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

In the matter of His Excellency the Governor General in Council, on the recommendation of the Prime Minister, directing that a Commission do issue under Part 1 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

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FINAL SUBMISSIONS OF THE GOVERNMENT OF CANADA

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I. INTRODUCTION

1. Pacific salmon, including Fraser sockeye, play an important role in natural ecosystems and nourish a complex web of interdependent species. They serve as a source of food for many First Nations in British Columbia, and often have a central place in their culture and spirituality. Pacific salmon also provide a source of sustenance, income, and enjoyment for individuals, businesses, and coastal and in-river communities. The Government of Canada is committed to the conservation and sustainable use of this significant resource.

2. Pursuant to s. 91(12) of the *Constitution Act, 1867*, Canada has legislative jurisdiction over "Sea Coast and Inland Fisheries" and, as such, has important roles and responsibilities in managing the Fraser sockeye stock. In seeking to achieve the goal of a sustainable resource for generations to come, Canada works with provincial and municipal governments, Aboriginal groups, commercial and recreational harvesters, environmental groups and others. Canada seeks to do this through collaborative, transparent, effective, and efficient participatory processes within the legislative and regulatory framework that governs the fisheries, and within available resources.

3. In recent decades, issues relating to the management of Fraser sockeye and their ecosystem have become more challenging. In 2009, only 1.5 million Fraser sockeye returned, the lowest number since 1947. As concerning as the 2009 return was, it was only the latest in a series of indications that Fraser sockeye populations were facing serious challenges.

4. On November 6, 2009, the Prime Minister announced the establishment of the Commission of Inquiry into the Decline of Sockeye Salmon in the Fraser River (the Commission). The Commission was established under Part I of the *Inquiries Act*. The Honourable Bruce Cohen, a judge of the Supreme Court of British Columbia, was appointed to act as Commissioner (the Commissioner). The Commission was established to take all feasible steps to identify the reasons for the decline of Fraser sockeye. In his November 6, 2009 announcement, the Prime Minister emphasized that it is in the public interest to investigate this matter, and to determine the longer-term prospects for Fraser sockeye stocks.

5. The Terms of Reference for the Commission direct the Commissioner to, *inter alia*, "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".[1] In his September 15, 2010 Ruling regarding this wording in the Terms of Reference, the Commissioner stated:

> 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. An inquiry into the fishery focused on finger-pointing would obviously be counterproductive to achieving the aim of the inquiry.[2]

6. The Terms of Reference for the Commission also direct the Commissioner to:

a) consider the policies and practices of the Department of Fisheries and Oceans with respect to the sockeye salmon fishery in the Fraser River;
b) investigate and make independent findings of fact regarding the causes for the decline of Fraser sockeye;
c) investigate and make independent findings of fact regarding the current state of Fraser sockeye stocks and the long term projections for those stocks; and
d) develop recommendations for improving the future sustainability of the sockeye fishery in the Fraser River.[3]

7. Between August 12, 2010 and October 22, 2010, the Commissioner visited various sites throughout British Columbia that are relevant to the Commission's mandate. Those site visits no doubt provided an overview of both the wide range of human activities that are involved in the Fraser sockeye fishery, and the wide range of interests that may potentially affect Fraser sockeye and other Pacific salmon.

8. During this period, the Commissioner also attended ten public forums throughout British Columbia. The forums provided an important opportunity for members of the public to present their views to the Commissioner and contribute to the Commission's work.

[1] PC 2009-1860, November 5, 2009 at (a)(i)(A).
[2] Ruling on Interpretation of Terms of Reference, 15 September 2010 at para. 24.
[3] PC 2009-1860, 5 November 2009 at (a)(i)(B)-(D).

9. In addition, members of the public were invited to make written submissions to the Commission, and many were posted on its website. These written submissions, which were provided throughout the course of the Commission, were another important opportunity for Canadians to contribute to the Commission's work.

10. Between October 25, 2010 and September 28, 2011, the Commission conducted public hearings focusing on a wide range of topics relevant to its mandate. There were 125 days of testimony, with 173 witnesses appearing, 1992 documents were entered as exhibits including 15 Technical Reports, and 21 Policy and Practice Reports authored by Commission officials. Of those who testified, more than 80 were present or former employees of Canada. These witnesses provided a vast body of information and scientific knowledge and opinion to the Commission.

11. The 21 participants granted standing by the Commissioner have assisted in raising issues, and providing perspectives, throughout the hearings and the Commission's process generally. The large number of participants reflects the level of interest in Fraser sockeye resource in British Columbia.

12. The public forums, written submission, testimony, and the different perspectives reflected therein demonstrate that issues relating to Pacific salmon are often characterized by complexity, uncertainty and conflict. That said, underlying many of these perspectives is the desire for there to be a better understanding of Fraser sockeye and their ecosystem. What also underlies many of these perspectives is a shared commitment to finding and implementing solutions to achieve the goal of securing a sustainable Fraser sockeye fishery for generations to come.

13. In establishing the Commission, Canada has enabled the creation of an independent, wide-ranging, and transparent process to examine the decline and long-term prospects of Fraser sockeye, and to make recommendations for improving the future sustainability of the Fraser sockeye fishery.

14. The Terms of Reference for the Commission expressly affirms Canada's commitment to full cooperation with the Commission's work.[4] Canada produced over 500,000 documents to the Commission. Canada also made available well over 100 individuals to be interviewed, many of

[4] PC 2009-1860, 5 November 2009.

whom testified as witnesses before the Commission. Further, Canada provided a multitude of other information, and elicited relevant evidence through questioning in the evidentiary hearings.

15. These submissions are intended to provide a fair, balanced, and factual summary of what Canada considers to be the key evidence presented in the Commission's hearings. The intent is not to advocate for any position or to make recommendations, but rather to assist the Commissioner in the preparation of his final report.

16. Canada thanks all participants for their interest, commitment, and thoughtful insights. Canada also thanks the Commission counsel and officials and hearing room officials for their assistance and work throughout. Canada commends the Commission for its work in fulfilling its expansive and challenging mandate, and looks forward to the Commissioner's final report.

II. EXECUTIVE SUMMARY

Introduction

17. On November 6, 2009, the Prime Minister announced the establishment of the Commission of Inquiry into the Decline of Sockeye Salmon in the Fraser River. The Terms of Reference direct the Commissioner to investigate and make independent findings of fact regarding the causes for the decline, the current state and the long term projections of Fraser sockeye, and to develop recommendations for improving the future sustainability of the Fraser sockeye fishery. This is an expansive and challenging mandate.

18. Canada's submissions are intended to highlight Canada's perspective of the salient points presented throughout the Commission's work. The intent is not to advocate for any position or to make recommendations, but to assist the Commissioner in the preparation of his final report. In doing so, these submissions will touch upon: the legal and policy framework for managing Fraser sockeye; the key evidence regarding the causes of decline and the current state of Fraser sockeye; and, activities underway to improve the future sustainability of the Fraser sockeye fishery.

The Context for Fraser Sockeye

19. The management of Pacific salmon, including Fraser sockeye, is characterized by complexity, uncertainty, and conflict. Complexity and uncertainty arise from the biological and physical characteristics of Fraser sockeye and their ecosystem. During their lifecycle, Fraser sockeye encounter variations in environmental conditions, food availability, predators, and human activity. Under these circumstances, it is extremely difficult to accurately predict the expected returns of salmon stocks in advance of their arrival. Conflict arises out of the myriad of competing human interests relating to Fraser sockeye, while the policy and legal frameworks applicable to Fraser sockeye add complexity.

DFO Organization

20. Canada exercises its jurisdiction over fisheries primarily through the Department of Fisheries and Oceans (DFO). DFO delivers on that responsibility through priority-setting and decision-making mechanisms, budgeting processes, and clear organizational structures – all in furtherance of DFO's strategic outcomes:

- economically prosperous maritime sectors and fisheries;
- sustainable aquatic ecosystems; and
- safe and secure waters.

Legal Context

21. The legal framework applicable to Fraser sockeye is complex, involving federal and provincial legislation, international agreements, constitutional rights, and common law principles. An evolving body of case law, including case law in relation to Aboriginal fishing, adds complexity.

22. Canada has legislative jurisdiction over "Sea Coast and Inland Fisheries" pursuant to s.91(12) of the *Constitution Act, 1867*. That jurisdiction is given effect primarily through the *Fisheries Act* and related regulations. Several other federal statutes - including the *Oceans Act*, the *Species at Risk Act*, the *Canadian Environmental Assessment Act* and the *Canadian Environmental Protection Act* – and many federal regulations govern matters related to Fraser sockeye and their ecosystem.

Policy Context

23. DFO manages fisheries in accordance with a series of policies developed to provide guidance on the numerous and complex issues relating to fisheries management. These policies provide a framework for decision-making, and support DFO's strategic outcomes relating to fisheries management.

24. Four key themes have emerged through the evolution of policies relevant to Pacific salmon – conservation, sustainable use, consultation and decision-making, and collaboration and co-management.

Stakeholders and Aboriginal Groups

25. Many British Columbians have an interest in the conservation and sustainable use of the Fraser sockeye resource. The range of those involved in Fraser sockeye conservation and management include a majority of British Columbia First Nations, the commercial fishing industry, the recreational fishing community, environmental organizations, the Pacific Salmon Commission, academia, and similar constituencies in the northwest United States.

Biological and Environmental Context

26. The Fraser sockeye lifecycle consists of four stages (fry, smolt, juvenile, adult) that take place throughout a vast area – from natal streams in the Fraser Watershed to marine areas encompassing Canadian, American, and international waters. Land use and water use are largely managed by British Columbia with the involvement of Canada where fish habitat or navigable waters are involved. Local governments can also impact fish habitats through their zoning and development related decisions.

27. Numerous environmental factors can affect the productivity and long-term viability of wild Pacific salmon. The freshwater and marine environments can undergo dramatic and often unpredictable changes, creating considerable uncertainty for fisheries managers.

Key Evidence Regarding the Matters Being Investigated by the Commissioner

Key Evidence Regarding the Causes for the Decline of Fraser Sockeye

28. Until 2010, the productivity of Fraser sockeye stocks had been trending downwards for many years. Work to determine the causes of this decline is ongoing - and it is challenging.

29. A consensus appears to be emerging amongst scientists that biophysical changes in the marine environment stand out as the most strongly inferred factors explaining the pre-2010 decline. This consensus has emerged through a series of workshops involving scientists from DFO and other organizations, and is reflected in the testimony of scientists before the Commission and in the Commission's Technical Reports.

Key Evidence Regarding the Current State of Fraser Sockeye Stocks and the Long Term Projections for those Stocks

30. Work to assess the current state of Fraser sockeye stocks, and to make pre-season and long-term projections for those stocks, is challenging. The effects of climate change are expected to make such work even more challenging by causing greater variability and unpredictability in Pacific salmon returns.

31. Climate change has the potential to impact all life history stages for Fraser sockeye, which are particularly vulnerable to climate change as the Fraser watershed is near the southern limit of the distribution of sockeye salmon on the west coast of North America.

Key Evidence Regarding Improving the Future Sustainability of the Fraser Sockeye Fishery

i. Clear Conservation Objectives and a Framework for Collaboration

32. *Canada's Policy for the Conservation of Wild Salmon*, commonly referred to as *The Wild Salmon Policy*, introduced in 2005 after years of consultation with interested parties, provides guidance on how to understand and inform management decisions with respect to genetic diversity of wild Pacific salmon, protect the habitats and the ecosystems in which they live and manage fisheries for sustainable benefits. The *Wild Salmon Policy* also promotes a collaborative and integrated approach to long and medium term planning that brings together the factors that affect fish production and those that affect harvest.

33. While implementation of the *Wild Salmon Policy*'s Action Steps is ongoing and will continue, DFO has implemented the principles of the *Wild Salmon Policy* in its everyday management of the salmon resource.

ii. Sound Science

34. Sound science and broadly accepted fisheries data are critical to achieving sustainability of the Fraser sockeye fishery and to promoting effective collaboration. Canada has recognized this by planning and conducting a wide range of scientific investigations into the most likely sources of population variability that often involve partners in academia, the private sector and the international community.

35. While rigorous planning is essential, it is also important for scientists to remain flexible and conduct research that addresses new or rapidly developing situations. The challenging nature and complexity of the questions that need to be answered supports the continued development and use of multidisciplinary research teams, involving government and other research partners.

36. By welcoming participation external to government in its formal review process for scientific advice (Canadian Science Advisory Secretariat – CSAS), DFO seeks to lay a broadly supported scientific foundation on which conversations about risks, benefits and trade-offs can occur. While this has been largely successful for harvest management, scientific disagreements still hinder productive dialogue on other activities, including salmon aquaculture.

37. Finally, Canada through DFO and other federal agencies, has increased the involvement of Aboriginal groups, other harvesters and other fishery stakeholders in data collection programs to improve the quality and confidence in important stock assessment and fishery monitoring data.

iii. Addressing First Nations' Fisheries Interests

38. While reconciliation between Canada and First Nations is being pursued, including through treaty negotiations, Canada seeks to address the fisheries-related interests of First Nations and to maintain positive relationships with First Nations with respect to fisheries matters. Access to salmon and the role of First Nations in fisheries management have been important components of treaty negotiations in British Columbia.

39. Canada's approach to addressing First Nations' fisheries interests is primarily through DFO's Aboriginal Fisheries Strategy (AFS) and related programs, including the Aboriginal Aquatic and Oceans Management (AAROM) programs and the Pacific Integrated Commercial Fisheries Initiative (PICFI). These programs recognize the importance of fish to First Nations for food, social and ceremonial (FSC) purposes and as a source of potential economic benefit. They are also designed to build First Nations' capacity in a broad suite of fisheries-related activities including, fisheries management, stock and fishery monitoring, habitat protection and stock enhancement.

40. Success in building strong collaborative relationships through DFO programs will help in achieving the overall goal of reconciliation with First Nations. This, combined with a sound integrated management framework, will in turn contribute to the stability and sustainability of the overall fishery.

iv. *Sharing the Harvest*

41. Clear rules for quantifying and sharing the available harvesting opportunities are important in reducing conflict, providing greater certainty for business planning, and promoting collaboration among harvest interests. These are important ingredients for long term sustainability of the Fraser sockeye fishery. For Fraser sockeye, and Pacific salmon generally, the 1999 Allocation Policy for Pacific Salmon (Allocation Policy) provides this guidance.

42. Under Pacific Fisheries Reform, DFO indicated that a transition to some form of share-based management is necessary. DFO has been working with willing commercial groups since 2005 to test alternative forms of share based or quota management.

v. *Instilling Confidence*

43. Key to sustainable Fraser sockeye fisheries is confidence and trust in the management system enjoyed by fishery participants, First Nations, environmental groups, markets for Canadian fish products and the general public.

44. DFO plays a central role in instilling confidence through effective fisheries management, enforcing compliance with fishing regulations, reliable data on spawner levels, reliable catch data and effective regulation of finfish aquaculture. Much of the work that DFO does in instilling confidence is done in collaboration with Aboriginal groups and stakeholders, and other organizations.

vi. Shared Responsibility and Collaboration

45. While DFO is accountable for fisheries, fish habitat and oceans management at the federal level, there are other federal departments and agencies, provincial departments and agencies, regional and municipal governments and other organizations that play important roles in sustaining the fisheries and fish stocks. The nature and extent of the collaboration varies according to the issue at stake, but DFO has identified effective engagement and partnerships as key to deliver on its mandate and vision, including the implementation of Strategy 4 of the *Wild Salmon Policy*.

46. The Integrated Harvest Planning Committee is DFO's key advisory process for integrated planning of the Pacific salmon fishery. It has representation from the commercial and recreational sectors as well as environmental groups. Some Aboriginal group representatives attend the Planning Committee, and work to increase Aboriginal groups' participation is ongoing. Besides the Planning Committee, current processes for collaboration include initiatives aimed at moving towards co-management with Aboriginal groups such as the Forum process and PICFI. This ongoing multi-tier work is supported at the technical level through programs such as AFS and AAROM, as well as the joint DFO-First Nations Fisheries Council co-management working group. In addition, DFO works closely with other levels of government at the provincial and local level, as well as with industrial partners, environmental groups and the general public as part of habitat collaborative processes, such as watershed planning initiatives.

47. DFO is testing new approaches to shared responsibility and stewardship in answer to the evolving complexity of managing the fishery. The Integrated Salmon Dialogue, The Roadmap process and the Fraser River Sockeye Spawning Initiative are examples of such initiatives aimed at improving collaboration.

Conclusion

48. The work of the Commission has provided an important opportunity for continuing to seek a better understanding of Fraser sockeye and their ecosystem. Canada commends the Commission for its work in fulfilling a challenging and important mandate. Canada

acknowledges the considerable task before the Commissioner in developing practical and effective recommendations from the enormous body of evidence and information presented to the Commission.

49. Canada looks forward to the Commissioner’s final report.

III. THE CONTEXT FOR FRASER RIVER SOCKEYE

A. Introduction:

50. In recent decades, issues relating to Pacific salmon and their ecosystems have become more challenging. Today, management of Pacific salmon, including Fraser sockeye, is characterized by complexity, uncertainty, and conflict. Complexity and uncertainty stems from the biological and physical characteristics of salmon and their ecosystem.[5] Conflict arises out of the myriad of competing human interests relating to Fraser sockeye, while the applicable legal and policy frameworks also give rise to complexity in the management of Fraser sockeye.

51. Complexity, uncertainty, and conflict have all contributed to a dynamic environment for the management of the Fraser sockeye fisheries. DFO and, indeed, all those who are involved and interested in fisheries must adapt to continually shifting environmental, biological, and legal circumstances. The policies, programs, and practices of DFO must continue to be reviewed and reshaped to address contemporary challenges to secure a healthy future for Canada's Pacific salmon.

52. Understanding the causes of the decline and the long-term prospects for Fraser sockeye stocks requires an understanding of the overall context for Fraser sockeye. The Regional Director General of the Pacific Region, Susan Farlinger, emphasized the importance of this contextual understanding in her testimony before the Commission:

> [M]anaging in this Department is really about understanding how the, I suppose you could call it, the organism or the ecosystem works and making sure that one part of it speaks to the other and it is informed, as Mr. Sprout has just said, by the context in which we work. Also, I would add, ensuring that the folks we work with, the stakeholders and the First Nations, are also informed by that context, and in a similar measure.[6]

53. To that end, the following sections provide information on the current legal, policy, organizational, biological, environmental, and human contexts for Fraser sockeye.

[5] Dr Wendy Watson-Wright, 3 November 2010, p 17:25-34.
[6] Susan Farlinger, 1 November, 2010, p 66:36-45.

B. DFO Organization:

1. *Overview:*

54. Canada exercises its legislative jurisdiction over sea coast and inland fisheries primarily through the DFO. The purpose of this section is to outline how DFO delivers on that responsibility, by describing the Department's priority-setting and decision-making mechanisms, its budgeting processes, and the organizational structure of DFO. This section also provides an overview of similar processes in DFO's Pacific Region.

2. *The Role of DFO in Fisheries Management:*

55. DFO has the lead federal role in managing Canada's fisheries, safeguarding its waters, and in ensuring safe, healthy, and productive waters and aquatic systems for the benefit of present and future generations. To that end, DFO is responsible for developing and implementing policies and programs in support of Canada's scientific, ecological, social, and economic interests in oceans and fresh waters.[7]

56. To fulfill that responsibility, DFO has identified the following interrelated and interdependent strategic outcomes:

- Economically Prosperous Maritime Sectors and Fisheries

  This strategic outcome focuses on two long-term enduring benefits for Canadians, (1) improving the economic benefits associated with Canada's maritime sectors and fisheries, and (2) enhancing the competitiveness of Canada's maritime sectors and fisheries.[8]

- Sustainable Aquatic Ecosystems

  Here, the focus is on the conservation, protection, and sustainability of Canada's aquatic ecosystems. Achieving this long-term benefit for Canadians involves managing the risks that affect species, oceans, and fish habitats.[9]

[7] Exhibit 17 at p 3: *Report on Plans and Priorities Estimates 2010-11*, Department of Fisheries and Oceans; David Bevan, 1 November 2010, p 4:15-22.
[8] Exhibit 1922 at p 18: *Report on Plans and Priorities 2011-12*, Department of Fisheries and Oceans.
[9] Exhibit 1922 at p 32.

- Safe and Secure Waters

  This is concerned with maintaining and improving maritime safety and security in Canada. To achieve this long-term benefit, DFO provides the maritime infrastructure, information, products, and services necessary to ensure safe navigation and to protect life and property.[10]

57. Departmental programs that support these strategic outcomes can be found in DFO's Program Activity Architecture, which is an inventory of the programs and activities undertaken by the Department, grouped together by strategic outcome.[11]

58. DFO's programs and activities are authorized by a range of federal statutes, including the *Fisheries Act*, RSC 1985, c. F-14, the *Oceans Act*, SC 1996, c. 31, and the *Species at Risk Act*, SC 2001, c. 29. A detailed discussion of these and other relevant federal statutes is found in Part III.C of these submissions.

3. *Government and DFO Priority-Setting, Planning, and Budgeting:*

59. Pursuant to s. 2 of the *Department of Fisheries and Oceans Act*, RSC 1985, c. F-15, the Minister of Fisheries and Oceans (the Minister) has overall responsibility for the management and direction of DFO.[12] DFO reports to Parliament annually on its priorities and performance through its Reports and Plans and Priorities, and its Departmental Performance Reports.[13] In the annual Report on Plans and Priorities, the Minister states his vision for the Department, and sets the Department's priorities for the next year. The priorities for each federal government department, including DFO, are aligned with higher level government statements such as the Speech from the Throne and budget documents.[14]

[10] Exhibit 1922 at p 41.
[11] David Bevan, 1 November 2010, p 5:32-35.
[12] *Department of Fisheries and Oceans Act*, RSC 1985, c. F-15 ["*DFO Act*"]
[13] Exhibit 18: *Departmental Performance Report for the Period Ending March 31, 2009*, Department of Fisheries and Oceans; Claire Dansereau, 1 November 2010, p 28:18-22, pp 33:1 to 34:7.
[14] Claire Dansereau, 1 November 2010, pp 28:40 to 29:36; 23 September 2011, p 42:28-33.

60. While Canada's, including DFO's, priorities are set through the Speech from the Throne and the budget process, DFO-specific priorities that are consistent with national priorities may also emerge at the regional level and through various stakeholder processes.[15]

61. In addition to setting departmental priorities, Reports on Plans and Priorities[16] are also expenditure plans that all departments and agencies are required to prepare on an annual basis. The Report on Plans and Priorities align the funding proposals that are tabled for approval of Parliament as part of the Main Estimates, by providing details about a federal organization's main priorities by strategic outcomes, its program activities, and expected results.[17]

62. The budget process for Canada involves the tabling of the Main Estimates in the House of Commons, often in February or March. Each department must develop its own estimates for the coming year, to be voted on by Parliament. The genesis of this budget process is the Speech from the Throne, setting out the government's priorities for that session of Parliament. After the tabling of the Main Estimates, a budget is introduced in the House of Commons.[18]

63. Within DFO, a new integrated planning approach, entitled "One Pass Planning", was introduced in September 2010. It calls for business plans that are used for multiple departmental planning and accountability needs, including development of the Report on Plans and Priorities, support for budget allocations, and support for risk management and monitoring. One-Pass Planning is designed to reduce the number of times senior departmental officials seek information from the various sectors in order to prepare business plans and reports. This information is sought once a year and used multiple times throughout the year.[19]

64. Through the One-Pass Planning process, DFO programs and regions prepare strategic business plans that specify the commitments and initiatives to be undertaken during the year to achieve their expected results. This step involves Directors General for programs working with the regions on program and regional priorities. These national program plans are the primary source of information for the Report on Plans and Priorities. Some sectors prepare consolidated

[15] Claire Dansereau, 1 November 2010, pp 72:40 to 73:19.
[16] Exhibit 1922: *Report on Plans and Priorities 2011-12*, Department of Fisheries and Ocean
[17] Claire Dansereau, 23 September 2011, p 44:2-8
[18] Claire Dansereau, 23 September 2011, pp 39:38 to 40:38.
[19] Exhibit 1921: *Integrated Planning Best Practices in Fisheries and Oceans*, Department of Fisheries and Oceans, 26 May 2011; Claire Dansereau, 23 September 2011, pp 41:23 to 42:40.

sector business plans, including more detailed information on human and financial resources and finances required to deliver on priorities and commitments.

65. Following the priority setting and planning exercises described above, budget allocation decisions consistent with the DFO Program Activity Architecture are finalized. Additional in-year allocations representing national sector funding are provided through budget transfers.

66. A performance measurement framework has been developed to provide federal departments with results indicators to ensure departments can measure outputs against expected results and ultimately achieve expected outcomes. The framework is reviewed annually to ensure that it responds to the Program Activity Architecture and continues to measure the expected results. For example, The Departmental Performance Reports detail results achieved against planned performance expectation as set out in the Reports on Plans and Priorities.[20]

67. In 2010, DFO underwent Strategic Review, which examined departmental priorities and intended strategic outcomes, for the purpose of determining cost savings that can be achieved through the reallocation of resources to the highest government priorities. All federal government departments have gone through Strategic Review in the past several years. As a result of the DFO Strategic Review, under the federal budget tabled on June 6, 2011, the DFO budget was reduced by a total of $56.8 million, or about 3%, in stages over the three-year period from 2011 to 2014.[21]

68. Like all other federal government departments, DFO is now undergoing a Strategic and Operational Review, also known as the Deficit Reduction Plan, the goal of which is to identify five and ten percent potential reductions in DFO's budget over the coming three-year period.[22] As with the 2010 Strategic Review, the Strategic and Operational Review is examining how programs are delivered, and whether savings can be realized from changes to program delivery.

[20] Exhibit 18: *Departmental Performance Report for the Period Ending March 31, 2009*, Department of Fisheries and Oceans; Claire Dansereau, 23 September 2011, p 44:9-15.
[21] Claire Dansereau, 22 September 2011, pp 2:25 to 3:17; 27 September 2011, p 10:11-23.
[22] Claire Dansereau, 22 September 2011, pp 2:25 to 3:17; 26 September 2011, p 17:13-25.

69. The Deficit Reduction Action Plan will be considered by Cabinet and Treasury Board, and will come into effect in April 2012, and be for a period of three years.[23]

4. *DFO Sectors and Regions:*

70. DFO's national headquarters in Ottawa is comprised of the Canadian Coast Guard (a Special Operating Agency) and the following six sectors:

- Ecosystems and Fisheries Management (formerly Fisheries and Aquaculture Management)
- Ecosystems and Oceans Science (formerly Oceans and Science)
- Strategic Policy (formerly Policy)
- Program Policy (new)
- Human Resources and Corporate Services
- Chief Financial Officer

71. DFO is a highly decentralized department, with at least 85% of DFO's 11,000 employees located in six regional centres of operations (Pacific, Central and Arctic, Quebec, Gulf, Maritimes, Newfoundland and Labrador).[24] Most of those employees are engaged in operation work or science.

[23] Claire Dansereau, 22 September 2011, pp 2:25 to 3:17.
[24] Exhibit 17 at pp 3-4: *Report on Plans and Priorities Estimates 2010-11*, Department of Fisheries and Oceans; David Bevan, 1 November 2010, p 6:25-32.

72. The Department of Fisheries and Oceans Deputy Minister is appointed by the Governor in Council on the recommendation of the Prime Minister. The Deputy Minister reports to both the Minister and the Clerk of the Privy Council.[25] The Deputy Minister is responsible for providing the broad advice and support needed for the Minister to fulfill his or her responsibilities, and undertakes the overall management of DFO. The Deputy Minister also has direct accountability to Parliament under a number of statutes, including the *Financial Administration Act*[26], and the *Public Service Employment Act.*[27] The Deputy Minister's performance is measured against the Treasury Board of Canada Secretariat's Management Accountability Framework.[28]

73. The Associate Deputy Minister, who reports to the Deputy Minister, is responsible for the financial, human resource, information/management technology, and real property functions on behalf of the Deputy Minister.[29] The Assistant Deputy Minister is responsible for each of the six sectors identified above, and reports directly to the Deputy Minister.

74. Each of the six regions of DFO are headed by Regional Directors General. The Regional Director General is responsible for DFO's work in that region and is a member of the DFO Senior Management Board and reports directly to the Deputy Minister. The Regional Director General also ensures cross-sector co-ordination and cohesion between regional and national work and priorities in his or her region. The Regional Directors General participate in the setting of departmental priorities and direction, and set regional priorities.[30] They are all members of the Departmental Management Board (described below), and report directly to the Deputy Minister.

75. Regions and sectors are responsible for delivering programs and activities in accordance with national and regional priorities, within assigned resources and national performance

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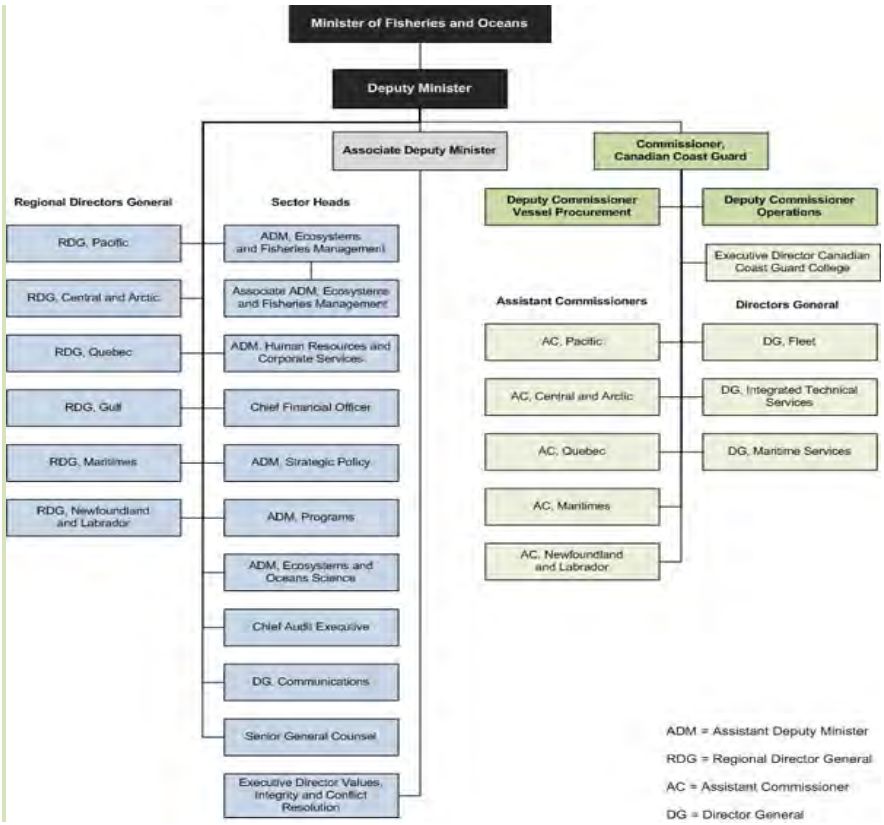
[25] David Bevan, 1 November 2010, p 6:4-8.
[26] *Financial Administration Act*, RSC 1985, c F-11.
[27] *Public Service Employment Act*, S.C. 2003, c 22 [*PSE Act*]; David Bevan, 1 November 2010, p 6:9-21.
[28] Exhibit 21: *Management Accountability Framework*, Treasury Board of Canada Secretariat, 2003; Exhibit 22: MAF Assessment: Fisheries and Oceans – 2008, Treasury Board of Canada Secretariat; Claire Dansereau, 1 November 2010, p 42:15-32.
[29] David Bevan, 1 November 2010, p 20:38-45.
[30] Exhibit 17 at p 4: *Report on Plans and Priorities Estimates 2010-11*, Department of Fisheries and Oceans; David Bevan, 1 November 2010, p 13:31-35.

parameters.[31] However, the management model utilized by DFO recognizes that differences in the biological, geographic, and socio-economic circumstances facing each region require operational flexibility, while still maintaining functional supervision so as to ensure policy cohesion.[32]

76. The following diagram illustrates DFO's current organizational structure:



5. *DFO Decision-Making:*

77. Within DFO, the Deputy Minister Policy Committee and the Departmental Management Board are the senior decision-making bodies and the key forums for providing direction and collective management for DFO and the Canadian Coast Guard. In addition to these decision-making bodies referred to above, four Assistant Deputy Minister level committees support DFO's strategic outcomes.

[31] Exhibit 17 at p 4: *Report on Plans and Priorities Estimates 2010-11*, Department of Fisheries and Oceans.
[32] David Bevan, 1 November 2010, p 8:1-8, p. 13:6-22.

78. As described in Part IV of these submissions, science plays a prominent and foundational role in DFO's decision-making processes. Science and scientists are integrated into most DFO sectors[33], and scientific information and advice is referenced in virtually all advice to the Minister and senior officials.[34] In addition to being science-based, DFO decision-making is often informed by consultations with Aboriginal groups and stakeholders.[35]

6. *Pacific Region:*

79. DFO's Pacific Region, which includes both British Columbia and the Yukon Territory, encompasses over 27,000 kilometres of coastline, more than 100 river systems, and hundreds of species of fish. The Region is responsible for overseeing Pacific Coast marine resources and the inland fisheries of British Columbia and the Yukon. It manages Pacific salmon fisheries, and the conservation and protection of Pacific salmon, along with all other species of fish in the Region.[38]

80. The Pacific Region is structured to have organizational units responsible for ecosystems and fisheries management; ecosystems and oceans management; policy; science; and conservation and protection. The regional program directors for these sectors report directly to the Regional Director General, and take functional direction from the Assistant Deputy Ministers responsible for each sector. Regional programs directors are responsible for the overall delivery of specific programs within the region.

81. Pacific Region is organized geographically into five areas – British Columbia Interior, Lower Fraser River, South Coast, North Coast, and Yukon and Transboundary Rivers.[39] The directors for these areas report to the Regional Director General.[40] Area directors are responsible for local delivery of most major programs within their geographic area, and for managing area

[33] David Bevan, 1 November 2010, pp 79:47 to 80:34.
[34] Susan Farlinger, 1 November 2010, pp 76:8 to 77:2; Claire Dansereau, 2 November 2010, p 19:27-31, p. 70:4-11.
[35] Claire Dansereau, 1 November 2010, p 83:24-36.
[38] Exhibit 17 at p 4: *Report on Plans and Priorities Estimates 2010-11*, Department of Fisheries and Oceans.
[39] Paul Macgillivray, 1 November 2010, p 14:21-27.
[40] Paul Macgillivray, 1 November 2010, p 15:3-10.

staff. Area directors and staff receive program direction from directors from various DFO programs.[41]

82. In addition to the Pacific Region head office and area offices, there are more than thirty other DFO offices, and nineteen DFO hatcheries, located throughout the Pacific Region. There are also several regional science research facilities, including the Pacific Biological Station and the Institute for Ocean Sciences.[42]

83. Like DFO nationally, Pacific Region undertakes annual planning and priority-setting exercises. While regional business plans are informed by the national business plan, they also help inform the development of the national business plan by bringing to senior managers' attention views, perspectives, identified needs and priorities, and challenges from the region and across the Department, both geographically and within functional areas.[43]

84. The Regional Director General is the primary decision-maker in the Pacific Region. She chairs the Regional Management Committee, which serves as the Region's forum for review and decision-making on common issues related to the management and well-being of the department's regional operations and its employees. The Regional Management Committee both implements national departmental priorities and identifies regional priorities.[44] Membership on the Regional Management Committee includes the program and areas directors, legal counsel as required, and administrative support.

85. Several advisory committees support the regional decision-making process, including the Strategic Directions Committee and the Operations Committee.[45] The Associate Regional Director General is responsible for finance, human resources, and maintenance of buildings in the Pacific Region.[46]

86. In Pacific Region, the Ecosystems and Oceans Science sector participates in three important decison-making and priority-setting committees – the Regional Management

[41] Paul Macgillivray, 1 November 2010, pp 15:47 to 16:4.
[42] Paul Macgillivray, 1 November 2010, p 14:21-44.
[43] Paul Sprout, 1 November 2010, p 53:31-45.
[44] Susan Farlinger, 1 November 2010, p 74:11-36; 23 September 2011, pp 44:43 to 45:2.
[45] Paul Macgillivray, 1 November 2010, p 17:8-25.
[46] Paul Macgillivray, 1 November 2010, p 15:22-25.

Committee, the Strategic Directions Committee, and the Operations Committee (which are described below).[47] Another key area for Ecosystems and Oceans Science involvement is on the international scene, DFO scientists are almost part of fisheries delegations to international bodies such as the North Pacific Anadromous Fish Commission, and they play a leading role on the Pacific Salmon Commission technical committees.[48]

87. Pacific Region seeks extensive input from various external sources – Aboriginal groups, commercial and recreational groups, industry, and environmental interests – in relation to its priority setting and decision-making activities.[49]

88. These consultative and advisory processes are described in Part III.F of these submissions.

89. DFO also works closely with the Pacific Salmon Commission and the Fraser River Panel established under the Pacific Salmon Treaty.[50] A discussion of the Pacific Salmon Treaty and the Pacific Salmon Commission can be found in Part III.B of these submissions.

90. Domestically, DFO works cooperatively with provincial, territorial, and municipal governments. At the provincial/territorial level these relationships have been fostered and are maintained through formal Ministerial councils[51], and through day-to-day cooperation between federal, provincial, and territorial officials. All regions, including Pacific Region, work closely with the Department's provincial and territorial counterparts on matters of mutual concern.

7. *Management of Fraser Sockeye*

91. The DFO national and regional sectors with key responsibilities relating to Fraser sockeye are Ecosystems and Fisheries Management, and Ecosystems and Oceans Science. Ecosystems and Fisheries Management is responsible for conserving and protecting Canada's fisheries resources and, in partnership with stakeholders, fostering more flexible, self adjusting,

[47] Paul Sprout, 1 November 2010, pp 79:39 to 78:26.
[48] Claire Dansereau, 1 November 2010, p 79:14-42; 23 September 2011, p 16:36-38; Paul Sprout, 1 November 2010, p 81:2-16.
[49] Paul Macgillivray, 1 November 2010, p 18:5-44.
[50] Paul Macgillivray, 1 November 2010, pp 18:45 to 19:2.
[51] *Canadian Council of Fisheries and Aquaculture Ministers*, *Atlantic Council of Fisheries and Aquaculture Ministers*, and the *Pacific Council of Fisheries and Aquaculture Ministers*.

self-reliant and resilient fishing and aquaculture industries, and addressing developing market access issues.[52]

92. Ecosystems and Oceans Science is responsible for delivering an aquatic science program that supports and informs Government of Canada policies and management decisions, producing nautical charts and other products to mariners, and leading an integrated strategy to address the challenges of oceans conservation and protection.

8. *Conclusion*

93. This section described the organizational framework for DFO both nationally and in the Pacific Region. Subsequent sections will describe the legal policy, and program frameworks for DFO's management of the Fraser sockeye resource.

[52] Claire Dansereau, 1 November 2010, p 24:30-43.

C. LEGAL CONTEXT

1. *Overview:*

94. The legal framework applicable to Fraser sockeye is both complex and multi-jurisdictional, involving federal and provincial legislation, international agreements, constitutional rights, common law principles, and an evolving body of case law. The purpose of this section is to describe the key acts, regulations, international agreements, common law principles and case law that are relevant to Fraser sockeye and the ecosystem. In addition, this section describes how jurisdiction over certain matters relevant to Fraser sockeye is divided between governments, and describes the legal framework for Aboriginal fisheries.

2. *Introduction:*

95. The Commission's Legislative Framework Overview Policy and Practice Report, dated November 1, 2010, which should be read together with Canada's submissions in respect of that Report (which are appended to Canada's submissions as Appendix A), provides an overview of the statutory framework which governs the Fraser sockeye fishery.[53]

96. In this section, Canada expands upon the statutory framework that was described in the Commission's Policy and Practice Report, and offers additional information regarding the relevant legal framework for fisheries generally, and Fraser sockeye specifically.

3. *Constitutional Jurisdiction and Common Law Principles:*

a) Federal Legislative Jurisdiction Over Fisheries

97. As noted previously, s. 91(12) of the *Constitution Act, 1867* assigns exclusive legislative authority to Parliament for all matters in relation to "Sea Coast and Inland Fisheries". The *Fisheries Act* and its regulations gives the Minister authority over the management, conservation, and protection of the fisheries resource and fish habitat. The Minister's authority includes the discretion and powers necessary to regulate access to the resource, impose conditions on harvesting, and enforce regulations. Provincial, territorial, and municipal governments also have important authorities with respect to inland fisheries, as well as land use, water use, and waste disposal, which complement federal efforts to conserve fish and fish habitat.

[53] Policy and Practice Report 3, "Legislative Framework Overview", 1 November 2010.

98. Pursuant to s. 7 of the *Fisheries Act*, the Minister has absolute discretion in the management of fisheries, as informed and constrained by case law and administrative law principles.[54]

99. In *Reference re: British North America Act, 1867, s 108 (Can.)*, the Judicial Committee of the Privy Council held that the grant of exclusive federal legislative jurisdiction over sea-coast and inland fisheries did not convey to Canada any proprietary rights in relation to those fisheries. It opined that whatever rights in relation to fisheries were previously vested in private individuals or the provinces remained untouched by the *Constitution Act, 1867*.[55]

100. In 2002, the Supreme Court of Canada, in *Ward v. Canada (Attorney General)*, held that the federal power over fisheries is not confined to conserving fish stocks, but extends more broadly to the maintenance and preservation of the fishery as a public resource.[56]

101. The principal object of the federal fisheries power was described by McLachlin CJ, speaking for the Court, as follows:

> These cases put beyond doubt that the fisheries power includes not only conservation and protection, but also the general "regulation" of the fisheries, including their management and control. They recognize that "fisheries" under s. 91(12) of the *Constitution Act, 1867* refers to the fisheries as a resource; "a source of national or provincial wealth" […]; 'common property resource' to be managed for the good of all Canadians […]. The fisheries resource includes the animals that inhabit the seas. But it also embraces commercial and economic interests, Aboriginal rights and interests, and the public interest in sport and recreation.[57]

102. The Chief Justice further stated that the federal fisheries power extends beyond the boundaries of fisheries in their "natural state," and does not necessarily terminate prior to the point of sale.[58] Aspects of sale that are necessarily incidental to the exercise of the fisheries

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[54] David Bevan, 1 November 2010, p 12:9-21
[55] *Reference re British North America Act, 1867, s.108 (Can.)*, [1898] JCJ No 1 (QL) (PC) at para 11 [*Reference Re BNA Act, 1867*].
[56] *Ward v Canada (Attorney General)*, [2002] 1 SCR 596 at paras 2 and 34 [*Ward*].
[57] *Ward at para 41*.
[58] *Ward*, at paras 40-48.

power fall within federal jurisdiction, under the rationale that Parliament may act to limit sales in order to prevent injurious exploitation of the resource.[59]

103. The broad scope of the federal legislative power under s. 91(12) was also noted by the Federal Court of Appeal in *Gulf Trollers Assn. v. Canada (Minister of Fisheries and Oceans)*[60]. Marceau JA, for the Court, stated:

> The power conferred on Parliament […] is not qualified, in my understanding, by any inherent condition that it be used to pursue some specific objectives and not others. Parliament may manage the fishery on social, cultural or economic grounds, either in conjunction with steps taken to conserve, protect, and harvest the reserve or simply to carry out social, cultural or economic goals and policies.[61]

b) The Common Law Right to Fish in Tidal Waters

104. In Canada, there is a common law right to fish in tidal waters, a right which can be limited or abrogated by the enactment of competent legislation.[62] The right extends to "all tidal waters whether in the sea, or arms of the sea, or in estuaries or a tidal river or otherwise, up to the point where the tide ebbs and flows."[63] It is a right descended from ancient English common law, and exists independently of proprietary title.[64]

105. The Judicial Committee of the Privy Council, in *British Columbia (Attorney General) v Canada (Attorney General)*, stated that:

> Since the decision of the House of Lords in *Malcolmson v. O'Dea*, 10 H.L.C. 593, it has been unquestioned law that since Magna Carta no new exclusive fishery could be created by Royal grant in tidal waters, and that no public right of fishing in such waters, then existing, can be taken away without competent

[59] *Ward citing R v NTC Smokehouse Ltd (1993), 80 BCLR (2d) 158 (CA); R v Saul (1984), 10 DLR (4th) 736 (BCSC); R v Twin (1985), 23 CCC (3d) 33 (Alta CA).*
[60] *Gulf Trollers Assn v Canada (Minister of Fisheries and Oceans),* [1987] 2 FC 93 (FCA) [*Gulf Trollers*].
[61] *Gulf Trollers* at para 16.
[62] *R v. Gladstone*, [1996] 2 SCR 723, at para. 67 [*Gladstone*].
[63] Gerard V La Forest QC et al, *Water Law in Canada – The Atlantic Provinces* (Ottawa: Information Canada, 1973) at pp 195-96 [La Forest, *Water Law in Canada*]. See also *British Columbia (Attorney General) v Canada (Attorney General)*, [1914] AC 153 (PC) at paras 12-13, 16 [*BC Fisheries Reference*].
[64] *BC Fisheries Reference*, at paras. 14-15, 22-23, and 26.

