and M.L. Kent. 1993. Transmission of infectious hematopoietic necrosis virus in seawater. *Diseases of Aquatic Organisms* 16: 111–14.

Warren, J.W. 1983. Infectious hematopoietic necrosis. In F.P. Meyer, J.W. Warren, and T.G. Carey, eds. *A guide to integrated fish health management in the Great Lakes basin*, 163–68. Great Lakes Fishery Commission, Ann Arbor, Michigan. Special Publication 83-2.

Websites

BC Hydro, Alouette and Coquitlam reservoirs: http://www.bchydro.com (accessed September 15, 2010).

BC Ministry of Environment: http://www.gov.bc.ca/env (accessed September 8, 2010).

CIPFA: http://www.cipfa.org.uk/pt/download/zero_based_budgeting_briefing.pdf (accessed September 8, 2010).

DFO: http://www.pac.dfo-mpo.gc.ca (accessed September 7–8, 2010).

dictionary: http://www.dictionary.com (accessed September 7, 2010).

FAO: http://www.fao.org (accessed September 7–8, 2010).

Hydroacoustic Technology, Inc. (HTI): http://www.htisonar.com (accessed September 7, 2010).

Pelton Round Butte Project: http://www.deschutespassage.com (accessed September 15, 2010).
SFU Virtual Museum: http://www.sfu.museum/time/en/panoramas/beach/dip-netting (accessed September 7, 2010).
United States Environmental Protection Agency (US EPA): http://www.epa.gov (accessed September 7, 2010).
Wikipedia: http://www.wikipedia.org (accessed September 7–8, 2010).

ISBN 978-1-100-16291-1 (PDF)