> legislation. This is now part of the law of England, and their Lordships entertain no doubt that it is part of the law of British Columbia.[65]

106. In Comeau's *Sea Foods Ltd. v. Canada (Minister of Fisheries and Oceans*, and again in *Larocque v. Canada (Minister of Fisheries and Oceans)*, the status of Canada's fisheries as a "common property resource, belonging to all the peoples of Canada", was confirmed.[66]

107. The Canadian public's right to fish in tidal waters is subject to, and limited by, the *Fisheries Act* and regulations made there under, and by other federal fisheries legislation enacted pursuant to s. 91(12) of the *Constitution Act, 1867*. In discussing the degree to which the "common law right to fish" has been curtailed by competent legislation, Low JA of the British Columbia Court of Appeal (BCCA) stated:

> The common law right to fish in Canada has been substantially limited by the *Fisheries Act*. That statute and the regulations passed pursuant to it control fishing. A right to fish in waters to which the statute has application does not exist in law unless authorized under that statute, usually by license.[67]

108. Any provincial title to the sea bed in tidal water is irrelevant for the purposes of jurisdiction over fisheries.[68] For example, although the waters and submerged lands of the Strait of Juan de Fuca, the Strait of Georgia, Johnstone Strait, and Queen Charlotte Strait, and the waters and submerged lands between major headlands (bays, estuaries and fjords) are within the Province of British Columbia,[69] British Columbia cannot legislate in respect of the fisheries related to those lands.

c) Regulation of Fisheries in Non-Tidal Waters

109. In non-tidal waters, provincial jurisdiction over fisheries arises through ownership by the province, or its residents, of the underlying soil. This jurisdiction flows from s. 92(13) of the

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[65] *BC Fisheries Reference*, at para. 14.
[66] *Comeau's Sea Foods Ltd v Canada (Minister of Fisheries and Oceans), [1997] 1 SCR 12 at para 37 [Comeau's Sea Foods]; Larocque v Canada (Minister of Fisheries and Oceans), 2006 FCA 237 at para 13, 270 DLR (4th) 552 [Larocque]*.
[67] *R v Kapp*, 2006 BCCA 277, 227 BCAC 248 at para 19 [*Kapp*].
[68] *BC Fisheries Reference*, at para. 17.
[69] *Reference re: Ownership of the bed of the Strait of Georgia and related areas*, [1984] 1 S.C.R. 388.

Constitution Act, 1867, which grants to the provinces legislative jurisdiction over "property and civil rights in the province."

110. The connection between ownership of the soil and ownership of the fishery in non-tidal waters was described in *BC Fisheries Reference*, where the Judicial Committee of the Privy Council stated:

> The general principle is that fisheries are in their nature mere profits of the soil over which the water flows, and that the title to a fishery arises from the right to the solum.[70]

111. The Privy Council further held that fishing in non-tidal waters is a proprietary right that must be vested in an owner, and not in the public generally.[71] As Gerard La Forest observed in *Water Law in Canada*:

> [The Crown] may own land and water rights, including riparian rights and rights associated with the ownership of the beds of watercourses, in the same way as private individuals, in which case they are, in a manner of speaking, public rights.[72]

112. The "public rights" generated by Crown ownership of a body of water, however, are not the same as the public right to fish, which is vested in the public generally[73].

d) Provincial Legislative Jurisdiction

113. The provinces may legislate with respect to the proprietary aspects of fisheries[74] in non-tidal waters, and may dispose of any fisheries to which they have a legal title. In some cases, however, the free exercise of provincial rights may be restricted by federal legislation. Citing its prior judgment in *Reference re: BNA Act, 1867, s. 108 (Can.)*, [1898] A.C. 700, the Privy Council, in *BC Fisheries Reference*, stated that its earlier decision:

> [R]ecognized that the Province retains a right to dispose of any fisheries to the property in which the Province has a legal title, so far as the mode of such

[70] *BC Fisheries Reference*, at para. 11.
[71] *BC Fisheries Reference* at para 20.
[72] La Forest, *Water Law in Canada* at p 178.
[73] La Forest, *Water Law in Canada* at p 196.
[74] *Reference Re Fisheries Act, 1914 (Canada)*, [1928] SCR 457, aff'd [1930] AC 111 (PC) at paras 20, 24, 25.

> disposal is consistent with the Dominion right of regulation, but it held that, even in the case where proprietary rights remain with the Province, the subject-matter may be of such a character that the exclusive power of the Dominion to legislate in regard to fisheries may restrict the free exercise of provincial rights.[75]

114. While Canada lacks a proprietary interest in fisheries in non-tidal waters over provincial Crown land or land owned by private individuals, it retains the right to preserve, protect and manage the fisheries in those waters. Regulations enacted under the federal legislative authority over fisheries in non-tidal waters may affect the proprietary rights of the owners of those fisheries.

115. In a discussion concerning federal jurisdiction to conserve and protect fisheries in non-tidal waters, the Judicial Committee of the Privy Council, in *Reference re: BNA Act, 1867, s. 108 (Can.)*, stated:

> [I]t must be remembered that the power to legislate in relation to fisheries does necessarily to a certain extent enable the legislature so empowered to affect proprietary rights. An enactment, for example, prescribing the times of the year during which fishing is to be allowed, or the instruments which may be employed for the purpose […] might very seriously touch the exercise of proprietary rights, and the extent, character and scope of such legislation is left entirely to the Dominion legislature.[76]

116. Provincial legislation may exist concurrently with federal legislation over non-tidal fisheries. Such provincial legislation is, however, subject to overriding federal legislation.[77]

e) Federal Legislative Jurisdiction Over the Environment and Wildlife

117. In addition to legislative jurisdiction over sea coast and inland fisheries, Canada possesses legislative jurisdiction over certain matters associated with the protection of marine and freshwater environments. For example, Parliament may legislate in respect of the pollution

[75] *BC Fisheries Reference*.
[76] *Reference Re British North America Act, 1867* at para 11.
[77] *Peralta v Ontario, [1988] 2 SCR 1045 at para 1 [Peralta]*.

of marine areas, pursuant to the national concern doctrine of the peace, order, and good government power of the Parliament of Canada.[78]

118. Parliament may also legislate in respect of environmental matters affecting federal interests and areas of concern.[79] It is important to note, however, that the environment is not specifically named in the *Constitution Act,1867*, but is a subject which falls under both federal and provincial authority under the constitutional division of legislative powers. As La Forest J observed in *Friends of the Old Man River Society v. Canada (Minister of Transport)*:

> [T]he *Constitution Act, 1867* has not assigned the matter of "environment" *sui generis* to either the provinces or Parliament. The environment, as understood in its generic sense, encompasses the physical, economic and social environment touching several of the heads of power assigned to the respective levels of government.[80]

119. La Forest J noted that federal jurisdiction over fisheries was one of several heads of legislative power in respect of which environmental concerns might be taken into account when exercising those powers.[81]

120. The federal government is also responsible for the protection of wildlife species at risk, including aquatic species that are fish within the meaning of section 2 of the *Fisheries Act*. The *Species at Risk Act* is discussed below. The federal government is also responsible for the import, export, and interprovincial transportation of certain wildlife and species under the *Wild Animal Plant Protection and Regulation of International and Interprovincial Trade Act*.

4. *Relevant Legislation:*

a) Key Federal Legislation Relating to Fisheries and Ecosystem Management

121. The "Sea Coast and Inland Fisheries" referenced in s. 91(12) of the *Constitution Act, 1867* are managed through a variety of federal acts and regulations. The most significant of these for Pacific fisheries are:

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[78] *R v Crown Zellerbach Canada Ltd*, [1988] 1 SCR 401 at para 40.
[79] *Friends of the Oldman River Society v Canada (Minister of Transport)*, [1992] 88 DLR (4th) 1 (SCC) at pp 44-45 [*Oldman River*].
[80] *Oldman River* at p 41.
[81] *Oldman River* at p 44.

Fisheries Act, RSC 1985, c. F-14
Oceans Act, SC 1996, c. 31
Coastal Fisheries Protection Act, RSC 1985, c. C-33
Fishery (General) Regulations SOR/93-53
Pacific Fishery Regulations, 1993 SOR/93-54
Pacific Fishery Management Area Regulations, 2007 SOR/2007-77
Management of Contaminated Fisheries Regulations SOR/90-351
Pacific Aquaculture Regulations, 2010, SOR/2010-270
British Columbia Sport Fishing Regulations, 1996 SOR/96-137
Aboriginal Communal Fishing Licences Regulations SOR/93-332
Coastal Fisheries Protection Regulations, CRC 413.

122. Other relevant federal legislation includes the *Species at Risk Act*, the *Canadian Environmental Assessment Act*, the *Navigable Waters Protection Act,* and the *Canadian Environmental Protection Act*.[82]

*i) **Fisheries Act***

123. The Fisheries *Act* provides the primary statutory authority for the management and regulation of fisheries in Canada.[83] It empowers the Minister to make decisions about the conservation of fisheries resources and habitat, to establish and enforce standards for conservation, and to determine access to and allocation of the resource. The *Fisheries Act* also provides the Governor in Council with the legal authority to make fisheries regulations.

124. The *Fisheries Act* establishes the legal authority for regulating impacts on fish and fish habitat, with explicit provisions to protect fish habitat, provide upstream and downstream migration, guard against the destruction of fish by means other than fishing, and prohibit the deposit of a deleterious substance in water frequented by fish, unless authorized under regulations.

125. Subsection 7(1) of the *Fisheries Act*, which states that the Minister "may, in his absolute discretion, wherever the exclusive right of fishing does not already exist by law, issue or authorize to be issued leases and licences for fisheries or fishing, wherever situated or carried

[82] *Species at Risk Act*, SC 2002, c. 29 [*Species at Risk Act*]; *Canadian Environmental Assessment Act*, SC 1992, c 37 [*CEA Act*]; *Navigable Waters Protection Act* RSC 1985, c N-22; *Canadian Environmental Protection Act* SC 1999, c 33 [*CEP Act*]
[83] *Fisheries Act*, RSC 1985, c F-14 [*Fisheries Act*].

on", provides the Minister with broad discretion to issue licences and leases as a tool to manage Canada's fisheries. In *Tucker v. Canada (Minister of Fisheries & Oceans)*, Rothstein J wrote:

> The words of section 7 place no restrictions on the Minister in the exercise of his discretion. Indeed, the provision includes the term "absolute" discretion which I interpret to be a signal of Parliament's intention that the Court should grant significant deference to the Minister.[84]

126. In Comeau's *Sea Foods*, the SCC opined on the scope of the Minister's discretion under s. 7 of the *Fisheries Act*. Major J, for the Court, stated:

> It is my opinion that the Minister's discretion under s. 7 to authorize the issuance of licences, like the Minister's discretion to issue licences, is restricted only by the requirement of natural justice, no regulations currently being applicable. The Minister is bound to base his or her decision on relevant considerations, avoid arbitrariness and act in good faith. The result is an administrative scheme based primarily on the discretion of the Minister.
>
> This interpretation of the breadth of the Minister's discretion is consonant with the overall policy of the *Fisheries Act*. Canada's fisheries are a "common property resource", belonging to all the people of Canada. Under the *Fisheries Act*, it is the Minister's duty to manage, conserve and develop the fishery on behalf of Canadians in the public interest […]. Licensing is a tool in the arsenal of powers available to the Minister under the *Fisheries Act* to manage fisheries.[85]

127. The Minister's discretion is subject only to:

- express limitations in the *Fisheries Act*, limitations imposed under the Act (ie by regulations made under s. 43 of the *Fisheries Act*), and limitations imposed by other legislation;
- obligations arising from the *Constitution Act, 1867*, land claims agreements, and case law; and
- the requirements of administrative law, which provide that the Minister must respect the requirements of natural justice and exercise her or his discretion in good faith, and must base her or his decisions on relevant considerations and avoid arbitrariness.

[84] *Tucker v Canada (Minister of Fisheries and Oceans)*, (2000) 197 FTR 66 (TD) at para 13 [*Tucker*].
[85] *Comeau's Sea Foods* at paras 36, 37.

128. Other important provisions of the *Fisheries Act* include ss. 35 and 36, which provide for the protection of fish habitat by prohibiting the harmful alteration, disruption, or destruction of fish habitat without authorization (s. 35), and prohibiting the deposition of deleterious substances in waters frequented by fish, or in a place that may enter waters frequented by fish, unless allowed under regulation (s. 36). "Fish habitat" is defined in the Act as the "spawning grounds and nursery, rearing, food supply and migration areas on which fish depend directly or indirectly in order to carry out their life processes".

129. Section 35 is administered by DFO, while s. 36 is administered by Environment Canada.[86] The Minister of Fisheries and Oceans remains responsible and accountable under all sections of the Act, including s. 36, even though s. 36 is administered by Environment Canada personnel. This arrangement has existed since the 1970s when the Environment Canada was created. It was formalized by a Memorandum of Understanding dated, May 6, 1985.[87] A December 23, 2010 DFO briefing note addressed the fact that while the pollution prevention provisions of the *Fisheries Act* (s. 36) have historically been administered by Environment Canada, the Minister remains ultimately responsible to Parliament for these provisions[88]. The Deputy Minister testified that DFO and Environment Canada are presently working together to clarify the respective roles of each department, with the objective of ensuring better coordination and communication. The expectation is that a new Memorandum of Understanding will be reached between the two departments with regard to the administration of section 36.[89]

*ii) **Oceans Act***

130. The *Oceans Act*, proclaimed into force in 1997, lays out the Minister's role in managing the use of marine resources and habitats.[90] It is enabling legislation that provides the Department with the authority to engage in integrated management, establish Marine Protected Areas, and improve Canada's management of the marine environment. The *Oceans Act* calls for the

[86] David Bevan, 22 September 2011, p 35:19-22. For a history of the division of responsibilities for ss. 35 and 36, please refer to Policy and Practice Report 9, "Enforcement of the Habitat Protection and Pollution Prevention Provisions of the *Fisheries Act*" 7 March 2011 at paras 12-22.
[87] Exhibit 689: News Release, *Fisheries and Oceans, Environment Canada Sign Memorandum of Understanding on Administration of Sectin 33 of The Fisheries Act*, 7 May 1985.
[88] Exhibit 1960: *Memorandum for the Deputy Minister Administration and Enforcement of the Pollution Prevention Provisions of the Fisheries Act (Section 36) (Decision Sought)*, 23 December 2010.
[89] Claire Dansereau, 22 September 2011, p 44:14-23.
[90] *Oceans Act*, SC 1996, c 31 [*Oceans Act*].

collaborative development of integrated management plans for activities affecting marine waters in a way that meets conservation requirements and the needs of various interests in the marine and coastal environment.

131. The *Oceans Act* includes three important principles: sustainable development; integrated management; and the precautionary approach.

132. *Canada's Oceans Strategy* was released in 2002 and defines an oceans-centred planning framework that combines these principles. National in scope, *Canada's Oceans Strategy* sets out the policy direction for the management of estuarine coastal and marine ecosystems in Canada. The Strategy developed under the *Oceans Act* has guided the Minister in the management of Canada's fisheries in Canadian estuaries, coastal and marine waters that form part of Canada.

133. The *Oceans Act* and the *Fisheries Act* complement each other in so far as fisheries in estuaries, coastal and marine waters are concerned. For example, s. 35 (1) of the *Fisheries Act* states that: "No person shall carry on any work or undertaking that results in the harmful alteration, disruption or destruction of fish habitat". This provision overlaps conceptually with *Oceans Act* provisions regarding the designation and protection of Marine Protected Areas, which include marine fish habitats. This overlap is taken into consideration before decisions are made whether or not to issue a s. 35(2) authorization in or around a Marine Protected Area.

iii) ***Species at Risk Act***

134. The *Species at Risk Act*, which became law in 2003, details the legal framework for the protection for wildlife species at risk, including aquatic species, as well as the process for designating wildlife species as 'at risk'. Passage of this Act fulfilled a key national commitment under the *United* Nations *Convention on Biological Diversity*. As one of three federal departments charged with the Act's implementation, DFO is responsible for protecting aquatic species at risk and their critical habitat.

135. The Act identifies three objectives:

- to provide for the recovery of wildlife species that are extirpated, endangered or threatened as a result of human activity;

- To manage wildlife species of special concern to prevent them from becoming endangered or threatened; and
- To prevent wildlife species from being extirpated or becoming extinct.

136. The *Species at Risk Act* includes prohibitions against killing, harming, harassing, capturing, or taking individuals of species that are listed as endangered, threatened, or extirpated. It also prohibits possessing, collecting, buying, selling or trading such individuals. Furthermore, the residences of such individuals are protected against damage or destruction, and their critical habitat is protected from destruction. The Act also manages species of special concern, which may become threatened or endangered because of a combination of biological characteristics and identified threats. It identifies ways in which governments, organizations, and individuals can work together to preserve species at risk and establishes penalties for failure to obey the law.

137. The Act contains a variety of mechanisms, detailed in section 83, that allow prohibitions to be relaxed in particular circumstances. One of the most important of these is the permitting regime established by section 73. A permit (or agreement) authorizing its holder (or signatory) to engage in an activity otherwise prohibited by the Act may be issued (or entered into) by the competent Minister if certain conditions – specified in the Act – are met.

138. DFO's responsibilities under the Act includes the legal requirement to develop recovery strategies, management plans and action plans within specified timelines; to identify and protect the critical habitat of listed endangered or threatened aquatic species (and of listed extirpated species if a recovery strategy has recommended their reintroduction into the wild); and to satisfy various cooperation, consultation, and reporting requirements within specified timelines. DFO is also responsible for enforcing the automatic prohibitions, as well as the prohibition with respect to the destruction of critical habitat.

b) Other Federal Legislation Relevant to Pacific Fisheries:

139. The *CEA Act*, which is administered by the Canadian Environmental Assessment Agency, came into force in 1995. The *CEA Act* requires environmental assessments of undertakings in relation to physical works and of prescribed activities before a federal authority exercises or performs one of the section 5 powers, duties or functions in respect of the works or

activities (ie federal proponent, funding, transfer of lands, and issuance of a regulatory authorization) if the regulatory authorization is to be issued pursuant to a provision identified in a schedule to the *Law List Regulations*. Activities not related to a physical work and subject to an environmental assessment are prescribed in the *Inclusion List Regulations*.[91]

140. All undertakings in relation to a physical work (including those that affect fish or fish habitat) are "projects" under the *CEA Act*. In addition, activities not related to a physical work that affect fish or fish habitat and require authorization or Governor in Council approval pursuant to ss. 32, 35(2) or 36(5) of the *Fisheries Act* (ie, activities that destroy fish by any means other than fishing; that harmfully alter, disrupt or destroy fish habitat; or that result in the deposit of deleterious substances in water frequented by fish) are listed in Part VII of the Schedule to the *Inclusion List Regulations* and are therefore "projects" under the *CEA Act*.

141. The *CEA Act* assessment often involves participation of federal departments or agencies that are in possession of specialist or expert information or knowledge with respect to the project. Smaller and routine projects typically undergo a "screening" assessment. Projects belonging to a class of projects listed in the *Comprehensive Study List Regulations* are deemed to likely have significant adverse environmental effects and will, thus, be subject to a "comprehensive study" type of assessment. Whether a project is subject to a screening or a comprehensive study, the Minister of the Environment can, on request or on his own initiative, refer the project to a mediator or a review panel.[92]

142. The *CEP Act, 1999*, provides Canada with instruments, including regulations, to protect the environment and human health, particularly in respect of substances found toxic under the Act. *CEPA, 1999* requires that powers exercised in the administration of the Act be exercised in a manner that applies the precautionary principle. It also empowers the Minister of the Environment to issue environmental objectives, release guidelines and codes of practice to prevent and reduce marine pollution from land-based sources. Sections 122 to 137 of the Act govern disposal at sea activities, and enables the Minister of Environment to issue permits under s. 127 authorizing the disposal of waste or other matter listed in Schedule 5. The permit must contain any conditions that the Minister considers necessary for the protection of marine life, any

[91] *Law List Regulations* SOR/94-636; *Inclusion List Regulations*, SOR/94-637.
[92] *Comprehensive Study List Regulations*, SOR/94-638.

legitimate uses of the sea, or human life. Persons disposing of substances in accordance with conditions of a s. 127 permit, or on an emergency basis pursuant to s. 130, are not subject to s. 36(3) of the *Fisheries Act* (which prohibits the deposit of deleterious substances).

143. The *Coastal Fisheries Protection Act* prohibits foreign vessels from harvesting fish, including salmon, within the Canadian Exclusive Economic Zone.[93] Under the Act, foreign fishing vessels are prohibited from entering Canadian fisheries waters for any purpose unless authorized to do so under the Act, the regulations, or any other law of Canada or a treaty. Authority to enter Canadian fisheries waters, including Canadian ports, may be granted by the Minister of Fisheries and Oceans under the *Coastal Fisheries Protection Regulations*.[94] Section 5 of the Regulations provides the Minister with the authority to issue foreign fishing vessels a licence to enter Canadian fisheries waters and ports in the circumstances and for the purposes set out in the regulations.

144. The *Fisheries Development Act* establishes the legal authority for the Minister of Fisheries and Oceans to undertake projects for:

- the more efficient exploitation of fishery resources and for the exploration for, and development of, new fishery resources and new fisheries;
- the introduction and demonstration to fishers of new types of fishing vessels and fishing equipment and new fishing techniques; and
- the development of new fishery products for the improvement of the handling, processing and distribution of fishery products.[95]

145. The Act further authorizes the Minister to undertake projects and develop partnerships to improve or develop commercial fisheries.

146. Subsection 5(1) of the *Navigable Waters Protection Act* which is administered by the Department of Transport, provides that no work "shall be built or placed in, on, over, under, through or across any navigable water" without the authorization of the Minister of Transport. Schedule I, Part I of the *Law List Regulations* provides that the exercise of the Minister's authority under the former s. 5(1)(a) requires an environmental assessment under the *CEA Act*.

[93] *Coastal Fisheries Protection Act*, RSC 1985, c C-33.
[94] *Coastal Fisheries Protection Regulations*, CRC, c 413.
[95] *Fisheries Development Act, RSC 1985, c F-21*.

147. The Canadian Food Inspection Agency is responsible for enforcing provisions of the *Fish Inspection Act* 1985, which permits the Governor in Council to make regulations for the purpose of regulating the import and export of fish and containers, including respecting the processing, storing, grading, packaging, marking, transporting and inspection of fish.[97]

148. The Canadian Food Inspection Agency also addresses aquatic animal diseases of finfish, molluscs and crustaceans, pursuant to the *Health of Animals Act.*[98] The Act defines animals to include aquatic animals. As a result, all existing legislative and regulatory authority that protects animals from infectious diseases and provide for their welfare applies equally to aquatic animals.

149. Pesticides are regulated at the federal level under the *Pest Control Products Act*, which is administered by Health Canada.[99] The primary objective of the Act, which came into force in 2006, is to prevent unacceptable risks to humans and the environment from the use of pest control products. The Act defines "environment" to include air, land, and water.

150. Pest control products have been registered for use in aquaculture to address the problem of sea lice. However, these products have only been used in Atlantic Canada. Pest control products that are registered for terrestrial use are subject to conditions of use intended to prevent environmental degradation, including the aquatic components of the environment.

c) Federal Regulations

151. Canadian fisheries are managed in accordance with regulations which operationalize the *Fisheries Act* and other relevant federal legislation. Pursuant to s. 43 of the *Fisheries Act*, the Governor in Council may make a wide range of regulations for carrying out the purposes and provisions of the Act, including for the proper management and control of fisheries, the conservation and protection of fish and spawning grounds, and the use of fishing gear and equipment.

152. The regulations under the *Fisheries Act* provide additional powers used to fine-tune the operational details of each fishery, the most important being the power to specify licence conditions and issue variation orders. Licences to fish may contain conditions that set out

[97] *Fish Inspection Act*, RSC 1985, c F-12, ss 3(c).
[98] *Health of Animals Act*, SC 1990, c 21.
[99] *Pest Control Products Act*, SC 2002, c 28.

requirements aimed at the proper management and control of the fisheries and the conservation and protection of fish. Variation orders are used to vary provisions of the regulations such as adjusting close times for fisheries. When variation orders are issued *Fishery Notices* publicly announce the details of the order.

153. The *Fishery (General) Regulations* apply to commercial, recreational and Aboriginal fishing and related activities in most provinces throughout Canada, in Canadian fisheries waters, and to Canadian vessels fishing in waters outside of Canadian fisheries waters.[100] In British Columbia, "fisheries" includes aquaculture. These regulations cover a number of general fisheries management matters, such as: variation orders; general licence conditions; rules regarding fishing documents and registrations; identification of fishing vessels; fishing gear; observers; fishing for experimental, scientific, educational, or public display purposes; and fishing outside of Canadian fisheries waters.

154. Aspects such as close times, fishing quotas, and size and weight limits of fish are covered in other federal regulations specific to individual provinces or regions of Canada. Federal regulations that are pertinent to Pacific salmon fisheries in British Columbia include:

- *Pacific Fishery Regulations*. These regulations contain provisions specific to Pacific Region fisheries and cover commercial fisheries, fishing for tuna from Canadian vessels on the high seas, and the harvesting of marine plants from Canadian fisheries waters outside of the geographic limits of the province. The regulations do not apply to recreational fishing, taking fish from an aquaculture site, fishing for marine mammals or fishing from a foreign fishing vessel.[101]
- *British Columbia Sport Fishing Regulations*. These regulations apply to sport fishing in Canadian fisheries waters of the Pacific Ocean and the Province of British Columbia. The regulations set close times, fishing quotas, and size limits for all sport fisheries in British Columbia, but do not apply in national parks.[102]
- *Aboriginal Communal Fishing Licences Regulations*. These regulations provide for the issuance of communal licences to aboriginal organizations. Conditions of licence are used to regulate communal fishing activities.[103]
- *Management of Contaminated Fisheries Regulations*, SOR/93-332. These regulations authorize the Regional Director General to close any area to fishing for a

[100] *Fishery (General) Regulations*, SOR/93-53.
[101] *Pacific Fishery Regulations, 1993*, SOR/93-54.
[102] *British Columbia Sport Fishing Regulations, 1996*, SOR/96-137.
[103] *Aboriginal Communal Fishing Licences Regulations*, SOR/93-332.

specific species of fish if the Regional Director General has reason to believe that fish in that area are contaminated.[104]

- *Pacific Fishery Management Area Regulations, 2007*. These regulations describe the surf line and divide the Canadian fisheries waters of the Pacific Ocean into Areas and Subareas. The Areas and Subareas are often referenced when describing fishery openings and closures.[105]
- *Pacific Aquaculture Regulations*. These regulations, which came into force on December 18, 2010, regulate aquaculture and related activities in the territorial sea of Canada off the coast of British Columbia, in the internal waters of Canada off the coast of British Columbia, and in British Columbia, and in any facility in British Columbia from which fish may escape into Canadian fisheries waters[106].
- *Health of Animals Regulations*. These regulations were amended to include aquatic animals, effective as of December 22, 2010. Immediately notifiable diseases, which are serious diseases of concern to animal health and to the Canadian economy, are listed in the regulations made under this Act. The regulations require notification by laboratories of all listed diseases and enables controls to prevent the introduction and spread of those diseases. Immediately notifiable diseases are those not known to exist in Canada.[107]
- *Reportable Diseases Regulations*. Aquatic animal diseases were added to these Regulations on January 5, 2011. The reportable diseases that are of concern to Canada are listed in the Regulations. Anyone who owns or works with aquatic animals and knows of or suspects a reportable disease is required by law to notify the Canadian Food Inspection Agency.[108]

d) Provincial Legislation

155. British Columbia has enacted legislation that impacts upon specific aspects of the Pacific salmon fisheries, or upon the Pacific salmon ecosystem. Provincial legislative enactments of particular significance to Pacific salmon and its ecosystem are described in the following paragraphs.

156. The *BC Fisheries Act* provides for licensing and regulatory control of activities associated with commercial fisheries and aquaculture operations. The primary concerns are the

[104] *Management of Contaminated Fisheries Regulations*, SOR/93-332.
[105] *Pacific Fishery Management Area Regulations, 2007*, SOR/2007-77.
[106] *Pacific Aquaculture Regulations*, SOR/2010-270, s 2.
[107] *Health of Animals Regulations*, CRC, c 296.
[108] *Reportable Diseases Regulations*, SOR/91-2.

licensing of fish processing plants, fish buying establishments, fishers selling their own catch, and wild oyster and marine plant harvesting.[109]

157. Under the *Fisheries Act*, the Government of British Columbia is responsible for licensing commercial fishing in its rivers and lakes. Under Part 2 of the Act, a person must not fish or attempt to take fish within British Columbia unless the person holds a valid license issued for that purpose and has paid the fee prescribed by the Lieutenant Governor in Council.

158. Though the responsibility for most fish habitat protection falls under federal jurisdiction, this Act legislates protective requirements for fish near dam construction.

159. The *Wildlife Act* governs the interaction of people and provincially managed wildlife, which includes fish. It contains provisions for the licensing of angling guides.[110]

160. The *Environmental Management Act* provides the British Columbia Ministry of Agriculture and Lands with the authority to manage, protect and enhance the environment.[111]

161. The *Fish Protection Act* provides protection to fish and fish habitat by prohibiting bank-to-bank dams on provincially significant rivers; establishing special rules in relation to water licences on "sensitive streams" where the sustainability of fish habitat is at risk because of inadequate flow or degradation of habitat; providing for the development of recovery plans for "sensitive streams"; allowing "water for fish" stream flow protection licences to be issued to community-based organizations; authorising temporary reductions in water use rights during periods of drought when the sustainability of fish is threatened; and allowing the Provincial government to establish directives for local governments in preserving streamside areas.[112]

162. The *Fish Inspection Act* regulates activities concerning the handling, processing, storing, grading, packaging, marking, transporting, marketing and inspection of fish and fish products.

[109] *Fisheries Act*, RSBC 1996, c 149 [*BC Fisheries Act*].
[110] *Wildlife Act*, RSBC 1996, c 488.
[111] *Environmental Management Act*, SBC 2003, c 53.
[112] *Fish Protection Act*, SBC 1997, c 21 [*BC Fish Protection Act*].

The regulations ensure that fish processed and sold within British Columbia have met specified requirements.[113]

163. British Columbia also has jurisdiction over matters – such as forestry, mining, agriculture and water licenses – that have the potential to affect Pacific salmon and their ecosystem. Relevant provincial legislation includes the *Water Act* and the *Forest Range and Practices Act*.[114]

164. In British Columbia, the ownership of water (except ground water) is vested in the provincial government pursuant to s. 2 of the *Water Act*. Under s. 9 of that Act, the Ministry of Environment manages the notification process for proponents carrying out "changes in and about a stream". In order to minimize potential impacts that in-stream work may have on aquatic species and habitats, the Act prescribes that work should be undertaken during periods of reduced risk to the aquatic resource.[115] In order to ensure that when these activities are carried out, minimal or no impact to the stream or stream channel occurs, Ministry of Environment Habitat Officers can, under the regulations, set terms and conditions under which the works must be carried out.

165. One of the primary objectives of the *Forest Range and Practices Act* is to maintain and protect environmental values. The Act empowers the Minister to designate, and sets out practices for the management of, Fisheries Sensitive Watersheds in the *Government Actions Regulation* and the *Forest Practices and Planning Regulation*. A "Fisheries Sensitive Watersheds" order established by the Minister sets out management direction to conserve important watershed level attributes protecting fisheries values.[116]

166. Federal-provincial coordination of fisheries management issues takes place through several processes, including:

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[113] *Fish Inspection Act*, RSBC 1996, c 148.
[114] *Water Act*, RSBC 1996, c 483 [*Water Act*]; *Forest Range and Practices Act*, RSBC 2002, c 69 [*Forest Range and Practices Act*].
[115] *Water Act*, s 44.
[116] *Government Actions Regulation*, BC Reg 582/2004, s 14; *Forest Practices and Planning Regulation*, BC Reg 14/2004, s 8.

- The *Canadian Council of Fisheries and Aquaculture Ministers* is composed of federal, provincial and territorial Ministers, and has developed formal agreements on data sharing and oceans management.
- The *Pacific Council of Fisheries and Aquaculture Ministers* is a forum for the Minister of Fisheries and Oceans, Yukon Minister of Environment, British Columbia Minister of Agriculture and Lands, and British Columbia Minister of Environment to meet and discuss policy issues on fisheries, aquaculture, oceans and habitat management. Under the 2003 *Agreement on the Pacific Council of Fisheries and Aquaculture Ministers*, the objectives of the Council are to maintain and enhance the conservation and long-term sustainability of the resource, provide for the long-term viability of industry, recognize the socio-economic importance of fisheries and aquaculture to communities, bring decision-making closer to clients and stakeholders, and create effective partnering arrangements to better manage the fishery and aquaculture.
- The *Federal-Provincial Introductions and Transfers Committee* is a technical committee whose primary role is to advise DFO, the British Columbia Ministry of Environment, Lands and Parks and the British Columbia Ministry of Agriculture, Fisheries and Food on fish introduction and transfer issues. It meets at least four times per year, and consists of up to six members (two from each of DFO, and the appropriate provincial ministries).
- Federal-provincial committees at the staff level (staff, Director, Regional Director General) advise on a range of specific issues from aquaculture, fish habitat, fish management, and oceans.

167. The increased need for federal-provincial cooperation on integrated resource management is reflected in agreements that clarify roles and responsibilities for each party and map out processes for joint decision making. Examples include the 1996 *Accord for the Protection of Species at* Risk, the 1997 *Canada - British Columbia Agreement on the Management of Pacific Salmon Fishery Issues*, the 2000 *Canada-British Columbia Fish Habitat Management Agreement*, the 2002 *Memorandum of Understanding between British Columbia Conservation Officer Service and Department of Fisheries and Oceans, Conservation and Protection, Fisheries Management Sector, Pacific Region, Respecting Mutual Assistance*, the *Memorandum of Understanding Respecting the Implementation of Canada's Oceans Strategy on the Pacific Coast of Canada* 2005, the *Canada-British Columbia Agreement on Species at Risk*, and the *Canada-British Columbia Agreement on Aquaculture Management 2010*.

e) International Agreements

168. An extensive discussion of the international law relevant to the conservation and management of Fraser sockeye is found in the Commission's Policy and Practice Report 2, "International Law Relevant to the Conservation and Management of Fraser River Sockeye Salmon",[117] Which should be read together with Canada's submissions in respect of that Report (which are appended to Canada's submissions as Appendix B). Set out below is a brief summary of important international agreements that are relevant to the management of Fraser sockeye and its ecosystem.

i) United Nations Convention on the Law of the Sea (UNCLOS)

169. Canada is a party to the *United Nations Convention on the Law of the Sea* (UNCLOS), the Agreement relating to Part XI of the *United Nations Convention of the Law of the Sea of 10 December 1982*, and the *Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea of 10 December 1982 Relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish.*[118]

170. Because Pacific salmon die after spawning, the *UN Fish Stocks Agreement* does not directly apply as written. Canada's *Wild Salmon Policy* was developed specifically to accommodate the unique biology of Pacific salmon, and to respond to this international effort respecting the development of the precautionary approach.[119]

171. The *Coastal Fisheries Protection Act* operates to ensure consistency with UNCLOS. As noted previously, the *Coastal Fisheries Protection Act* establishes the legislative means for controlling foreign fishing vessel access to, and activities in, Canadian fisheries waters and ports. It was amended in 1999 to implement aspects of the *UN Fish Stocks Agreement*.

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[117] Policy and Practice Report 2, "International Law Relevant to the Conservation and Management of Fraser River Sockeye Salmon".
[118] Exhibit 1952: *Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea of 10 December 1982 Relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks*, GA, UNCLOS, 6th Sess, UN Doc A/Conf.164/37 (1995) [*UN Fish Stocks Agreement*].
[119] David Bevan, 23 September, 2011, p 66:30-43.

ii) **Pacific Salmon Treaty**

172. The *Pacific Salmon Treaty* establishes the legal framework for management, by the United States and Canada of, transboundary salmon stocks.

173. Prior to 1985, the International Pacific Salmon Fisheries Commission was responsible for managing sockeye and pink salmon fisheries within the Convention Area, covering off-shore waters between the 48th and 49th parallels, areas off the southern tip of Vancouver Island (Strait of Juan de Fuca Strait, Puget Sound, southern Strait of Georgia), and the lower Fraser River. The catch taken within Convention waters was shared equally by Canada and the United States.

174. In 1985, Canada and the United States signed the *Pacific Salmon Treaty*, which requires the conduct of fisheries so as to prevent over-fishing, and to provide for optimum production and equitable harvest of salmon stocks. Under the Treaty, each party is to receive benefits equivalent to the production of salmon originating in its waters, and each is to avoid undue disruption to the other's fisheries.

175. Bilateral agreements must be periodically developed to implement the Treaty's principles for long-term conservation and harvest sharing. Annex IV outlines management agreements and objectives between Canada and the United States for salmon. Chapter 4 of Annex IV sets out the specific conservation and allocation arrangements for Fraser sockeye and pink salmon.

176. The *Pacific Salmon Commission* was established to advise both countries on the implementation of the *Pacific Salmon Treaty* provisions. The *Pacific Salmon Commission* established four Panels to provide technical and regulatory advice to it. Each Panel is made up of no more than six representatives and six alternates from each country. Membership reflects a range of governmental, Aboriginal groups, commercial, recreational and, in some cases, environmental interests.

177. Each Panel directs the development of annual fishery regimes in accordance with the objectives of the *Pacific Salmon Treaty*. The Panel, guided by the principles and provisions of the Treaty, establishes general fishing plans based on conservation concerns and harvest sharing of co-migrating sockeye stocks. Each Panel's plans are based on a broad range of considerations

including pre-season forecasts of abundance, management goals, and international and domestic allocation of the Total Allowable Catch.

178. The Fraser River Panel manages fisheries within the former Convention Area, now referred to as the Panel Area. This panel is responsible for in-season management of Fraser sockeye and pink salmon in the Panel Area, and for the conduct of stock assessment programs.

179. In 1999, Canada and the United States renewed the *Pacific Salmon Treaty* with several refinements, including new implementation guidelines that clarify the role of each country in the management process. These refinements are captured in the Pacific Salmon Agreement under the *Pacific Salmon Treaty*. Two bilaterally managed regional funds were created to promote cooperation, improve fisheries management, and assist salmon and habitat enhancement efforts. The Agreement also included a commitment by the two countries to improve how scientific information is obtained, shared and applied to salmon management decisions.

180. A detailed discussion of the *Pacific Salmon Treaty* and Pacific Salmon Commission, as they relate to Fraser sockeye management, may be found in Policy and Practice Report 4, "Overview of the *Pacific Salmon Treaty* and the Pacific Salmon Commission Regarding Fraser River Sockeye Salmon".[120] That Report should be read together with Canada's submissions in respect of that Report (which are appended to Canada's submissions as Appendix C).

iii) **United Nations Convention on Biological Diversity**

181. Canada was the first industrialized nation to ratify the *United Nations Convention on Biological Diversity*, which was signed by more than 150 countries at the 1992 Earth Summit in Rio de Janeiro. The Convention has three main goals: the conservation of biodiversity; the sustainable use of the components of biodiversity; and the fair and equitable sharing of the benefits arising from the commercial and other use of genetic resources. The Convention provides for the conservation of genes, species and ecosystems, without providing guidance on which one should receive priority. The *Species at Risk Act* was enacted in partial fulfillment of Canada's obligations under this Convention.

[120] Policy and Practice Report 4, "Overview of the *Pacific Salmon Treaty* and the Pacific Saolmon Commission Regarding Management of Fraser River Sockeye Salmon" 18 October 2010.

iv) Convention for the Conservation of Anadromous Stocks in the North Pacific Ocean

182. The *North Pacific Anadromous Fish Commission* (NPAF Commission) was established by the *Convention for the Conservation of Anadromous Stocks in the North Pacific Ocean*, which came into force in 1993. The NPAF Commission includes Canada, Japan, the Republic of Korea, Russia, and the United States, the primary states of origin for salmon stocks in the North Pacific. The Convention prohibits directed fishing for salmonids on the high seas of the North Pacific, and includes provisions to minimize the number of salmonids taken in other fisheries. The NPAF Commission promotes the conservation of salmonids in the North Pacific and its adjacent seas, and serves as a venue for cooperation in and coordination of enforcement activities and scientific research.

183. Legislative provisions implementing the Convention include ss. 5.5(b) and 6(b) of the *Coastal Fisheries Protection Act*, ss. 43-46 of the *Coastal Fisheries Protection Regulations, and s. 22 of the Fishery (General) Regulations*.

5. *Legal Framework for Aboriginal Fisheries:*

184. Policy and Practice Report 8 provides a brief overview of the legal framework for Aboriginal fisheries.[121] That framework is described in detail in Policy and Practice Report 1, "The Aboriginal and Treaty Rights Framework Underlying the Fraser River Sockeye Salmon Fishery".[122] The latter Report should be read together with Canada's submissions in respect of that Report (which are appended to Canada's submissions as Appendix D).

185. Canada's submissions in response to the Policy and Practice Report on the Aboriginal and Treaty Rights Framework Underlying the Fraser River Sockeye Salmon Fishery, read together with that Policy and Practice Report, provide a comprehensive overview of the legal framework for Aboriginal fisheries. Canada will not reiterate that overview here but will highlight some key aspects of that framework.

[121] Policy and Practice Report 18, "Department of Fisheries and Oceans Policies and Programs for Aboriginal Fishing" 2 December 2010.
[122] Policy and Practice Report 1, "The Aboriginal and Treaty Rights Framework Underlying the Fraser River Sockeye Salmon Fishery", 1 October 2010.

186. In its 1990 decision in *R v Sparrow*, the SCC held that the recognition and affirmation of existing Aboriginal rights and treaty rights in the *Constitution Act, 1982* means that where a First Nation has a right to fish for FSC purposes, that right takes priority, after conservation, over other uses of the resource, and any infringement of the right must be justified.[123]

187. In its 2004 decisions in *Haida Nation v British Columbia (Minister of Forests)* and *Taku River Tlingit River Nation v British Columbia (Project Assessment Director)*, the SCC concluded that, when the Crown has knowledge of the potential existence of an Aboriginal right or Aboriginal title, and is contemplating decisions or taking actions that might adversely affect an Aboriginal right or title, the Crown has a legal duty to consult with First Nations and, where appropriate, accommodate their claimed or established right. The content of the duty depends on the strength of the claim and the seriousness of the potential adverse effect of a decision on the claimed Aboriginal right or title.[124]

188. While existing Aboriginal and treaty rights are constitutionally protected, and while Canada has a duty, in certain circumstances, to consult in respect of existing or claimed rights, the courts have clearly recognized Canada's overarching authority with respect to the management and regulation of fisheries. The SCC stated as follows in *Sparrow*:

> Since 1867 and subject to the limitations thereon imposed by the Constitution, which of course now includes s. 35 of the *Constitution Act, 1982*, the constitutional authority and responsibility to make laws in relation to the fisheries has rested with Parliament. Central to Parliament's responsibility has been, and continues to be, the need to provide for the proper management and conservation of our fish stocks, and the need to ensure that they are not depleted or imperilled by deleterious practices or methods of fishing.[125]

189. In *R v Nikal*, the SCC made similar comments regarding the federal government's responsibilities as a central authority with respect to salmon fisheries:

> If the salmon fishery is to survive, there must be some control exercised by a central authority. It is the federal government which will be required to

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[123] *R v Sparrow*, [1990] 1 SCR 1075 [*Sparrow*]; *Constitution Act, 1982*, being Schedule B to the Canada Act 1982 (UK), 1982, c 11 [*Constitution Act, 1982]*.
[124] *Haida Nation v British Columbia (Minister of Forests)*, 2004 SCC 73, 3 SCR 511 [*Haida*]; *Taku River Tlingit First Nation v British Columbia (Project Assessment Director)*, 2004 SCC 74, 3 SCR 550 [*Taku River*].
[125] *Sparrow* at p 1118.

> manage the fishery and see to the improvement and the increase of the stock of that fishery. It is for the federal government to ensure that all users who are entitled to partake of the salmon harvest have the opportunity to obtain an allotment pursuant to the scheme of priorities set out in *Sparrow*.[126]

190. The legal context for Aboriginal fisheries emphasizes reconciliation of the claims, interests, and ambitions of Aboriginal and non-Aboriginal peoples; honour in the actions of the Crown; taking into account land claims agreements and the constitutional protection provided to Aboriginal and treaty rights; and consultation as a means of reinforcing positive relationships between First Nations and the Crown. The manner in which Canada, through DFO, has taken into account Aboriginal and treaty rights and interests, and consulted with First Nations in managing the Fraser sockeye fishery, are discussed in Part IV of these submissions.

6. *Conclusion:*

191. The complex legal framework for Pacific fisheries, described above, is operationalized through a wide range of federal policies. These policies are described in the following section.

[126] *R v Nikal*, [1996] 1 SCR 1013 at 1061 [*Nikal*].

D. Policy Context

1. *Overview:*

192. In managing fisheries generally, and Fraser sockeye in particular, DFO develops policies to complement the legislative and regulatory framework described previously. DFO policies regarding Pacific salmon explain the complexities and operationalize the management and protection of five salmon species, from diverse watersheds, crossing a life history ranging from headwaters to the high seas, which are valued by diverse interests for harvest and ecosystem values, and whose habitat is affected by a wide range of human use. Because of these complexities and interactions, federal policies applicable to Pacific salmon and their ecosystem encompass a multitude of biological, ecological, social, and economic aspects.

193. The purpose of this section is to describe the policy development process within DFO, and the evolution of policies relevant to Pacific salmon. The four key themes that have emerged in these policies, namely conservation, sustainable use, consultation and decision-making, and collaboration and co-management, are discussed.

2. *What is a Policy?*

194. DFO manages fisheries in accordance with a series of policies developed to provide guidance on the numerous and complex issues relating to fisheries management. These policies provide a framework for decision-making, and support DFO's key strategic outcomes regarding fisheries management, but do not fetter the Minister's discretion under s.7 of the *Fisheries Act*. Policy guidelines outlining the general requirements for the granting of licences are not regulations, nor do they have the force of law.[128]

195. Policies encompass formal written statements setting out clear objectives and requirements in given areas. DFO develops policies, at times elaborated on by guidelines and directives, provide frameworks for the exercise of relevant legislative and administrative

[128] *Carpenter Fishing Corp v Canada,* (1997), 155 DLR (4th 572 (FCA) [*Carpenter Fishing*].

authority. While policies set out broad directions in respect of a particular matter, programs describe how policies are operationalized and delivered through specific activities.[129]

196. DFO policies come in a variety of forms, depending on the audience and intent of the policy.[130] Several different terms are used by DFO in the development and presentation of policies. For example, a "discussion paper" is often written to help facilitate consultation on a proposed policy.[131] Once consultation has been completed and a policy is approved, it often is encompassed in documents referred to as a "vision", "reform", "new direction" or "framework" to help explain its purpose.[132] Generally speaking, policies are hierarchical in the sense that they become more detailed are they are applied more specifically.[133]

197. While the Minister is ultimately responsible for approving and implementing policies, practically speaking, the Deputy Minister and the Regional Directors General have approval authority and operational responsibility for implementation of DFO policies.[134]

3. *Policy Context for the Management of Fraser River Sockeye*

a) Policy Development

198. Departmental policy development related to the management of fisheries and their ecosystem is guided by a range of considerations that include legislated mandates, judicial guidance, and international and domestic commitments to promote biodiversity and a precautionary, ecosystem-based approach to the management of marine resources. While the policies themselves are not subject to annual changes, annual implementation details are continually reviewed and adjusted to meet current needs in the ever-changing environment in which DFO operates.

199. For a national policy that relates to the Pacific coast, there is the opportunity for DFO staff in Pacific Region to assist with the development of the policy. As the Deputy Minister stated in her testimony before the Commission, while the DFO regions are the implementers of

[129] Claire Dansereau, 23 September 2011, p 53:11-30.
[130] Susan Farlinger, 23 September 2011, p 55:4-11.
[131] Claire Dansereau, 23 September 2011, p 53:36-42.
[132] Susan Farlinger, 4 March 2011, pp 65:33 to 66:45.
[133] Susan Farlinger, 23 September 2011, p 56:27-29.
[134] Claire Dansereau, 23 September 2011, p 58:22-24.

policy and are primarily focused on program delivery, all DFO policies need to be developed with the input of DFO employees "on the ground".[135]

200. DFO regional input into policy development is normally done with the benefit of input from advisory committees, which allows DFO to receive information and advice from Aboriginal groups, provincial and territorial governments, recreational and commercial stakeholders, and environmental organizations and community interests.

201. DFO Pacific Region has employed a range of approaches for gathering information and feedback on policy development including interviews, surveys, open houses, workshops, and focus groups. In addition, DFO regularly pursues innovative ways to encourage collaboration amongst interest groups so as to inform its policies. Two such examples are the *Integrated Salmon Dialogue Forum*, created in 2007 as a collaborative forum to consider key issues facing management of the salmon resource;[136] and the *Forum on Conservation and Harvest Planning*, initiated in 2008, which brings together Aboriginal groups from the Fraser River watershed and marine approach areas to discuss the coordination and management of salmon fisheries.[137]

b) Key Policy Themes

202. Considerable consultation and policy development have been undertaken since the mid-1990s to create a policy framework to support well-managed and sustainable Pacific salmon fisheries. [138]

203. Over this evolutionary period, four key policy themes in relation to Fraser sockeye have emerged: conservation, sustainable use, consultation and decision-making, and collaboration and co-management. These policy themes were captured in the 1998 paper *A New Direction for Canada's Pacific Salmon Fisheries* (*New Direction*), which described conservation as the primary objective for managing the wild salmon resource, and set out twelve broad principles in the areas of conservation, sustainable use and improved decision-making.[140]

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[135] Claire Dansereau, 23 September 2011, p 56:41-47.
[136] Paul Sprout, December 16, 2011, p 60:9-26; Wayne Saito, February 1, 2011, p 74:4 to p 75:44.
[137] Barry Rosenberger, January 17, 2011, p 59:27-36; January 21, p 48:36-40.
[138] Paul Macgillivray, 1 November 2010, p 68:19-41.
[140] Exhibit 32: *A New Direction For Canada's Pacific Salmon Fisheries October 1998,* D Anderson, 15 October 1998; Paul Macgillivray, 1 November 2010, p 89:44 to p 90:39.

204. The *New Direction* paper committed DFO to developing a detailed set of operational policies for the management of the salmon resource. Policies and initiatives that grew out of the *New Direction* paper are, in chronological order:

- *An Allocation Policy for Pacific Salmon* (1999)
- Improved Decision Making (Discussion Paper) (2000)
- *A Policy for Selective Fishing in Canada's Pacific Fisheries* (2001)
- *Wild Salmon Policy* (2005)

205. These and other policies relevant to the management of Pacific salmon and habitat are discussed under the thematic headings below.

i) **Conservation**

206. Policies associated with the conservation of Pacific salmon cover a variety of activities, including the protection of wild stocks, taking into account broader ecosystem considerations, protection of salmon habitat, and increasing the production of weaker stocks through enhancement.

207. The *Sustainable Fisheries Framework* provides the basis for ensuring Canadian fisheries are conducted in a manner which supports conservation and sustainable use.[142] It incorporates existing fisheries management policies with new and evolving policies. The framework also includes tools to monitor and assess those initiatives geared towards ensuring an environmentally sustainable fishery, and identifies areas that may need improvement. Overall, the *Sustainable Fisheries Framework* provides the foundation of an ecosystem-based and precautionary approach to fisheries management in Canada. More specific conservation policies then need to be consistent with these overarching principles.[143]

208. Policies associated with the conservation of Pacific wild salmon stocks are designed to be consistent with Canada's national and international policies and obligations. The most recent

[142] Exhibit 1939: *Communications Plan – Sustainable Fisheries Framework,* M Feldbauer, 8 December 2010.
[143] Susan Farlinger, 4 March 2011, p 65:35-47; 16 December 2010, p 12:19-21.

policy direction is contained in Canada's *Wild Salmon Policy*.[144] This policy, which is described in detail in Part IV, aims to reduce overall exploitation rates, move away from mixed stock fisheries, provide greater protection for weaker stocks by limiting harvesting, and establish a process for setting harvest rules that explicitly incorporates conservation objectives.

209. Broadly speaking, the goal of the *Wild Salmon Policy* is to promote and maintain healthy and diverse salmon populations for the benefit and enjoyment of Canadians for generations to come. The *Wild Salmon Policy* calls for clear objectives, along with strategies to meet them, and presents a decision-making process to ensure that choices made about salmon conservation reflect societal values.

210. The *Pacific Salmon Revitalization Strategy*, initiated in 1996, was a multi-year program that contained fishing gear and area licensing policy changes, as well as fleet reduction through licence retirements.[146] The *Pacific Salmon Revitalization Strategy* arose as a result of the 1995 Pacific Policy Roundtable, which explored various potential changes to the commercial salmon fishery.[147] One of the main objectives of the *Pacific Salmon Revitalization Strategy* was to pursue conservation objectives, and to align the Pacific fishery with declining salmon stocks and opportunities.[148]

211. Important principles, including and relating to the precautionary approach, genetic diversity, an ecosystem approach to management, and sustainable use, have become elements of salmon conservation policy. For example, the *Sustainable Fisheries Framework* (2009) explains that fisheries management decisions must now consider the impact of the fishery not only on the target species, but also on non-target species, seafloor habitats, and the ecosystems of which these species are a part. This approach requires that management decisions take into account changes in the ecosystem which may affect the species being fished.[149]

212. The primary source of policy – and program – direction associated with fish habitat is the *Policy for the Management of Fish Habitat*, which provides a framework for the administration

[144] Exhibit 8: *Canada's Policy For Conservation of Wild Pacific Salmon* (The Wild Salmon Policy), Fisheries and Oceans Canada, 2005.
[146] Exhibit 262: *Pacific Salmon Revitalization*, 1 February 1996.
[147] Paul Macgillivray, 2 November 2010, p 65:37-43.
[148] Lisa Mijacika, 15 March 2011, p 55:6-14; p 62:17-33.
[149] Susan Farlinger, 4 March 2011, p 66:12-19; 1 November 2010, p 87:19-37.

of the habitat protection and pollution prevention provisions of the *Fisheries Act.*[151] The policy was introduced in 1986 to provide guidance to departmental staff, developers, and the public on habitat conservation, restoration and development. The policy's overall objective is a net gain in the productive capacity of fish habitat, using the guiding principle of "no net loss" to ensure that habitat is conserved. This policy supports the administration of the habitat provisions of the *Fisheries Act*.

213. The policy recognizes that many sectors of the economy have a legitimate need to use water resources. Accordingly, it promotes the adoption of an integrated planning approach designed to ensure fish habitat protection and conservation while permitting the use of water resources for other purposes. DFO continues to implement and monitor this policy. Renewal of the policy currently is under discussion within DFO.[153]

ii) **Sustainable Use**

214. Policies associated with the sustainable use of Pacific salmon build on the conservation policies described above, and address how salmon are harvested. Specific aspects of sustainable use policies include selective fishing and salmon allocation.

215. The primary source of policy direction on selective fishing for Pacific salmon is *A Policy for Selective Fishing in Canada's Pacific Fisheries* (2001).[154] The policy defines selective fishing as the ability to " …avoid non-target fish, invertebrates, seabirds, and marine mammals or, if encountered, to release them alive and unharmed".

216. The *Selective Fishing Policy* clearly identifies the need for continuous improvement of gear and practices, and establishes incentives by linking continuous improvement to future fishing opportunities. The policy lists an overarching objective and five principles:

- The objective is to ensure that selective fishing technology and practices are adopted where appropriate in all fisheries in the Pacific Region, and that there are continuing improvements in harvesting gear and related practices. Selective fishing is a requisite

[151] Exhibit 260: *Policy For the Management of Fish Habitat,* The Department of Fisheries and Oceans, October 1986.
[153] Claire Dansereau, 2 November 2010, p 32:1-33; Patrice LeBlanc, 4 April 2011, p 7:39 to p. 9:12.
[154] Exhibit 266: *A Policy For Selective Fishing In Canada's Pacific Fisheries,* Fisheries and Oceans Canada, January 2001.

element of conservation-based fisheries. In meeting conservation objectives, fishing opportunities and resource allocations will be shaped by the ability of all harvesters – First Nations, commercial and recreational anglers – to fish selectively.

- *Principle 1*: Conservation of Pacific fisheries stocks is the primary objective and will take precedence in managing the resource.
- *Principle 2*: All Pacific recreational and commercial fisheries will adhere to selective fishing standards within set timelines.
- *Principle 3*: In fisheries where selective harvesting standards are not met within prescribed timelines, and by-catches prevent achievement of conservation objectives, fishing opportunities will be curtailed.
- *Principle 4*: Four fundamental strategies in fishing selectively to minimize mortalities and maximize chances for survival of non-target fish, invertebrates, seabirds and marine mammals will be adopted through increased knowledge of fishing gear and practices. In order of preference they are:
    - avoidance of non-target species and stocks through time and area restrictions;
    - avoidance through gear design;
    - release alive and unharmed before being brought aboard or ashore, through gear design; and
    - release alive and unharmed from the deck of the vessel or landing site (e.g. shore or fishing pier).
- *Principle 5*: First Nations and the recreational and commercial fishing sectors will be responsible for continuous learning and skills development and transfer of responsible and selective harvesting practices.

217. Implementation of the *Selective Fishing Policy* focuses on two priorities. First, avoidance of non-target species is the best possible option in selective fishing. Test harvests on stock abundance, timing, and migration routes can supply valuable data to help develop fishing strategies that avoid non-target species or stocks of concern.[155] Licensed harvesters can also play a role by informing the Department if stocks of concern are encountered. This may require improved communications and a shift in the practices of licensed harvesters who may be accustomed to keeping such information confidential.

[155] Susan Farlinger, 16 December 2010, p 10:4-20; Jeff Grout, 21 January 2011, p 63:2-24.

218. Second, the next best option involves releasing non-target fish, invertebrates, seabirds, and marine mammals encountered (and captured) alive and unharmed, or in the best possible condition, to maximize survival.

219. *An Allocation Policy for Pacific Salmon* is the primary source of policy direction addressing the allocation of salmon among harvesters.[157] The policy, released in October 1999, confirms the precedence of conservation in the management of the fisheries resource, provides for the priority of First Nations' FSC requirements and rights that may be defined in treaties, and describes principles for allocating harvestable amounts between commercial and recreational fisheries. The policy also provides guidance for inter-gear allocation of salmon within the commercial sector, and promotes selective fishing practices.

220. In developing the *Allocation Policy*, DFO received extensive input through its consultation processes and from independent advisors. In addition, interested parties had an opportunity to provide views to the Minister and DFO staff in writing or by taking part in facilitated meetings. The views expressed were considered in developing the *Allocation Policy*.

221. The *Allocation Policy* continues to guide the development of annual fishing plans through the Integrated Fisheries Management Plan process. The annual Integrated Fisheries Management Plans for Pacific salmon include a description of relevant policies and associated actions that will be taken to implement the policies.

iii) **Consultation and Decision-Making**

- Consultation

222. As is described elsewhere in Canada's submissions, DFO interacts extensively with many interested parties, including other federal government departments and agencies, other governments, Aboriginal groups, commercial and recreational harvesters, environmental groups, community groups, academics, and volunteers. In certain instances, consultations with First Nations take place pursuant to Canada's legal duty to consult.

[157] Exhibit 264: *An Allocation Policy for Pacific Salmon - A New Direction: The Fourth in a Series of Papers from Fisheries and Oceans Canada*, Fisheries and Oceans Canada, October 1999.

223. When seeking advice from these parties, DFO supports consultations that are transparent, accessible, and accountable. Much of DFO's consultation takes place in ongoing advisory processes that serve as a structured, coordinated forum for discussing ongoing issues and for developing recommendations to DFO.

224. Consultation policies such as DFO's *Consultation Framework for Fisheries and Oceans Canada*, and the Government of Canada's *Aboriginal Consultations and Accommodation: Updated Guidelines to Federal Officials to Fulfill the Duty to Consult*, [158] are discussed in Part IV. These policies provide direction to DFO when engaging in the processes described above.

225. In addition to implementing these consultation policies, and in an effort to better support consultation, DFO Pacific Region established the Consultation Secretariat to provide policy guidance and strategic direction for DFO staff, and transparency for stakeholders and the public, for consultation activities that adhere to the principles of transparency, accountability, and efficiency.[160] The Secretariat also provides a number of other services including maintaining a public consultation calendar and website that includes the dates and minutes of meetings, and providing internal resources to enhance coordination and improve processes and training.[161]

- Decision-Making

226. In May 2000, DFO initiated an independent review – conducted by the Institute for Dispute Resolution at the University of Victoria – of participatory and advisory processes in the Pacific Region. The Institute's final report was released in May 2001, and contained nine recommendations.[163] Shortly after initiating this independent review process, DFO issued a discussion paper entitled *A Framework for Improved Decision-Making in the Pacific Salmon Fishery.*[164]

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[158] Exhibit 594: *Consultation Framework for Fisheries and Oceans Canada;* Exhibit 1212: *Aboriginal Consultation and Accommodation: Updated Guidelines for Federal Officials to Fulfill the Duty to Consult*, March 2011.
[160] Mark Saunders, 1 December 2010, p 104:17-24.
[161] Exhibit 1926: DFO website: *Salmon Consultation*; Paul Ryall, 16 March 2011, p 47:9-35; Barry Huber, 28 June 2011, p 96:27-40; Susan Farlinger, 26 September 2011, pp 8:38 to 9:10.
[163] Exhibit 473 at pp 4-5: *Independent Review of Improved Decision Making in the Pacific Salmon Fishery: Final Recommendations,* Institute for Dispute Resolution, 16 May 2001.
[164] Exhibit 473 at p 1; Exhibit 267: *A Framework for Improved Decision-Making In The Pacific Salmon Fishery Discussion Paper – a New Direction: The Sixth in a Series of Papers from Fisheries and Oceans Canada*, Fisheries and Oceans Canada, June 2000.

227. The goal of these initiatives was to establish a general framework for more open and predictable decision-making that incorporated enhanced public participation.[165] The discussion paper and 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
- Policy development process for issues related to salmon fisheries management

228. The Institute's final report led to changes in DFO's consultative processes.[166] For example, partly in response to that report, DFO established the Integrated Harvest Planning Committee. [167]

229. Guidance to DFO for improved decision-making is also provided by *A Framework for the Application of Precaution in Science-based Decision Making About Risk.*[168] The framework, released in 2003, sets out guiding principles to achieve coherent and cohesive application of precaution to decision making about risks of serious or irreversible harm where there is lack of full scientific certainty, with regard to federal domestic policies, laws and agreements, as well as international agreements and guidelines in areas where science is implicated. Federal departmental and agency officials are expected to consider its guiding principles in decision making, and to work together in developing, in consultation with their stakeholders, guidance for the application of precaution in their particular area of responsibility.

230. DFO issued *A Fishery Decision-Making Framework Incorporating the Precautionary Approach* (2009)[169] to provide guidance on incorporating the precautionary principle into harvest strategies. The decision-making framework guides the management of fisheries in Canada by

[165] Exhibit 267 at p 4.
[166] Jeff Grout, 23 February 2011, p 62:7-17.
[167] Jeff Grout, 17 January 2011, p 18:24-33; Policy and Practice Report 5, "Overview of Fraser River Sockeye Salmon Harvest Management, 9 November 2010 at p 64, para 165.
[168] Exhibit 51: *A Framework for the Application of Precaution in Science-Based Decision Making About Risk*.
[169] Exhibits 207 (also Exhibit 185): *A Fishery Decision-Making Framework Incorporating the Precautionary Approach*, Jeff Grout.

taking into account uncertainties and reference points in the management of the fisheries resource.[170]

231. DFO's decision-making framework is part of the *Sustainable Fisheries Framework*,[171] and applies to key harvested stocks managed by DFO; that is, stocks that are the specific and intended target of a fishery, whether commercial, recreational or subsistence. In applying the framework, all removals of these stocks from all types of fisheries must be taken into account. The primary components of the decision-making framework are reference points and stock status zones, harvest strategies and harvest rules, and the need to take into account uncertainty and risk when developing and implementing decision rules.

iv) **collaboration and co-management**

232. Policy direction associated with collaboration and co-management is contained in a number of documents, including the *Policy for the Management of Aboriginal Fishing* (1992), the *Wild Salmon Policy*, *Pacific Fisheries Reform*, the *Sustainable Fisheries Framework*, and *A Fishery Decision-Making Framework Incorporating the Precautionary Approach*.

233. The *Aboriginal Fisheries Strategy* program, which is discussed in detail in Part IV, was developed to address several objectives related to Aboriginal groups and their access to fisheries resources, including:

- Improving DFO relations with Aboriginal groups
- Providing a framework for the management of Aboriginal fisheries in a manner that is consistent with the *Sparrow* decision
- Greater involvement of Aboriginal groups in the management of fisheries
- Increased economic returns from Aboriginal participation in commercial and other economic opportunity fisheries.

234. The *Aboriginal Fisheries Strategy* program and the *Policy for the Management of Aboriginal Fishing* are applicable to areas where DFO manages the fishery and where land claims settlements have not already put a fisheries management regime in place.[173] The

[170] Jeff Grout, 2 December 2011, pp 67:39 to 68:9.
[171] Exhibit 1939 *Communications Plan – Sustainable Fisheries Framework*, M Feldbauer, 8 December 2010.
[173] Exhibit 261: *Policy for the Management of Aboriginal Fishing*, Fisheries and Oceans Canada, 6 August 1993.

Aboriginal Fisheries Strategy encourages and enables the establishment of relationships with Aboriginal groups, provides a mechanism for DFO to address its legal obligations, and promotes stable and orderly fisheries management for the benefit of all Canadians.

235. The *Aboriginal Fisheries Strategy* continues to be the principal mechanism that supports the development of relationships with Aboriginal groups, including the consultation, planning, and implementation of fisheries, and the development of capacity to undertake fisheries management, stock assessment, enhancement and habitat restoration or protection programs.

236. The *Integrated Aboriginal Policy Framework* sets out a framework for DFO's policies and programs relating to Aboriginal communities. The overarching objective of the *Integrated Aboriginal Policy Framework* is to strengthen and foster relations between DFO and Aboriginal peoples.[175]

237. The framework provides guidance to DFO employees with respect to building a collaborative approach to management of the fisheries resource with Aboriginal groups**.** That is, facilitating aboriginal participation in fisheries and aquaculture and associated economic opportunities and in the management of aquatic resources, and sharing accountability and responsibility for fisheries management between DFO and resource users.[176]

238. *Pacific Fisheries Reform* was introduced in 2005.[178] *Pacific Fisheries Reform* contains policy principles associated with improving the economic viability and sustainable management of commercial fisheries; for addressing First Nations' interests in FSC fisheries, commercial access, and involvement in management; for ensuring all fishery participants enjoy certainty and stability; and for ensuring that participants are self-reliant, self-adjusting, treated fairly and equitably, and involved in decision-making.[179] Work has also been initiated with the recreational sector to better understand their place in the future fishery.[180] *Pacific Fisheries Reform* was the policy precursor to the *Pacific Integrated Commercial Fisheries Initiative* program.[181]

[175] Exhibit 1187: *An Integrated Aboriginal Policy Framework*, 2007.
[176] Exhibit 1187; Barry Huber, 28 June 2011, pp 11:6 to 13:24.
[178] Exhibit 269: *A Discussion Paper on the Implementation of Pacific Fisheries Reform*, September 2005.
[179] Exhibit 269 at p 3.
[180] Devona Adams, 2 March 2011, pp 44:33 to 45:15.
[181] Susan Farlinger, 16 December 2010, p 11:27-29.

239. *Pacific Fisheries Reform* is intended to guide reform initiatives, and is the standard against which alternative approaches will be evaluated.[182] The key elements of Pacific fisheries reform are:

- Improved resource conservation
- Improved certainty and stability
- Enhancing the place of First Nations in the fishery
- Shared management responsibility and accountability
- Realizing the social and economic potential of the fisheries resources in the Pacific region[183]

240. The *Pacific Integrated Commercial Fisheries Initiative* (*PICFI*) is a five-year program initiative that was announced in July 2007, and which sunsets in July 2012.[185] It is presently in its last year and, like all DFO programs that sunset, is under review to determine how each aspect of the initiative is functioning. Depending on the review, DFO may seek funding to continue some or all aspects of *PICFI*, or alternatively, to adopt a different approach.[186]

PICFI encompasses four distinct elements:

- Enhanced Accountability Measures covering catch monitoring, traceability, and compliance.
- Acquiring Commercial Fisheries Access for Aboriginal groups.
- Capacity Building for managing fisheries, accessing fishing opportunities, and developing technical support.
- Co-management, among Aboriginal groups, and among all harvesters.

241. The *PICFI* program builds on policy work done under *Pacific Fisheries Reform*, and is aimed at establishing fully integrated commercial fisheries, where all commercial harvesters fish under common and transparent rules, with a higher standard of accountability for all resource

[182] Exhibit 269 at p 3.
[183] Exhibit 269 at pp 5-7.
[185] Exhibit 270: *Pacific Integrated Commercial Fisheries Initiative (PICFI),* 17 July 2007.
[186] Claire Dansereau, 22 September 2011, p 69:14-21.

users, and strengthened collaboration and cooperation among users.[187] *PICFI* also supports British Columbia Aboriginal groups in integrated commercial fisheries to develop sustainable fisheries enterprises, and to increase Aboriginal groups participation in fisheries management decision making processes.

242. A key component of effective Pacific integrated commercial fisheries is to move toward clear harvest sharing arrangements for the salmon fishery. The long-term goal is for all participants in the commercial fishery to manage their respective shares cooperatively, in ways that ensure the conservation of the resource, fairness, the sustainability of the fishery and a stable economic return for all participants, while taking into account the need to provide access for First Nations fishing for FSC purposes, and recreational harvesters.

4. *Conclusion:*

243. The policies described above all emphasize the goals of conservation and sustainable use, and the important role Aboriginal groups and external stakeholders play in policy development and fisheries management. The next section briefly discusses these interested parties, and notes the main processes through which their input is received.

[187] Policy and Practice Report 18, « Department of Fisheries and Oceans Policies and Programs for Aboriginal Fishing" 2 December 2010 at p 85.

E. Aboriginal Groups and Stakeholders

1. *Overview:*

244. Many British Columbians have an interest in the conservation and sustainable use of this resource, and many also actively participate in Fraser sockeye fisheries. The purpose of this section is to briefly describe these interested parties, and the ways in which they engage with DFO in consultative and advisory processes related to issues of mutual concern.

2. *Multiparty Processes:*

245. Fraser sockeye are valued by a wide diversity of people who benefit from this resource. The range of those interested in Fraser sockeye include a majority of British Columbia First Nations, the commercial fishing industry, the recreational fishing community, environmental organizations, the Pacific Salmon Commission, academia, and similar constituencies in the northwest United States.

246. There are a number of opportunities for these interested parties to work together in consultative and management processes to achieve better outcomes for harvest and sustainability of the Fraser sockeye resource. Two such bodies, dealing primarily with harvest management, are the Integrated Harvest Planning Committee and the Pacific Salmon Commission including its geographic panels and technical committees.

247. The Integrated Harvest Planning Committee is the primary vehicle for cross sectoral communication and advice, and for making recommendations on operational decisions related to salmon harvesting in the Pacific Region. The goal of the Integrated Harvest Planning Committee is to ensure fishing plans are coordinated and integrated, to identify potential conflicts, and if there are disputes, to make recommendations for solutions if possible.[188] The Integrated Harvest Planning Committee conducts an annual post-season review with all members to learn from the previous season's fishery, and incorporates that information into the next year's IFMP.[189]

248. As previously described, the Pacific Salmon Commission is the bilateral organization created by Canada and the United States to implement the *Pacific Salmon Treaty*. The Treaty

[188] Exhibit 342: *Integrated Salmon Harvest Planning (IHPC): Terms of Reference*, May 2005.
[189] Susan Farlinger, 22 September, 2011, p 66 :19-27.

provides the structure and rules by which the harvest of fish bound for the other country can be controlled. Along with government members, Aboriginal groups and stakeholder groups are represented on the Commission and on the Fraser Panel.

3. *First Nations Processes*

249. In the Fraser Watershed and in marine areas, over 130 First Nations participate in FSC fisheries targeting Fraser sockeye.

250. As noted, the AFS was implemented in 1992 in an effort to improve relations with Aboriginal groups, facilitate greater involvement of Aboriginal groups in the management of fisheries and increase participation in commercial fisheries, and provide a framework for the management of the First Nations' fishery in a manner consistent with *Sparrow*.[191] The AFS continues to be the principal mechanism supporting the development of relationships with Aboriginal groups, including the consultation, planning and implementation of fisheries, and the development of capacity to undertake fisheries management, stock assessment, enhancement and habitat protection programs.

251. Through the Allocation Transfer Program and the *PICFI*, which are discussed in Part IV, DFO is working to increase Aboriginal groups' participation in commercial fisheries.[192] Commercial access under these programs is communal, but is accorded the same priority as the regular commercial fishery.

252. The Aboriginal Aquatic Resources and Oceans Management (AAROM) program, which is also discussed in Part IV, has been implemented to fund aggregations of First Nation groups to build the capacity required to coordinate fishery planning and program initiatives. AAROM is focused on developing affiliations between Aboriginal groups to work together at a broad watershed or ecosystem level where there are common interests and where input into management can be based on integrated knowledge of several Aboriginal communities. AAROM and *PICFI* also fund a regional Aboriginal groups fisheries organization, the Aboriginal groups' Fisheries Council, a fisheries specific subgroup of the First Nations Leadership Council in

[191] Paul Sprout, 2 November 2010, p 91:3-33.
[192] Lisa Mijacika, 15 March 2011, p 63:14-32.

British Columbia that supports engagement of Aboriginal groups in issues and initiatives that are regional in scope or of regional significance.[194]

253. Aboriginal participation on the Integrated Harvest Planning Committee is generally funded through AAROM, and is intended to co-ordinate the fishing plans of Aboriginal groups and other users of the resource. Management planning for FSC fisheries is typically addressed in advance through direct engagement between DFO and First Nations.

4. *Commercial Fishery Processes*

254. The commercial salmon industry includes fishing fleets and the processing sectors. In addition, there are associated services such as shipyards, gear, and fuel suppliers. Many salmon licence holders are also licensed to fish other species, such as herring, halibut, tuna, sardines, and prawns.

255. Prior to 1996, area licensing for salmon applied only to the troll fleet Seine or gillnet vessels were free to fish any area open to salmon fishing with the designated gear. In 1996, DFO implemented a major restructuring of commercial salmon fisheries, which included a salmon licence retirement program and the introduction of area licensing.[195] Since then, each salmon licence holder can only fish one area with a single licence. There are two areas for seine (A and B), three areas for gillnet (C, D and E), and three areas for troll (F, G and H). Individuals can fish another area only if they acquire a licence for that area.[196]

256. Since the mid 1990s, the number of commercial salmon licences has been reduced by about half. Many of these licences are now held for First Nations' use either through the Northern Native Fishing Corporation or through DFO's ATP and *PICFI*.[197]

257. The Commercial Salmon Advisory Board is the formal body representing commercial fishery licence holders in consultations with DFO and in the multilateral Integrated Harvest Planning Committee. Members are appointed from the elected Area Harvest Planning

[194] The First Nations Leadership Council is a regional body formed by agreement of the First Nations Summit, the Union of British Columbia Indian Chiefs, and the British Columbia section of the Assembly of First Nations.
[195] Lisa Mijacika, 15 March 2011, pp 54:36 to 55:29.
[196] Lisa Mijacika, 15 March 2011, pp 45:42 to 46:42.
[197] Lisa Mijacika, 15 March 2011, pp 71:45 to 72:21.

Committees, which represent licence holders in each of the eight commercial fishery areas described above. There are also two fish processor representatives, two representatives from the United Fishermen and Allied Workers, and two representatives from the Native Brotherhood of BC.

5. *Recreational Fishery Processes*

258. The opportunity to fish for recreation and food has long been an important part of life on Canada's Pacific coast. The harvest of Fraser sockeye in the recreational fishery represents less than 1% of the total catch. Historically, the majority of the marine recreational catch of sockeye has been taken in the southern portion of the Strait of Georgia, with minor catches in Johnstone Strait and Strait of Juan de Fuca from recreational boats. In very recent years, recreational fisheries for sockeye have grown significantly in the non-tidal portion of the lower Fraser River from on-shore recreational fisheries.

259. The Sport Fishing Advisory Board has been the official advisory body for recreational fishing issues since it was constituted in 1964. The Sport Fishing Advisory Board provides an inclusive and broadly representative process for the views of the recreational fishing community. There are 23 local recreational fishing advisory committees throughout the province, with representatives from local recreational fishing interests. These local committees nominate a representative to the North and South coast regional committees of the Sport Fishing Advisory Board. The regional committees also have representatives from provincial angling advocacy groups provide and representatives to the Pacific Salmon Commission.[198]

260. The Sport Fishing Advisory Board plays an advisory role on many aspects of the recreational fishery related to fishing plans, including stock assessment and monitoring, regulations and enforcement, policy development, and advice on enhancing the recreational fishing experience.

6. *Participation of Environmental Groups in Consultative and Advisory Processes*

261. The Marine Conservation Caucus is comprised of nine of the largest conservation organizations in British Columbia, they being the Canadian Parks and Wilderness Society – BC

[198] Jeff Grout, 17 January 2011, pp 14:16 to 15:39; Devona Adams, 2 March 2011, pp 32:27 to 33:4.

Chapter, the David Suzuki Foundation, the Living Oceans Society, the Pacific Streamkeeper Federation, the Raincoast Conservation Foundation, the Skeena Wild Conservation Trust, the Steelhead Society of BC, the Watershed Watch Salmon Society, and the World Wildlife Fund of Canada.[199]

262. Marine Conservation Caucus is an officially recognized stakeholder in consultations with DFO. The Marine Conservation Caucus provides unique opportunities for the environmental sector to work together, share information, and voice concerns in consultation processes.[200] DFO provides funding to the Marine Conservation Caucus to facilitate their participation in consultation processes.[201]

7. *Conclusion*

263. This section provided an overview of the parties interested in Fraser sockeye fisheries and ecosystem management issues. A more detailed discussion of the consultative and advisory processes in which these parties participate is contained in Part IV. Before turning to Part IV, Part III will conclude with a discussion of the biological and environmental context for Fraser sockeye.

[199] Jeff Grout, 17 January 2011, p 16:4-34.
[200] Rob Morley and Terry Glavin, 28 October 2010, pp 77:19 to 78:18.
[201] Paul Ryall, 3 June 2011, p 24:36-47.

F. Biological and Environmental Context

1. *Overview:*

264. The Fraser sockeye lifecycle takes place throughout the 1375 kilometre length of the Fraser River, and in marine areas encompassing Canadian, American, and international waters. The purpose of this section is to briefly describe the various stages of the Fraser sockeye lifecycle, and to discuss the characteristics of the diverse environments in which the Fraser sockeye lifecycle occurs.

2. *Fraser Sockeye Lifecycle:*

265. The lifespan of the majority of Fraser sockeye is approximately four years, although a small proportion may return as five year-olds. Fraser sockeye generally spend two years in freshwater, and two to three years in the marine environment. The lifecycle is divided into four stages, as described below.

a) Spawning

266. The spawning process for Fraser sockeye lasts approximately ten days, starting with nest building by the female, and resulting in fertilized eggs being deposited in a nest.[202] The female will dig four or five nests, and deposit several hundred eggs per nest.[203] The number of eggs per female ranges from three to four thousand, and varies with body size.[204] Larger fish tend to have larger eggs, but egg size also varies with the substrate in which the fish spawn in.[205] Once all the eggs are deposited the female covers the nests with gravel, which she guards for several days before dying.[206]

b) Egg and Alevin Phase

267. The eggs develop in the gravel during winter, shielded from floods, icy conditions and predators.[207] The length of time it takes for an egg to reach the eyed-egg stage is dependent on

[202] Exhibit 1291 at p 8: Technical Report 4, "The Decline of Fraser River Sockeye Salmon Oncorhynchus nerka (steller, 1743) in Relation to Marine Ecology", February 2011.
[203] Exhibit 1291 at p 8.
[204] Michael Lapointe, 25 October 2010, p 17:23-25.
[205] Michael Lapointe, 25 October 2010, p 17:26-30.
[206] Exhibit 1291 at p 8.
[207] Exhibit 1291 at p 8.

water temperature – the warmer the water, the faster the development.[208] As soon as 10%-20% of the yolk has been used, the alevin (a larva with a yolk sac attached to its belly), hatches from the egg.[209] Depending on water temperature, the yolk sac will nourish the fish for six to ten weeks.[210]

c) Fry phase

268. Once the yolk sac has been absorbed by the body (a process called "buttoning up") the salmon emerges from the gravel as fry.[211] The emergence of the fry is timed to coincide with the development of plankton blooms in rivers, lakes and the ocean.[212] The distance of a fry's migration to reach a lake differs from a few hundred meters to more than a hundred kilometres.[213] Once the fry has reached the lake, it will reside there for approximately one year before undergoing a process called smoltification which is a physiological change required to allow the fish to go from fresh water to sea water. [214]

d) Marine phase

269. The smolt will migrate out of its lake between late April and early May, and will make its way to the Fraser River.[215] When the juvenile salmon are migrating they are moving at approximately one body-length a second, or 8.6 kilometres a day.[216] A normal-sized juvenile salmon will migrate through the Strait of Georgia and reach Queen Charlotte Sound in mid to late June.[217]

270. The juvenile salmon will stay along the continental shelf for a long period of time before migrating to the offshore North Pacific.[218] When the juvenile salmon does move offshore, the sockeye distribution is mainly in the Gulf of Alaska.[219] During the marine phase, the sockeye

[208] Michael Lapointe, 25 October 2010, p 17:12-20.
[209] Exhibit 1291 at p 8.
[210] Michael Lapointe, 25 October 2010, p 17:31-34; p 17:43-46.
[211] Exhibit 1291 at p 8; Michael Lapointe, 25 October 2010, pp. 17:46 to 18:02.
[212] Exhibit 1291 at p. 8.
[213] Michael Lapointe, 25 October 2010, p 19:25-30.
[214] Michael Lapointe, 25 October 2010, p 19: 31, pp. 19:45 to 20:02.
[215] Exhibit 2 at p 9: *Marine phase of the Fraser River Sockeye Life Cycle: Smolt Entry to Adult Return;* Dr David Welch, 25 October 2010, p 33: 12-16.
[216] Exhibit 2 at p 9; Dr David Welch, 25 October 2010, p 34:25-31.
[217] Exhibit 2 at p 9; Dr David Welch, 25 October 2010, p 34:31-35.
[218] Exhibit 2 at p 37; Dr David Welch, 25 October 2010, p 49:8-11.
[219] Dr David Welch, 25 October 2010, p 49:15-17.

will migrate according to the annual temperature cycles, moving south in the spring and summer, and north in autumn and winter.[220] The marine phase is shorter for males than females as males tend to be faster growing and mature at an earlier age.[221]

e) Maturation and Return Home

271. Once the sockeye is mature, it will migrate from its ocean feeding ground in late summer to return to its home stream or river, and will continue to migrate upstream to its spawning ground.[222] There are two different routes that returning Fraser sockeye can take to enter the Strait of Georgia: the northern route through Johnstone Strait, or the southern route through Juan de Fuca Strait.[223] The life cycle ends when the Fraser sockeye reaches its spawning ground.[224]

f) Fecundity and Mortality Rates

272. There is high variability in fecundity in Fraser sockeye stocks, ranging between 2500 and 4000 eggs per female. Survival rates between the life stages are also highly variable, with the egg-to-fry survival rate generally ranging between 4-40%. The fry-to-smolt survival range is typically quite broad, while the smolt-to-adult survival rate can be as low as 1%.[225]

273. Very high rates of natural mortality occur during freshwater residency, emphasizing the importance of freshwater ecosystems in the population biology of Fraser sockeye. Survival rates within the marine environment can be highly variable between years. There are also high rates of mortality of Fraser River sockeye in marine waters. In the marine stage between smolt and recruit, there is a 4-5% survival rate. In some years, the survival rate is as low as 1-2%. The causes of these low marine survival rates are not well understood.[226]

3. *Natural Environment:*

274. The Fraser River is the largest river in British Columbia and the tenth largest in Canada. The Fraser River drains a 220,000 km² area that consists of highly variable geography

[220] Exhibit 1291 at p 9: Technical Report No 4, "The Decline of Fraser River Sockeye Salmon Oncorhynchus nerka (Steller, 1743) in Relation to Marine Ecology", February 2011.
[221] Exhibit 1291 at p 5.
[222] Exhibit 1291 at p 9.
[223] Exhibit 1291 at p 9.
[224] Exhibit 1291 at pp 6 and 9.
[225] Michael Lapointe, 25 October 2010, pp 22:03 to 26:22.
[226] David Marmorek, 19 September 2011, pp 51:21 to 52:32.

encompassing approximately one-third of the Province of British Columbia. This variable geography, and its impact on river conditions, has led to the identification of Conservation Units (geographically or genetically distinct groups of sockeye salmon) that spawn and rear in the Fraser River system.

275. During their life cycle, Fraser sockeye utilize streams for spawning, incubation and migration; lakes for juvenile rearing; and estuarine, near shore, and off-shore marine environments for growth and development. Conditions in both marine and freshwater environments regularly undergo moderate changes that are within the normal range to which Fraser sockeye are adapted. Examples include seasonal and interannual variations of stream flows and ocean conditions accounted for by flood, drought, and El Nino (warming) and La Nina (cooling) events.[227] Changes outside of these normal ranges may have an impact on Fraser sockeye productivity.

4. *Management of Activities that can Affect the Environmental Context*

276. Fisheries managers must understand and respond to environmental conditions that could have an impact on sockeye salmon productivity. For example, emerging ecological disruption due to climate change is producing unprecedented variation in salmon run-timing and distribution, as well as variations in ocean and freshwater mortality rates.[228]

277. In addition to climate change, development and population growth can impact on Fraser sockeye. The vast majority of British Columbia is mountainous or high elevation plateaus, resulting in most of the human population living on only 4% of the province's land area, consisting of low elevation stream corridors and floodplains. The migratory route of the Fraser sockeye passes through an area in which approximately 70% of British Columbia's population lives. Consequently, considerable land development occurs in close proximity to, or directly in, the Fraser sockeye migratory route.[229]

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[227] 2007 was the tail end of an El Nino, and the start of a La Nina. The La Nina was strong throughout 2008, and continued into 2009 (Dr Eduardo Martins, 8 March 2011, p 98:8-19; Dr Jim Irvine, 8 July 2011, p 100:30-32; David Marmorek, 19 September 2011, p 54:44-47.

228 Karl English, 25 October 2010, pp 59:32-43, 60:33-41.

[229] Michael Crowe, 7 June 2011, p 92:32-42; Dr Mark Johannes, 18 April 2011, pp 50:28 to 51:4, 57:41 to 58:10, 58:33 to 59:3.

278. Development activities that can result in permanent alterations to Fraser sockeye habitat include land clearing, settlement, hard surfacing, river engineering, farming (with its ancillary drainage of fertilizer and animal waste into the ground and river), logging, mining, and industrial pollutants. Activities ancillary to development often result in further habitat degradation. Examples include increased water demand, change in hydrology, runoff contamination, recreational activities and river and floodplain engineering. The effect of small and large development activities over time can – if not mitigated – erode the Fraser sockeye habitat base.[230]

279. Land use and water use are largely managed by the Province of British Columbia, although Canada plays a management role where fish habitat or navigable waters are involved. British Columbia is responsible for ensuring sustainable management of land use activities such as forestry, agriculture, and the oil and gas sector, while also assuring the responsible growth and development of communities and infrastructure.

5. *Conclusion*

280. The Fraser sockeye lifecycle occurs in several stages over a number of years and over many thousands of kilometres. Changes in the natural environment can have an impact upon the Fraser sockeye lifecycle. Part IV considers the key evidence relating to potential causes of the decline and the long-term prospects for Fraser sockeye stocks, and examines factors which may contribute to the future sustainability of these stocks.

[230] Michael Crowe, 7 June 2011, p 92:14-31; 8 June 2011, p 70:26-38.

IV. SUMMARY OF KEY EVIDENCE REGARDING THE MATTERS BEING INVESTIGATED BY THE COMMISSIONER

A. Introduction:

281. The Commission's hearings highlighted that issues relating to Pacific salmon and their ecosystem have become more challenging in recent decades. The hearings also highlighted that management of Pacific salmon including Fraser sockeye, is characterized by complexity, uncertainty and conflict.

282. In Part III, Canada provided information on the current legal, policy, organizational, biological, environmental, and human contexts for Fraser sockeye. In Part IV, Canada will provide a summary of the key evidence presented in the hearings with respect to the three fundamental aspects of the Terms of Reference:

- the causes for the decline of Fraser River sockeye salmon;
- the current state of Fraser River sockeye salmon stocks and the long term projections for those stocks; and
- improving the future sustainability of the sockeye salmon fishery in the Fraser River.[231]

283. As described in the sections that follow, work to determine the causes of the decline of Fraser sockeye is ongoing, and it is challenging. Assessing the current state of Fraser sockeye stocks, and making long-term projections for those stocks, is also challenging.

284. A responsive, science-based, management system is needed to meet these challenges. To that end, Canada has identified the following six elements as important to the future sustainability of the Fraser sockeye fishery:

1) A clear framework to guide the planning, consultations and work required to enable future sustainability of a healthy Fraser sockeye resource;
2) A strong scientific foundation to support discussions around risks, benefits and trade-offs;
3) An approach to managing Aboriginal fisheries in an effective and respectful manner;

[231] PC2009-1860

4) Clear rules for sharing the Fraser sockeye harvest including more flexible approaches to avoid weak stocks, address First Nations fishery aspirations and improve the viability of the fishery;

5) Confidence and trust among all parties that fisheries are being effectively managed, that fishing regulations are being complied with, that data on catch and spawner levels are reliable, and that finfish aquaculture is being effectively regulated; and

6) The incentives, structures and supports to promote effective collaboration and shared responsibility for future sustainability of the Fraser sockeye fishery.

285. These elements – and the evidence from the hearings that relates to each of them – are described in detail below.

B. Summary of Key Evidence Regarding the Causes of the Decline of Fraser Sockeye Stocks

1. *Overview*

286. Until 2010, productivity of Fraser sockeye stocks had been trending downwards for many years. In 2009, only 1.5 million sockeye returned to the Fraser Watershed – the lowest number since 1947.[232]

287. A consensus appears to be emerging amongst scientists that biophysical changes in the marine environment stand out as the most strongly inferred factors explaining the pre-2010 decline.[233] This consensus has emerged through a series of workshops involving scientists from DFO and other organizations, and seems to be reflected in the testimony of scientists before the Commission and in the Commission's Technical Reports.

2. *September 2009 DFO Workshop*

288. On September 30, 2009, DFO scientists with expertise relevant to Fraser sockeye and their ecosystem met to review available knowledge regarding factors affecting sockeye survival, and to compile probable hypotheses to explain the poor 2009 Fraser sockeye return.[234] This workshop (the September 2009 DFO Workshop) involved a review of all available knowledge, including that provided by non-DFO scientists.[235]

289. A report titled "Update on Science Review 2009, Fraser Sockeye" was completed following the September 2009 DFO Workshop.[236] That report, which identifies "hypotheses on

[232] Exhibit 73 (also Exhibit 203) at p 3: RM Peterman, D Marmorek, B Beckman, M Bradford, N Mantua, BE Riddell, M Scheuerell, M Staley, K Wieckowski, JR Winton, & CC Wood. 2010. *Synthesis of evidence from a workshop on the decline of Fraser River sockeye. June 15-17, 2010*. A Report to the Pacific Salmon Commission, Vancouver, BC.
[233] Exhibit 735: Technical Report No 12, "Fraser River Sockeye Habitat Use in the Lower Fraser and Strait of Georgia", February 2011.
[234] Exhibit 612: Email Invitation from Mark Saunders to Science Mtg on Factors Affecting 2009 Fraser Sockeye Return, with Attached Agenda & Summary, 29 September 2009; Dr Laura Richards, 17 March 2011, pp 31:33-47, 32:1-13, 32:33-38; 23 September 2011, p 72:27-43.
[235] Robin Brown, 18 August 2011, p 62:22-37.
[236] Exhibit 614: *Update on Science review 2009 Fraser Sockeye*, with covering email of Mark Saunders to Dr Laura Richards, Department of Fisheries and Oceans, 12 November 2009.

causes of mortality", was intended to remain a work in progress as additional information was gathered regarding the poor 2009 return.[237]

290. Based on the September 2009 DFO Workshop, DFO prepared the following briefing notes for the Minister:

1) "Factors Affecting the 2009 Fraser Sockeye Return" (date stamped December 3, 2009);[238]

2) "Potential Causes of Poor Returns of Fraser River Sockeye Salmon with Focus on Disease-Related Factors" (date stamped December 11, 2009);[239] and

3) "Potential Causes of Poor Returns of Fraser River Sockeye Salmon: With Focus on Sea Lice Impacts" (date stamped March 2, 2010).[240]

291. The December 3, 2009 briefing note for the Minister described ten factors that may have affected the 2009 return. Of these, toxic algal blooms in the Strait of Georgia, low food abundance in Queen Charlotte Sound and viral disease were described as factors that could possibly have led to sockeye mortality at the scale observed.

292. The March 2, 2010 briefing note elaborated on the reference to sea lice impacts in the December 3, 2009 briefing note. The March 2010 note stated that "sea lice is not considered to be one of the three most likely factors but is a high profile issue".[241]

293. Since the September 2009 DFO Workshop, the work of DFO – Pacific Region - Science Branch regarding the 2009 Fraser sockeye return has been ongoing. Fisheries science is a constant learning exercise and evolves as new information becomes available and priorities shift.[242]

3. *December 2009 SFU Workshop*

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[237] Exhibit 614; Dr Laura Richards, 17 March 2011, p 7:1-42.
[238] Exhibit 616A: *Memorandum for the Minister Factors Affecting the 2009 Fraser Sockeye Return*, 3 December 2009.
[239] Exhibit 616B: *Memorandum for the Minister Potential Causes of Poor Returns of Fraser River Sockeye Salmon: With Focus on Disease-Related Factors*, 11 December 2009.
[240] Exhibit 616: *Memorandum for the Minister, Potential Causes of Poor Returns of Fraser River Sockeye Salmon: With Focus on Sea Lice Impacts*, 2 March 2010.
[241] Exhibit 616
[242] Claire Dansereau, 23 September 2011, pp 15:32 to 16:7.

294. Ocean conditions were cited as a likely explanation for the 2009 Fraser sockeye return in a December 9, 2009 Simon Fraser University workshop (the "December 2009 SFU Workshop"). The "Statement from Think Tank of Scientists", released at the conclusion of the workshop, states:

> [Declining productivity] is not due to fishing. In 2009 management responded appropriately by greatly restricting fishing to maximize the number of fish available for spawning. The weight of evidence suggests that the problem of reduced productivity occurred after the juvenile fish began their migration toward the sea.[243]

295. The "Statement from Think Tank of Scientists" also highlighted climate change as a long term threat to Fraser sockeye:

> Climate change poses a major threat to the future of Fraser River salmon, not only through direct effects of temperature on fish, but also through impacts on food webs and habitats.[244]

4. *June 2010 Pacific Salmon Commission Workshop*

296. From June 15 to 17, 2010, the Pacific Salmon Commission held a workshop on the decline of Fraser sockeye (the "June 2010 Pacific Salmon Commission Workshop"). The workshop brought together internationally recognized fisheries scientists from the United States and Canada, including DFO scientists, to discuss the decline in Fraser sockeye stocks.[245]

297. At the June 2010 Pacific Salmon Commission Workshop, scientists made 16 presentations on various possible explanations for the poor 2009 return and the longer term decline in Fraser sockeye stocks.[246] The members of an Expert Advisory Panel, which was established for the workshop, looked at all of the evidence presented at the workshop and rated

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[243] Exhibit 11 at p 1: *Adapting to Change: Managing Fraser Sockeye in the Face of Declining Productivity and Increasing Uncertainty*, Statement from Think Tank of Scientists, Simon Fraser University, 9 December 2010.
[244] Exhibit 11 at p 2: *Adapting to Change: Managing Fraser Sockeye in the Face of Declining Productivity and Increasing Uncertainty*, Statement from Think Tank of Scientists, Simon Fraser University, 9 December 2010.
[245] Exhibit 73 (also Exhibit 203) at p 3: RM Peterman, D Marmorek, B Beckman, M Bradford, N Mantua, BE Riddell, M Scheuerell, M Staley, K Wieckowski, JR Winton, & CC Wood. 2010. *Synthesis of evidence from a workshop on the decline of Fraser River sockeye. June 15-17, 2010*. A Report to the Pacific Salmon Commission, Vancouver, B.C.; Dr Laura Richards, 17 March 2011, p 42:3-15.
[246] Exhibit 573: RM Peterman, D Marmorek, B Beckman, M Bradford, N Mantua, BE Riddell, M Scheuerell, M Staley, K Wieckowski, JR Winton, & CC Wood. 2010. *Appendix C (Part 2 of 2): Speaker's Handouts to Synthesis of evidence from a workshop on the decline of Fraser River sockeye. June 15-17, 2010*. A Report to the Pacific Salmon Commission, Vancouver, BC.

each of nine alternative hypotheses in terms of the relative likelihood that a given hypothesis was an important contributor to the poor 2009 return or the longer term decline of Fraser sockeye.[247]

298. The report from the June 2010 Pacific Salmon Commission Workshop, released on August 31, 2010, it states that the Expert Advisory Panel's conclusions were as follows:

> 1) that physical and biological conditions inside the Strait of Georgia during the juvenile life stage are *very likely the major cause* of poor survival of the cohort that returned in 2009. Those conditions in the Strait are also *likely the major cause* of the long-term decrease in productivity of most Fraser sockeye stocks;[249]
>
> 2) similar physical and biological conditions were judged to affect survival of Fraser sockeye outside the Strait of Georgia, but to a lesser degree;[250]
>
> 3) that freshwater and marine pathogens (that is, viruses, bacteria, and/or parasites) are an important contributor to both the poor returns in 2009 and the long-term decrease in productivity;[251] and
>
> 4) that diseases caused by these pathogens are likely made worse by natural and anthropogenic stressors.[252]

299. The Expert Advisory Panel also identified other factors that may have contributed to the poor return in 2009 and to the longer term decline of Fraser sockeye. These include harmful algal blooms in the southern Strait of Georgia, delayed density dependence, and competition between pink salmon and Fraser sockeye.

300. The Panel also agreed that "multiple hypothesized causal mechanisms are very likely to be operating simultaneously and their effects may be additive, multiplicative (ie synergistic), or may tend to offset one another's effects".[253]

301. The Expert Advisory Panel concluded that it is either "possible", "unlikely" or "very unlikely" that "Competitive interactions with pink salmon" was an important contributor to the

[247] Exhibit 73 (also Exhibit 203), p 4.
[249] Exhibit 73 (also Exhibit 203), p 5.
[250] Exhibit 73 (also Exhibit 203), p 5.
[251] Exhibit 73 (also Exhibit 203) at p 5.
[252] Exhibit 73 (also Exhibit 203) at p 5.
[253] Exhibit 73 (also Exhibit 203) at p 4, 107.

poor 2009 return.[254] The Panel concluded that the following hypotheses are either "unlikely" or "very unlikely" to have been important contributors to the poor 2009 return:

- Predation by marine mammals;
- Unreported catch in the ocean outside the Pacific Salmon Treaty area;
- Contaminants in the Fraser River and/or Strait of Georgia;
- Freshwater habitat conditions in the Fraser River watershed;
- Delayed density dependent mortality;
- Enroute mortality during upstream migration; and
- The effects of en-route mortality on fitness of the next generation.[255]

[254] Exhibit 73 (also Exhibit 203) at p 10.
[255] Exhibit 73 (also Exhibit 203) at p 9-10.

Table 5-2. The Expert Advisory Panel's judgment of the relative likelihood that a given hypothesis was either a major factor in, or merely contributed to, the observed spatial and temporal patterns in productivity of Fraser River sockeye populations. These likelihoods are based on evidence presented at the workshop, during subgroup discussions, and Panelists' background knowledge. The top row for each hypothesis reflects conclusions with respect to overall productivity patterns (i.e., over the long term). Shading of multiple cells reflects a range of opinions among Panel members. The second row considers just the 2009 *return year*. The colour of shading reflects the Panel's conclusion about the degree of importance: **black** = major factor; **grey** = contributing factor. The strength-of-evidence column reflects the quantity and quality of data available to evaluate each hypothesis/stressor. Panel members made their best judgments of the relative likelihood of each hypothesis, given the available evidence.

Hypothesis	Time Period	Strength of evidence	Relative likelihood that each hypothesis caused observed changes in productivity during the indicated time period				
			Very Likely	Likely	Possible	Unlikely	Very Unlikely
1a. Predation by marine mammals is an important contributor to the Fraser sockeye situation (Section 4.1).	overall	Fair					
	2009	Fair					
1b. Unreported catch in the ocean outside of the Pacific Salmon Treaty area is an important contributor to the Fraser sockeye situation (Section 4.1).	overall	Good					
	2009	Good					
2. Marine and freshwater pathogens (bacteria, parasites, and/or viruses), are important contributors to the Fraser sockeye situation (Section 4.2).	overall	Fair					
	2009	Fair					
3a. Ocean conditions (physical and biological) **Inside** Georgia Strait are important indicators of contributors to the Fraser sockeye situation (Section 4.3).	overall	Fair					
	2009	Good					
3b. Ocean conditions (physical and biological) **outside** Georgia Strait are important indicators of contributors to the Fraser sockeye situation (Section 4.3).	overall	Fair					
	2009	Fair					
4. Harmful algal blooms in the Strait of Georgia and/or northern Puget Sound/Strait of Juan de Fuca are an important contributor to the Fraser sockeye situation (Sec 4.4).	overall	Fair					
	2009	Fair					
5. Contaminants in the Fraser River and/or Strait of Georgia are an important contributor to the Fraser sockeye situation (Section 4.5).	overall	Poor					
	2009	Poor					
6. Freshwater habitat conditions in the Fraser River watershed are an important contributor to the Fraser sockeye situation (Section 4.6).	overall	Fair					
	2009	Fair					
7. Delayed density dependent mortality is an important contributor to the Fraser sockeye situation (Section 4.7).	overall	Fair					
	2009	Fair					
8a. En-route mortality during upstream migration is an important contributor to the Fraser sockeye situation (Section 4.8). En-route mortality is already considered in estimates of total recruits, so while potentially strongly affecting *spawner abundance*, this hypothesis cannot explain declines in *recruits per spawner*.	overall	Good					
	2009	Good					
8b. The effects of en-route mortality on fitness of the next generation is an important contributor to the Fraser sockeye situation (Section 4.8).	overall	Poor					
	2009	Poor					
9. Competitive interactions with pink salmon are important contributors to the Fraser sockeye situation (Section 4.9).	overall	Fair					
	2009	Fair					

5. *April 2011 DFO Workshop*

302. Building on the September 2009 DFO Workshop and the June 2010 Pacific Salmon Commission Workshop, DFO scientists met on April 14 and 15, 2011, to discuss relevant hypotheses regarding the 2009 return and the longer term decline of Fraser sockeye (the "April 2011 DFO Workshop"). The two primary objectives of the workshop were to review the state of evidence for factors contributing to the Fraser sockeye situation with a focus on disease, aquaculture and marine survival, and to develop an approach for technical and narrative reports

that synthesize the current state of knowledge on reasons for the long term decline and the notable 2009 and 2010 returns.[256]

303. The draft summary report for the April 2011 DFO Workshop – which adopts the approach used in the report following the June 2010 Pacific Salmon Commission Workshop - concludes:

> Based on the most recent analyses, the following factors are viewed as UNLIKELY to have contributed to the poor 2009 return: pollution/contaminants, capture by Canadian fisheries and predation on juveniles in the Strait of Georgia.
>
> The following factors are viewed as having some impact, but not of a magnitude sufficient to explain the poor 2009 returns. These include: predation by Humboldt squid, capture by United States fisheries and mortality caused by sea lice.
>
> The following factors are viewed as being those most likely to have had an impact in 2009. These include: low food abundance in the Strait of Georgia, low food abundance in Queen Charlotte Sound and the Gulf of Alaska, disease, and toxic algal blooms within the Strait of Georgia.
>
> Changing climate or ocean conditions are thought to be the most likely factors associated with the long-term decline in Fraser River sockeye although other factors such as disease, delayed density dependence, competition with pink salmon and the presence of contaminants may also have contributed.
>
> It is generally agreed that multiple factors impact Fraser River sockeye salmon populations in fresh and salt water. In addition to being variable over time and space, these factors interact with each other making it very difficult to predict or rank their individual effects on sockeye populations.
>
> Methods of integrating findings and assessing risks across multiple sources or inter-related mechanisms need to be developed and validated.[257]

[256] Exhibit 1364 at p 1: *Draft Summary Report: DFO synthesis workshop on the decline of Fraser River sockeye*, Vancouver Island Conference Centre, Nanaimo, BC, Department of Fisheries and Oceans, April 14-15, 2011.
[257] Exhibit 1364 at pp 1-2.

Table 1. Updated PSC report Table E-1 as a result of workshop discussions. Note: Shaded boxes reflect ratings assigned in the original PSC Report. "**X**" indicates the re-evaluated ranking from the outcomes of this workshop.

Hypothesis	Time Period	Strength of evidence	Relative likelihood that each hypothesis caused observed changes in productivity during the indicated time period				
			Very Likely	Likely	Possible	Unlikely	Very Unlikely
1a. Predation by marine mammals is an important contributor to the Fraser sockeye situation (Section 4.1).	Overall	Fair			X		
	2009	Fair					X
1b. Unreported catch in the ocean outside of the Pacific Salmon Treaty area is an important contributor to the Fraser sockeye situation (Section 4.1).	Overall	~~Good~~ Fair			X		
	2009	~~Good~~ Fair					X
2. Marine and freshwater pathogens (bacteria, parasites, and/or viruses), are important contributors to the Fraser sockeye situation (Section 4.2).	Overall	Fair		X			
	2009	Fair		X			
3a. Ocean conditions (physical and biological) inside Georgia Strait are important indicators of contributors to the Fraser sockeye situation (Section 4.3).	Overall	Fair		X			
	2009	Good	X				
3b. Ocean conditions (physical and biological) outside Georgia Strait are important indicators of contributors to the Fraser sockeye situation (Section 4.3).	Overall	Fair		X			
	2009	Fair		X			
4. Harmful algal blooms in the Strait of Georgia and/or northern Puget Sound/Strait of Juan de Fuca are an important contributor to the Fraser sockeye situation (Sec 4.4).	Overall	Fair			X		
	2009	Fair			X		
5. Contaminants in the Fraser River and/or Strait of Georgia are an important contributor to the Fraser sockeye situation (Section 4.5).	Overall	Poor			X		
	2009	Poor				X	X

Hypothesis	Time Period	Strength of evidence	Relative likelihood that each hypothesis caused observed changes in productivity during the indicated time period				
			Very Likely	Likely	Possible	Unlikely	Very Unlikely
6. Freshwater habitat conditions in the Fraser River watershed are important contributors to the Fraser sockeye situation (Section 4.6).	Overall	Fair				X	X
	2009	Fair					X
7. Delayed density dependent mortality is an important contributor to the Fraser sockeye situation (Section 4.7).	Overall	Fair		X			
	2009	Fair					X
8a. En-route mortality during upstream migration is an important contributor to the Fraser sockeye situation (Section 4.8). En-route mortality is already considered in estimates of total recruits, so while potentially strongly affecting *spawner abundance*, this hypothesis cannot explain declines in *recruits per spawner*.	Overall	Good					X
	2009	Good					X
8b. The effects of en-route mortality on fitness of the next generation is an important contributor to the Fraser sockeye situation (Section 4.8).	Overall	Poor					X
	2009	Poor					X
9. Competitive interactions with pink salmon are important contributors to the Fraser sockeye situation (Section 4.9).	Overall	Fair		X	X		
	2009	Fair			X		

Reference:
Peterman R.M., D. Marmorek, B. Beckman, M. Bradford, N. Mantua, B.E. Riddell, M. Scheuerell, M. Staley, K. Wieckowski, J.R. Winton, C.C. Wood. 2010. Synthesis of evidence from a workshop on the decline of Fraser River sockeye. June 15-17, 2010. A Report to the Pacific Salmon Commission, Vancouver, B.C., 123 pp. + 35 pp. of appendices. Available from www.psc.org.

6. *Key Testimony and Evidence from the Technical Reports Relating to the Causes of the Decline*

304. The consensus that has begun to emerge through the workshops and scientific work described above also emerged through much of the key testimony - and from much of the evidence from the Commission's Technical Reports – particularly the evidence relating to the marine environment, diseases, and cumulative effects.

a) Marine Environment

305. Trends in salmon returns may be associated with changes in oceanographic conditions, although there was some disagreement on the exact geographic area over which these effects occur.[258] These changes may be associated with climate change.[259]

306. The authors of Technical Report #4 concluded as follows with respect to the effect of changes in the marine environment on Fraser sockeye returns from 2007 to 2009:

> Three years of very low returns of sockeye salmon to the Fraser River and curtailed fisheries from 2007 to 2009 can be explained by a sequence of independent events, two of them related to climate:
>
> a. 2007 returns: Low marine survival of the 2005 ocean entry year of sockeye salmon and coho salmon was expected (and was reflected in experimental forecasts); Canadian and U.S. oceanic and ecological indicators were consistent in recognizing 2005 as a warm and unproductive year which would likely be detrimental to salmon survival;
> b. 2008 returns: Median recruits per spawner across stocks were typical of the post-1992 era. The low return was most likely a consequence of one of the lowest numbers of spawners (in 2004) in recent years. Spawner abundance is the primary determinant of future returns in most Fraser River sockeye salmon populations; and
> c. 2009 returns: The 2006/07 el Nino and a very anomalous spring/summer climate in 2007 conspired to generate a very atypical coastal ocean in 2007, one that could have been detrimental to Fraser River sockeye salmon growth and survival.[260]

[258] Exhibit 1896 at executive summary: Technical Report No 6, "Fraser River sockeye salmon: data synthesis and cumulative impacts", April 2011; Dr Beamish, 6 July 2011, pp 62:37 to 64:1, 64:30 to 68:23; Dr McKinnell, 6 July 2011, pp 36:7 to 39:33.
[259] Dr Beamish, 7 July 2011, pp 46:43 to 47:6, 53:3-23, 55:41 to 56:19.
[260] Exhibit 1291 at p xi: Technical Report No 4, "The Decline of Fraser River Sockeye Salmon Oncorhynchus nerka (Steller, 1743) in Relation to Marine Ecology", February 2011.

307. The authors of Technical Report No 12 reviewed available literature, including other Technical Reports, and reached similar conclusions regarding the marine environment:

> Coincident with the decline in Fraser sockeye production, however, warming waters in the Strait of Georgia were prevailing and along with those changes, there is evidence to suggest a decrease in the abundance and quality of preferred food. Given the extensive spatial scale of the observed biophysical changes within the habitats used by Fraser sockeye, the confluence of when the changes occurred relative to the Fraser sockeye decline and the mechanistic basis for an adverse effect (reduced food, lower growth and condition), these biophysical changes stand out as the most strongly inferred factors examined in our review. However, we caution that causality has not been demonstrated because the data to do so are lacking. These observations support a recommendation to explore further possible causal linkages between biophysical conditions in the Strait of Georgia.[261]

308. The authors of Technical Report No 6 reached very similar conclusions with respect to the marine environment:

> …marine conditions interacting with climate change during the coastal migration stage were the likely primary factors for the long-term decline over the last 20 years in Fraser River sockeye productivity, and that marine conditions were likely to be the primary factor responsible for the poor returns in 2009 in both the Strait of Georgia and Queen Charlotte Sound.[262]

309. The authors of Technical Report No 6 also concluded that it is very likely that poor marine conditions during the coastal migration life stage in 2007 contributed to the poor 2009 return.[263]

310. Mr. Marmorek, the principal author of Technical Report No 6, testified that the increase in productivity of Fraser sockeye in 2010 and 2011 is likely explained by the cool marine surface temperatures that affected food production in ocean entry years 2008 and 2009.[264]

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[261] Exhibit 735 at p 63-64: Technical Report No 12, "Fraser River Sockeye Habitat Use in the Lower Fraser and Strait of Georgia", February 2011.
[262] David Marmorek, 19 September 2011, p 8:12-23.
[263] Exhibit 1896 at executive summary: Technical Report No 6, "Fraser River sockeye salmon: data synthesis and cumulative impacts", April 2011.
[264] David Marmorek, 19 September 2011, pp 54:32 to 55:5.

311. The authors of Technical Report No 9 concluded as follows with respect to the effects of climate change on the marine environment – and the resulting effects on Fraser sockeye:

> Our qualitative assessment suggests that the survival of all life stages of Fraser River sockeye salmon, with the possible exception of eggs and alevins, may be declining due to trends in temperature (and the factors that correlate with temperature) in both marine and freshwater environments over the past 20 years. However, where data exist at the stock-level for some life history stages (e.g. eggs, alevin, adult migrants), the picture is complicated by stock-specific patterns indicating that the survival of some stocks may have been less impacted than that of others or not impacted at all.
>
> Although the recent warming may not have resulted in large declines in survival of individual life stages, the cumulative impacts of climate change on survival across life stages could have been substantial. Overall, the weight of evidence suggests that climate change may have adversely affected survival of Fraser River sockeye salmon and hence has been a possible contributor to the observed declining trend in abundance and productivity over the past 20 years. It also seems that inter-annual variability in climate conditions have contributed to the extreme variation in the abundance of returning adults that were observed in 2009 (much lower than average) and 2010 (much higher than average), as the years that those cohorts went to sea were characterized by unusually warm (2007) and cool (2008) sea surface temperatures, respectively.
>
> Recent analyses of the potential effects of future climate change on Fraser River sockeye salmon all point to reduced survival and lower productivity if the climate continues to warm. Although there is some potential for tolerance to warm temperatures to evolve in Pacific salmon, further evolutionary change may already be restricted in populations that have historically experienced high temperatures, such as Summer-run Fraser River sockeye salmon. Phenological (i.e. timing of events such as seaward migration and return migration) changes are likely to be one of the major responses of Pacific salmon to climate change. Several adaptation strategies to lessen the ecological, economic and social impacts of climate change effects on Pacific salmon have been recently proposed.[265]

312. Toxic algal blooms in the marine environment could have contributed to both the poor 2009 return and the long term decline of Fraser sockeye.[266] While there is no evidence of direct mortality, correlations suggest there may be sub-lethal effects that need to be better

[265] Exhibit 553 at pp 3-4: Technical Report No 9, "A Review of Potential Climate Change Effects on Survival of Fraser River Sockeye Salmon and an Analysis of Interannual Trends in En Route Loss and Pre-spawn Mortality", February 2011.

[266] Exhibit 1359: JE Jack Rensel, Nicola Haigh, & Tim J. Tynan, "Fraser river sockeye salmon marine survival decline an harmful blooms of *Heterosigma akashiwo*" (2010) 10 Harmful Algae 98-115; Dr Rensel, 17 August 2011, p 5:14-44.

understood.[267] In addition, conditions that would support the development of harmful algal blooms could also negatively affect the other planktonic food resources on which Fraser sockeye depend.[268]

b) Diseases

313. Fish, like all animals including humans, carry pathogens throughout their lives. Fraser sockeye carry many pathogens. These pathogens generally do not cause disease but they can cause disease given the right circumstances.[269]

314. The presence of pathogens, even in the absence of disease, can have a negative impact on Fraser sockeye.[270] The magnitude of the impact and whether disease will develop is related to the overall condition of the host, aspects of the biology of the pathogen, and the environment to which the host and pathogen are exposed.[271] The complex relationship between the host, its pathogens and the environment emphasizes the need for a broader and more holistic or ecosystem approach to studying pathogens and diseases.[272]

315. The same pathogens carried by Fraser sockeye can be found in fish farm stocks. These pathogens are endemic in British Columbia and there has been no documented introduction of non-endemic pathogens into the province through aquaculture or other activities.[273]

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[267] Exhibit 1359; Dr Rensel, 17 August 2011, p 5:14-44.
[268] Exhibit 1359; Dr Rensel, 17 August 2011, p 5:14-44.
[269] Exhibit 73 (also Exhibit 203): RM Peterman, D Marmorek, B Beckman, M Bradford, N Mantua, BE Riddell, M Scheuerell, M Staley, K Wieckowski, JR Winton, & CC Wood. 2010. *Synthesis of evidence from a workshop on the decline of Fraser River sockeye. June 15-17, 2010.* A Report to the Pacific Salmon Commission, Vancouver, BC.; Exhibit 1449: Technical Report No 1, "Infectious Diseases and Potential Impacts on Survival of Fraser River Sockeye Salmon", February 2011; Exhibit 1456: Kyle Garver, *Hypothesis: Diseases in freshwater and marine systems are an important contributor to the Fraser sockeye situation*, June 2010; Dr Johnson, 22 August 2011, pp 20:28 to 21:2.
[270] Dr Jones, 6 September 2011, p 51:9-25.
[271] Exhibit 1461: *Introduction to Pathogens, Diseases and Host Pathogen Interactions of Sockeye Salmon*, Department of Fisheries and Oceans; Dr Johnson, Dr Kent, Dr MacWilliams, and Dr Stephen, 22 August 2011, pp 60–62.
[272] Dr Stephan, 22 August 2011, p 80:23-38.
[273] Exhibit 1545: Technical Report No 5B, "Examination of relationships between salmon aquaculture and sockeye salmon population dynamics", June 2011; Exhibit 1666: *Aquatic Animal Health Division, Canadian Food Inspection Agency Record of Decisions: Third Party Notification of Suspect Infectious Salmon Anaemia (ISA) in Salmon Aquaculture in the Marine Environment of British Columbia*, 16 May 2011; Dr Connors, 25 August 2011, pp 88:27 to 89:5.

316. The possibility that a previously unrecognized viral agent may contribute to poor survival of Fraser River sockeye has been raised. There are genomic signatures in sockeye that correlate with failure to reach the spawning grounds and failure to successfully spawn.[274] Although a retrovirus was originally postulated to be associated with this signature, more recent research has identified the presence of a parvovirus in a portion of the fish exhibiting this signature.[275] It is important to remember that research on this virus is in early stages, and this parvovirus has not been confirmed to be the cause of the genomic signature, nor linked to any disease.[276] The need to avoid speculation in these circumstances was emphasized by Dr. Garver:

> As a scientist, I'm really concerned with all the speculation that's going on here. We have a parvovirus sequence. We don't have it linked to a disease. We don't have it linked to mortality. We don't know how it's transmitted. We don't know if it causes disease. We don't have any pathology associated with it. So if we're sitting around discussing scientifically hypothesis, this is fine, but if we're actually trying to get to some answers, it's pure speculation.[277]

c) Cumulative Effects

317. Technical Report #6 focused on cumulative impacts, and on a synthesis of the data and conclusions from the Commission's other Technical Reports. Like the Expert Advisory Panel for the June 2010 Pacific Salmon Commission Workshop, the authors of Technical Report #6 cited the potential importance of cumulative effects in the long term decline in Fraser sockeye productivity:

> Researchers at the Cohen Commission workshop agreed with the PSC report (Peterman et al. 2010) that the 2009 and long-term declines in sockeye productivity were likely due to the effects of multiple stressors and factors…[278]

7. *Further Investigating the Causes of the Decline of Fraser Sockeye: The Work Ahead*

318. The role of DFO – Pacific Region - Science Branch is to provide objective scientific advice, grounded in research, to DFO.[279] DFO has a core group of scientists focusing on

[274] Dr Miller, 24 August 2011, p 5:8-35.
[275] Dr Miller, 24 August 2001, p 31:13-18.
[276] Dr Garver, 24 August 2011, pp 32:38 to 33:6.
[277] Dr Garver, 24 August 2011, pp 98:47 to 99:10.
[278] Exhibit 1896 at executive summary: Technical Report No 6, "Fraser River sockeye salmon: data synthesis and cumulative impacts", April 2011.
[279] Dr Richards, 17 March 2011, pp 44:19-40, 85:34-37.

research relevant to Fraser sockeye. Other scientists, including marine mammal experts, have been brought in to help identify and better understand the poor 2009 return and the longer term decline of Fraser sockeye.[280]

319. It is clear that there are no simple answers regarding the poor 2009 return or the long term decline in Fraser River sockeye productivity that began in about 1992. It is also clear that coordinated teams are needed to investigate the potential causes of the poor return and long term decline, and to identify ways to reverse this trend. To conduct such an investigation efficiently and effectively, it is important that scientists be aware of other areas of research, and what other scientists are doing, so that they can use that information in the research that they specialize in.[281]

320. Following the release of the report from the Pacific Salmon Commission Workshop, DFO prepared a briefing note for the Minister titled "The Pacific Salmon Commission Workshop Report 'Synthesis of Evidence From a Workshop on the Decline of Fraser River Sockeye'" (date stamped September 21, 2010).[282] The briefing note indicates that DFO will develop a research plan, supplementing some of the suggestions in the report with other knowledge gaps related to an improved understanding and forecasting ability.[283]

321. Research regarding the genetic signature that has been identified through genomics is continuing.[284] However, science cannot go any faster than research and facts will allow.[285]

322. DFO is also conducting further research to on juvenile salmon in the Strait of Georgia, including information regarding the condition of those salmon.[286] DFO scientists are doing considerable research in other parts of the marine environment, such as on [287] juvenile salmonids

[280] Dr Richards, 17 March 2011, pp 40:39-47, 41:1-10.
[281] Dr Richards, 17 March 2011, p 7:1-42.
[282] Exhibit 621: Action Request from Allison Webb regarding Briefing Note for the Deputy Minister from Susan Farlinger, regarding *The Pacific Salmon Commission Workshop Report "Synthesis of Evidence from a Workshop on the Decline of Fraser River Sockeye"*, Department of Fisheries and Oceans, 21 September 2010.
[283] Exhibit 621; Dr Richards, 17 March 2011, pp 23:12-47, 24:1-4.
[284] Dr Richards, 23 September 2011, pp 70:31 to 71:47.
[285] Dr Richards, 17 March 2011, p 95:35-46.
[286] Dr Richards, 23 September 2011, pp 70:31 to 71:47.
[287] Dr Richards, 23 September 2011, pp 15:32 to 17:3.

in the Strait of Georgia, Queen Charlotte Sound, and along the continental shelf of Canada's Pacific coast.[288]

323. In order to address some of the challenges associated with scientific research in the marine environment, DFO scientists work with colleagues at the North Pacific Anadromous Fish Commission who are doing research on topics such as competition between wild salmon and hatchery-produced salmon in the Gulf of Alaska. DFO scientists also work with colleagues at the North Pacific Marine Science Organization who are researching climate change and how ocean variability affects salmon. In addition to working closely with American scientists through organizations such as the North Pacific Anadromous Fish Commission and North Pacific Marine Science Organization, DFO scientists are working closely with American colleagues through the Pacific Salmon Commission, the Alaska Department of Fish and Game, the National Marine Fisheries Service (part of NOAA), and through various universities in Alaska.[289]

324. DFO is also addressing some of the challenges associated with scientific research in the marine environment by exploring the use of new technologies. The "Argo Program", which uses 3000 robotic floats to gather ocean surface and subsurface temperature data, and the use of satellites to monitor ocean conditions, are examples. That data has revealed how much ocean conditions are changing:

> …we know that there has been extreme variability in ocean conditions in general, temperature being an obvious signal, and we have seen some big fluctuations in at least surface temperatures.[290]

325. The Fisheries and Oceanography Working Group is a multi-disciplinary group composed of oceanographers and fisheries biologists – from DFO and other organizations - which discusses how their research is interrelated.[291] Its "State of the Oceans" reports are an annual snapshot of what is going on in the ocean (from biological, chemical, physical perspectives), including any changes in salmon populations.[292]

[288] Dr Richards, 23 September 2011, pp 15:32 to 17:3; Dr Johnson, 22 August 2011, pp 52:20 to 53:26.
[289] Dr Richards and David Bevan, 23 September 2011, pp 16:36 to 17:37.
[290] Dr Richards, 23 September 2011, p 73:27-31.
[291] Dr Irvine, 3 December 2010, pp 25:21 to 26:33.
[292] Dr Irvine, 3 December 2010, pp 25:21 to 26:33.

326. DFO is also progressively integrating climate and ocean information into management, such as through interactions between the Fisheries and Oceanography Working Group and the scientists who create the annual Salmon Outlook.[293] DFO has "embedded" climate change work through the Climate Change Science Initiative and the Ecosystem Research Initiative.[294]

327. Flowing from the June 2010 Pacific Salmon Commission workshop, the Commissioners of the Pacific Salmon Commission have directed that an inventory be prepared of scientific work – from DFO, academia and elsewhere – that may be relevant to the potential causes of the decline of Fraser sockeye. The purpose of the inventory will be to assess what scientific work is available or ongoing so that gaps and priorities can be identified. A report on the progress in preparing that inventory will be provided to the Pacific Salmon Commission in October, 2011.[295]

[293] Dr Irvine, 3December 2010, p 26:19-33.
[294] Mr Brown, 18 August 2011, pp 69:20 to 70:7.
[295] Susan Farlinger, 23 September 2011, p 92:6-34.

C. Summary of Key Evidence Regarding "the Current State of Fraser River Sockeye Salmon Stocks and the Long Term Projections for those Stocks"

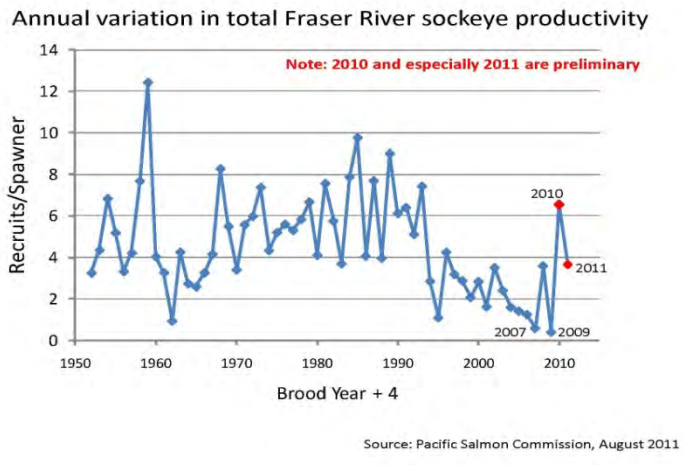
1. *Overview*

328. Assessing the current state of Fraser sockeye stocks, and making pre-season and long-term projections for those stocks, is challenging. The effects of climate change are expected to make such work even more challenging by causing greater variability and unpredictability in Pacific salmon returns.

Climate change has the potential to impact all life history stages for Fraser sockeye, which are particularly vulnerable to climate change as the Fraser watershed is near the southern limit of the distribution of sockeye salmon on the west coast of North America.

2. *The Current State of Fraser Sockeye Stocks*

329. Since the early 1950s, the productivity of Fraser sockeye stocks (calculated as adult recruits per spawner) has fluctuated greatly. After a period of decline from 1993 to 2009, the productivity of Fraser sockeye stocks increased in 2010 and 2011.[296]



330. It is important to note that this graph represents all Fraser sockeye and that, as described further below, there is an increasing amount of variation in productivity between Fraser sockeye stocks.[297]

[296] Exhibit 1851: Annual variation in total Fraser River sockeye productivity, August 2011.

331. The Expert Advisory Panel for the June 2010 Pacific Salmon Commission workshop observed that:

> The combination of increasing challenges for Fraser River sockeye, as well as increasing awareness of problems facing salmon more generally, have heightened concerns about the long-term viability of this valuable resource. In 2009, these concerns were reinforced when only 1.5 million Fraser River adult sockeye returned – the lowest number since 1947…
>
> As serious as it was, this 2009 event was only the latest in a series of indications that Fraser River sockeye populations were facing serious widespread problems. The most important indicator of those problems is the decrease in productivity over the total life cycle (adult recruits produced per spawner) that 16 out of the 18 Fraser River sockeye populations considered here have shown since the late 1980s or early 1990s."[298]

332. The decline in productivity for Fraser sockeye stocks corresponded with similar declines in productivity for other sockeye salmon stocks:

> Thus, declining productivity has occurred over a much larger area than just the Fraser River system and is not unique to it.[301]

3. *The Pre-2010 Decline in Productivity for Most Fraser Sockeye Stocks*

333. As depicted in the graph above, the poor 2009 Fraser sockeye return occurred in the context of a long-term decline in productivity. The key attributes of this decline are summarized in the Executive Summary of Technical Report No 6. This report, which used data from 2011 Technical Reports 9[302] and 10[303], describes the following five key attributes of change in Fraser and non-Fraser sockeye populations:

1. Within the Fraser watershed, 17 of 19 sockeye stocks have shown declines in productivity over the last two decades (the two exceptions are Harrison and Late Shuswap sockeye).

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[297] Susan Farlinger, 23 September 2011, p 76:17-33.
[298] Exhibit 73 at p 3: *Synthesis of Evidence from a Workshop on the Decline of Fraser River Sockeye*, June 15-17, 2010, 31 August 2010.
[301] Exhibit 1896 at pdf p 5: Technical Report No 6, "Fraser River sockeye salmon: data synthesis and cumulative impacts", April 2011.
[302] Exhibit 553: Technical Report No 9, "A Review of Potential Climate Change Effects on Survival of Fraser River Sockeye Salmon and an Analysis of Interannual Trends in En Route Loss and Pre-spawn Mortality", February 2011.
[303] Exhibit 748: Technical Report No 10, "Fraser River Sockeye Productions Dynamics", February 2011.

2. Most of the 45 non-Fraser sockeye stocks that were examined show a similar recent decrease in productivity. Thus, declining productivity has occurred over a much larger area than just the Fraser River system and is not unique to it.

3. Of the nine Fraser sockeye stocks with data on juvenile abundance, only Gates sockeye have showed declines in juvenile productivity (i.e. from spawners to juveniles) but 7 of the 9 stocks showed consistent reductions in post-juvenile productivity (i.e., from juveniles to returning adult recruits).

4. There have been three separate phases of decline in productivity since 1950. The first started in the 1970s, the second in the mid-1980s, and then the most recent one in the late 1990s or early 2000s, with individual stocks showing these trends to various extents.

5. Over the last two decades there has been an increasing amount of en-route mortality of returning Fraser sockeye spawners (i.e., mortality between the Mission enumeration site and the spawning ground). This results in reduced harvest as fishery managers do their best to ensure enough spawners return to the spawning ground in spite of considerable mortality along the way.[304]

4. *Variability in Productivity Amongst Fraser Sockeye Stocks*

334. There are many significant differences between Fraser sockeye stocks and their respective life histories:

> The sockeye stocks within the Fraser Basin have widely varying life history, genetic and habitat characteristics that create different levels of vulnerability to the stressors each stock encounters (described in Nelitz et al. 2011). Effects of stressors on survival at any life history stage depend on both the magnitude of the stress and the vulnerability of the salmon. Characteristics that vary across stocks include: spawning habitat (inlets, outlets, lake shore, flow rates, substrate conditions, environmental conditions), nursery lakes (area, size, productivity, temperature, ice break-up, duration of rearing), smolt out-migration (distance, timing, temperatures, arrival at estuary, residence time in estuary), coastal migration (timing, duration, route), and adult migration (return route, age of return, timing, estuary residence time, timing of upstream migration, upstream distances and duration, river temperatures and other environmental characteristics, pre-spawn mortality rates). Many Fraser sockeye stocks are strongly cyclical (e.g., Late Shuswap, Quesnel, Scotch) whereas others are less so. Once mobile, each salmon has a recurring choice – eat or hide. Sockeye stocks (and sub-populations within each stock) have

[304] Exhibit 1896 at Executive Summary: Technical Report No 6, "Fraser River sockeye salmon: data synthesis and cumulative impacts", April 2011.

> developed complicated and varying life histories that include moving between ranges of habitats varying in the risks they represent (Christensen and Trites 2011, pg. 5). Finally, we are observing large scale effects of climate change in both freshwater and marine environments, with influences on many of the above attributes and their interactive relationships.[305]

335. As well as having different life histories, Fraser sockeye stocks have exhibited divergent trends in productivity.[306] For example, while almost all Fraser sockeye stocks have shown declines in productivity over the past two decades.[307] Harrison sockeye have dramatically increased in productivity.[308]

336. The life history for Harrison sockeye is considerably different than that of other Fraser sockeye stocks:

> Recall that Harrison fish exhibit quite a different life history from other Fraser sockeye, going to sea as fry, rearing in Fraser River sloughs and the estuary, returning as mature adults mostly as 3- and 4-year olds after two or three years at sea, and possibly migrating out mostly through the southern route, Juan de Fuca Strait. Whatever conditions they encounter have permitted their survival rates to go up rather than down.[309]

5. *Forecasting Fraser Sockeye Returns*

337. There will always be scientific uncertainty in the forecasting of salmon returns.[310] However, salmon stocks have become substantially more complex and unpredictable in the past 25 years.[311] This increased unpredictability has created increased uncertainty for fisheries managers:

> I think something that has become more evident in management over the last few years… is that the fluctuations between individual stock productivities and returns from year to year, the timing of those stocks and a number of biological

[305] Exhibit 1896 at p 14: Technical Report No 6, "Fraser River sockeye salmon: data synthesis and cumulative impacts", April 2011.
[306] Sue Grant, 26 January 2011, p 20:1-8.
[307] Exhibit 1896 pdf p 5: Technical Report No 6, "Fraser River sockeye salmon: data synthesis and cumulative impacts", April 2011.
[308] Sue Grant, 26 January 2011, p 20:1-8.
[309] Exhibit 73 at p 48: Randall M, Peterman et al, *Synthesis of Evidence from a Workshop on the Decline of Fraser River Sockeye, June 15-17, 2010*, 31 August 2010.
[310] Dr John Reynolds, 28 October 2010, p 23: 25-31.
[311] Exhibit 725: Dr Brian Riddell, 27 January, 2011, pp 88:42 to 89:45. See also J. Stevenson Macdonald et al, *Modeling the Influence of Environmental Factors on Spawning Migration Mortality for Sockeye Salmon Fisheries Management in the Fraser River, British Columbia* (2010) 139 Transactions of the American Fisheries Society 768.

> characteristics have become more variable and less predictable than they were, or at least they were considered to be, 20 years ago. So I think I would characterize it from a manager's point of view as being more uncertain and more dependent on actual in-season returns than what we've been able to predict pre-season.[312]

338. In the face of increased uncertainty and complexity, DFO fisheries managers have implemented a more precautionary approach to managing fisheries.[313] David Bevan, Associate Deputy Minister, described this approach to fisheries management as follows:

> I think the first thing is not to assume any degree of certainty. And as I've noted on the discussion of the precautionary approach, that approach was based on an assumption of some higher level of correlation between our activities as managers and the response in the natural system. It also has things in it like maximum sustainable yield, which is an assumption that you can have a sustained yield of high level based on a higher level of population. Well, that would assume a steady state, and we've rejected that as a reality. And we have now to adopt an attitude that things aren't steady, that we have to deal with highly variable ecosystems, and that we have to deal with a higher level of unpredictability than we have in the past, and we have to reflect that in our caution. Because as I mentioned, there's no guarantee of success in the case of turning down fishing mortality, but there can be a guarantee of a disastrous outcome if we maintain levels of fishing mortality in the face of highly variable realities, and that we don't -- we're not adaptable to responding to that level of uncertainty. The other thing we've done in the past, and it's even somewhat reflected in the precautionary approach, is relied on indicators of abundance and focused on what we thought were reasonable levels or -- or reasonable ways to determine levels of abundance, and not kept their heads up looking at the broader picture. We need to do that.
>
> We need to be very careful not to get too narrowly focused in the face of the high level of uncertainty. Keep looking at all sorts of other potential indicators, and help that inform decision-making so that we don't look at test fish results in isolation of other indicators of oceanographic productivity, or as we do now in the region, could certainly give better description of it. Looking at models for flows in the river, et cetera, so we keep, we have to broaden out our perspective on what's influencing the populations in nature. And even in the face of high levels of uncertainty, try to make decisions that are reasonable and balanced between opportunities to fish, but also balanced in terms of being cautious and not taking too high a risk, especially in the face of uncertainty. The higher the uncertainty, the higher the potential risk of any given action, and you have to

[312] Susan Farlinger 23 September 2011, p 75:24-39.
[313] David Bevan, 26 September 2011, pp 86:27 to 87:9.

> react accordingly, and you can't get seduced by the desire to find a way to have certainty in science when it's not realistic to get there.[314]

339. The complexity of the ecosystem is one of the reasons for the high level of uncertainty that Mr. Bevan refers to – and one of the reasons that it is extremely difficult to accurately predict returns of salmon stocks:

> Over the 4 to 5 years of their life cycle, salmon encounter largely unmonitored variations in physical and chemical conditions, food, competitors, predators, and disease, over several thousand kilometres from high in the Fraser Basin to the Gulf of Alaska, with cumulative and interactive effects (most unknown), occurring over multiple life history stages in ways that vary from year to year. Gaps exist not only in data (limited time series and spatial coverage for many factors), but also in fundamental understanding. Under these circumstances, it is extremely difficult for fisheries managers to accurately predict the expected returns of different salmon stocks in advance of their arrival.[315]

340. In light of the uncertainties inherent in forecasting, expectations regarding the accuracy of forecasts need to be realistic:

> We need to be more realistic in our expectations for the accuracy of forecasts. We should also do a better job of communicating and responding to the large uncertainties and resulting risks.[316]

341. Pre-season forecasts for Fraser sockeye are probability distributions rather than predictions of the actual size of the return. However, many people fixate on the median point on the probability distribution and misconstrue that as a prediction of the return.[317] Communicating what the pre-season forecast is, and how it should be interpreted, is an ongoing challenge.[318]

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[314] David Bevan, 23 September, 2011, pp 76:37 to 77:44. Note - the precautionary approach is further described in Part IV.D.

[315] Exhibit 1896 at p 13: Technical Report No 6, "Fraser River sockeye salmon: data synthesis and cumulative impacts", April 2011.

[316] Exhibit 11: *Adapting to Change: Managing Fraser sockeye in the face of declining productivity and increasing uncertainty: Statement from Think Tank of Scientists*, 9 December 2009; Exhibit 334: Randall M. Peterman, *Can we do pre-season forecasting effectively? If not, what can we do instead?*.

[317] Sue Grant, 26 January 2011, p 45: 6–15.

[318] Exhibit 334: Randall M Peterman, *Can we do pre-season forecasting effectively? If not, what can we do instead?* and Sue Grant, 26 January 2011, p 78:8-21.

342. Although pre-season forecasts are not used extensively once in-season data becomes available, pre-season forecasts are nonetheless valuable.[319] Pre-season forecasts allow for comparisons to be made with in-season data and they help place the return in a historical perspective.[320] In 2009 for example, the pre-season forecast assisted scientists by highlighting that the poor return was at the extreme end of the range of experience for Fraser sockeye returns.[321]

343. The ability to compare early in-season run size data against a pre-season forecast is also important for fisheries managers. In 2009, the ability to do that comparison resulted in fisheries managers deciding not to open fisheries.

344. The stock recruitment data that is used for pre-season forecasts for the Fraser sockeye is globally recognized as being amongst the best stock recruitment time series for salmonids in the world.[323] The pre-season forecasts are generated using peer-reviewed methodology.[324] The forecasts themselves are also peer reviewed to ensure that the application of the methodology is sound.[325] In 2010, the methodology used to generate the pre-season forecasts was peer-reviewed again because changes were proposed to reflect the declining productivity that has been observed in Fraser sockeye.[326] By incorporating alternative scenarios for productivity, the new approach represents a significant shift in how pre-season forecasting is done.[327]

345. The broad range of probability distributions presented in pre-season forecasts reflects the inherent uncertainty that must be accommodated through assumptions in the models.[328]

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[319] Karl English, 14 April 2011, pp 61:26 to 62:2.
[320] Karl English, 14 April 2011, pp 62:38 to 64:4.
[321] Sue Grant, 26 January 2011, p 6:31-34.
[323] Sue Grant, 26 January 2011, p 6:31-34.
[324] Exhibit 351: A Cass et al, *Pre-season run size forecasts for Fraser River sockeye for 2006*, Canadian Science Advisory Secretariat Research Document 2006/060; Barry Rosenberger, 21 January 2011, pp 43:39 to 44:12; Sue Grant, 26 January 2011, pp 16:45 to 17:31.
[325] Exhibit 340A: *Pre-season Run Size Forecasts for Fraser River Sockeye and Pink Salmon in 2009*, Canadian Science Advisory Secretariat Science Advisory Report 2009/022, May 2009; Sue Grant, 26 January 2011, pp 16:46 to 17:31.
[326] Exhibit 352A: SCH Grant et al, *Pre-season run size forecasts for Fraser River Sockeye salmon (Oncohynchus nerka) in 2010*, Canadian Science Advisory Secretariat Research Document 2010/042, 2010.
[327] Jeff Grout, 17 January 2011, pp 30:34 to 31:24, 38:41 to 39:16; Sue Grant, 26 January 2011, pp 20:22 to 24:2.
[328] Sue Grant, 26 January 2011, p 9:6-11.

6. *The Long Term Outlook for Fraser Sockeye Stocks*

346. Fraser sockeye returns have fluctuated very significantly over the past 130 years[329]:

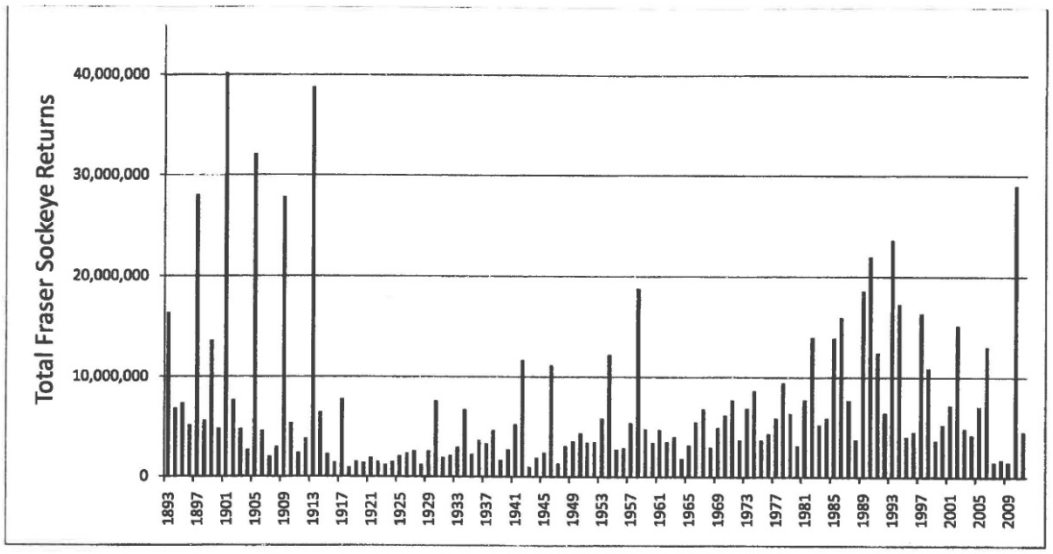

Figure x. Total Fraser River sockeye returns between 1893 – 2011. 2011 estimate is preliminary. Data source: Mike LaPointe, Pacific Salmon Commission

347. Broad-scale environmental factors are at least as, if not more, important than anthropogenic factors in affecting salmon abundance.[330]

348. For example, climate change poses a major threat to the future of Fraser sockeye, not only through direct effects of temperature on the fish, but also through impacts on food webs and habitats.[331] Climate change may affect the habitat for Fraser sockeye in a number of ways – rainfall amounts, temperature regimes, and run-off regimes will probably all change.[332]

[329] Exhibit 1967: *Affidavit No. 1 of Michael Lapointe.*
[330] Terry Glavin, 28 October 2010, p 31: 20-26.
[331] Exhibit 11: *Adapting to Change: Managing Fraser sockeye in the face of declining productivity and increasing uncertainty: Statement from Think Tank of Scientists*, 9 December 2009.
[332] John Davis, 30 May 2011, p 47:11-19.

349. Some scientists postulate that, by 2050, ocean temperatures may rise so high that sockeye which are near the southern limit of the distribution of sockeye on the west coast on the West coast of North America, may not return to the Fraser River.[333]

350. The authors of Technical Report No 9 summarize their conclusions regarding the effect of climate change on Fraser sockeye as follows:

> Our qualitative assessment suggests that the survival of all life stages of Fraser River sockeye salmon, with the possible exception of eggs and alevins, may be declining due to trends in temperature (and the factors that correlate with temperature) in both marine and freshwater environments over the past 20 years. However, where data exist at the stock-level for some life history stages (e.g. eggs, alevin, adult migrants), the picture is complicated by stock-specific patterns indicating that the survival of some stocks may have been less impacted than that of others or not impacted at all.
>
> Although the recent warming may not have resulted in large declines in survival of individual life stages, the cumulative impacts of climate change on survival across life stages could have been substantial. Overall, the weight of evidence suggests that climate change may have adversely affected survival of Fraser River sockeye salmon and hence has been a possible contributor to the observed declining trend in abundance and productivity over the past 20 years. It also seems that inter-annual variability in climate conditions have contributed to the extreme variation in the abundance of returning adults that were observed in 2009 (much lower than average) and 2010 (much higher than average), as the years that those cohorts went to sea were characterized by unusually warm (2007) and cool (2008) sea surface temperatures, respectively.
>
> Recent analyses of the potential effects of future climate change on Fraser River sockeye salmon all point to reduced survival and lower productivity if the climate continues to warm. Although there is some potential for tolerance to warm temperatures to evolve in Pacific salmon, further evolutionary change may already be restricted in populations that have historically experienced high temperatures, such as Summer-run Fraser River sockeye salmon. Phenological (i.e. timing of events such as seaward migration and return migration) changes are likely to be one of the major responses of Pacific salmon to climate change. Several adaptation strategies to lessen the ecological, economic and social impacts of climate change effects on Pacific salmon have been recently proposed.[334]

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[333] Dr David Welch, 25 October 2010, p 42:3-24.

[334] Exhibit 553 at pp 3-4: Technical Report No 9, "A Review of Potential Climate Change Effects on Survival of Fraser River Sockeye Salmon and an Analysis of Interannual Trends in En Route Loss and Pre-spawn Mortality", February 2011.

351. Climate change is, of course, not just affecting Fraser sockeye. It is creating more uncertainty with respect to fisheries around the world. That uncertainty can be related to observational uncertainty (ie regarding the accuracy of observations), model uncertainty (ie regarding the predictive ability of models), process uncertainty (ie regarding how processes work), and policy uncertainty (ie regarding the outcomes that a policy will generate).[335] Fisheries managers around the world must increasingly account for these uncertainties in managing fisheries resources and ecosystems.[336]

[335] Exhibit 901: *The Economics of Adapting Fisheries to Climate Change*: Organization for Economic Co-operation and Development, 10-11 June 2010; John Davis, 30 May, 2011, pp 45:36 to 47:41.
[336] John Davis, 30 May, 2011, pp 47:42 to 49:26, 53:8-29.

D. Summary of Key Evidence Regarding "Improving the Future Sustainability of the Sockeye Salmon Fishery in the Fraser River"

1. *Overview*

352. The Wild Salmon Policy (WSP), introduced in 2005 after years of consultation with interested parties, provides guidance on how to understand and inform management decisions with respect to the genetic diversity of wild Pacific salmon, protect the habitats and the ecosystems in which they live, and manage fisheries for sustainable benefits. The WSP also promotes a collaborative and integrated approach to medium and long term planning that considers the social, economic and biological factors that affect fish production and harvest.

2. *Clear Conservation Objectives and a Framework for Collaboration*

a) The Wild Salmon Policy (WSP)

i) The Development and Adoption of the WSP – A Continuum of Change

353. The WSP was created in a context that began to emerge almost 30 years ago, with the issues of biodiversity and conservation biology coming to the forefront in the early 1980s. The signing of the Pacific Salmon Treaty in 1985 required the identification of specific stocks in mixed-stock salmon fisheries, which in turn led to the application of newly-developed genetic research methods to salmon and an increased understanding of their genetic diversity. During this time, key science papers on conservation and environmental events were published, and there was a growing environmentalism.[337]

354. The emerging concern for biodiversity culminated on the international stage with the signing of the *UN Convention on Biological Diversity* in 1992 at the Rio di Janeiro Earth Summit.[338] The Convention was a major driver for the development of the WSP.[339]

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[337] Exhibit 97 at p 3: PowerPoint Presentation of Dr Brian Riddell, *The Build-up to Canada's Policy for Conservation of Wild Pacific Salmon (1980-200) Introduction to Defining Conservation Units for Wild Pacific Salmon*; Exhibit 98 at p 1-2: *Setting the Stage for Canada's Wild Salmon Policy (1980 to March 2000)*, 11 November 2010; Dr Brian Riddell and Mark Saunders, 30 November 2010, pp 2:27 to 7:11.
[338] Exhibit 13 at p 146: *No 30619 Multilateral, Convention on biological diversity (with annexes). Concluded at Rio de Janeiro on 5 June 1992*; Exhibit 8 at p 43: Department of Fisheries and Oceans, *Canada's Policy for Conservation of Wild Pacific Salmon*, Vancouver: DFO, 2005.
[339] Mark Saunders, 29 November 2010, p 40:37-44.

355. The late 1980s and early 1990s saw the beginning of a decrease in sockeye (and other Pacific salmon species) productivity and corresponding management actions by DFO to restrict outer marine fisheries, reduce exploitation rates, and move progressively towards a more conservative approach in fisheries management.[340] This movement to protect 'weak' stocks is exemplified by DFO's response in 1998 to the "coho crisis" – a reduction of the South Coast coho exploitation rate to zero due to significant conservation concerns for interior coho stocks.[341]

356. In the context of declining productivity and exploitation rates, this more precautionary and more conservative approach to fisheries management was reflected in the 1998 *New Direction* policy document.

357. The goals, objectives, and guiding principles of the WSP clearly reflect many of the 12 principles of the *New Direction* policy statement, including:

- #1 – conservation as the first priority (WSP Principle 1);
- #2 – the continued adoption of a precautionary approach (WSP Action Step 1.2 and Strategy 4);[342]
- #3 – continued work towards increased productive capacity for salmon habitat (WSP Objective 2 and Strategy 2);
- #4 – the adoption of an ecological approach to fisheries management (WSP Objective 2 and Strategy 3);
- #5 – the movement to sustainable use (WSP Principle 3, Objective 3 and definition of "sustainable use");[343]
- #7 – First Nations' FSC requirements will continue to have priority only after conservation (WSP Principle 2);
- #10 – clear, objective and relevant information on major issues will be provided to the public, and feedback sought (WSP Strategies 1-4) with periodic review of progress and achievements (WSP Strategy 6);
- #11 – shared accountability between stakeholders and government (WSP Strategy 4); and
- #12 – the adoption of a collaborative, watershed management approach (WSP Strategy 4).

[340] Exhibit 748 at p 2: Technical Report No 10, "Fraser River Sockeye Productions Dynamics", February 2011; Exhibit 98 at p 2: *Setting the Stage for Canada's Wild Salmon Policy (1980 to March 2000)*, 11 November 2010; Exhibit 97 at p 3: PowerPoint Presentation of Dr Brian Riddell, *The Build-up to Canada's Policy for Conservation of Wild Pacific Salmon (1980-200) Introduction to Defining Conservation Units for Wild Pacific Salmon*; Paul Macgillivray, 1 November 2010, pp 67:40 to 69:11; Mark Saunders, 30 November 2010, p 91:40 -45; Dr Brian Riddell, 1 December 2010, p 79:24-36.
[341] Paul Macgillivray, 1 November 2010, p 67:40 to 69:11; Paul Sprout, 16 December 2010, pp 32:37 to 33:45.
[342] Exhibit 8 at p. 15: Department of Fisheries and Oceans, *Canada's Policy for the Conservation of Wild Pacific Salmon*, Vancouver: DFO, 2005.
[343] Exhibit 8 at pp. 9, 40.

358. While the adoption of the WSP in June of 2005 was an important step in the evolution of fisheries management, it is neither the beginning nor end of that evolution.[344]

ii) The WSP – Conserving Genetic Diversity

- The CU Concept – What to Conserve

359. Although conservation was the implicit first priority for DFO in management of the salmon fishery for a number of years, the WSP expressly codified this priority: Principle 1 of the WSP states that the "[c]onservation of wild Pacific salmon and their habitats is the highest priority in resource management decision-making".[345] And while stock-specific management had been utilized by DFO since the 1980s, the WSP was a step forward in that it identified, with specificity, what needed to be conserved – genetic diversity as defined by the conservation unit.[346]

360. A conservation unit (CU) is defined in the WSP as "[a] group of wild salmon sufficiently isolated from other groups that, if extirpated, is very unlikely to recolonize naturally within an acceptable timeframe," and "one or more genetically similar interbreeding populations [with a] defined geographic distribution".[347]

361. Sockeye populations are highly adapted to their particular lake systems due to their long-term isolation from one another – sockeye populations from other lake systems are unlikely to be able to recolonize areas where sockeye have been extirpated. A CU is thus a genetic lineage of salmon that, if lost, would be irreplaceable.[348]

362. The protection of CUs is meant to guard against those uncertainties – the more numerous these genetic lineages are, the greater the likelihood that salmon species and populations will be able to adapt to an uncertain future.[349] The protection of CUs is essential for the preservation of

[344] Dr Jim Irvine, 1 December 2010, pp 60:47 to 61:4; Paul Sprout, 16 December 2010, pp 32:30 to 33:45.
[345] Exhibit 8 at p. 8; Exhibit 245 at p 1;Susan Farlinger, 9 December 2010, p 11:4-21.
[346] Dr Brian Riddell, 1 December 2010, pp 61:29 to p 62:29; 29 November 2010, p 70:4-23.
[347] Exhibit 8 at pp 16, 38: Department of Fisheries and Oceans, *Canada's Policy for the Conservation of Wild Pacific Salmon*, Vancouver: DFO, 2005.
[348] Dr Brian Riddell, 1 December 2010, pp 64:47 to p 65:29; 30 November 2010, p 10:12-40.
[349] Exhibit 8 at p. 10; Dr Brian Riddell, 30 November 2010, p 12:3-19.

the biodiversity that will allow Fraser sockeye to maximize their production and to adapt through time.[350]

363. The WSP also states that, in addition to the conservation of salmon populations themselves (Strategy 1), habitat and ecosystem integrity are key components of salmon diversity (Objective 2 and Strategies 2 and 3) and must be taken into consideration when developing long-term strategic plans for CUs and groups of CUs (Strategy 4). In that respect, the WSP is the first DFO policy to integrate the status of fish with the status of their habitat and ecosystems.[351]

- Benchmarks and Biological Risk – A Precautionary Approach

364. It is very difficult to predict what will happen over time and year to year in the environment and how fish will respond and adapt. This results in uncertainty in salmon population estimates and in the implications of different management actions.[352] There will always be uncertainty in managing salmon – the ecosystems of which they are a part are constantly changing and adapting to new realities.[353]

365. Unpredictability and uncertainty in the environmental sciences has led to the widespread recognition of a precautionary approach to fisheries management on the international stage. The *Rio Declaration on Environment and Development*, the *UN Convention on Biological Diversity*, the *UN Agreement Relating to the Conservation and Management of Straddling fish Stocks and Highly Migratory Fish Stocks* and the *FAO Code of Conduct for Responsible Fisheries* all adopt the precautionary approach.[354]

366. While there are slight differences in how the approach is defined in each of these documents, simply put, a precautionary approach is one that is cautious in the face of scientific

[350] Dr Brian Riddell, 30 November 2010, p 3:2-12; 1 December 2010, p 16:4-15.
[351] Dr Brian Riddell, 29 November 2010, p 70:4-23; 1 December 2010, pp 61:29 to 62:29.
[352] Dr Jim Irvine, 30 November 2010, p 18:10-35.
[353] Dr Jim Irvine, 29 November 2010, pp 56:42 to 57:10.
[354] Exhibit 8 at p 15: Department of Fisheries and Oceans, *Canada's Policy for the Conservation of Wild Pacific Salmon*, Vancouver: DFO, 2005; Exhibit PPR2 at pp. 9-12: Policy and Practice Report 2, "International Law Relevant to the Conservation and Management of Fraser River Sockeye Salmon" at pp 9-12.

uncertainty, and that does not use the absence of full scientific certainty as a reason to postpone or fail to take action to avoid serious harm to fisheries resources.[355]

367. In Canada, this precautionary approach is reflected in the framework titled *A Framework for the Application of Precaution in Science-based Decision Making About Risk*.[356] At DFO, it is reflected in the *Fishery Decision-making Framework Incorporating the Precautionary Approach*.[357] The WSP adapts and applies the precautionary approach to the unique biological characteristics of Pacific salmon.[358] The WSP expressly adopts the precautionary approach and is consistent with it.[359]

368. In practical terms, the WSP accomplishes this in several ways. Strategy 1, Action Steps 1.2 and 1.3 provide mechanisms to deal with uncertainty in the assessment of CU status: first, by employing two benchmarks to delimit the three status zones (red, amber and green), and second, by establishing the lower benchmark at a level of abundance high enough to ensure there is a substantial buffer between it and a level of abundance at which a CU could be considered at risk of extinction by the Committee on the Status of Endangered Wildlife in Canada(COSEWIC).[360]

369. This lower benchmark is intended to provide a buffer not only above a "minimum viable population level," but is intended to allow for continued limited FSC fishing by First Nations on particular local CUs, conservation permitting.[361] The lower benchmark accounts for uncertainty in environmental variation, estimates of returns, and management control – that is, how many

[355] Exhibit 185 (also Exhibit 207) at 1: *A fishery decision-making framework incorporating the Precautionary Approach*.
[356] Exhibit 51 at p 2: Government of Canada, A *Framework for the Application of Precaution in Science-based Decision Making About Risk*, Canada: Privy Council Office, 2003; Exhibit 8 at p 15: Department of Fisheries and Oceans, *Canada's Policy for the Conservation of Wild Pacific Salmon*, Vancouver: DFO, 2005.
[357] Exhibit 185 (also Exhibit 207) at p 1.
[358] Exhibit 185 (also Exhibit 207) at p 2; David Bevan, 23 September 2011, pp 63:28 to 66:44; Susan Farlinger, 23 September 2011, p 67:16-33.
[359] Exhibit 8 at p 15: Department of Fisheries and Oceans, *Canada's Policy for the Conservation of Wild Pacific Salmon*, Vancouver: DFO, 2005; Dr Brian Riddell, 30 November 2010, pp 46:35 to 47:38; Dr Jim Irvine, 30 November 2010, p 49:9-22.
[360] Exhibit 8 at pp 16-17: Department of Fisheries and Oceans, *Canada's Policy for the Conservation of Wild Pacific Salmon*, Vancouver: DFO, 2005; Exhibit 96 at p 5: James R Irvine, *The Successful Completion of Scientific Public Policy - Lessons Learned While Developing Canada's Wild Salmon Policy*, Environ. Sci. Policy (2008) doi:10.1016/j.envsci.2008.09.007; Dr Brian Riddell , 29 November 2010, p 70:4-23; 1 December 2010, p 71:18-29; Dr Jim Irvine, 29 November 2010, pp56:42to 57:10, p 60:17-30; Dr Carrie Holt, 2 December 2010 pp79:28 to 80:39.
[361] Dr Brian Riddell, 30 November 2010, pp 16:31 to 17:31.

fish are coming back, and how many are being caught.[362] While the WSP cannot prevent single-year events such as the returns in 2009, it does protect diversity in the long-term so that salmon CUs have a greater chance of surviving future periods of change.[363] It should be noted that these benchmarks will evolve over time, as new analyses and new data become available.

370. Managing risks in the face of uncertainty is not something that can be performed by scientists alone. For this reason, Strategies 1-3 of the WSP deliberately do not provide specific status values to be achieved or avoided through management action, or which dictate management action once reached (sometimes known as target reference points and limit reference points).[364] The biological status of CUs, habitat and ecosystems are to be balanced with socio-economic considerations under Strategy 4.

- Strategy 4 – Conservation, Sustainable Use and Societal Risk Tolerance

371. While sound scientific advice is a fundamental prerequisite to applying the precautionary approach, societal values and public willingness to accept risk are key in determining the management actions to take in the face of uncertainty.[365] Moreover, the societal views that may dictate one approach one day may change very quickly, meaning that prescriptive or top-down management decisions will quickly be out of date.[366] Even the notion of a single 'optimal escapement target' is a view from the past – optimal escapement is not something that is stable over time.[367] An understanding of the public tolerance for risk thus requires meaningful public involvement in a transparent planning process.[368]

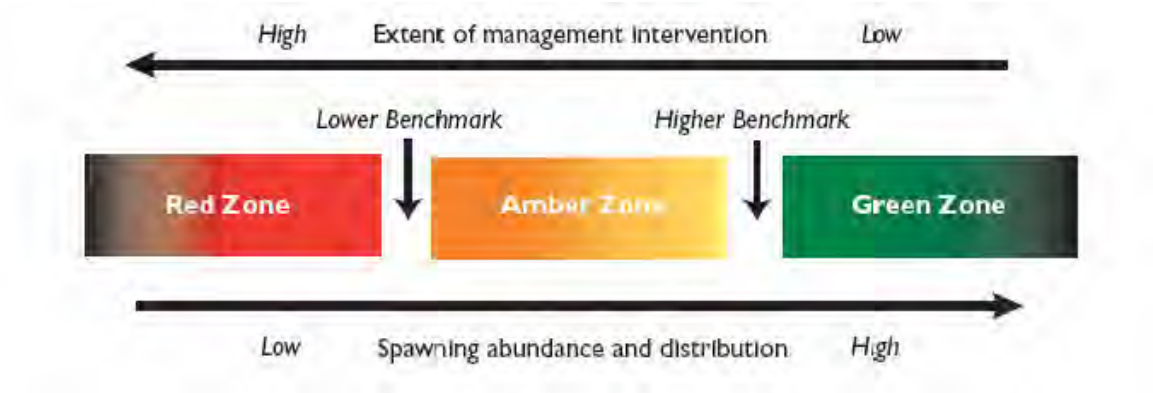
372. For these reasons, Strategy 4 of the WSP sets out an integrated strategic planning framework that is intended to bring all those affected by decisions around salmon together to develop long-term strategic plans for CUs and groups of CUs subject to common risk factors (or

[362] Dr Brian Riddell, 29 November 2010, pp 37:42 to 38:9; 30 November 2010, pp 16:31 to 17:31.
[363] Dr Jim Irvine, 7 December 2010, pp 45:28 to 48:33.
[364] Pat Chamut, 29 November 2010, p 23:3-40.
[365] Exhibit 51 at p 7: Government of Canada, *A Framework for the Application of Precaution in Science-based Decision Making About Risk*, Canada: Privy Council Office, 2003.
[366] Exhibit 96 at pp 3-4: James R Irvine, *The Successful Completion of Scientific Public Policy - Lessons Learned While Developing Canada's Wild Salmon Policy*, Environ. Sci. Policy (2008) doi:10.1016/j.envsci.2008.09.007; Exhibit 51 at p 9; Dr Jim Irvine, 29 November 2010, pp 55:45 to 56:38, p 62:4-25; Pat Chamut, 29 November 2010, pp 66:26 to 68:31.
[367] Dr Brian Riddell, 29 November 2010, pp 69:43 to 70:37.
[368] Exhibit 51 at p. 9.

"planning units").[369] Unlike the benchmarks in Strategies 1-3, it is these strategic plans that will specify the long-term numerical targets for CUs, and that will identify the recommended resource management actions to protect or restore CUs and their habitat and ecosystems.[370]

373. The long-term goal of strategic plans are to have healthy habitat and ecosystems, with CUs above their upper benchmarks in the green zone. In the short term, strategic plans must be capable of restoring CUs in the red zone above their lower benchmark within a defined timeframe.[371] The management actions recommended must achieve these goals, and will be reflected in annual fisheries, habitat, stock assessment and enhancement plans (Strategy 5).[372]

374. DFO seeks to not only conserve wild salmon, but to "provide sustainable harvesting opportunities that will best meet it is obligations to First Nations, contribute to social well-being, and provide employment and other economic benefits to individuals and fisheries-dependent communities."[373] Strategic planning under Strategy 4 will take into account not only biological information as generated under Strategies 1-3, but also socio-economic information.[374]



[369] Exhibit 8 at p 24, 26 (sidebar): Department of Fisheries and Oceans, *Canada's Policy for Conservation of Wild Pacific Salmon*, Vancouver: DFO, June 2005; Dr Jim Irvine, 30 November 2010, p. 48:16-28.
[370] Exhibit 8 at p 24; Mark Saunders, 29 November 2010, p 84:17-25; Pat Chamut, 29 November 2010, p 23:3-40.
[371] Exhibit 8 at p 24: Department of Fisheries and Oceans, *Canada's Policy for Conservation of Wild Pacific Salmon*, Vancouver: DFO, June 2005.
[372] Exhibit 8 at pp 24, 32-33: Department of Fisheries and Oceans, *Canada's Policy for Conservation of Wild Pacific Salmon*, Vancouver: DFO, June 2005.
[373] Exhibit 8 at p 14: Department of Fisheries and Oceans, *Canada's Policy for the Conservation of Wild Pacific Salmon*, Vancouver: DFO, 2005.
[374] Exhibit 8 at p 24: Department of Fisheries and Oceans, *Canada's Policy for Conservation of Wild Pacific Salmon*, Vancouver: DFO, June 2005; Dr Jim Irvine, 29 November 2010, pp 59:44 to 60:38; 30 November 2010, p 27:6-18; Dr Brian Riddell, 30 November 2010, p 107:14-46; Mark Saunders, 29 November 2010, p 39:13-18.

375. However, it should be borne in mind that the Minister's discretion to make the ultimate management decisions cannot be fettered. As such, under the WSP the Minister retains the ability to accept or reject the recommendations that come out of the Strategy 4 process, as is the current practice in the annual IFMP process. This includes the discretion to reject strategic plans because they do not adequately conserve CUs or, in very rare circumstances, because the recommended actions will be ineffective to preserve salmon or the social or economic costs will be too high. As under the current IFMP process, such a decision would only be made in full consultation with stakeholders.[375] However, where there is consensus under Strategy 4 on how to deal with a CU, it would be very rare that the Minister would reject that advice.[376]

- Incorporation of Ecosystem Objectives into Salmon Management

376. Strategy 3 of the WSP requires the "inclusion of ecosystem values and monitoring" in salmon management.[377] The WSP acknowledges that not only are salmon influenced by the ecosystem of which they are a part, but it explicitly recognizes that salmon have an impact on their ecosystem.[378] The WSP also states that, given limited knowledge of salmon ecosystems, Strategy 3 sets out steps that will provide the scientific understanding and technical capacity to include ecosystem values "over time."[379]

377. Strategy 3 requires the integration of definitions, objectives and indicators from Strategy 1 (salmon CUs) and Strategy 2 (CU habitats) within the definition, objectives and indicators for ecosystems.[380] A CU, its habitat, and other living organisms thus comprise the salmon ecosystem.[381] However, due to the migratory nature of salmon, a CU actually utilizes many diverse habitats throughout its life history.

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[375] Exhibit 8 at p 14: Department of Fisheries and Oceans, *Canada's Policy for Conservation of Wild Pacific Salmon*, Vancouver: DFO, June 2005: Pat Chamut, 30 November 2010, pp 15:18 to 16:22, pp 101:43 to 103:14; 1 December 2010, pp 57:13 to 58:34; Mark Saunders, 30 November 2010, p 104:12-17.
[376] Dr Brian Riddell, 1 December 2010; p. 85:13 to 86:40.
[377] Exhibit 8 at p 22: Department of Fisheries and Oceans, *Canada's Policy for Conservation of Wild Pacific Salmon*, Vancouver: DFO, June 2005.
[378] Exhibit 8 at p 22: Department of Fisheries and Oceans, *Canada's Policy for Conservation of Wild Pacific Salmon*, Vancouver: DFO, June 2005; Dr Kim Hyatt, 7 December 2010, pp 40:1 to 41:7.
[379] Exhibit 8 at pp 22-23: Department of Fisheries and Oceans, *Canada's Policy for Conservation of Wild Pacific Salmon*, Vancouver: DFO, June 2005.
[380] Exhibit 8 at p 23: Department of Fisheries and Oceans, *Canada's Policy for Conservation of Wild Pacific Salmon*, Vancouver: DFO, June 2005; Dr Kim Hyatt, 7 December 2010, p 39:13-30, p 43:21-46.
[381] Dr Kim Hyatt, 7 December 2010, pp 43:24 to 45:39.

378. Once the scientific foundation described in Strategy 3 is laid, the challenge will be to utilize that information in the management of the resource. In the context of the WSP, that means those human activities which DFO manages – harvest, aquaculture, salmon enhancement, and habitat protection – must eventually be conducted in a manner that takes ecosystem status into account.[382]

379. It is clear, however, that the human activities that impact salmon and their ecosystems are not so limited to only what is within Canada's jurisdiction. For example, British Columbia holds key levers on water use, land development and resource extraction.[383] Effective protection of salmon and salmon ecosystems requires partnerships with third parties responsible for the various laws, policies and activities that support Pacific salmon.[384]

iii) Progress on Implementation of the WSP

- Incorporation of WSP Principles into Ongoing Management

380. The WSP is intended to change how each sector within DFO conducts its business within the areas of fisheries, enhancement, and habitat regulation.[385] In this way, the policy direction outlined in the WSP has been implemented and will continue to be implemented.[386]

381. The principles of the WSP have already influenced the way in which DFO manages the Pacific salmon resource, and have particularly influenced harvest rates and measures to protect weak stocks.[387] The WSP is thus being implemented in a broad variety of DFO sectors through the reduction of harvest rates on mixed stock fisheries, the movement from managing weak stocks to CU management, the utilization of benchmarks in Early Stuart and Cultus Lake sockeye management decisions, the development of new science on benchmarks (as described above), the development of a framework for habitat review, and changes to the harvest rate to compensate for in-river mortality.[388]

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[382] Dr Kim Hyatt, 7 December 2010, p 41:7-30, pp 44:26 to 45:27.
[383] Paul Ryall and Mark Saunders, 3 June 2011, pp 29:41 to 30:27.
[384] Susan Farlinger and Paul Sprout, 9 December 2010, pp 86:37 to 89:34; 16 December 2010, pp 21:44 to 22:14; Paul Sprout, 16 December 2010, pp 63:20 to 64:27; Susan Farlinger, 16 December 2010, pp 2:43 to 4:18.
[385] Paul Sprout, 9 December 2010, pp 30:41 to 31:05.
[386] Susan Farlinger, Claire Dansereau and David Bevan, 23 September 2011, pp 81:42 to 89:10.
[387] David Bevan, 23 September 2011, p 85:21-38.
[388] Susan Farlinger, 22 September 2011, pp 50: 24 to 51:47.

382. In addition to the implementation of the Action Steps contained in the policy, implementation involves using the WSP to guide management decisions, consultations with First Nations, and to continue to adapt the culture within DFO in the Pacific Region.[389] The WSP is thus a living document in the sense that it is "living within all of our management plans" and grounds how the Pacific Region provides advice to the Minister.[390]

- Pace of Implementation of Action Steps

383. The WSP states that it will be implemented within DFO's existing resource capability, and notes that much of the work it requires - particularly the laying of the scientific foundation (define CUs, establish benchmarks, and design new assessment systems) and the creation of a new strategic planning process – is complex and will take time. As such, the WSP states that implementation will be phased in gradually, and it does not specify a timeframe for full implementation.[391] It is this context that has set the pace of implementation.[392] The timelines for the implementation of all Action Steps contemplated within DFO in the early stages of implementation planning were, with hindsight, unrealistic.[393]

- Implementation Structure and Leadership

384. Ultimate responsibility for the implementation of the WSP rests with the Regional Director General and the Regional Directors – that is, the members of the Regional Management Committee.[394] The Regional Director General sits on all key national committees and reports directly to the Deputy Minister, and thus is a significant champion of the WSP within DFO.[395]

385. One of the first steps taken to implement the WSP was the creation of the Strategic Initiatives Steering Committee, which later became the DFO Operations Committee.[396] The DFO Operations Committee is a sub-committee of the Regional Management Committee

[389] Susan Farlinger, 16 December 2010, p 34:24-43; Paul Sprout and Susan Farlinger, 16 December 2010, pp 45:15 to 47:38.
[390] Claire Dansereau, 22 September 2011, p 46: 37-44.
[391] Exhibit 8 at pp 35-36: Department of Fisheries and Oceans, *Canada's Policy for Conservation of Wild Pacific Salmon*, Vancouver: DFO, June 2005; Dr Jim Irvine, 3 December 2010, p 27:1-6.
[392] Mark Saunders, 8 December 2010, p 56:39-47.
[393] Susan Farlinger, 22 September 2011, pp 48:3 to 49:11.
[394] Mark Saunders, 2 December 2010, pp 47:32 to 48:6.
[395] Claire Dansereau, 22 September 2011, p 47:11-36.
[396] Exhibit 134 at p 2: *Regional Management Committee Meeting August 9, 2005, Record of Decisions*; Mark Saunders, 2 December 2010, p 40:6-39.

responsible for the cross-sectoral, horizontal initiatives or programs that have already been developed. Thus, while its sole focus is not the WSP, its focus is any operational initiative that requires the oversight of senior management, including the WSP.[397]

386. The DFO Policy Branch retained coordination lead of WSP following the development of the policy and into the implementation phase given its connections with all sectors responsible for implementation of the various pieces of the WSP – Science, Ecosystems and Fisheries Management and Ecosystem Management Branch.[398]

387. A WSP Implementation Team was also established, whose lead – the WSP Coordinator – is typically a member of Policy Branch and reports to the Regional Director of Policy and is the link between the Implementation Team and senior management.[399]

388. The Implementation Team reports to the DFO Operations Committee for guidance on implementation issues. Members of the Implementation team, as appropriate, meet with the DFO Operations Committee regularly, and the latter approves the annual workplans and budgets of the Implementation Team. Some substantive issues may be referred up to the Regional Management Committee for final decision.[400]

389. Smaller teams have also been established on an as-needed basis. For example, a Strategy 1 Oversight Group was established to discuss updates on and challenges to implementation of Strategy 1.[401] Another example is the cross-sectoral Habitat Working Group, which was established in November of 2005 to oversee the implementation of Strategy 2.[402]

- Implementation Planning

390. The WSP states that:

> The WSP requires acceptance of new ways of doing business and introduces a number of new program obligations. To ensure its commitments are met, an

[397] Dr Jim Irvine, 3 December 2010, pp 68:23 to 69:20; Mark Saunders, 2 December 2010, p 40:6-39.
[398] Mark Saunders, 3 December 2010, pp 56:13 to 57:17.
[399] Mark Saunders, 2 December 2010; pp 47:32 to 48:6; Mark Saunders, 3 December 2010, p 66:7-34.
[400] Dr Jim Irvine, 3 December 2010, pp 68:23 to 69:20.
[401] Dr Carrie Holt, 7 December 2010, p 4:2-13.
[402] Heather Stalberg, 3 December 2010, pp 6:43 to 7:46.

> implementation plan will be prepared after the policy's finalization. This plan will stipulate what tasks are required, how they will be performed, and when they will be completed. On completion, the plan will constitute the Department's commitment to meeting its responsibilities for salmon conservation.[403]

391. In the early stages of implementation planning, a "Strategic Implementation Plan" was accepted in principle by the Regional Management Committee in August of 2005.[404] Then, in September of 2005, the Regional Management Committee reviewed a "Wild Salmon Policy Implementation Workplan – Results-based Accountability Framework" which detailed the tasks to be completed for implementation, the timelines expected for completion, and the budget allocations for each aspect of implementation.[405]

392. An adaptive, annual process of work planning was subsequently adopted due to the uncertainty in how long the technical aspects of implementation would take and the resources that would be required.[406] Annual workplans have thus been created and approved by the DFO Operations Committee every fiscal year since 2005/2006.[407]

393. Together, the Strategic Implementation Plans, the Results-Based Management & Accountability Framework, and the annual workplans, comprise the WSP implementation plan.[408]

- Progress on Action Step 1.1

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[403] Exhibit 8 at p 35 Department of Fisheries and Oceans, *Canada's Policy for Conservation of Wild Pacific Salmon*, Vancouver: DFO, June 2005.
[404] Paul Sprout, 9 December 2010, p 42:36-47.
[405] Exhibit 109 at pp.10-13, pp. 17-52: Department of Fisheries and Oceans, Draft Wild Salmon Policy Implementation Workplan, Results-based Management and Accountability Framework, 20 September 2005; Exhibit 135: Regional Management Committee Meeting August 9, 2005, Record of Decisions; Exhibit 136: WSP Implementation Workplan, 20 September 2005; Mark Saunders 30 November 2010, pp 23:23 to 24:11; Mark Saunders, 2 December 2010, p 51:1-28; Paul Sprout, 9 December 2010, p 43:10-16.
[406] Mark Saunders , 2 December 2010, p 37:25-44.
[407] Exhibit 109: Department of Fisheries and Oceans, *Draft Wild Salmon Policy Implementation Workplan, Results-based Management and Accountability Framework*, 20 September 2005; Exhibit 110: *Wild Salmon Policy Implementation Workplan FY-07-08*, 13 August 2007; Exhibit 174b: *Draft Wild Salmon Policy Implementation Work-plans*, 3 November 2005; Exhibit 192 at pp 22: *2008-2009 Wild Salmon Policy (WSP) WorkPlan, DFO Pacific Region*; Exhibit 195: *Wild Salmon Policy Implementation, Progress in 2005/06 & Workplan for 2006/07*, May 2006; Exhibit 238 at p 14: *Wild Salmon Policy Implementation, Draft Work Plan 2010-2011;* Exhibit 240 at p 8: *2009-10 WSP Workplan;* Exhibit 964: *Wild Salmon Policy Implementation, Draft Work Plan 2011-2012*, 26 May 2011.
[408] Paul Sprout, 9 December 2010, p 43:17-20.

394. The Holtby and Ciruna paper, completed and peer reviewed by Pacific Scientific Advice Review Committee (now CSAP) in June of 2007, sets out the methodology for the identification of CUs, and provided what was then a provisional list of all CUs with the exception of those in the Yukon River. This paper was officially published by CSAP in 2008.[409] Holtby and Ciruna initially identified 420 salmon CUs – including 238 sockeye CUs, of which 31 were Fraser River lake-type CUs and 7 were Fraser River river-type CUs.[410]

395. While this original delineation of 420 salmon CUs was and remains largely uncontroversial, the list will continue to change over time as new information – including Traditional Ecological Knowledge – becomes available and CUs are amalgamated or split.[411] The delineation of CUs is not meant to be static, and the WSP provides that changes to the list of CUs will be made through the Canadian Science Advisory Pacific peer review process.[412] Revisions to Fraser sockeye CUs are currently underway through the peer review of the Grant et al. working paper, discussed further below.[413]

- Progress on Action Step 1.2

396. The Holt et al. indicator and benchmark methodology paper was published in 2009 following a peer review at CSAP.[414] This paper identifies four classes of indicators (abundance, trends in abundance, fishing mortality relative to productivity and distribution), metrics of measurement within each, and benchmarks for the abundance and fishing mortality indicators.[415]

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[409] Exhibit 171 at p 2: Table of dates on which DFO scientific papers were reviewed by PSARC.
[410] Exhibit 143, pp 72, 276, 280: L Blair Holtby and Kristine A Ciruna "Conservation Units for Pacific Salmon under the Wild Salmon Policy", 2008.
[411] Dr Jim Irvine, 2 December 2010, p 62; 31-46; Dr Kim Hyatt and Mark Saunders, 2 December 2010, p 53:25 to 54:12; Dr Carrie Holt ,7 December 2010, p 91:41 to 92:12.
[412] Exhibit 8 at p. 16: Department of Fisheries and Oceans, *Canada's Policy for Conservation of Wild Pacific Salmon*, Vancouver DFO, 2005.
[413] Exhibit 184: SCH Grant et al, "Fraser Sockeye (*Oncorhynchus nerka*) Wild Salmon Policy Evaluation of Stock Status: State and Rate", 2010, Draft Working Paper 2010/P14; Exhibit 1914: SCH Grant et al, Draft "Evaluation of Uncertainty in Fraser Sockeye (*Oncorhynchus nerka*) Wild Salmon Policy using Abundance and Trends in Abundance Metrics", 5 July 2011; Exhibit 1915: SCH Grant et al, "Evaluation of Uncertainty in Fraser Sockeye (*Oncorhynchus nerka*) Wild Salmon Policy Status using Abundance and Trends in Abundance Metrics", 25 August 2011.
[414] Exhibit 153: Carrie A Holt et al, "Indicators of Status and Benchmarks for Conservation Units in Canada's Wild Salmon Policy", 2009; Exhibit 154: Carrie Hold, "Evaluation Benchmarks for Conservation Units in Canada's Wild Salmon Policy: Technical Documentation", 2009; Dr Carrie Holt, 7 December 2010, p 5:13-15.
[415] Exhibit 153 at p. 9: Carrie A Holt et al, "Indicators of Status and Benchmarks for Conservation Units in Canada's Wild Salmon Policy", 2009; Dr Carrie Holt, 2 December 2010, p 77:43 to 79:5; 3 December 2010, pp 79:41 to 82:46, pp 83:27 to 84:36.

The various metrics used to measure each of the four classes of indicators result in a multi-dimensional assessment of status – there is not currently a methodology to combine the status on each metric to arrive at a single red/amber/green status for each CU.[416]

397. While an overall status may be desirable, combining statuses can result in a loss of valuable information, including less quantifiable information such as Traditional Ecological Knowledge from First Nations.[417] Whether or how to amalgamate the status of each metric is a contentious issue in the scientific community.[418] Work is thus currently underway by the Strategy 1 Oversight Group to determine whether to amalgamate the various statuses obtained using the various metrics and, if so, how.[419]

398. Four groups of CUs were subsequently selected by the Strategy 1 Oversight Group as priorities for assessment using Dr. Holt's methodology: Fraser sockeye, Fraser chinook, all five species in the Skeena River, and all five species in the Nass River.[420] The methodology is currently being applied in each of these areas.[421]

399. On the Fraser, the Grant et al. working paper sets a range of abundance benchmarks at different probability levels.[422] It also sets benchmarks along three metrics for trends in abundance.[423] Using these benchmarks, status is assessed for 24 Fraser sockeye CUs.[424]

400. This paper was peer reviewed at Canadian Science Advisory Pacific in November 2010 and was provisionally accepted subject to revisions.[425] The assessments of status in this paper are not final because the Salmon Sub-committee of Canadian Science Advisory Pacific

[416] Dr Carrie Holt, 3 December 2010, p 80:34-41.
[417] Dr Carrie Holt, 7 December 2010, p 3:22-46; p 93:12-35.
[418] Mark Saunders, 2 December 2010, pp 54:22 to p 55:25.
[419] Dr Carrie Holt, 7 December 2010, p 3:22-46; p 93:12-35.
[420] Dr Carrie Holt, Mark Saunders and Dr Jim Irvine, 7 December 2010, pp 5:36 to 6:28.
[421] Mark Saunders, 2 December 2010, p 55:25 to 56:16; Dr Carrie Holt, 3 December 2010, p84:37 to 85:3; 7 December 2010, pp 6:40 to 7:6.
[422] Exhibit 1915 at pp 38-39: SCH Grant et al, *"Evaluation of Uncertainty in Fraser Sockeye (Oncorhynchus nerka) Wild Salmon Policy Status using Abundance Trends in Abundance Metrics"*, 25 August 2011.
[423] Exhibit 1915 at p 40.
[424] Exhibit 1915 at pp 41, 114-118.
[425] Exhibit 184: SCH Grant et al., *"Fraser Sockeye (Oncorhynchus nerka) Wild Salmon Policy Evaluation of Stock Status: State and Rate"*, 2010 Draft Working Paper 2010/P14; Dr Kim Hyatt, 2 December 2010, p 56:36 to 57:17.

determined that the analysis contained biases resulting from assumptions made in the analysis. This paper is currently being revised by the authors based on this input from the reviewers.[426]

401. It is expected that this paper will be finalized during the late fall of 2011.[427]

402. Finally, Action Step 1.2 provides that, within the red zone, there will be a level of abundance that cannot sustain further mortalities, and that DFO will prepare operational guidelines on the estimation of this level of abundance.[428]

403. Dr. Holtby has developed a rapid assessment methodology that uses conservation thresholds within the red zone which delineate an abundance level that could be considered at high risk of extirpation. Dr. Holtby's work, which remains draft, is thus in line with this requirement in the WSP.[429] Once completed, this methodology may be used, along with other tools, to set CU monitoring priorities.[430]

- Progress on Action Step 1.3

404. Monitoring of salmon in British Columbia has been ongoing for over 50 years through monitoring of indicator systems, intensive monitoring, and extensive monitoring, as outlined in the WSP.[431] Thus, while no CU-specific monitoring plans have been developed to date, DFO currently does monitor the majority of Fraser sockeye CUs. The information gathered through existing monitoring programs is what has allowed work to proceed on setting benchmarks and assessing status.[432]

405. This monitoring program is described in a 2004 Monitoring Framework, and is currently being updated by Dr. Holtby to accurately reflect the WSP and the delineation of CUs. When

[426] Dr Carrie Holt, 2 December 2010, p 73:14-35; 3 December 2010, pp 2:12 to 3:11; 7 December 2010, p 49:7-43, pp 51:35 to 54:27.
[427] Dr Laura Richards, 26 September 2011, pp 2:39 to 3:15.
[428] Exhibit 8 at p 18: Department of Fisheries and Oceans, *Canada's Policy for Conservation of Wild Pacific Salmon*, Vancouver DFO, 2005.
[429] Exhibit 1972: LB Holtby, *"A Synoptic Approach for Assessing the Conservation Status of Pacific Salmon on a Regional Basis"*, Draft Working Paper 2011/P23; Dr Carrie Holt, 2 December 2010, p 28:17-25, p 77:31-39; 7 December 2010, p 6:31 -39; Dr Laura Richards, 28 September 2011, p 100:20-27.
[430] Mark Saunders, 7 December 2010, pp 8:17 to 9:9.
[431] Exhibit 8 at pp 18-19: Department of Fisheries and Oceans, *Canada's Policy for Conservation of Wild Pacific Salmon*, Vancouver DFO, 2005; Dr Jim Irvine, 7 December 2010, p 7:7 to 8:14.
[432] Mark Saunders, Dr Jim Irvine and Dr Carrie Holt, 2 December 2010, p58:22 to 60:23.

completed, it will assist in setting DFO priorities for work based on the importance of a CU and the risk visited upon it, and will set out the stock assessment program that is responsive to those priorities. The updated Monitoring Framework will be peer reviewed in 2011, and once completed, will be a key piece that will allow Action Step 1.3 to move forward. [433]

406. As discussed above, the Grant et al. working paper also addresses action step 1.3 in that it assesses status across a range of benchmarks in the abundance and trends in abundance indicators. Once finalized, it will provide managers with key advice on CU status and the uncertainty around it. [434]

- Progress on Action Step 2.1

407. The Habitat Working Group has developed a two-tier approach to the characterization of CU habitat. First, "habitat overview reports" are to be prepared for all CUs relying on pre-existing provincial data on land use to provide an overview of the habitat and key threats. Second, for priority CUs (those where integrated planning is already underway or where there is an identified threat identified through monitoring) a more detailed "habitat status report" will be prepared.[435]

408. Five habitat overview reports and nine partial habitat status reports were piloted prior to 2008.[436] Six habitat status reports have since been completed for the Somass, Bedwell, San Juan, Lower Harrison, Sarita and Cowichan/Koksihah systems.[437]

- Progress on Action Step 2.2

409. A series of pressure, state and quantity indicators for habitat were developed by the Habitat Working Group, along with metrics and benchmarks where data availability permitted. [438] Recommendations on the final suite of indicators, metrics and benchmarks went through a

[433] Exhibit 8 at pp 18-19; Exhibit 210: *Salmon Stock Assessment Plan – 2004/05*, 20 July 2004; Dr Jim Irvine, 7 December 2010, p 7:7 to 8:14; Mark Saunders, 7 December 2010, pp 8:17to 9:34, pp 25:13 to 26:42.
[434] Dr Laura Richards, 22 September 2011, p 55:10-22.
[435] Heather Stalberg, 3 December 2010, p 5:12 to 6:10; 7 December 2010, pp 10:2 to 11:29.
[436] Heather Stalberg, 7 December 2010, p 10:18-26, p 11:30-34.
[437] Exhibit 1215 at p 1: Letter of MR Taylor to BJ Wallace, 13 June 2011; Exhibit 962 at p 5: *Wild Salmon Policy – Work Planning*, 26 May 2011.
[438] Heather Stalberg, 7 December 2010, pp 19:16 to 20:20.

peer review process at DFO. The peer reviewers accepted them, subject to a few changes.[439] The reviewers also recommended that the metrics and benchmarks be further tested through the development of a monitoring framework.[440]

410. The benchmarks in Strategy 2 are a single value for each indicator which represents its desired level, and which allows for preventative action to be taken before a population begins to decline due to degraded habitat.[441] No benchmarks have been set for quantity indicators (i.e. accessible stream length) because their relationship to fish productivity is not well understood at this point.[442]

- Progress on Action Step 2.3

411. In general, there are three ways to monitor habitat – through mining existing data, conducting monitoring on the ground, and remote sensing. The Habitat Working Group explored monitoring that had been conducted in Washington State. One program, which only mined existing data for nine rivers for a year, cost approximately $1 million annually. Another program, which involved field monitoring of Puget Sound, cost $500,000. Monitoring is thus a costly exercise.[443]

412. The Habitat Working Group also piloted the use of satellite imagery to monitor pressure indicators. While many state indicators require field monitoring, which is expensive, pressure indicators lend themselves to satellite imagery monitoring. This was piloted on the interior Fraser coho CU. While the pilot produced very useful information, it cost $55,000 for imagery and processing, plus costs to hire a GIS expert to sort the information. Applying this to the approximately 420 CUs in British Columbia and the Yukon would be a very expensive undertaking.[444]

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[439] Exhibit 148 at pp 22-27: Operations Committee, *WSP Strategy 2, Assessment of Habitat Status, Our Progress and Plan*, 23 September 2008; Exhibit 175 at pp 20-21, Appendices 12-14: HC Stalberg et al., *"Canada's Policy for Conservation of Wild Pacific Salmon: Stream , Lake, and Estuarine Habitat Indicators"*, 2009; Heather Stalberg, 3 December 2010, p10:20-33.
[440] Heather Stalberg, 3 December 3, p 10:30-33.
[441] Heather Stalberg, 7 December 2010, pp 17:31 to 18:7.
[442] Heather Stalberg, 7 December 2010, p 18:8-29.
[443] Exhibit 211: *Governor's Forum on Monitoring, 2007-09 Agency Monitoring Budget Proposals*, 7 September 2006; Heather Stalberg, 7 December 2010, pp 21:5 to 22:30.
[444] Heather Stalberg, 3 December 2010, pp 15:18 to 18:26.

413. A monitoring framework is thus required to effectively – and cost effectively – implement the monitoring of CU habitats. Such a framework would set standards for data collection, set out the locations, intensity and frequency of sampling, address the ownership of data generated, and would set out who is conducting what monitoring. While DFO must lead the effort, effective habitat monitoring will depend upon the coordinated participation of those outside of DFO.[445]

- Progress on Action Step 2.4

414. Action Step 2.4 requires that DFO promote the design, implementation and maintenance of an integrated data system on fish habitat status, together with the Province and other partners.[446]

415. To this end, the Habitat Working Group developed a web mapping application which is a web-based portal into a geographic representation of information and products (such as habitat overview reports, habitat status reports, and eventually, integrated plans) related to each CU in British Columbia and the Yukon. It also links to other agencies' data (for example, to Environment Canada water quality monitoring data), which in turn can inform the WSP-specific products. This application provides transparent access to information, and is easy to update, thus saving on costs. The web mapping application has been launched and is publicly accessible.[447]

416. A further initiative of the Habitat Working Group under Action Step 2.4 was the development of a harmonized monitoring program, and further information integration was piloted with the Fraser Basin Council in the "Aquatic Information Partnership." This latter program tested how monitoring could be integrated in the Fraser Basin, and generated lessons learned that could be applied to other watersheds.[448]

[445] Heather Stalberg, 7 December 2010, pp 27:39 to 28:20, pp 34:45 to 35:6.
[446] Exhibit 8 at p 22: Department of Fisheries and Oceans, *Canada's Policy for Conservation of Wild Pacific Salmon*, Vancouver DFO, 2005
[447]Heathewr Stalberg, 3 December 2010, pp 12:41 to 13:38; Heather Stalberg and Mark Saunders, 3 December 2010, p 15:1-11.
[448] Heather Stalberg, 3 December 2010, pp 12:30-39; 7 December 2010, pp28:21 to 29:27.

- Progress on Action Step 3.1

417. Strategy 3 requires nothing less than that we define salmon ecosystems - including their boundaries in space and time and which life history stages they influence - what mechanisms of cause and effect might be at play between ecosystems and salmon, and whether changes in salmon productivity are human-induced or naturally-induced and, in the case of the former, whether some mitigative steps might be possible. This is no small task given our current understanding of salmon ecosystems.[449]

418. The WSP recognizes that an ecosystem objective, while widely appreciated, is not well understood at this point in time and is thus difficult to quantify. Thus, "the Department's intent is to progressively consider ecosystem values in salmon management, but it acknowledges a limited ability to do so at the present time."[450]

419. The complexity of what is required in Action Step 3.1 is not adequately captured in that section. While the WSP refers to such concepts as a salmon ecosystem, ecosystem integrity, ecosystem values, and the inclusion of ecosystem values in management, those terms are not defined in the policy in a way that can allow them to be pursued at an operational level.

- Progress on Action Step 3.2

420. Action Step 3.2 requires that information on climate and oceans be linked to our understanding of salmon productivity.[451] When it was drafted, there was still much uncertainty in our understanding of how ocean conditions influence salmon productivity. Our understanding is advancing rapidly, particularly the use of various technologies like satellite imagery or the Argo float program. This continues to be an active area of research, with partners like North Pacific Marine Science Organization, the North Pacific Anadromous Fish Commission, the Pacific Salmon Commission and other international organizations in the North Pacific.[452]

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[449] Dr Kim Hyatt, 3 December 2010, pp 21:26 to 22:16.
[450] Exhibit 8 at pp 22-23: Department of Fisheries and Oceans, *Canada's Policy for Conservation of Wild Pacific Salmon,* Vancouver DFO, 2005.
[451] Exhibit 8 at p 23: Department of Fisheries and Oceans, *Canada's Policy for Conservation of Wild Pacific Salmon,* Vancouver DFO, 2005.
[452] Mark Saunders, 3 December 2010, pp 27:9 to 28:23.

421. The Fisheries and Oceanography Working Group, co-chaired by Dr. Irvine, is a multi-disciplinary group composed of oceanographers and fisheries biologists (primarily from within but also outside of DFO) which discusses how their research is interrelated. Its annual "State of the Oceans" reports are an annual snapshot of the Pacific Northwest oceans that link what is going on in the ocean (biological, chemical, physical) with changes in the ecology of the fish community, including salmon. This is and will continue to be a key step in the implementation of Action Step 3.2.[453]

422. DFO is also progressively integrating climate and ocean information into management, such as through interactions between the Fisheries and Oceanography Working Group and the scientists who create the annual Salmon Outlook.[454] However, our understanding of climate and ocean variability and its impact on salmon productivity will continue to evolve incrementally as long as DFO is managing salmon.[455]

- Progress on Strategy 4

423. Strategy 4 is the heart of the WSP, and the success of its implementation will be an indicator of how quickly the intent of the policy can be implemented and of the success of the policy as a whole.[456] Stakeholders have high expectations with regards to its implementation.[457] The scientific foundation of Strategies 1-3 has nearly been laid, and progress on those strategies will continue. Implementation is now at a tipping point where status assessment can begin and Strategy 4 implementation can begin.[458] However, Strategy 4 is the most challenging Strategy to implement.[459]

424. There has been considerable external engagement on the implementation of Strategy 4, particularly on WSP pilots (such as the FRSSI pilot of the five step planning process and the Barkley Sound and Skeena pilots) as well as meetings with First Nations.[460] There has been

[453] Dr Jim Irvine, 3 December 2010, pp 25:21 to 26:33.
[454] Dr Jim Irvine, 3 December 2010, p 26:19-33.
[455] Dr Jim Irvine, 3 December 2010, p 26:36-42.
[456] Mark Saunders, 29 November 2010, pp 84:7 to 85:21; Susan Farlinger, 9 December 2010, p 53:30-38.
[457] Jeffery Young, 3 June 2011, pp 30:39 to 31:4; Rob Morley, 2 June 2011, p 31:5 -13.
[458] Mark Saunders, 3 December 2010, p 51:2-16.
[459] Pat Chamut, 1 December 2010, pp 10:43 to 11:14.
[460] Paul Ryall, Rob Morley and Jeffery Young, 3 June 2011, pp 313:14 to 32:33.

significant engagement around integrated strategic planning within and outside of DFO.[461] In particular, there have been at least 516 meeting days since 2005 that have been relevant to aspects of implementation of the WSP, including Strategy 4.[462]

- Work on Identification of Priority CUs

425. Action Step 4.1, which provides for interim management of priority CUs until an integrated planning process can be implemented, requires that "CUs in the red zone and those that could significantly limit fishing and other activities will be identified as management priorities."[463] To that end, there have been a number of proposed methodologies for prioritization based on CU status as well as other considerations, including socio-economic factors, the importance of the CU to the fishery, the cultural importance of the CU, and the international importance of the CU.[464]

426. To date, a methodology for the identification of priority CUs presented to senior management has not been approved.[465] However, in the absence of the identification of priority CUs as described in the WSP, DFO has in the interim prioritized the "stocks of concern" (some of which are CUs and some of which are collections of CUs) as identified in the annual Salmon Outlook. Those stocks drive annual and longer-term planning process, such as the IFMP which contains specific and detailed management actions to deal with conservation concerns around those stocks, and those management actions drive the management of the fishery. "Stocks of concern" are also prioritized in longer-term research and other plans.[466]

427. Interim prioritization on the basis of "stocks of concern" does not negate DFO's intention to identify priority CUs as described in the WSP.[467] DFO plans to re-initiate this process once the Grant et al. working paper is complete.[468] In addition, in 2009, the Strategic Directions

[461] Exhibit 971 at p 1: Strategic Direction Committee, *Discussion Paper*.
[462] Exhibit 945A: *Inventory of Meetings related to Fraser Sockeye Planning and WSP Implementation*.
[463] Exhibit 8 at pp 25-26, emphasis added: Department of Fisheries and Oceans, *Canada's Policy for Conservation of Wild Pacific Salmon,* Vancouver DFO, 2005.
[464] Mark Saunders, Paul Ryall, Jeffery Young and Rob Morley, 2 June 2011, pp 66:10 to 67:30.
[465] Mark Saunders, 2 June 2011, p 67:22-30.
[466] Exhibit 445 at pp 27-36: Department of Fisheries and Oceans, Pacific Region, *Integrated Fisheries Management Plan Salmon Southern B.C., June 1 2010 to May 31, 2011*; Exhibit 947: Department of Fisheries and Oceans, *2009 Salmon Stock Outlook*, DFO website 30 May 2011; Mark Saunders, 2 June 2011, pp 65:28 to 66:9.
[467] Mark Saunders, 2, June 2011, p 66:4-9.
[468] Mark Saunders, 3 June 2011, pp 7:42 to 8:15.

Committee gave support to the development of a "rapid assessment" methodology.[469] A draft of that methodology and assessment since been completed by Dr. Holtby and is currently undergoing revisions.[470] Together, the Grant et al. assessment, the Holtby rapid assessment, and further social and economic criteria will be used to identify priority CUs.[471]

- Action Step 4.2 – Scoping and Pilots

428. One of the most challenging Action Steps in the policy for both DFO and stakeholders to understand and implement is Action Step 4.2, which requires the development of a new integrated planning structure.[472] However, while the WSP provides some guidance on how a new planning structure is to be devised and implemented, it contains little specific direction on how to do so.

429. In this regard, DFO held an internal workshop in March 2009 to discuss how to approach the implementation of Strategy 4.[473] This included a discussion of the complexity of what is required in Strategy 4, other examples of integrated planning and lessons learned, the appropriate scale for integrated planning, the content of integrated plans, and the approach to engagement with external stakeholders.[474]

430. One of the key issues highlighted at this workshop was the scope of integrated strategic plans – that is, at what geographic scale will planning occur? It would be impractical and inefficient to develop integrated strategic plans for over 400 individual CUs.[475] The WSP recognizes that an individual CU may not be the most appropriate scale for planning, depending on its biological, geographic and human use characteristics. It thus provides that planning units

[469] Exhibit 240 at p 1: *Record of Decisions, Operations Committee Meeting*, 25 June 2009; Exhibit 943 at pp 7-10: *Operations Committee, WSP Strategy 4 Update: Integrated Planning*, 25 June 2009; Paul Ryall, 2 June 2011, pp 81:22 to 82:7; Mark Saunders, 2 June 2011, p 82:24-44.
[470] Exhibit 1972: LB Holtby, *"A Synoptic Approach for Assessing the Conservation Status of Pacific Salmon on a Regional Basis"*, Draft Working Paper 2011/P23
[471] Exhibit 951 at p 14: *Update and Strategic Approach to Implementation of WSP Strategy 4, Strategic Direction Committee*, 14 April 2011; Mark Saunders, 3 June 2011, pp 7:42 to 8:15..
[472] Pat Chamut, 1 December 2010, pp 9:39 to 11:29.
[473] Exhibit 957: *Proceedings of DFO Workshop on Wild Salmon Policy Strategy 4: IntegratedStrategic Planning, March 2009, Nanaimo BC*, May 2009.
[474] Exhibit 957 at xi.
[475] Paul Ryall, 3 June 2011, pp 36:35 to 37:13; Rob Morley, 3 June 2011, pp 39:9 to 40:10; Mark Saunders, 3 June 2011, p 89:25-40.

at scales finer or broad than individual CUs may be adopted, but does not specify how such planning units are to be identified.[476]

431. Possible considerations in the delineation of planning units may include: freshwater adaptive zones as developed by the Province; areas of provincial responsibility; First Nations linguistic or tribal areas; the biology of CUs; the migration route of CUs; and the locations of harvest of CUs.[477] Work has been undertaken to identify appropriate criteria for the delineation of planning units. DFO contracted a report regarding an approach to aggregation of CUs for planning purposes.[478] This approach was reviewed by the DFO Operations Committee, which tentatively accepted the approach in principle.[479]

432. Another key issue to be addressed in the implementation of Action Step 4.2 is the precise contents of integrated strategic plans. The WSP contains only general guidance as to the content of these plans.[480] DFO has thus developed or contracted others to develop various strategic plan discussion documents or templates.[481] A "rebuilding plan" template is also being developed.[482]

433. In the early days of implementation, it was decided by the DFO Operations Committee that the best way to demonstrate what would be required in Action Step 4.2 would be to implement a pilot in a smaller, defined geographic area. Ultimately, Barkley Sound was chosen

[476] Exhibit 8 at pp 25-26 (sidebar): Department of Fisheries and Oceans, *Canada's Policy for Conservation of Wild Pacific Salmon*, Vancouver: DFO, 2005; Exhibit 1217: at p 4: *Written Re-Examination Questions for Jeffery Young*; Jeffery Young, 3 June 2011, pp 37:40 to 38:15.
[477] Mark Saunders, 3 June 2011, pp. 91:19 to 92:13; Paul Ryall, 3 June 2011, p 92:34-43.
[478] Exhibit 952: *Identifying Planning Unites and Prioritizing Integrated Strategic Planning Initiatives Under the Wild Salmon Policy*, March 2009; Exhibit 953: *Prioritizing Integrated Planning Initiatives Under the Wild Salmon Policy*, October 2009; Paul Ryall, 3 June 2011, p 83:14-33.
[479] Exhibit 240: *Record of Decisions, Operations Committee Meeting*, 25 June 2009; Exhibit 943: *Operation Committee, WSP Strategy 4 Update: Integrated Planning*, 25 June 2009; Exhibit 951 at p 8: *Update and Strategic Approach to Implementation of WSP Strategy 4, Strategic Directions Committee (SDC)*, 14 April 2011; Paul Ryall, 2 June 2011, p 74:27-39.
[480] Exhibit 8 at p 24: Department of Fisheries and Oceans, *Canada's Policy for Conservation of Wild Pacific Salmon*, Vancouver: DFO, 2005.
[481] Exhibit 942: Final Draft *Discussion Paper, Interim Guidance for the Development of Strategic Plans under Canada's Policy for the Conservation of Wild Pacific Salmon*, revised 15 December 2007; Paul Ryall, 2 June 2011, pp 77:36 to 79:33
[482] Paul Ryall, 2 June 2011, p 78:19-32.

as the WSP pilot area as it was an appropriate scale that captured a wide variety of issues in salmon management in the Pacific Region.[483]

434. The implementation of Strategy 4 has thus centered on several pilots designed to test various aspects of integrated planning – or, in the case of the Barkley Sound pilot, to test WSP implementation from end-to-end.[484] One example directly relevant to Fraser sockeye is the piloting of the WSP five-step planning procedure in the FRSSI process. This process was successfully used to set biological targets for CUs and groups of CUs which are incorporated into the IFMP annually. While not an end-point for Strategy 4 implementation for Fraser sockeye, this pilot and others have been key achievements achievement from which valuable lessons have been learned that will be applied to strategic planning design going forward.[485]

- Progress on Strategy 6

435. In June of 2010, the DFO Regional Operations Committee decided to defer the independent review in order to first conduct an internal DFO "gap analysis" in order to broadly evaluate how the WSP had influenced broader management changes within DFO.[486] Such a gap analysis could then inform an evaluation framework for an independent, external review.[487]

436. An evaluation framework was prepared based on the gap analysis, as well as external advice received from the PFRCC and the Audit and Evaluation Directorate.[488] This framework was reviewed and approved by the DFO Operations Committee in April of 2011, and a statement

[483] Paul Ryall and Mark Saunders, 2 June 2011, pp 68:6 to 69:15; Paul Ryall, 2 June 2011, p 75:23-43; Paul Ryall, 3 June 2011, pp 99:40 to 101:1.
[484] Exhibit 192 at pp 7-8: *Operations Committee WSP Update*, 8 January 2009; Exhibit 951 at p 7: *Update and Strategic Approach to Implementation of WSP Strategy 4, Strategic Direction Committee*, 14 April 2011.
[485] Exhibit 192; Exhibit 951; Exhibit 961: *Summary based on Tables 1 and 2 in the 2009 Forecast paper, available at http:..www.dfo-mpo.gc.ca/Library/337551.pdf*; Exhibit 971: Strategic Direction Committee, *Discussion Paper*; Susan Farlinger, 16 December 2010 pp 26:47 to 31:3.
[486] Exhibit 246 at p 3: Email of L Wilson to S Farlinger and J Nener, 9 November 2010.
[487] Exhibit 233: *Operations Committee Meeting, Record of Decisions*, 17 June 2010; Susan Farlinger, 9 December 2010, pp 71:40 to 73:8.
[488] Sue Farlinger, 4 March 2011, p 84:17-44, 22 September 2011, p 61:15-30.

of work for an independent contractor was prepared.[489] Gardner Pinfold was selected as the independent consultant to conduct the review, and a final review Work Plan was prepared.[490]

437. A draft report from Gardner Pinfold was completed in early October 2011, and has now been produced to the Commission and participants.[491]

iv) Future Management Approach

438. In terms of harvest management, the WSP is being implemented in a variety of decisions made each year since its announcement, including, but not limited to:

- decisions about harvest rates that specifically protect weak stocks;
- more recent management decisions to utilize conservation units and their benchmarks such as the Early Stuart sockeye and Cultus sockeye;
- A significant reduction in the harvest rate;
- With respect to habitat, the implementation of a risk-based approach and identifying the pathways of effect;
- The development of a framework for habitat reviews;
- The allocation of science priorities;
- Adjustments to account for in-river mortality;
- Application of the Selective Fishing Policy;
- Demonstration share-based fisheries; and,
- Demonstration in-river fisheries.[492]

3. *A strong scientific foundation to support discussions around risks, benefits and trade-offs;*

a) Overview

439. The purpose of this section is to describe the role of science in DFO policy development and decision-making, and the means by which independent and reliable scientific advice is secured. This section also discusses the participation of DFO scientists in external research, workshops, and conferences, and collaboration between DFO scientists, academia, and private institutions on matters of mutual interest.

[489] Exhibit 959: *Statement of Work, Performance Review of the Wild Salmon Policy*; Exhibit 960: *Draft, V1, Wild Salmon Policy, Strategy 6 – Performance Review, Operations Committee*, 14 April 2011.
[490] Exhibit 1916: *Wild Salmon Review, Final Work Plan*, 15 July 2011; Susan Farlinger, 22 September 2011, pp 60:32 to 61:2.
[491] Susan Farlinger, 22 September 2011, p.62:5-27.
[492] Susan Farlinger, 22 September 2011, pp 49:33 to p. 51:1.

b) DFO Science

440. DFO is a science-based department.[493] Within DFO, the Ecosystems and Oceans Science sector is responsible for providing information and objective scientific advice, grounded in research, to other sectors within DFO for use in policy development and decision-making. [494] The five key components of DFO's Ecosystem and Oceans Science multidisciplinary program are research, monitoring, data management, scientific advice, and products and services.[495]

441. Ecosystems and Oceans Science supports fisheries, aquaculture, oceans, and habitat management and maritime safety objectives, and includes marine and freshwater environments and species.[496] Of approximately 11,000 DFO employees, 1700 are located with the Ecosystems and Oceans Science sector.[497]

c) The Four Pillars of Science

442. DFO's Ecosystems and Oceans Science sector undertook a renewal process in 2004 to determine how its activities fit with DFO's strategic objectives and priorities, and to identify specific changes required to better support DFO policy and decision-making process.[498] As a result of that renewal process, "A Framework for the Future" was developed.[499] The Framework was designed to address several challenges faced by the Department, including a growing demand for science advice. This growing demand stemmed from the passage of acts such as the *CEAA*, the *Oceans Act*, and the *Species at Risk Act*, all of which expanded DFO's functions and responsibilities. The overall complexity of science work was also increasing, but was not necessarily well understood by other managers within DFO.[500]

443. The science renewal process recognized that DFO lacked adequate priority setting mechanisms for its science activities, faced accelerating staff losses in its Ecosystems and Oceans Science sector, and was confronted with ongoing funding pressures. The need for

[493] David Bevan, 3 November 2010, p 82:27-33.
[494] Dr Siddika Mithani, 3 November 2010, p 93:25-29.
[495] Exhibit 40 at p 3: Department of Fisheries and Oceans, *Five-Year Research Agenda (2007-2012*)*;* Dr Wendy Watson-Wright, 3 November 2010, p 20:18-25.
[496] Exhibit 40 at p 3: Department of Fisheries and Oceans, *Five-Year Research Agenda (2007-2012*).
[497] David Bevan and Dr Siddika Mithani, 3 November 2010, pp 112:36 to 113:2.
[498] Exhibit 40 at p 3: Department of Fisheries and Oceans, *Five-Year Research Agenda (2007-2012*).
[499] Exhibit 36: Department of Fisheries and Oceans, *Science at Fisheries and Oceans Canada: A Framework for the Future*, Ottawa: DFO, 2008.
[500] Dr Wendy Watson-Wright, 3 November 2010, pp 2:29 to 3:22.

integration of science with other DFO activities, combined with increased demands for new types of knowledge and limited resources, was acknowledged as challenging the Ecosystems and Oceans Science program's capacity to effectively support departmental and federal priorities.[501] As DFO scientist Peter Olesiuk stated in his testimony that science is a two-way street. Scientists may see issues before managers are aware of them, and can flag those issues for managers. Likewise, managers may ask for science advice on topics of concern to them, before scientists have turned their attention to those topics.[502] The need to improve mechanisms for this type of dialogue between DFO scientists and DFO managers was identified as an important element of the science renewal process.

444. The Framework set out DFO's Ecosystems and Oceans Science strategy under four pillars – relevant, effective, affordable, and value for the science program. A number of related strategies and action plans were then developed.[503] One such strategy was the creation of the Science Management Board, which was established to allow different science "clients" to discuss science together, and to priority set.[504] The Science Management Board was originally a decision-making body, but gradually morphed into a committee that would take issues to senior DFO management.[505]

d) Five-Year Research Agenda and Plan

445. In 2007, the Science Management Board – whose membership includes the Deputy Minister, the Assistant Deputy Ministers of Ecosystems and Oceans Science and of Ecosystems and Fisheries Management, two Regional Directors General, and the chair of the Ecosystems and Oceans Science sector's external science advisory council – developed the five-year Research Agenda.[506]

446. The Research Agenda detailed the background and drivers that led to its development, and highlighted the need for a multidisciplinary and collaborative approach to science within DFO. The Agenda noted that choices would have to be made with a view to maximizing

[501] Exhibit 40 at p 3: Department of Fisheries and Oceans, *Five-Year Research Agenda (2007-2012*).
[502] Peter Olesiuk, 4 May 2011, p 77:20-3.
[503] Dr Wendy Watson-Wright, 3 November 2010, p 3: 23-39.
[504] Dr Wendy Watson-Wright, 3 November 2010, pp 4:45 to p 5:8.
[505] Dr Wendy Watson-Wright, 3 November 2010, p 13:9-14.
[506] Exhibit 40 at p 3: Department of Fisheries and Oceans, *Five-Year Research Agenda (2007-2012*); Dr Wendy Watson-Wright, 3 November 2010, pp 6:27 to 7:40.

flexibility, integrating science work, and developing collaborations with research partners. The Research Agenda, the first of its kind for DFO, provided strategic direction on how effort and resources would be focused to ensure their alignment with federal and departmental priority.[507] Ten research priority areas were identified in the Agenda, and were discussed with all DFO science employees.[508] These priorities areas included research on fish population and community productivity, habitat and population linkages, and aquatic animal health.[509]

447. In addition to creating the Research Agenda, the Science Management Board identified two overriding priorities for DFO's Ecosystems and Oceans Science sector – to move into ecosystem science, and to focus on human resources.[510] The ecosystem-based approach to DFO science was articulated in *A New Ecosystem Science Framework In Support of Integrated Management*, which was published in 2007.[511]

448. The Research Agenda led to the development of the Research Plan. The Research Plan was intended to implement the Research Agenda by identifying specific projects that DFO's Ecosystems and Oceans Science sector would focus upon.[512] Twenty key science initiatives were identified. Of particular relevance to the Commission's Terms of Reference is the Ecosystem Research Initiative in the Strait of Georgia, and the climate change science initiative.[513]

449. Centres of expertise were also established by the Science Management Board, with a focus on teamwork and collaborative mechanisms with non-DFO scientists.[514] Collaboration with universities and private institutions is facilitated by the DFO policy entitled *Collaborative Agreements with Non-Government Organizations*.[515] The Research Plan describes the focus of

[507] Exhibit 40 at p 3: Department of Fisheries and Oceans, *Five-Year Research Agenda (2007-2012*).
[508] Dr Wendy Watson-Wright, 3 November 2010, p 19:5-45.
[509] Exhibit 40 at pp 7-8, 10: Department of Fisheries and Oceans, *Five-Year Research Agenda (2007-2012*).
[510] Dr Wendy Watson-Wright, 3 November 2010, pp 11:31 to 12:6.
[511] Exhibit 47: Department of Fisheries and Oceans, *A New Ecosystem Science Framework in Support of Integrated Management*, Ottawa: DFO, 2007.
[512] Exhibit 48: Department of Fisheries and Oceans, *Five-Year Research Plan (2008-2013)*, Ottawa: DFO, 2008.
[513] Dr Wendy Watson-Wright, 3 November 2010, pp 20:43 to 21:11; Exhibit 48 at p. 9: Department of Fisheries and Oceans, *Five-Year Research Plan (2008-2013)*, Ottawa: DFO, 2008.
[514] Dr Wendy Watson-Wright, 3 November 2010, pp 21:39 to 22:27.
[515] Exhibit 50: Department of Fisheries and Oceans, *Policy on Collaborative Arrangements with Non-Government Organizations*, 1 December 2008.

each of the 12 centres of expertise, of which are relevant to the Commission's Terms of Reference.[516]

450. The priority-setting process undertaken by the Science Management Board – and reflected in the Research Agenda and Research Plan - remains in place today.[517] However, the current focus is on ensuring that existing science priorities remain aligned with the department's strategic outcomes.[518] As the Deputy Minister stated, it is appropriate and acceptable for governments to examine priorities and activities, including those related to science, in light of strategic outcomes and funding constraints.[519]

451. The Research Agenda priorities were recently revisited by an *ad hoc* group of science employees, and organized into three more refined priority groups – science being done now; science being done now, but the questions are expected to become more complex; and science not being asked for now, but expected to become a priority for Canadians in the next five years.[520] While this *ad hoc* group is helping to refine Research Agenda priorities, it does not replace the Science Management Board.[521]

e) Ensuring Quality and Independence of Science Advice

452. Although DFO's Ecosystems and Oceans Science sector carries out "directed science", in that its activities are guided by specific requests and shaped by government priorities,[522] the independence of DFO scientists from the Department's management and policy functions is ensured using principles articulated in the 1999 Science Advice for Government Effectiveness report (SAGE report) for structuring science advisory processes.[523] The SAGE report was prepared by the Council of Science and Technology Advisors (CSTA).[524]

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[516] Exhibit 48 at pp 10-16: Department of Fisheries and Oceans, *Five-Year Research Plan (2008-2013)*, Ottawa: DFO, 2008.
[517] Dr Siddika Mithani, 3 November 2010, p 52:3-8.
[518] Dr Siddika Mithani, 3 November 2010, p 52:22-26; Dr Laura Richards, 23 September 2011, p 29:6-8.
[519] Claire Dansereau, 23 September 2011, pp 31:10 to 32:38.
[520] Dr Siddika Mithani, 3 November 2010, pp 55:36 to 56:32.
[521] Dr Siddika Mithani, 3 November 2010, pp 59:26 to 60:9.
[522] Claire Dansereau, 26 September 2011, p 9:31-35.
[523] Dr Laura Richards, 26 September 2011, pp 10:42 to 11:1.
[524] Exhibit 1927: *Science Advice for Government Effectiveness (SAGE): A Report of the Council of Science and Technology Advisors*, 5 May 1999.

453. CSTA, comprised of representatives from academia and private institutions, was established to provide the Cabinet Committee on Economic Union with external advice on internal government science and technology issues that require strategic attention.[525] CSTA was asked to develop a set of principles and guidelines for the effective use of science advice in making policy and regulatory decisions.[526] The SAGE report presented six principles intended to improve science-based decision making, and a series of concrete guidelines designed to facilitate the adoption of those principles.[527]

454. The six principles identified in the SAGE report are:[528]

- Early Issue Identification
- Inclusiveness
- Sound Science and Sound Advice
- Uncertainty and Risk
- Transparency and Openness
- Review

455. The *DFO Science Advisory Process Framework* was created to provide a formal peer review mechanism for DFO research and advice, based on the principles articulated in the SAGE report.[529] The *Framework* provides for a flexible and structured approach for its scientific advisory process, with nine different paths available to be followed.[530] These processes range from large and relatively formal meetings with diverse participants, to small case-specific working groups.[531]

456. One example of a formal science advisory process utilized by DFO is the Canadian Science Advisory Secretariat (CSAS) process. CSAS coordinates the peer review of science for

[525] Exhibit 1927 at p 1: *Science Advice for Government Effectiveness (SAGE): A Report of the Council of Science and Technology Advisors*, 5 May 1999.
[526] Exhibit 1927at p 1: *Science Advice for Government Effectiveness (SAGE): A Report of the Council of Science and Technology Advisors*, 5 May 1999.
[527] Exhibit 1927 at p 1: *Science Advice for Government Effectiveness (SAGE): A Report of the Council of Science and Technology Advisors*, 5 May 1999.
[528] Exhibit 1927 at pp 3-8: *Science Advice for Government Effectiveness (SAGE): A Report of the Council of Science and Technology Advisors*, 5 May 1999.
[529] Exhibit 53 at p 2: *DFO Science Advisory Process Framework* webpage, http://www.dfo-mpo.gc.ca/csas-sccs/process-processus/advice-avis-eng.htm; Dr Laura Richards, 3 November 2010, pp 62:26 to 63.
[530] Exhibit 53 at p 7: *DFO Science Advisory Process Framework* webpage, http://www.dfo-mpo.gc.ca/csas-sccs/process-processus/advice-avis-eng.htm.
[531] Exhibit 53 at p 3: *DFO Science Advisory Process Framework* webpage, http://www.dfo-mpo.gc.ca/csas-sccs/process-processus/advice-avis-eng.htm.

DFO. The peer review is carried out by DFO scientists and external scientists and participants.[532]

457. CSAS also provides a formal process through which DFO prioritizes science requests (both nationally and regionally).[533] This priority-setting process is intended to be open and transparent, and to arrive at a schedule for completion of the requested research.[534] This schedule is posted on the CSAS website.[535]

458. It should be noted that DFO decision-makers may consider other forms of advice during the decision-making process, with the result that scientific advice may not always determine final decisions.[536] Science advice is just one component, albeit an important component, that goes into management or policy decisions[537].

459. DFO's Centre for Scientific Advice-Pacific (CSAP) coordinates the CSAS process in the Pacific Region.[538] Through CSAP, working papers are peer reviewed to determine if the assessments meet scientific standards, and whether the conclusions are supported by the analysis. Papers are either accepted or rejected, and a report summarizing the conclusions of the assessment and advice is developed in a consensus-based process by meeting participants.[539]

460. CSAP strives to ensure open and transparent peer review and advisory processes, including participation of individuals from outside DFO. All invited participants, including representatives of DFO, academia, Aboriginal groups, stakeholders, and other governments or private institutions, can participate fully.[540] Finalized CSAP advice is made publicly available on the CSAS website.

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[532] Dr Laura Richards, 4 November 2010, p 65:17-22; Andrew Thomson, 1 September 2011, p 38:3-11; Claire Dansereau, 26 September 2011, p 9:21-30.
[533] Al Cass, 3 November 2010, pp 65:20 to p 66:18.
[534] Claire Dansereau, 26 September 2011, p 9:31-37.
[535] Al Cass, 3 November 2010, pp 65:44 to 66:18.
[536] Dr Laura Richards, 17 March 2011, p 44:19-40; p 85:34-37.
[537] Exhibit 53 at p 1: *DFO Science Advisory Process Framework* webpage, http://www.dfo-mpo.gc.ca/csas-sccs/process-processus/advice-avis-eng.htm.
[538] Jeff Grout, 24 January 2011, p 58:19-30; Sue Grant, 26 January 2011, p 17:2-4.
[539] Dr Laura Richards, 4 November 2010, p 65:22-32.
[540] Claire Dansereau, 26 September 2011, p 9:23-28.

461. By welcoming participation external to government in its formal review process for scientific advice, DFO seeks to lay a broadly supported scientific foundation on which conversations about risks, benefits and trade-offs can occur. However, consensus on specific questions addressed through a CSAS process does not preclude ongoing scientific and expert disagreements in the broader scientific or public communities.

f) The Role of Science in Government Decision-Making

462. Government decision making requires sound, high-quality science.[541] Science advisory processes, such as the CSAS and CSAP processes described above, seek to ensure that Ministers are confident that a rigorous and objective assessment of all available information was made in providing the advice, and that science advice provided to decision makers is credible.[542]

463. The Building Excellence in Science and Technology: The Federal Roles in Performing Science and Technology report (BEST report), was prepared by the Council of Science and Technology Advisors. CSTA was asked to provide advice to the Government of Canada on the roles of the government in performing science and technology, and its capacity to deliver on those roles.[543] The BEST report opined that there is a critical role for the federal government to play in performing science and technology to fulfil its mandates.[544] It noted that the federal government occupies a key place in the innovation system, both as a funder and performer of science and technology.[545]

464. While a key role for science and technology is to deliver support for decision-making, policy development and regulations, the BEST report found that pressures on federal science and technology capacity are impacting on the government's ability to deliver on some of its mandates

[541] Exhibit 1928 at p 4: Council of Science and Technology Advisors, *Building Excellence in Science and Technology (BEST): The Federal Role in Performing Science and Technology*, 1999.
[542] Exhibit 1927 at p 3: *Science Advice for Government Effectiveness (SAGE): A Report of the Council of Science and Technology Advisors*, 5 May 1999; Dr Laura Richards, 26 September 2011, p 12:3-14.
[543] Exhibit 1928 at p 1: Council of Science and Technology Advisors, *Building Excellence in Science and Technology (BEST): The Federal Role in Performing Science and Technology*, 1999.
[544] Exhibit 1928 at pp 1, 9: Council of Science and Technology Advisors, *Building Excellence in Science and Technology (BEST): The Federal Role in Performing Science and Technology*, 1999.
[545] Exhibit 1928 at p 2: Council of Science and Technology Advisors, *Building Excellence in Science and Technology (BEST): The Federal Role in Performing Science and Technology*, 1999.

and priorities, and limiting its ability to respond to new challenges and opportunities.[546] These pressures include: an impending shortage in human capital needed to fulfill government's science and technology roles, and ageing and obsolescence of facilities, equipment, and research platforms.[547]

465. To address these concerns, three principles were identified by the BEST report as applicable to the conduct of all federally performed science and technology:[548]

- Alignment – science and technology should be focused where it will have the most benefit to Canada. It should align with departmental mandates and the overall priorities of the government. The federal government should only perform science and technology that is needed to support its mandates, and that cannot be obtained more effectively from other sources.

- Linkages – science and technology performed by the federal government should be tied in with other federal government activities, with other sectors in the Canadian innovation system (universities and the private sector), and with global pools of knowledge and technology.

- Excellence – science and technology performed by the federal government must be of the highest quality. It should meet or exceed international standards for science and technology excellence. Excellence is achieved through openness, transparency, and regular and appropriate expert review.

466. The Deputy Minister of DFO is the Champion of the Deputy Minister Committee on Science and Technology within the Government of Canada.[549] The Deputy Minister was appointed by the Clerk of the Privy Council.[550] The stated purpose of the Committee is to renew the public service science and technology community, and to encourage innovative research and development.[551] The Champion will focus on issues faced by the public service scientific community, bring deputy minister concerns to the scientific community, and focus scientific

[546] Exhibit 1928 at p 2: Council of Science and Technology Advisors, *Building Excellence in Science and Technology (BEST): The Federal Role in Performing Science and Technology*, 1999.
[547] Exhibit 1928 at p 3: Council of Science and Technology Advisors, *Building Excellence in Science and Technology (BEST): The Federal Role in Performing Science and Technology*, 1999.
[548] Exhibit 1928 at pp 4-5: Council of Science and Technology Advisors, *Building Excellence in Science and Technology (BEST): The Federal Role in Performing Science and Technology*, 1999.
[549] Claire Dansereau, 23 September 2011, p 33:3-10.
[550] Exhibit 1918: *Role of the Deputy Minister Champion of Science*; Exhibit 1925: Letter of W G Wouters to C Dansereau, 22 September 2009.
[551] Exhibit 1918: *Role of the Deputy Minister Champion of Science*.

efforts on government priorities.[552] The Deputy Minister's committee will also work on better integrating science into decision-making processes.[553]

467. While rigorous planning of science activities is an important step in fulfilling government mandates, it is also important for scientists to remain flexible enough to conduct research that addresses new or rapidly developing situations. Science needs to be adaptive and respond to new information. Government decision making in the 21st century is taking place in a highly dynamic environment. At the same time, there is heightened public interest in science-based issues, and greater emphasis on active public involvement in decision making. Decision making in government must consider a wide range of inputs, of which science is one.[554]

g) DFO Science Partnerships and Participation in the Scientific Community

468. DFO has recognized the importance of science in fulfilling government priorities by planning and conducting a wide range of scientific investigations. These investigations often involve partners in academia, the private sector, and the international community. This collaboration in research is common and inevitable, given the small number of researchers in Canada.[555] Partnering recognizes that DFO does not have all the expertise within the Department that it may need for a particular issue[556]. DFO can and does work with partners on issues of importance to DFO's mandate.[557] As Dr. Richards observed, DFO does not operate from the premise that it is necessary for the department's scientists to do "absolutely everything". If other scientists have data and are working on a particular issue of relevance to DFO, the department will make an effort to stay informed about that work, and to utilize it where appropriate.[558]

469. DFO scientists are active members of the broader community of scientists, and they contribute to and benefit from that connection. Senior DFO managers also benefit from scientific collaboration, in that a range of expertise and perspectives can be brought to the table

[552] Exhibit 1918: *Role of the Deputy Minister Champion of Science.*
[553] Exhibit 1918: *Role of the Deputy Minister Champion of Science.*
[554] Exhibit 27 at p 2: *Science Advice for Government Effectiveness (SAGE): A Report of the Council of Science and Technology Advisors*, 5 May 1999.
[555] Robin Brown, 18 August 2011, pp 53:41 to 54:16.
[556] Susan Farlinger, 26 September 2011, p 86:5-19.
[557] Dr Wendy Watson-Wright, 3 November 2010, p 34:13-29; Siddika Mithani, 3 November 2010, p 113:6-37.
[558] Dr Laura Richards, 23 September 2011, p. 28:15-21.

when scientific advice is required for decision-making purposes.[559] These collaborative scientific processes are becoming more common in DFO Science.[560]

470. The challenging nature and complexity of the scientific questions which need to be answered supports the continued development and use of multidisciplinary research teams involving government and other research partners. The Government of Canada has a desire to make sure that, with limited resources, it is being as innovative as possible, and leveraging as knowledge and expertise much as it can. As former Assistant Deputy Minister Dr. John Davis observed, science should not occur in silos. Scientists should work together (be cross-disciplinary), convey their views to the public and other scientists, and be more proactive thinkers, rather than reactive.[561] However, collaboration cannot involve conflicts of interest, and must be in accordance with Government of Canada policies and guidelines.[562]

471. In addition to gaining knowledge through collaborative processes, retired DFO scientists contribute to ongoing DFO research DFO's emeritus program provides for mentoring and continuity of research and knowledge.[563] Dr. Wendy Watson-Wright spoke of the need for human resource rejuvenation amongst DFO scientists, and noted that a human resource strategy with four pillars – recruitment, retention, development and representation – has been developed.[564]

472. DFO encourages its Ecosystems and Oceans Science sector staff to publish in open scientific literature, and many do so regularly. This ensures that DFO research is both current and of quality. Indeed, publication forms part of the process for evaluation and promotion of research scientists.[565] In many cases, these publications are jointly authored by DFO scientists,

[559] Claire Dansereau, 26 September 2011, p 12:15-41.
[560] Susan Farlinger, 26 September 2011, p 14:4-19.
[561] John Davis, 30 May 2011, p 50:10-27.
[562] Dr Wendy Watson-Wright, 3 November 2010, p 34:42-45.
[563] Dr Laura Richards, 17 March 2011, p 37:23-39; p 38:1-10; Dr Wendy Watson-Wright, 3 November 2010, p 26:16-24.
[564] Dr Wendy Watson-Wright, 3 November 2010, p 25:22-47.
[565] Dr Laura Richards, 3 November 2010, p 97:17-23.

academics and, frequently, foreign researchers.[566] There are many DFO scientists' publications in evidence before this Commission.

h) Science and Fraser Sockeye

473. Science is foundational to fisheries management work in relation to Fraser River sockeye salmon.[567] Sound science and broadly accepted fisheries data and scientific understanding are critical to achieving sustainability of the Fraser sockeye fishery, and to promoting effective collaboration.

474. Science can help address uncertainty and unpredictability in relation to Fraser sockeye, and it can inform effective decision-making.[568] That said, the scientific study of Fraser River sockeye entails a considerable amount of ongoing work, and continues to evolve as new information becomes available and as priorities shift.[569]

475. For example, despite extensive study of Fraser sockeye, most experts acknowledge that little scientific information is available about the "marine" portion of the Fraser River sockeye lifecycle.[570] DFO has undertaken research on salmonid species in the marine environment, but the work is difficult and expensive.

476. As Dr. Richards stated, although a considerable amount of research has been conducted by DFO on this topic, much remains to be learned. The research has been both challenging and difficult, given the large ocean areas in question and the need for vessels to conduct research in those areas.[571] Further, marine research is very expensive – both as to capital outlay for ships and operational equipment,[572] and for ship personnel.

[566] Exhibit 1405: Robin Brown, *Oceans Science Division – 1000 Publication from OSD Publication* database, 8 August 2011; Dr Laura Richards, 3 November 2010, p 97:17-45; Robin Brown, 18 August 2011, p 83:31-47.
[567] Paul Sprout, 3 November 2010, p 100:34-37.
[568] John Davis, 30 May 2011, pp 49:43 to 50:20.
[569] Dr Laura Richards, 17 March 2011, pp 36:15 to 37:22; p 43:1-11; Claire Dansereau, 23 September 2011, p 15:32 to 16:7.
[570] Michael LaPointe, 25 October 2010, p 26:38-47; Dr David Welch, 25 October 2010, pp 31:32 to 32:2, p 40:8-9, p 49:18-19, p 69:40-46, p 79:40-46, p 81:2-11, p 82:27-46.
[571] Dr Laura Richards, 23 September 2011, p 16:10-27.
[572] David Bevan, 23 September 2011, p 17:26-45.

477. In an effort to better understand salmonid species in the marine environment, including the Fraser Sockeye, DFO works with organizations such as the North Pacific Anadromous Fish Commission to conduct research and collect information.[573]

478. With respect to Fraser sockeye, the Ecosystems and Oceans Science sector provides advice in all steps in the regional fisheries management process – from pre-season forecasting, to development of fishing plans (IFMPs), and in-season and post-season assessments.[574] The Ecosystems and Oceans Science sector also looks at trends related to Fraser sockeye over time, which usually includes modelling work. [575] In specific response to the 2009 return, DFO scientists have moved forward with research, reassigned staff priorities, and worked with outside organizations to continue the process to understand the scientific underpinning of the 2009 return.[576]

479. The Ecosystems and Oceans Science sector participates in regional processes dealing with management issues related to Fraser sockeye, such as conservation objectives and exploitation rates.[577] The sector is also involved in the Fraser River Sockeye Spawning Initiative, which is a process for developing a rules-based system for determining, based on abundance of Fraser sockeye returning or estimated in-season, what the harvest rate will be.[578] The Ecosystems and Oceans Science sector is involved in developing conservation strategies for the Fraser River Sockeye Spawning Initiative that are compliant with the pre-cautionary principle and the Wild Salmon Policy.[579]

480. Stakeholders are also involved in many of these processes.[580] The Government of Canada, through DFO and other federal agencies, has increased the involvement of First Nations, other harvesters and other fishery stakeholders in data collection programs to improve the quality

[573] Dr Laura Richards, 23 September 2011, pp 16:36 to 17:24.
[574] Paul Sprout, 3 November 2010, pp 98:5 to 100:12.
[575] Paul Sprout, 3 November 2010, p 100:13-23.
[576] Mark Saunders, 2 June 2011, p 92:23-37.
[577] Paul Sprout, 3 November 2010, p 102:10-37.
[578] Al Cass, 3 November 2010, p 103:5-19.
[579] Al Cass, 3 November 2010, p 103:20-27.
[580] Paul Sprout, 3 November 2010, p 106:6-41.

and confidence in important stock assessment and fishery monitoring data. Science is shared with these stakeholders through various consultative and advisory processes.[581]

4. *An Approach to Managing Aboriginal Fisheries in an Effective and Respectful Manner:*

a) Introduction

481. Pacific salmon, and Fraser sockeye specifically, are important to many First Nations not only for food, social, and ceremonial purposes, but also for economic benefit. Over 130 First Nations in the marine areas and along the Fraser River and tributaries participate in food, social and ceremonial – and in some instances economic opportunity -- fisheries for Fraser sockeye.

482. First Nations FSC salmon fisheries, and treaty obligations to First Nations, have first priority in allocation after conservation objectives and imperatives are met.

483. *An Integrated Aboriginal Policy Framework* was developed to provide guidance to DFO employees with respect to building a collaborative approach to management of the fisheries resource with Aboriginal groups**.**[582]

484. DFO developed *An Integrated Aboriginal Policy Framework* to further advance its vision for policies and governance arrangements with respect to Aboriginal fishing. This vision, as set out in the *An Integrated Aboriginal Policy Framework*, is to:

- supporting healthy and prosperous Aboriginal communities through building and supporting strong, stable relationships;
- working in a way that upholds the honour of the Crown; and
- facilitating Aboriginal participation in fisheries and aquaculture and associated economic opportunities and in the management of aquatic resources.[583]

485. To further elaborate on the key strategies that Canada is pursuing to attain the vision outlined in the *An Integrated Aboriginal Policy Framework*, the following section is organized as follows:

[581] Paul Sprout, 3 November 2010, p 108:10-26.
[582] Exhibit 1187 at p 1: Fisheries and Oceans Canada, *An Integrated Aboriginal Policy Framework* (Ottawa: Communications Branch, 2007).
[583] Exhibit 1187 at pdf p 3: Fisheries and Oceans Canada, *An Integrated Aboriginal Policy Framework* (Ottawa: Communications Branch, 2007).

a. Addressing First Nations interests
b. Building and supporting strong, stable relationships
c. Negotiating treaties
d. Increased participation in integrated commercial fisheries[584]

b) Addressing First Nations' Interests

i) Consultation with First Nations and Aboriginal Organizations

486. Consultations with First Nations is a fundamental activity of DFO in the management of the Fraser sockeye fisheries. This is recognized in the *An Integrated Aboriginal Policy Framework* Action Plan, where consultation with First Nations, including within regional or watershed forums, is a critical outcome of "Strategy 2: taking into account Aboriginal and treaty rights".[585]

487. A significant amount of time and human resources is devoted to consultations bilaterally with First Nations, engaging with Aboriginal organizations and meeting with First Nations and Aboriginal representatives in multi-lateral consultation and co-management processes. Most consultations with First Nations are directed out of the DFO Pacific Region area offices. DFO also has a Consultation Secretariat in Pacific Region headquarters to coordinate consultation activities and act as a resource for DFO officials for their consultation activities.[586]

488. As noted, the legal framework for consultation with Aboriginal groups has existed at least since the *Sparrow* decision, and this framework has evolved (and continues to evolve) greatly since the *Haida* and *Taku* decisions in 2004.

489. Even before and especially following the SCC decisions in *Haida* and *Taku River*, DFO and the Government of Canada as a whole, have developed a number of policies, practices and guidelines to facilitate consultations with First Nations.

[584] Exhibit 1187 at pp 4-5, 12-14: Fisheries and Oceans Canada, *An Integrated Aboriginal Policy Framework* (Ottawa: Communications Branch, 2007).
[585] Exhibit 1187 at p 12: Fisheries and Oceans Canada, *An Integrated Aboriginal Policy Framework* (Ottawa: Communications Branch, 2007).
[586] Barry Rosenberger, 5 July 2011, pp 8:28 to 9:03; Susan Farlinger, 16 December 2010, p 10:27-38; Barry Huber, 28 June 2011, pp 96:27 to 97:07.

490. In 2004, DFO produced its *Consultation Framework for Fisheries and Oceans Canada*. This framework provides guidance for DFO officials in relation to all participants in the fisheries, but Appendix C addresses in particular the special legal and policy considerations that apply when consulting with First Nations. In particular, the framework notes that, "in the context of consulting with First Nations, the term "consultations" is often understood to be the sum of a series of interactions, both formal and informal, or an ongoing process build around a relationship, rather than one specific consultation 'event'". [587]

491. In 2006, DFO prepared another consultation guidance document for DFO officials, in this case specifically for consultations with First Nations. *Consultation with First Nations: Best Practices – A Living Document* provides a collection of "best practices" in consulting with First Nations. As set out in detail in Policy and Practice Report 18, "Department of Fisheries and Oceans Policies and Programs for Aboriginal Fishing" this document sets out a six-step process for consultation with First Nations.[588]

492. In March 2011, Canada released *Aboriginal Consultations and Accommodation: Updated Guidelines to Federal Officials to Fulfill the Duty to Consult*. This document is an updated version of the 2008 "Interim Guidelines" described in Policy and Practice Report 18, "Department of Fisheries and Oceans Policies and Programs for Aboriginal Fishing".[589]

493. As described in many places in the evidence before this Commission, DFO has consulted – and will continue to consult – extensively with First Nations, directly or in multi-lateral forums, and through Aboriginal organizations. For example, consultation records for the British Columbia interior, lower Fraser River, and south coast area offices – were entered into evidence. These records illustrate the often daily interactions of DFO officials with First Nations, particularly during peak fishing times. The form of consultation can range from an e-mail or

[587] Exhibit 594 at p 31: Fisheries and Oceans Canada, *Consultation Framework for Fisheries and Oceans Canada* (Ottawa, March 2004)
[588] Exhibit 596 at p 2: Fisheries and Oceans Canada, *Consultation with First Nations: Best Practices – A Living Document*, June 2006; Policy and Practice Report 18, "Department of Fisheries and Oceans Policies and Programs for Aboriginal Fishing" 2 December 2010 at p 121-123 paras 287-289, figure 10.
[589] Exhibit 1212 at p 1: Government of Canada, *Aboriginal Consultation and Accommodation Updated Guidelines to Federal Officials to Fulfill the Duty to Consult* (Minister of the Department of Indian Affairs and Northern Development, March 2011).

phone call, to meetings, to formal exchanges of correspondence, to participation in formal processes established for the purposes of consultation and co-management.[590]

ii) The Aboriginal Fisheries Strategy (AFS)

494. The *Aboriginal Fisheries Strategy* was implemented in 1992 to address several objectives related to Aboriginal groups and their access to fisheries resources, including:

- Improving relations with Aboriginal groups.
- Providing a framework for the management of the Aboriginal groups fishery in a manner that is consistent with the 1990 SCC *Sparrow* decision.
- Greater involvement of Aboriginal groups in the management of fisheries.
- Increased economic returns from Aboriginal groups fisheries.

495. The AFS, along with the AAROM program, continues to be the principal mechanism that supports the development of relationships with Aboriginal groups including the consultation involved in the planning, and implementation of fisheries, and the development of capacity to undertake fisheries management, stock assessment, enhancement and habitat protection programs.

496. Following upon the establishment of the AFS, DFO produced its *Policy for the Management of Aboriginal Fishing*. This policy provides DFO officials with principles and procedural guidelines for DFO's management of Aboriginal fishing. Among other things, the *Policy for the Management of Aboriginal Fishing* requires DFO to consult with Aboriginal people before taking decisions or actions that may affect Aboriginal fishing for food, social or ceremonial purposes.[591]

497. Annually, DFO enters into approximately 100 AFS agreements with approximately 170 First Nations in British Columbia. As described in Policy and Practice Report 18, “Department of Fisheries and Oceans Policies and Programs for Aboriginal Fishing”, these agreements include both Comprehensive Fishing Agreements and Project Funding Agreements.

[590] Exhibit 1209: British Columbia Interior First Nation Consultation Record, 2007 to 2010; Exhibit 1210: Lower Fraser First Nation Consultation Record, 2005 to 2010; Exhibit 1211: Summary of 2010 South Coast General Consultations.
[591] Exhibit 261 at p 4: *Policy for the Management of Aboriginal Fishing*, August 6, 1993.

Comprehensive Fishing Agreements contain provisions setting out the FSC allocations or amounts, terms and conditions for the harvest, arrangements for cooperative management by the Aboriginal group and DFO for the group's harvest for FSC purposes, as well as cooperative management provisions for other fisheries management activities (such as stock assessment, fish enhancement and habitat management). Project Funding Agreements support these cooperative management activities, or set out funding and support for fisheries management training and to support participation in consultation activities.[592]

498. The Integrated Aboriginal Contribution Management Framework is a framework for the management of contributions to Aboriginal groups under a variety of programs. The Integrated Aboriginal Contribution Management Framework is comprised of a number of different elements, including a common template agreement that is used for contribution agreements with Aboriginal groups, regardless of which program that agreement is associated with. The Integrated Aboriginal Contribution Management Framework integrates the terms and conditions of contribution agreements required under different programs. The Integrated Aboriginal Contribution Management Framework also provides a "recipient assessment tool" which identifies the level of governance and administrative capacity within an aboriginal organization or Aboriginal group to administer provisions in the agreement. This provides an Aboriginal group or organization a level of flexibility that's commensurate with that group's capacity and their history with the Department to have more variability (including longer-term agreements) and more flexibility in how the contribution funding can be used to complete the activities and achieve the agreed-upon outcomes.[593]

499. Where DFO is unable to negotiate an AFS agreement with an Aboriginal group, the Minister will issue the Aboriginal group a communal fishing licence for FSC purposes under the *Aboriginal Communal Fishing Licences Regulations*. The terms and conditions of the licence, including the amounts to be harvested, will be based on the concerns and preferences expressed by the Aboriginal group in consultations, as well as considerations relevant to the protection and conservation of fish and the proper management and control of the fishery. Where an Aboriginal

[592] Policy and Practice Report 18, "Department of Fisheries and Oceans Policies and Programs for Aboriginal Fishing" 2 December 2010 at p 49 paras 94-95, pp 53-54 para 109.
[593] Exhibit 1443 at pp 1-4: Presentation, Integrated Aboriginal Contribution Management Framework, 6 May 2010; Julie Stewart, 19 August 2011, pp 77:29 to 78:38.

group chooses not to participate in consultations, the Minister will issue a licence based on DFO's understanding of the interests and preferences of the group, as well as of considerations relevant to conservation.[594]

500. The AFS is an ongoing program with annual national funding of approximately $35 million. Of that, in 2009, approximately $20 million was allocated to the Pacific Region: $14 million for the cooperative management activities described above, and $6 million for the Allocation Transfer Program (see below).[595]

iii) Allocations for Food, Social and Ceremonial (FSC) Purposes

501. As noted, the *Policy for the Management of Aboriginal Fishing* confirms that DFO manages the fishery with the objective that Aboriginal fishing for FSC will have first priority, after conservation, over other uses. Similarly, *An Allocation Policy for Pacific Salmon A New Direction: The Fourth in a Series of Papers from Fisheries and Oceans Canada* also sets out the priority of First Nations' FSC needs, subject only to conservation. The *An Allocation Policy for Pacific Salmon A New Direction: The Fourth in a Series of Papers from Fisheries and Oceans Canada* also prescribes that DFO will consult with First Nations on FSC needs, on matters affecting their fishing activities and on their preferred fishing methods.[596]

502. In determining allocations for FSC purposes, DFO will consider a number of factors, in consultation with the First Nation in question:

- information on community size (on and off reserve, and including but not necessarily limited to band membership),
- recent FSC fishery harvests (which also reflect the interest and fishing capacity of the First Nation)
- trends in such harvests,
- current food preferences of the group,
- stock and species abundance
- stock and species availability (i.e. salmon, non-salmon, freshwater species, game), and the use and availability of other foods may be used to establish the reasonable

[594] Exhibit 1270 at pp 4-5: *Guidelines Respecting the Issuance of Licences under the Aboriginal Communal Fishing Licences Regulations (ACFLR),* 7 February 2001.
[595] CAN008848, *Aboriginal Fisheries Strategy* cited in Policy and Practice Report 18, "Department of Fisheries and Oceans Policies and Programs for Aboriginal Fishing" 2 December 2010 at p 53 paras 107-108, fns 143, 144.
[596] Exhibit 261 at p 2: *Policy for the Management of Aboriginal Fishing,* August 6, 1993; Exhibit 264 at p 17: Fisheries and Oceans Canada, *An Allocation Policy for Pacific Salmon A New Direction: The Fourth in a Series of Papers from Fisheries and Oceans Canada,* October 1999.

food requirements of members of the community represented by the First Nation or organization.[597]

503. The *Pacific Fisheries Reform* process describes a policy framework for addressing, among other things, First Nations' aspirations with respect to FSC fisheries. In particular, in this process DFO heard concerns about difficulties in accessing fish for FSC purposes in some cases. In particular, First Nations expressed concern that the specific quantity of fish that is made available from year to year is unclear, and some groups complained that they do not, or cannot, get access to sufficient fish to meet their FSC needs.[598]

504. In response to this concern, DFO committed to developing, in consultation with First Nations, a better framework and procedures to guide the establishment of appropriate FSC harvest levels. In the resulting DFO Action Plan for the Reform of Pacific Fisheries, DFO committed to work with First Nations to address concerns regarding fisheries access for FSC purposes. In the longer term, DFO would work with First Nations to develop a mutually agreeable framework for negotiating appropriate levels of fisheries resources for FSC purposes.[599]

505. In a document entitled *FSC Launch Group – DFO Policies and Practice*, prepared for a meeting of the DFO First Nations Fisheries Council FSC Working Group in late 2009 or early 2010**,** DFO articulated some guidelines and policy approaches that it considers in managing the Aboriginal fishery for FSC purposes:

1. Decisions regarding FSC fishing should consider the diversity and abundance of fisheries resources available in the fishing area of the Aboriginal group or First Nation.

2. Decisions regarding FSC fishing should take into account FSC fishing by other Aboriginal groups and First Nations on the same stock/species.

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[597] Exhibit 261 at p 5: *Policy for the Management of Aboriginal Fishing*, August 6, 1993; Exhibit 1279 at p 5: *The Government of Canada's Response to "TREATY FISHERY QUESTIONS" received from the Cohen Commision Counsel, Jennifer Chan, under cover of email dated November 1, 2010*, January 13, 2011.
[598] Exhibit 269 at pp 6, 13: Fisheries and Oceans Canada, *A Discussion Paper on the Implementation of Pacific Fisheries Reform*, September 2005.
[599] Exhibit 269 at p 13: Fisheries and Oceans Canada, *A Discussion Paper on the Implementation of Pacific Fisheries Reform*, September 2005; Exhibit 1224 at pdf p 2: *Background Information for DFO Internal Use DRAFT FSC Access Guiding Principles;* Exhibit 1432 at p 3-4: Fisheries and Oceans Canada, Presentation , *First Nation Access to Fish for FSC Purposes Draft Guiding Principles*, Fall 2006.

3. Fishing for FSC purposes is an opportunity to harvest, not a guarantee of a specific allocation.

4. Decisions regarding FSC fishing should take into account differences between First Nations (eg community needs, preferences, social and cultural differences, community use, etc).

5. Aboriginal fishing for FSC purposes should be carried out in context with integrated fisheries management plans for the fishery.[600]

506. In addition to the development of these draft guiding principles, from a DFO operational perspective, there was a need to bring a more coherent and consistent approach to responding to Aboriginal groups' requests to amend agreements, increase allocations, and change the terms and conditions for access for FSC purposes. Therefore, as part of its commitment in the DFO Action Plan, DFO developed an Operational Framework, and Evaluation and Decision Frameworks, for managing the FSC fishery.

507. These frameworks address criteria and processes for responding to the most common requests received from Aboriginal groups. These are requests for increased allocations, changes to fishing area, and for commercial or recreational closures to facilitate First Nations FSC fishing. Criteria to be considered include legal considerations, fisheries resource diversity, abundance and parity issues, fisheries capacity, governance and operational issues, and treaty negotiation issues.[601]

508. In 2009, to address requests from First Nations for opportunities to harvest fish for FSC purposes in new fishing areas not previously authorized under communal licenses, DFO developed further guidelines for DFO officials when considering such requests. [602]

509. In 2010, in response to concerns over the poor returns of Fraser sockeye in 2009 and other recent years, DFO developed a method – in draft for discussion purposes with First Nations

[600] Exhibit 1435 at pdf p 1: *FSC Launch Group – DFO Policies and Practice;* Kaarina McGivney, 19 August 2011, pp 69:36 to 70:15.
[601] Exhibit 1226 at p 3: *First Nations Access to Fish for Food, Social and Ceremonial Purposes Part I: Pacific Regional Operational Framework (Working Draft),* 25 April 2006; Exhibit 1227 at pdf p 2: *First Nations Access to Fish for Food, Social and Ceremonial Purposes Part 2: Pacific Region Evaluation and Decision Framework (Working Draft) Version 1.1,* May 2006; Kaarina McGivney, 19 August 2011, pp 64:44 to 68:02.
[602] Exhibit 1229 at p 1: *DFO Guidelines for Responding to Requests by Aboriginal Organizations to Fish for Food, Social and Ceremonial (FSC) Purposes in Areas not Previously Authorized Under Communal Licences Issues by DFO to the Aboriginal Organizations for FSC Purposes.*

-- for the sharing of Fraser sockeye for FSC purposes when the FSC total allowable catch is less than the aggregate of First Nations FSC needs.[603]

iv) Aboriginal FSC Harvest Levels

510. The levels of Fraser River sockeye harvest by First Nations for FSC purposes from 1982 to 2009 are set out graphically in Policy and Practice Report 18, "Department of Fisheries and Oceans Policies and Programs for Aboriginal Fishing". These charts illustrate a relatively stable FSC harvest of, in all but one year (2002), less than 1 million pieces annually. In low abundance years (like 2007 to 2009), the FSC harvest can be 100% (or close to 100%) of the TAC. However, in high abundance years, like 2002, the FSC harvest is a much lower percentage of the TAC.[604]

511. Higher First Nations FSC allocations due to population increases and treaty settlements, combined with a downward trend in Fraser sockeye productivity (reversed in 2010 and 2011) could mean that First Nations' FSC allocations would progressively comprise a higher percentage of the Fraser sockeye (TAC).[605]

c) Building and Supporting Strong, Stable Relationships

512. As set out in Strategy 4 of the *An Integrated Aboriginal Policy Framework*, DFO "works with Aboriginal groups to increase Aboriginal participation in aspects of the management and protection of aquatic resources, including policy and program formulation, planning, resource management decision making and program delivery". DFO defines "co-management" in the *An Integrated Aboriginal Policy Framework* as"…the sharing of responsibility and accountability for fisheries management between [DFO] and resource users. Co-management will eventually encompass the sharing of authority for fisheries management...it is the policy of DFO to shift from top-down, centralized management of the fisheries resource by the Department to a shared stewardship of the resource that includes the devolution of certain fisheries management authorities to resource users." The *An Integrated Aboriginal Policy Framework* further notes that

[603] Exhibit 1235 at p 1: *Draft- Methods for sharing FSC sockeye when the FSC Total Allowable Catch is less than the combined FSC needs – Internal, for discussion purposes only,* 15 April 2010.
[604] CAN185675 cited in Policy and Practice Report 18, "Department of Fisheries and Oceans Policies and Programs for Aboriginal Fishing" 2 December 2010 at pp 43-45 para 85, figures 8 and 9.
[605] Exhibit 1426 at p 1: *Aboriginal Fisheries Framework;* Kaarina McGivney, 19 August 2011, pp 33:30 to 34:24.

"co-management processes are being put in place in many coastal fisheries" and "capacity-building initiatives are required to improve the ability of some partners to contribute effectively to the shared management process". DFO programs support a number of processes and initiatives to implement DFO's vision of co-management arrangements described in the *An Integrated Aboriginal Policy Framework*. While the vision remains the same, there has been considerable work since the *An Integrated Aboriginal Policy Framework* was published, to develop a co-management framework and an updated working definition of co-management.[606]

513. While the Minister of Fisheries and Oceans will retain his or her authority to manage the fishery for all Canadians, DFO is committed to exploring principles and processes for co-management of the First Nations' fisheries. Canada funds First Nations and organizations through programs such as AAROM, AFS and the Pacific Integrated Commercial Fisheries Initiative, to establish effective "Tier 1" institutions and processes. Such Tier 1 institutions and organizations, such as the First Council, assist First Nations in seeking consensus on difficult issues, and to develop the capacity to more effectively engage DFO in the management of the fishery. DFO further supports "Tier II" processes, such as the Forum on Conservation and Harvest Planning for Fraser Salmon and Fraser Salmon Roadmap processes (discussed in more detail below) and the Fisheries Dialogue Forum, where First Nations and organizations can engage with DFO. Finally, DFO supports First Nations' involvement in "Tier III" institutions, such as the Fraser River Panel, Pacific Salmon Commission and the Integrated Harvest Planning Committee, discussed in more detail below.

514. DFO officials testified that "co-management" is a broad term that represents a spectrum of engagement with First Nations at different levels, from information sharing, planning processes, implementation of fishing plans and post-season evaluation. Co-management processes and dialogue would ideally occur at various levels, depending on the circumstances, the parties involved and nature of decision being made. Importantly, a comprehensive definition of "co-management" is something that should be defined by agreement amongst Canada, First Nations and other interested parties. As will be discussed below, the Forum on Conservation and Harvest Planning for Fraser Salmon and Fraser Salmon Roadmap processes are important

[606] Exhibit 1187 at pp 13, 20: Fisheries and Oceans Canada, *An Integrated Aboriginal Policy Framework* (Ottawa: Communications Branch, 2007); Kaarina McGivney, 19 August 2011, p 43:28-38.

examples of processes where concepts of co-management can be discussed, refined and ultimately agreed upon. A *sine qua non* of any co-management structure is one with clearly defined roles, mandates and responsibilities for each of the parties.[607]

515. DFO supports First Nations assuming more responsibilities for catch, stock and harvest monitoring in connection with their fisheries.[608]

516. Support for co-management activities is a core objective of the AFS. AFS agreements establish and fund arrangements for co-management by the Aboriginal group and DFO of the group's FSC fishery, as well as support cooperative projects for the improvement of the management of fisheries in general, such as stock assessment, fish enhancement and habitat management.

i) Aboriginal Aquatic Resource and Oceans Management (AAROM) Program

517. The Aboriginal Aquatic Resource and Oceans Management (AAROM) program was launched in 2004 as a response to the 2002-03 Aboriginal Fisheries Strategy renewal process. AAROM is a response to concerns expressed by Aboriginal groups in that process that they did not have sufficient capacity, nor the stable sources of funding, to effectively participate in co-management and other processes under AFS. AAROM provides funding to Aboriginal groups to aggregate into "aquatic resource and oceans management organizations" to allow for hiring or contracting of skilled personnel, and in turn assist Aboriginal groups to more effectively participate in decision-making and advisory processes.[609]

518. In particular, AAROM is designed to do the following:

- assist Aboriginal groups in acquiring the administrative capacity and scientific and technical expertise to participate in aquatic resource and oceans management
- encourage the establishment of collaborative management structures that contribute to integrated ecosystem or watershed management and planning processes
- enhance existing collaborative management structures

[607] Kaarina McGivney, 19 August 2011, pp 42:11 to 43:05; Barry Huber, 28 June 2011, p 12:12-38; 30 June 2011, pp 5:21 to 7:18; Barry Rosenberger, 4 July 2011, pp 13:26 to 14:38, 20:18-39; 5 July 2011, pp 8:13-43, 49:24-32.
[608] Kaarina McGivney, 19 August 2011, p 45:27-42.
[609] Policy and Practice Report 18, "Department of Fisheries and Oceans Policies and Programs for Aboriginal Fishing" 2 December 2010 at pp 76-85 paras 168-189; Exhibit 1431: Fisheries and Oceans Canada, *Strengthening Our Relationship The Aboriginal Fisheries Strategy and Beyond*, October 2003.

- facilitate sound decision making in advisory and other process related to areas of DFO responsibility
- strengthen relationships among Aboriginal groups, with DFO and with stakeholders and improve information sharing
- contribute to government's objective of improving the quality of life of Aboriginal people

519. AAROM has three main components:

- collaborative management (ie supporting the creation and development of AAROM bodies and funding for Aboriginal fisheries officers)
- capacity building (ie funding for Aboriginal groups to develop capacity for Aboriginal groups working towards qualifying for collaborative management funding, including developing sound business practices, reporting procedures, administrative and financial preparations)
- economic opportunities (ie voluntary relinquishment of commercial licenses and transfer of economic opportunities to AAROM bodies). In particular, over $3 million has been funded to acquire 15 salmon licenses

520. AAROM is currently funded as an ongoing program, with Pacific Region receiving between $6-7 million annually out of a national budget of over $11 million. DFO provides AAROM funding to AAROM bodies through a contribution agreement. As of 2009, there were 18 AAROM agreements representing 123 British Columbia Aboriginal groups with $6.2 million in annual funding.[610]

521. A number of Aboriginal organizations that receive AAROM (and other DFO) funding play a significant role in the management of Aboriginal fisheries, in advising Aboriginal groups and DFO, and in facilitating discussions amongst Aboriginal groups and with DFO and third parties. Some of these groups are:

i) First Nations Fisheries Council

522. The First Nations Fisheries Council was created as a result of the First Nations Leadership Council's "BC First Nations Fisheries Action Plan". The First Nations Fisheries Council has a mandate to develop and carry out the action items contained in that plan. The First

[610] Policy and Practice Report 18, "Department of Fisheries and Oceans Policies and Programs for Aboriginal Fishing" 2 December 2010 at pp 81-83 paras 183-184; Exhibit 1430: *Funding Information Regarding DFO Aboriginal Fisheries Programs,* December 2010.

Nations Fisheries Council is an AAROM body and in fiscal year 2009-2010, received $952,970 from DFO.

523. DFO is working with the First Nations Fisheries Council in four working groups, focusing on: (1) section 35 FSC fisheries; (2) aquaculture, (3) co-management and (4) salmon shares or quota fisheries. Terms of reference and work plans have been developed for each of these working groups.[611]

ii) Fraser River Aboriginal Fisheries Secretariat

524. The Fraser River Aboriginal Fisheries Secretariat was jointly established by First Nations and DFO in 1994. The Fraser River Aboriginal Fisheries Secretariat AAROM agreement is administered by a qualified aboriginal organization (currently Nicola Tribal Association). A joint DFO-First Nations executive committee provides support services for operations and work planning, including work plans for technical support. The Fraser River Aboriginal Fisheries Secretariat has a mandate to:

- assist DFO in its communications with Fraser River First Nations on fisheries issues;
- assist Fraser River First Nations in understanding and interpreting information provided to them by DFO; and
- assist Fraser River First Nations to communicate amongst themselves and with DFO and to develop positions and initiatives in regard to fisheries issues.

525. The Fraser River Aboriginal Fisheries Secretariat provides communications and biological support services to Aboriginal groups with the assistance of a communications coordinator and two biologists. One of the Fraser River Aboriginal Fisheries Secretariat roles has been to provide operational and administrative support for the Forum on Conservation and Harvest Planning for Fraser Salmon and Fraser Salmon Roadmap processes discussed in more detail below.

[611] Policy and Practice Report 18, "Department of Fisheries and Oceans Policies and Programs for Aboriginal Fishing" 2 December 2010 at pp 129-130 paras 306-308; Exhibit 1184: April 1, 2009 to March 31, 2010 *Aboriginal Aquatic Resources and Oceans Management Program (AAROM) Capacity Building Contribution Agreement Amendment* between DFO and the First Nations Fisheries Council, 22 December 2009; Exhibit 1185: *Appendix 5 Aboriginal Aquatic Resource and Oceans Management (AAROM) Contribution Progress/Supplementary/Final Report Capacity-Building* First Nations Fisheries Council 2009-2010 fiscal year.

526. The Fraser River Aboriginal Fisheries Secretariat in fiscal year 2009-2010 received $750,700 from DFO as part of AAROM ($582,500) and the Pacific Integrated Commercial Fisheries ($168,200).[612]

iii) Inter-Tribal Treaty Organization

527. The Intertribal Treaty Organization was established in 2009 as a means to implement the 1989 *Inter-Tribal Fishing Treaty Between Indian Nations – A Treaty of Mutual Purpose and Support.* The Intertribal Treaty Organization is a political organization based, to date, primarily on support from mid and upper river Aboriginal groups. The Intertribal Treaty Organization's mandate is to, among other things, represent Aboriginal groups at a broader tribal level and to engage with DFO on a "nation-to-nation" basis. The Intertribal Treaty Organization has been funded, in part, through DFO's AAROM program.[613]

iv) Upper Fraser Fisheries Conservation Alliance

528. The Upper Fraser Fisheries Conservation Alliance was formed in 2001from 29 upper Fraser Aboriginal groups. The Upper Fraser Fisheries Conservation Alliance received $502,000 from DFO in fiscal year 2009-2010 under the AAROM program plus $161,000 from PICFI for co-management and economic opportunity activities. The Aboriginal groups within the Upper Fraser Fisheries Conservation Alliance have developed a strategic plan that has facilitated the better coordination of their fisheries activities in the upper Fraser. The Upper Fraser Fisheries Conservation Alliance First Nations have been able to pool their resources and expertise: For example, these First Nations share the services and expertise of up to five biologists. The Upper Fraser Fisheries Conservation Alliance has been highly effective in facilitating discussions

[612] Policy and Practice Report 18, "Department of Fisheries and Oceans Policies and Programs for Aboriginal Fishing" 2 December 2010 at 99 132-133 paras 313-317; Exhibit 1181: April, 2009 to March 31, 2010 *Aboriginal Aquatic Resource and Oceans Management Program (AAROM) Collaborative Management Contribution Agreement Amendment* between DFO and Nicola Tribal Association; Exhibit 1182; *Appendix 5 Aboriginal Aquatic Resource and Oceans Management (AAROM) Contribution Progress Report Collaborative Management* Fraser River Aboriginal Fisheries Secretariat 2009 – 2010 fiscal year, 31 January 2010.

[613] Policy and Practice Report 18, "Department of Fisheries and Oceans Policies and Programs for Aboriginal Fishing" 2 December 2010 at p 131 para 311; ITO website: http://intertribaltreaty.org/contact_us.html cited in Policy Report 18, "Department of Fisheries and Oceans Policies and Programs for Aboriginal Fishing" 2 December 2010 at pp 131-132 paras 311-312, fn 501; Grand Chief Saul Terry and Barry Huber, 28 June 2011, p 95:33-47.

amongst the Upper Fraser Fisheries Conservation Alliance member groups on technical issues and in developing common positions.[614]

v) Lower Fraser Fishery Alliance

529. The Lower Fraser Fishery Alliance is a relatively new organization representing 29 Aboriginal groups, including the Sto:lo Tribal Council, Musqueam Indian Band, Matsqui Indian Band, Chehalis Indian Band and Sto:lo Nation. The Lower Fraser Fishery Alliance has a political assembly, which has provided a mandate to an executive committee of the 29 Aboriginal groups on the lower Fraser River that are participants.

530. The mandate of the Lower Fraser Fishery Alliance is to:

- Provide basic support to re-establish a lower Fraser forum to facilitate tier 1 (First Nations to First Nations) discussions on fisheries;
- Develop an effective participation model for lower Fraser River First Nations to address common issues while maintaining their individual watershed / sub- watershed AFS and AAROM groups; and
- Eventually engage with DFO once the First Nation to First Nation model is firmly established.

531. The Lower Fraser Fishery Alliance receives funding under the DFO AAROM and Pacific Integrated Commercial Fisheries Initiative programs.[615]

vi) Interim Marine and Approach Working Group

532. Another AAROM group of note is the Interim Marine and Approach Working Group, composed of a number of south coast and Vancouver Island Aboriginal groups. It is at an earlier

[614] Policy and Practice Report 18, "Department of Fisheries and Oceans Policies and Programs for Aboriginal Fishing" 2 December 2010 at pp 134-135 paras 320-321; Exhibit 1248: April 1, 2009 to March 31, 2010 *Aboriginal Aquatic Resource and Oceans Management Program (AAROM) Collaborative Management Contribution Agreement Amendment* between DFO and Upper Fraser Fisheries Conservation Alliance; Exhibit 1249: Brian Toth, *Upper Fraser Fisheries Conservation Alliance 2009/2010 Collaborative Management Agreement December 2009 Contribution Progress Report;* Marcel Shepert, 4 July 2011, pp 4:05 to 5:23.

[615] Policy and Practice Report 18, "Department of Fisheries and Oceans Policies and Programs for Aboriginal Fishing" 2 December 2010 at p 135 para 322; Exhibit 296: *DFO Aboriginal Aquatic Resource and Oceans Management (AAROM) Program Fraser River and South Coast Groups (with member Bands and INAC band numbers, as of August/2010)*; Exhibit 1281: GMG Consulting Services, *Lower Fraser Fisheries Alliance Sq'eptset Syoyes Sth`o'th`eqwi Fishers Working Together Five Year Strategic Framework – 2011-2016*, 3 June 2011; Ernie Crey, 4 July 2011, pp 6:14 to 7:08.

stage of development than the Upper Fraser Fisheries Conservation Alliance or Lower Fraser Fishery Alliance, but will serve a similar function.[616]

vii) Forum on Conservation and Harvest Planning for Fraser Salmon, and Fraser Salmon Roadmap Processes

533. The Forum on Conservation and Harvest Planning for Fraser Salmon and the Fraser Salmon Roadmap processes are two related and promising co-management initiatives involving DFO and B.C. in-river and coastal Aboriginal groups. These processes arose from a series of workshops DFO initiated with these Aboriginal groups in 2008, when it was predicted that poor returns of Fraser salmon would limit FSC fishing opportunities.[617]

534. The Forum on Conservation and Harvest Planning for Fraser Salmon meetings were considered productive, and one result was to the establishment of what is now titled the Fraser River and Approach Working Group. Fraser River and Approach Working Group consists of representatives from Aboriginal groups and DFO and operates with the administrative assistance of the Fraser River Aboriginal Fisheries Secretariat.

535. The Fraser River and Approach Working Group is responsible for organizing the Forum on Conservation and Harvest Planning for Fraser Salmon meetings. These meetings, now established as an important part of an annual planning process, are intended to improve engagement between DFO and Aboriginal groups regarding the management of Fraser sockeye. The meetings are also meant to provide Aboriginal groups with technical information, to assist in their understanding of this information, and for DFO to hear Aboriginal groups' views on how best to manage fisheries.

536. Evidence presented at the Commission demonstrates that the Forum on Conservation and Harvest Planning for Fraser Salmon meetings have advanced relationship building amongst Aboriginal groups and between Aboriginal groups and DFO. Aboriginal groups also indicated a desire to continue building on the progress made and to further engage in the development of a

[616] Ross Wilson, 4 July 2011, pp 7:09-27, 9:14-19, 40:28-33.
[617] Exhibit 1220: Fraser River Salmon Roadmap Background Document *Overview of the Fraser River Salmon Roadmap Initiative;* Exhibit 1188: Draft *Themes for Discussion at DFO – First Nations Fraser Salmon " Roadmap" Workshop December 10,2009 Views from DFO for Discussion;* Exhibit 289: Draft *Overview of DFO – First Nations "Roadmap" Process and Forum and Conservation and Harvest Planning,* December 2010; Exhibit 290: Draft *Three Year Strategic Approach to Developing a Co-management Process for Fraser River Salmon: First Nations Component,* 27 September 2009.

co-management structure or process between Aboriginal groups and DFO that would allow for increased joint decision making.

537. To accommodate the desire of many Aboriginal groups for a more collaborative and comprehensive arrangement for management of Fraser salmon, DFO and Aboriginal groups initiated the Fraser Salmon Roadmap process. To advance this initiative, DFO and Aboriginal groups organizations have appointed representatives to the Fraser Salmon Roadmap Planning Group to plan and coordinate workshops, with the assistance of facilitators. A Fraser Salmon Roadmap Planning Group objective is to ensure appropriate political and technical representation at Roadmap workshops and encourage dialogue that contributes to the development of a more permanent collaborative arrangement for conservation and management of Fraser salmon. To distinguish these longer-term focussed meetings from the Forum on Conservation and Harvest Planning for Fraser Salmon, the new meetings are called the "Roadmap" meetings. Approximately $300,000 was provided by DFO in fiscal year 2009-2010 through AAROM and Pacific Integrated Commercial Fisheries Initiative to cover the costs associated with Fraser Salmon Roadmap and its meetings. In addition, AFS and AAROM funding provided in other Aboriginal organization agreements support Aboriginal group participation and attendance at these meetings.

538. By working with Aboriginal groups and Aboriginal organizations in the Forum on Conservation and Harvest Planning for Fraser Salmon and Fraser Salmon Roadmap processes, DFO is striving for the development of a DFO-Aboriginal group structure whereby there is an overarching body for either geographic areas or for certain species management. Within that process, there would likely be sub-regional groups that would report up, and as well Aboriginal groups would, within this process, continue to engage with DFO on a bilateral and local level within this framework. As described by Barry Rosenberger in the hearings:

> …a structure like that would feed on information and objectives at the various levels so that the uppermost body would be able to assist and work cooperatively, co-management, wherever we end up with that, in a process that that would be the place where there would be opportunities for co-management in a more integrated way, as opposed to a number of separate, and sometimes proposals that they conflict to a significant degree…So that's the structure that we're striving for and we're hoping that through the Roadmap and some of the other processes we will get to there, and the Forum, as you mentioned, is part

> of how we're trying to make those decisions at the stage we're at right now. We understand that the fish come back on an annual basis and we need to make decisions and we don't have all of the structures in play. That may or may not be the structure that would be there in the long term.[618]

d) Negotiating Treaties

539. As described in Strategy 3 of the Integrated Aboriginal Policy Framework, a major and ongoing responsibility of DFO is to support the Department of Aboriginal Affairs and Northern Development Canada (AANDC) in the development of various inter-governmental, treaty and governance relationships through its participation in the negotiation of modern treaties and self-government agreements. In British Columbia, Canada negotiates modern treaty agreements under the British Columbia treaty process. These comprehensive treaty agreements provide, among other things, rights to fish and self-government rights that are protected under s. 35 of the *Constitution Act, 1982*, being Schedule B to the *Canada Act 1982* (UK), 1982, c 11 [*Constitution Act, 1982*].[619]

540. The Nisga'a Treaty, which came into effect in 2000, was negotiated outside of the British Columbia treaty process. Two modern treaties with the Tsawwassen First Nation and Maa-nulth First Nations, negotiated through the British Columbia treaty process, provide rights to fish and allocations for Fraser sockeye, among other species, for FSC purposes. Both agreements also provide commercial fishing opportunities for sockeye salmon through harvest agreements that are separate from the final agreement and therefore not protected under s. 35 of the *Constitution Act, 1982*. Another four Aboriginal groups are at the final agreement stage (Yale, Sliammon, In-SHUCK-ch, and Yekooche) while eight more are in the late stages of agreement-in-principle negotiations. Access to Fraser sockeye for FSC purposes and commercial fishing opportunities are likely to be the subject of negotiations at most of these tables. Fisheries negotiations at treaty tables at the agreement in principle negotiation stage that involve salmon species are deferred so that fisheries negotiations can be informed by the findings and recommendations of this Commission.

[618] Barry Rosenberger, 4 July 2011, pp 13:41 to 14:24.
[619] Exhibit 1187 at pp 8, 13: Fisheries and Oceans Canada, *An Integrated Aboriginal Policy Framework* (Ottawa : Communications Branch, 2007).

541. The goal behind establishing fishing arrangements in treaty agreements is to achieve certainty and clarity around Aboriginal groups fisheries allocations for FSC and commercial purposes and to put in place Aboriginal groups fisheries management regimes that support a strong Aboriginal group to government relationship and coordinated management with Canada and British Columbia.

542. Modern treaties in British Columbia typically provide for a right to fish for salmon and other species for "domestic" (FSC) purposes in a defined fishing area. These fish may not be sold, but may be traded or bartered with other Aboriginal people of Canada. Typically these agreements provide for specific abundance-based sockeye salmon allocations for domestic purposes. For Fraser sockeye, the Canadian TAC for all fisheries depends on and varies with the size of the total return. The treaty sets out the First Nation's Fraser sockeye allocation at various levels of Canadian TAC according to a formula. For example, for the Tsawwassen First Nation allocation, a maximum number of Fraser sockeye is specified, and for the Maa-nulth treaty a maximum percentage of Canadian TAC is specified. Therefore the Tsawwassen Final Agreement provides for a maximum annual harvest of 15,226 Fraser sockeye annually. The Maa-nulth harvest is limited to a maximum of 0.13366% of Canadian TAC, which, using the very high 2010 run year as an upper benchmark, would have resulted in Maa-nulth harvest of approximately 17,000 to 18,000 Fraser sockeye for FSC purposes.[620]

543. Treaty allocations for domestic purposes, including for sockeye salmon, are the product of negotiations. In general terms, the allocations are based on considerations similar to those used for negotiating FSC allocations under the AFS. These considerations include current and recent historical harvest levels and available stocks and species. Because FSC allocations will not increase over time, even if the treaty Aboriginal group's population increases, treaty allocations have generally incorporated a one-time increase over current FSC harvest levels to account for future population growth.[621]

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[620] Policy and Practice Report 18, "Department of Fisheries and Oceans Policies and Programs for Aboriginal Fishing" 2 December 2010 at pp 101-102 paras 227-332, appendix 3; Kaarina McGivney, 19 August 2011, pp 85:40 to 86:01; Exhibit 283 at pp 75-93: Chapter 9 – Fisheries, *Tsawwassen First Nation Final Agreement* between the Tsawwassen First Nation, Canada and British Columbia, 6 December 2007; Exhibit 287 at pp 261-267, appendices J-1, J-2 and J-3L : *Appendices Tsawwassen First Nation Final Agreement.*

[621] Exhibit 1279 at pp 5-7: *The Government of Canada's Response to "TREATY FISHERY QUESTIONS" received from Cohen Commission Counsel, Jennifer Chan, under cover of email dated November 1, 2010,* January 13, 2011.

544. As noted, commercial fishing opportunities for Aboriginal groups are set out in Harvest Agreements, which are not part of the treaty and are therefore not constitutionally protected. Harvest Agreements prescribe the terms and conditions under which the Minister will issue commercial fishing licenses to the Aboriginal groups. The Minister retains authority to manage the commercial fishery, including whether to have a commercial fishery and if so, where and when. Harvest Agreements typically last for an initial term of 25 years, and are renewable in perpetuity at the option of the Aboriginal group. The Minister may unilaterally amend or terminate the harvest agreement upon payment of fair compensation as determined through negotiation or dispute resolution.[622]

545. Modern British Columbia treaties typically contain provisions creating a "joint fisheries committee" comprised of members of the Aboriginal group and Canada or British Columbia (where appropriate). The joint fisheries committee is tasked with cooperatively planning all fishing activities of the treaty Aboriginal group, including fisheries management, stock assessment, catch monitoring and enforcement. The joint fisheries committee is the forum for Canada and the Aboriginal group to discuss the Aboriginal group's annual fishing plan, which then forms the basis of recommendations forwarded by the joint fisheries committee to the Minister of Fisheries and Oceans, who will consider these recommendations in developing the terms and conditions of communal fishing licences. Treaties typically contain provisions that allow for the joint fisheries committee arrangement to be integrated into larger regional or watershed management arrangements, where those exist. [623]

546. Treaties set out the Aboriginal group's law-making authority, including over Aboriginal group's members' fisheries activities. In matters that are internal and integral to the Aboriginal group, such as internal allocations, access and licence designation issues, treaties may provide that such Aboriginal group laws prevail over federal or provincial laws in the event of a conflict.[624]

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[622] Policy and Practice Report 18, "Department of Fisheries and Oceans Policies and Programs for Aboriginal Fishing" 2 December 2010 at p 105 para 240-242, appendix 4.
[623] Policy and Practice Report 18, "Department of Fisheries and Oceans Policies and Programs for Aboriginal Fishing" 2 December 2010 at pp 103-104 paras 235-237.
[624] Policy and Practice Report 18, "Department of Fisheries and Oceans Policies and Programs for Aboriginal Fishing" 2 December 2010 at appendix 3.

547. Although the Tsawwassen Final Agreement has only been in effect since April 2009, testimony provided by Chief Kim Baird of the Tsawwassen First Nation indicates that the structures and processes put in place pursuant to the treaty have improved the First Nation's relationship with DFO in the management of their fishery.[625]

i) Aboriginal Fisheries Framework

548. Since the creation of the British Columbia treaty process in the early 1990s, DFO policies with respect to the management of Aboriginal fishing, and the AFS most notably, were considered interim to treaty arrangements with British Columbia Aboriginal groups. In recent years, while negotiation of treaties remains an important policy objective of the Government of Canada, it has become apparent that many Aboriginal groups will not be entering into comprehensive treaties with Canada in the short to medium term. Therefore, DFO is exploring enhancements to existing programs and the potential development of policies and new arrangements to achieve long-term stable relationships with Aboriginal groups inside and outside of the treaty process. DFO anticipates that the recommendations of the Commission will provide important guidance in this area.[626]

549. In response to these considerations, DFO in 2008 and 2009 commenced work on the Coastwide Framework. This Coastwide Framework, which is summarized in a document entitled the *Aboriginal Fisheries Framework*, is comprised of three components:

- Key principles to guide the negotiation and implementation of fisheries arrangements;
- An allocation strategy which establishes a coast wide endpoint for Aboriginal group fishery allocations to guide the negotiation of fisheries arrangements inside and outside of the British Columbia treaty process; and
- New fisheries arrangements that integrate with DFO objectives and priorities, including sectoral, watershed, regional and ecosystem arrangements.

[625] Chief Kim Baird, 13 December 2010, pp 66:02-16, pp 83:41 to 84:07.
[626] Exhibit 1426: *Aboriginal Fisheries Framework;* Kaarina McGivney, 19 August 2011, pp 30:06 to 31:30, pp 34:25 to 35:38.

550. With the exception of the endpoints of the allocation strategy, completion of the work on the Coastwide Framework has been deferred pending receipt and consideration of the recommendations of the Commission.[627]

e) Increased Participation in Economic Opportunity and Integrated Commercial Fisheries

i) Allocation Transfer Program

551. The Allocation Transfer Program is a component of the AFS program, that facilitates the voluntary relinquishment of commercial fishing licences from existing licence holders and the issuance of comparable access to eligible Aboriginal groups so that effective commercial harvesting capacity is not increased. These communal commercial fishing licences are issued under the Aboriginal Communal Fishing Licence Regulations (ACFLR). The Allocation Transfer Program is described in more detail in Policy and Practice Report 18. From 1994 to the present, 177 salmon licenses were acquired at a cost of over $19 million. Currently the Pacific Region of DFO receives between $4 – 6 million annually to fund the Allocation Transfer Program, of which a portion goes to acquiring salmon licences.[628]

552. Economic opportunity fisheries (formerly known as "Pilot Sales" fisheries) are commercial fisheries authorized for certain Aboriginal groups in the lower Fraser River (and other areas) as part of the AFS. Economic opportunity fisheries are only available to Aboriginal groups that have entered into a Comprehensive Fishing Agreement under the AFS. Salmon harvested in the economic opportunity fisheries through a communal licence issued under the ACFLR, are allocated based on licences relinquished from the general commercial fishery through the Allocation Transfer Program. Since 2004, DFO has required Aboriginal groups participating in the economic opportunity fisheries to maintain a clear separation between the FSC and commercial allocations provided under the AFS. Moreover, with this separation of AFS and commercial harvest, economic opportunities for First Nations are now part of an integrated commercial fishery that operates under the same priority and similar rules regardless of whether it's an Aboriginal group or a commercially licenced gear group doing the fishing. This means

[627] Exhibit 1426: *Aboriginal Fisheries Framework;* Kaarina McGivney, 19 August 2011, pp 30:26 to 31:20.
[628] Policy and Practice Report 18, "Department of Fisheries and Oceans Policies and Programs for Aboriginal Fishing" 2 December 2010 at p 73, para 158, p 73, fn 262: CAN008848.

that when there is a surplus available for commercial harvest all eligible groups can fish according to the rules outlined in the Integrated Fisheries Management Plan (IFMP).[629]

553. Statistics for catch allocations, harvests and sales under the Lower Fraser River Pilot Sales and economic opportunities fisheries are set out in Bert Ionson's paper, *Lower Fraser First Nations Fisheries: Pilot Sales and Economic Opportunity, 1992-2008*. As noted in Ionson's paper, the economic opportunities fishery under the AFS, while controversial in some quarters, has provided increased economic opportunities for many Aboriginal persons and involved Aboriginal groups in the management (planning, catch monitoring and stock assessment) of their fishery.[630]

ii) Pacific Integrated Commercial Fisheries Initiative

554. The Pacific Integrated Commercial Fisheries Initiative (PICFI), implemented in 2007, is a five-year (2007-2012), $175 million program designed in part to support British Columbia Aboriginal groups in integrated commercial fisheries, to develop sustainable commercial fisheries enterprises, and to increase Aboriginal group participation in fisheries management decision making processes. These were part of Pacific Integrated Commercial Fisheries Initiative's overall objective of supporting the long-term viability of British Columbia commercial fisheries and the sustainability of the resource. In particular, the Pacific Integrated Commercial Fisheries Initiative supports establishing fully integrated commercial fisheries, where all commercial harvesters fish under common and transparent rule, with a higher standard of accountability for all resource users, and strengthened cooperation amongst users.[631]

555. The Pacific Integrated Commercial Fisheries Initiative builds on the Pacific Fisheries Reform initiative, which in turn was a response to the 2004 reports of the First Nations Panel on Fisheries and the Joint Task Group on Post-treaty Fisheries, as well as subsequent discussions in

[629] Exhibit 261 at pdf p 3: *Policy for the Management of Aboriginal Fishing*, 20 October 2009; Policy and Practice Report 18, "Department of Fisheries and Oceans Policies and Programs for Aboriginal Fishing" 2 December 2010 at pp 66-67, paras 138-141, fn 217: CAN056469.
[630] CAN056469 at p 18, pdf pp 25-38, Bert Ionson, *Lower Fraser First Nations Fisheries Pilot Sales and Economic Opportunity 1992-2008,* November 2009 cited in Policy and Practice Report 18, "Department of Fisheries and Oceans Policies and Programs for Aboriginal Fishing" 2 December 2010 at p 52, fn 136.
[631] Exhibit 1187 at p 10: *Fisheries and Oceans Canada: An Integrated Aboriginal Policy Framework, 2006-2010;* Exhibit 270 at p 2: *Pacific Integrated Commercial Fisheries Initiative (PICFI),* July 17, 2007.

a wide variety of forums that have confirmed the need for the Pacific Integrated Commercial Fisheries Initiative.

556. One of the Pacific Integrated Commercial Fisheries Initiative's goals is to provide eligible Aboriginal groups with greater access to a diversity of commercial fishing opportunities that support the development of Aboriginal commercial fisheries enterprises, for the benefit of communities. The Pacific Integrated Commercial Fisheries Initiative provides funding to: acquire commercial licenses and quota for Aboriginal fisheries enterprise, and to acquire vessels and gear where appropriate. Support for greater Aboriginal participation in integrated commercial fisheries is the largest financial element of the Pacific Integrated Commercial Fisheries Initiative.[632]

557. The capacity building element of the Pacific Integrated Commercial Fisheries Initiative is designed to provide eligible Aboriginal groups with the tools necessary to support successful and sustainable community owned and operated commercial fisheries enterprises established or developed through the Pacific Integrated Commercial Fisheries Initiative. The co-management element supports the two key objectives of improving Aboriginal co-management and policy development processes, and to improve multi-interest decision making by supporting Tier III processes. Some examples include:

- Funding positions with Aboriginal groups and organizations to support:
  - Co-management framework development, as well as integrated planning process under the WSP – Strategy 4;
  - Improved catch monitoring, reporting and data management
  - Improved AFS project delivery, particularly stock and fishery monitoring projects
- Funding consultants to provide information and analysis on co-management and advisory processes involving Aboriginal groups
- Funding the development of computer models to evaluate the efficacy of alternative fishery management strategies for Fraser sockeye
- Funding a recreational hooking mortality study
- Support for the Integrated Salmon Dialogue Forum[633]

[632] Exhibit 270 at p 7: *Pacific Integrated Commercial Fisheries Initiative (PICFI),* July 17, 2007; DFO Pacific Integrated Commercial Fisheries Initiative website: http://www.pac.dfo-mpo.gc.ca/fm-gp/picfi-ipcip/index-eng.htm cited in Policy and Practice Report 18, "Department of Fisheries and Oceans Policies and Programs for Aboriginal Fishing" 2 December 2010 at p 74, fn 270.
[633] Exhibit 1438: *Draft PICFI – Co-Management Year 4 Work Plan (2010-2011)* January 2011.

558. $115 million of the Pacific Integrated Commercial Fisheries Initiative budget allocated over 5 years is dedicated to acquiring a variety of fisheries access to be provided to Aboriginal groups, including, but not limited to, salmon access. As of December, 2010, DFO had expended approximately $70.5M related to relinquishment of 314 licences, including 151 salmon licences (another 43 salmon licenses were acquired in the same period through the Allocation Transfer Program). [634]

559. An important component of Pacific Integrated Commercial Fisheries Initiative is to provide Aboriginal groups with diversified opportunities in salmon and non-salmon fisheries. This includes using funding and licence capacity acquired under the Pacific Integrated Commercial Fisheries Initiative to support in-river commercial demonstration fisheries for Pacific salmon. Another objective is support Aboriginal groups to diversify their commercial harvesting effort and capacity to potentially lucrative non-salmon fisheries.[635]

560. Since 2008, DFO has supported through the Pacific Integrated Commercial Fisheries Initiative a number of Aboriginal in-river demonstration commercial salmon fisheries, including in the Fraser River system. These demonstration fisheries provide trial commercial opportunities to Aboriginal groups in upstream or terminal areas. The intention of the demonstration fisheries is to explore whether economically viable commercial salmon fisheries can take place in these areas. The concept of conducting fisheries in terminal areas is consistent with the objectives of the WSP and the protection of weaker stocks. Moreover, in-river commercial fisheries, if demonstrated to be viable, could provide Aboriginal groups with economic and employment opportunities that did not exist previously. Salmon harvested in these demonstration fisheries are allocated from licenses acquired under voluntary licence relinquishment programs funded by the Pacific Integrated Commercial Fisheries Initiative and other programs. Based on the results of each demonstration fishery, DFO and the participating Aboriginal groups will decide whether to continue the program in subsequent years.[636]

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[634] Exhibit 1441: PICFI and ATP Relinquishments January 2008 to December 2010.
[635] Exhibit 1437 at pp 22-2: *Pacific Integrated Commercial Fisheries Initiative (PICFI) 5 – Year Plans,* 12 December 2008.
[636] DFO Pacific Integrated Commercial Fisheries Initiative website http://www.pac.dfo-mpo.gc.ca/fm-gp/picfi-ipcip/index-eng.htm cited in Policy and Practice Report 18, "Department of Fisheries and Oceans Policies and Programs for Aboriginal Fishing" 2 December 2010 at p 74, fn 270; Barry Rosenberger, July 5, 2011 pp 15:17 to

f) Future Directions

561. Through its Aboriginal programming, policies and participation in the treaty process, DFO seeks to establish fisheries arrangements that support strong and stable relationships with British Columbia Aboriginal groups. The emphasis on capacity building has strengthened the ability of Aboriginal groups to manage their own fisheries and to participate effectively in fisheries management and other management activities (e.g., oceans, habitat). The additional emphasis on support for the development of aggregate resource management bodies through AAROM is intended to provide for more effective and manageable arrangements with British Columbia Aboriginal groups.

562. The realization that the treaty process will only deliver a limited number of treaty agreements in the short to medium term, and the fact that many of British Columbia Aboriginal groups remain outside of the treaty process, requires that DFO's existing Aboriginal policies and programs be reconsidered as not necessarily being a bridge to treaty but as the tools to support fisheries arrangements with British Columbia Aboriginal groups over the long-term.

5. *Clear rules for sharing the Fraser sockeye harvest including more flexible approaches to avoid weak stocks, address First Nations' fishery aspirations and improve the economic viability of the commercial fishery;*

a) Overview

563. Clear rules for quantifying and sharing the available harvesting opportunities are important in reducing conflict, providing greater certainty for business planning, and promoting collaboration among harvesters. For Fraser sockeye, and Pacific salmon generally, the Pacific Salmon Treaty and the Allocation Policy for Pacific salmon provide this guidance. Implementation is accomplished annually through the Pacific Salmon Commission's Fraser River Panel and the IFMP.

564. Changes in the management of salmon fisheries are also occurring as a result of other factors, including ensuring conservation of Fraser sockeye consistent with the WSP, increased environmental uncertainty, changes in the structure of salmon fisheries to reflect the evolving

16:6; Julie Stewart, August 19, 2011, p 23:23-42, p 26:12-18, p 57:40 to 60:8; Kaarina McGivney, August 19, 2011, p 19:19-24.

context of Aboriginal rights and treaties and provision of economic opportunities, and changes in how commercial salmon fisheries are managed. In this context, Pacific Fisheries Reform provides a vision of the fishery whereby conservation objectives are met, and the viability and stability of the fishery is increased through the adoption of share-based management (SBM).

b) International Allocation

565. The Pacific Salmon Treaty governs the allocation of Fraser sockeye between Canada and the United States. It defines the total Total Allowable Catch (TAC) that is shared between Canada and the United States as:

- the annual abundance of the aggregate of Fraser sockeye runs;
- minus escapement, based on Canada's pre-season escapement plan, unless otherwise agreed;
- minus the Aboriginal Fisheries Exemption in Canadian Aboriginal fisheries;
- minus bilaterally agreed management adjustments; and
- minus the catch in Fraser River Panel-authorized test fisheries.[637]

566. The Pacific Salmon Treaty provides that the United States portion of the TAC is not to exceed 16.5%. The Canadian-allocated portion of the TAC is the TAC minus the United States TAC plus the Aboriginal Fisheries Exemption. Each of the United States and Canada are then responsible for the domestic allocation and management of their portion of the TAC.[638]

567. The Pacific Salmon Commission provides regulatory and policy advice as well as recommendations to Canada and the United States with respect to interception salmon fisheries. The Annex IV chapters outline the joint conservation and harvest sharing arrangements between Canada and the United States for key stocks and fisheries subject to the Pacific Salmon Treaty.[639] These allocation arrangements are time-limited, and are to be re-negotiated prior to their expiry by Canada and the United States.

568. Under the terms of the Pacific Salmon Treaty, the responsibility for in-season management of all species rests with the parties to the agreement, except for the in-season

[637] Policy and Practice Report 4, "Overview of the *Pacific Salmon Treaty* and the Pacific Salmon Commission Regarding Management of Fraser River Sockeye Salmon" 18 October 2010 at p 4.
[638] Policy and Practice Report 4 at p 5.
[639] Exhibit 65: Treaty Between the Government of the Canada and the Government of the United States of America Concerning Pacific Salmon, 27 January 2009 at p 14.

management of Fraser sockeye and pink salmon. The Fraser River Panel is specifically delegated the responsibility for in-season management of those stocks, with assistance from the Pacific Salmon Commission.

c) Canadian Domestic Allocation

i) The Allocation Policy

569. In the early 1990s a lack of certainty and clarity in how Pacific salmon were shared among different harvest groups prompted successive DFO Ministers to commission three different reports on inter- and intra-sectoral allocation: the "May", "Kelleher", and "Toy" reports.[640] In response, DFO drafted a New Directions for Pacific salmon discussion paper that was, in part, also a response to declining salmon productivity – and the coho crisis in particular – and a recognition of a need to fundamentally change the way salmon fisheries were managed and stocks were conserved on the Pacific Coast.[641] As one element of the New Direction, DFO prepared a discussion paper on allocation, titled "*An Allocation Framework for Pacific Salmon 1999-2005"*.[642] DFO consulted on this document in the spring of 1999, and changes were made to the framework on the basis of the extensive feedback received. It was renamed, "An Allocation Policy for Pacific Salmon", and released in October of 1999.[643]

570. The policy lays out seven principles describing how DFO intends to allocate Pacific salmon:[644]

- conservation is the primary objective of the Allocation Policy, which includes allocations for test fishing in order to properly manage the resource;[645]
- after conservation, First Nations' FSC requirements will have priority in salmon allocation; to this end, FSC requirements are determined *prior* to and separate from the combined recreational and commercial TAC which is allocated in the remainder of the policy[646]; in practice, this means that, while commercial fisheries may occur in

[640] Policy and Practice Report 6, "Commercial Salmon Fishing: Licensing, Allocation, and Related Issues" 22 December 2010 at pp 23-28.
[641] Gordon Curry, 21 February 2011, p 47:3-23.
[642] Policy and Practice Report 6 at p 28, para 76.
[643] Policy and Practice Report 6 at pp 28-29; paras 77-78.
[644] Jeff Grout, 23 February 2011, p 6:33-47.
[645] Exhibit 264 at pp 15-16: *An Allocation Policy for Pacific Salmon: A New Direction: The Fourth in a Series of Papers from Fisheries and Oceans Canada*, October 1999.
[646] Jeff Grout, 28 February 2011, p 70:6-16, p 92:18-35.

marine waters prior in time to in-river FSC fisheries, such commercial harvest is managed to ensure that the amount of fish harvested is not inconsistent with the FSC requirement;[647]

- the common property nature of the resource is affirmed – however, this does not imply open or equal access; access to the resource is still a privilege granted by the Minister;[648]

- after conservation and FSC requirements, the recreational sector is to receive priority access to chinook and coho, and stable and predictable opportunities for sockeye, pink and chum (to a maximum average of 5% of the combined commercial and recreational harvest of each species over time);[649]

- after conservation and FSC requirements, the commercial sector is to receive at least 95% of the combined recreational and commercial harvest of sockeye, pink and chum, and access to chinook and coho as abundance permits;[650]

- to encourage selective fishing, up to 5% of the commercial TAC can be used by the commercial sector to test selective fishing methods; over time, allocations will favour those who can fish more selectively;[651] and

- initial commercial intra-sectoral target allocations are set at 34% (gillnet), 42% (seine) and 24% (troll), to be adjusted over time to better reflect conservation requirements, selectivity, and changes to the mix of gear types in the fleet; current target intra-sectoral allocations are 38% (gillnet), 40% (seine) and 22% (troll).[652]

ii) Commercial Intra-Sectoral Allocation Process

571. An annual commercial intra-sectoral allocation process is undertaken each spring with the Commercial Salmon Advisory Board, before the IFMP is finalized, to establish harvest shares for each of the gillnet, seine, and troll fleets in each of the 21 salmon production areas, which include all salmon species. Harvest shares are negotiated and expressed for each fleet as a percentage of the available commercial total allowable catch using sockeye equivalents. Sockeye equivalents are based on the previous years' landed value for each species as

[647] Exhibit 264 at p 16: *An Allocation Policy for Pacific Salmon: A New Direction: The Fourth in a Series of Papers from Fisheries and Oceans Canada*, October 1999; Jeff Grout, 28 February 2011, p 108:33-42.
[648] Exhibit 264 at pp 18-19.
[649] Exhibit 264 at p. 23-24.
[650] Exhibit 264 at p 27.
[651] Exhibit 264 at p 29.
[652] Exhibit 264 at pp 31-33; Jeff Grout, 23 February 2011, pp 9:43 to 10:2.

determined in an annual report commissioned by DFO.[653] The harvest shares negotiated through this process are incorporated into the annual IFMP.[654]

572. In recent years, agreement has been reached with the fleets through this negotiation process, and the final IFMP has not deviated from the agreements reached. In the event of an impasse in negotiations, DFO would consult on the matter and make a recommendation to the Minister, who would make the ultimate decision.[655]

573. There is some frustration among commercial harvesters with this process, as there is frequently an inability to reach the 40/38/22 percent target allocations. This is partly due to the fact that the Allocation Policy provides for coast-wide allocations, but each gear type is divided into two or three fleets that cannot necessarily trade shares of each species to arrive at the coast-wide target share.[656] This has been exacerbated in recent years due to minimal or no Fraser sockeye fishery – share allocations in that fishery are often a key negotiating point, and were often used in the past to compensate fleets who had given up shares in another production area.[657]

574. Some harvesters would prefer to keep the annual intra-sectoral allocation process, given the uncertainty in salmon returns from year-to-year.[658] Those harvesters consider that the current process has been streamlined, and that it allows for adaptability to future uncertainties. Other harvesters, however, would prefer fleet allocations to be determined for a longer period of time, or to be fixed for all time.[659]

[653] Jeff Grout, 23 February 2011, pp 10:2 to 12:26, pp 13:3 to 17:6.
[654] Exhibit 445 at pdf p 169: *Pacific Region Integrated Fisheries Management Plan Salmon Southern B.C. June 1, 20100to May 31, 2011*, 2010/2011.
[655] Jeff Grout, 23 February 2011, p 17:7-44.
[656] Ryan McEachern, 22 February 2011, p 9:6-25; Peter Sakich, 22 February 2011, pp 9:45 to 10:14; Chris Ashton, 22 February 2011, p 10:32-42.
[657] Jeff Grout, 23 February 2011, pp 19:11 to 20:31.
[658] Ryan McEachern, 22 February 2011, pp 16:41to 17:11; Jeff Grout, 23 February 2011, pp 22:44 to 23:37.
[659] Exhibit 472 at pp 39-40: *Salmon Management Reform: A reporting out on the work of the Commercial Salmon Advisory Board's committee on Options for Review and Evaluation (SCORE) to reform the management of the Pacific Salmon Fishery off the west coast of Canada*, 1 March 2008; Jeff Grout, 23 February 2011, p 22:3-31.

575. There are also concerns that the use of sockeye equivalents effectively penalizes fleets who disproportionately add value to their catches – the greater the value of their catch, the more sockeye equivalents it is worth, resulting in fewer shares the following year.[660]

576. With $1M of the $30M of the Pacific Salmon Treaty mitigation fund, DFO will be reviewing the commercial intra-sectoral allocation framework given the issues identified above and the planned PST mitigation licence retirement in the troll fleet which could affect commercial allocation arrangements.[661]

iii) FSC Allocations

577. FSC allocations are discussed above.

iv) Recreational Allocations

578. To date, the recreational sector has not exceeded its annual coastal average cap of 5%.[662] This issue, and other issues regarding commercial-recreational inter-sectoral allocation are ongoing matters of discussion at the Allocation Implementation Committee, whose purpose is to provide a forum to address allocation issues that affect both commercial and recreational harvesters.[663]

v) Integrated Fisheries Management Plans – Clear Implementation Rules

579. The allocation framework set out in the Allocation Policy is incorporated into the annual salmon IFMP, and thus forms part of the general guidelines for how in-season management decisions are made.[664] Together, conservation objectives, the harvest sharing arrangements guided by the allocation policy, considerations of post-release and in-river mortality rates, and fishery specific management strategies for each species and stock comprise the decision rules used in the annual management of the fishery.[665]

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[660] Jeff Grout, 23 February 2011, p 21:18-46.
[661] Jeff Grout, 23 February 2011, pp 20:32 to 21:17.
[662] Ryan McEachern, 22 February 2011, p 8:29-46.
[663] Jeff Grout, 23 February 2011, p 3:26-43.
[664] Exhibit 445 at pp 55-57: *Pacific Region Integrated Fisheries Management Plan Salmon Southern B.C. June 1, 2010 to May 31, 201*, 2010/2011.
[665] Exhibit 445 at pp 54-103.

580. In addition, the target commercial intra-sectoral allocations as agreed to during the annual Commercial Salmon Advisory Board allocation process are included in the Integrated Fisheries Management Plan as Appendix 4 as a projection of commercial fishing opportunities.[666]

d) Share-based Management

i) Pacific Fisheries Reform – The Need for Change

581. The concept of share-based management of Pacific salmon came into focus with the report of the Joint Task Group on Post-Treaty Fisheries ("Treaties in Transition") in which an "individual transferable quota" was recommended as a way of improving the management and sustainability of the commercial salmon fishery. The report of the First Nations Panel on Fisheries ("Our Place at the Table") opposed the further expansion of individual transferable quotas until First Nations interests had been addressed.[667] DFO's response to these two reports was the announcement of a fishery management reform initiative called Pacific Fishery Reform (described previously, which acknowledged that more certainty and stability in the commercial fishery could be achieved through some type of SBM.[668]

582. DFO has an interest in moving to share-based management where it can be demonstrated that it is feasible and effective in advancing the vision articulated in Pacific Fisheries Reform – that of a sustainable fishery in which full social and economic potential, and stability and predictability, are achieved.[669] Some of the expected benefits of the adoption of share-based management include:

- There are conservation advantages to share-based management – it allows for more precise harvesting controls and thus better ability to meet harvest rates and conservation targets.[670]
- Given the above conservation benefits to share-based management, it can allow for the prosecution of fisheries on very small total allowable catches when fisheries would not otherwise occur in a competitive fishery. Openings are currently very constrained due to conservation concerns.[671]

[666] Exhibit 445 at pdf p 169.
[667] Exhibit 269 at p 17: *A Discussion Paper on the Implementation of Pacific Fisheries Reform*, Fisheries and Oceans Canada, September 2005.
[668] Exhibit 269 at pp 3, 6, 17-18, 22-23.
[669] Exhibit 468 at pdf pp 2-5: *Defined Shares for Salmon Management: Building a strategy*, 21 July 2009; Exhibit 482: Letter of R Kadowaki to D Barrett, 13 August 2007; Claire Dansereau, 22 September 2011, p 69:22-32.
[670] Jeff Grout, 23 February 2011, pp 43:22 to 44:42; Susan Farlinger, 22 September 2011, pp 69:22 to 70:24.
[671] David Bevan, 22 September 2011, pp 72:29 to 73:12.

- The ability to transfer shares provides greater fleet flexibility – shares can be bought, sold or leased to adapt to small TACs.[672]
- Share-based management can also facilitate selective fishing practices. When harvesters are not racing to maximize catch during an open period, the pace of the fishery slows and fishers have more time to effectively implement selective fishing practices. Racing to catch as much fish as possible in a shorter amount of time may result in less time to properly catch and handle fish.[673]
- The slower the pace of the fishery and the better the handling practices, the higher the price that can be obtained per fish.[674]
- There are advantages to processors in receiving fish in stages rather than all at once. This allows processors to give harvesters a better price.[675]

583. In Pacific salmon fisheries, DFO has been working with willing commercial fleets and Aboriginal groups since 2005 to test alternative forms of share-based management through demonstration fisheries.[676]

ii) Why Demonstration Fisheries?

584. For several reasons, implementation of share-based management has proceeded on a demonstration basis only. First, demonstration fisheries have been undertaken to test and evaluate share-based management before a recommendation can be made to the Minister as to a more permanent implementation in the salmon fishery.[677] The ability of share-based management to deliver expected conservation and economic benefits must be evaluated.[678]

585. In addition, feasibility and practicality must also be tested – how will fleet shares be determined?[679] How can changes to the TAC in-season be managed? Should quota be transferrable between fleets or into in-river areas and, if so, how will this be accomplished? Should there be limits to the transferability of quota? How should catch monitoring be

[672] Jeff Grout, 23 February 2011, pp 89:26 to 90:7; Susan Farlinger, 22 September 2011, p 70:1-24.
[673] Gordon Curry, 21 February 2011, pp 11:15 to 12:2.
[674] Susan Farlinger, 22 September 2011, p 70:1-11.
[675] Susan Farlinger, 22 September 2011, p 71:4-38; Rob Morley, 1 March 2011, pp 24:2 to 25:1.
[676] Policy and Practice Report 6, "Commercial Salmon Fishing: Licensing, Allocation, and Related Issues" 22 December 2010 at p 79, para 209.
[677] Claire Dansereau, 22 September 2011, pp 73:40 to 74:32.
[678] Susan Farlinger, 22 September 2011, p 70:25-38.
[679] Susan Farlinger, 23 September 2011, pp 70:25 to 71:3.

designed?[680] Demonstration fisheries are intended to provide real-world experiences which can be evaluated in order to answer these questions.[681]

586. Second, while an share-based management approach has been enthusiastically embraced by some harvest interests, some in the commercial sector who are strongly opposed to it.[682] As determined through the SCORE process in 2006 and 2007, the divergence of views represents a philosophical divide between harvesters who support a move to individual transferable quotas, and harvesters who do not.[683]

587. DFO takes incremental steps when considering changes to the fishing regime. Rapid change would not be acceptable to or accepted by user groups. In fisheries management, acceptance and compliance are key to successful fisheries management and implementation of change. Ongoing consultation with harvesters is needed to ensure that they are willing and able to participate in share-based management.[684] The views of and impacts on harvesters outside the commercial fishery –recreational and non-commercial Aboriginal harvesters – must also be carefully considered.[685] Demonstration fisheries provide an experiential basis on which such conversations can occur.

iii) How do demonstration fisheries work?

588. DFO puts out annual calls for proposals for demonstration fisheries that are consistent with the vision and principles of Pacific Fisheries Reform.[686] Specifically, proposals must support the following elements:

- maintenance or improvement of management control and conservation performance of the fishery;
- promotion of the use of clearly defined shares to improve manageability and industry viability; and

[680] Jeff Grout, 23 February 2011, pp 49:43 to 52:3.
[681] David Bevan, 22 September 2011, pp 75:23 to 76:2; Jeff Grout, 23 February 2011, pp 49:43 to 52:3.
[682] Exhibit 468 at p. 10: *Defined Shares for Salmon Management: Building a strategy*, 21 July 2009; Exhibit 472 at pp 34-35: *Salmon Management Reform: A reporting out on the work of the Commercial Salmon Advisory Board's committee on Options for Review and Evaluation (SCORE) to reform the management of the Pacific Salmon Fishery off the west coast of Canada*, 1 March 2008.
[683] Exhibit 472; Policy and Practice Report 6, "Commercial Salmon Fishing: Licensing, Allocation, and Related Issues" 22 December 2010 at pp 67-71, paras 178-186.
[684] Claire Dansereau, 22 September 2011. Pp 73:39 to 74:18; Susan Farlinger, 22 September 2011, p 71:10-38.
[685] Jeff Grout, 23 February 2011, p 51:24-45.
[686] Jeff Grout, 23 February 2011, pp 30:37 to 31:24.

- increases the ability of harvesters to work cooperatively to harvest available surpluses, and to take greater responsibility for the control and monitoring of their fishery.[687]

589. Demonstrations will proceed on an annual basis with willing fleets only – that is, by a strong majority vote of the license holders in each harvest area, or with individual projects in the case of a slim majority.[688] Partial fleet participation in a demonstration fishery, while permitted in early demonstration fisheries under scientific licences, has not been permitted since 2009 as the quota is now a condition of the commercial licence, and DFO cannot issue different licenses within a single fleet.[689]

590. Demonstration share-based fisheries in salmon have been either individual transferable quota (ITQ) fisheries, or individual quota (ie non-transferable quota) fisheries, which are just two possible models of a shore-based fishery.[690] Where an ITQ-type demonstration fishery proceeds, the quota is an equal share of the allocated total allowable catch for that fleet, and is included in the licence.[691] The actual number of fish that the quota represents will change as the total allowable catch changes in-season.[692] Thus, the licence remains an annual privilege of access to the resource, and does not constitute ownership of a specific number of fish. The quota is often transferrable within each fleet, or between different participating fleets.[693]

591. Demonstration fisheries have been conducted on Fraser sockeye – individual quota and individual transferable quota demonstration fisheries for Fraser sockeye have occurred in areas B and H.[694]

592. In 2008, there were discussions between areas B, D and H to proceed with an integrated individual transferable quota fishery, but a majority of licence holders in Area D did not support

[687] Exhibit 462 at p. 2: Letter of DFO to Licence Holder, undated.
[688] Exhibit 463 at p 1: Memorandum for the Deputy Minister: 2009 Commercial Salmon Demonstration Fishery Planning, 24 December 2008; Policy and Practice Report 6, "Commercial Salmon Fishing: Licensing, Allocation, and Related Issues" 22 December 2010 at p 73, para 192; Jeff Grout, 23 February 2011, pp 39:17 to 40:4.
[689] Jeff Grout, 23 February 2011, p 40:05-45; 24 February 2011, pp 20:42 to 22:14.
[690] Policy and Practice Report 6, "Commercial Salmon Fishing: Licensing, Allocation, and Related Issues" 22 December 2010 at p 62; Jeff Grout, 23 February 2011, p 28:27-33, 50:18 to 52:3.
[691] Exhibit 476 at pdf p 3: Conditions of 2010/2011 Salmon Area B Licence: Licence Period: April 1, 2010 to March 31, 2011 (Seine – South Coast); Lisa Mijacika, 15 March 2011, pp.77:3 to 78:33.
[692] Lisa Mijacika, 15 March 2011, pp 77:3 to 78:33.
[693] Jeff Grout, 23 February 2011, p 32:23-33.
[694] Policy and Practice Report 6, "Commercial Salmon Fishing: Licensing, Allocation, and Related Issues" 22 December 2010 p 72, para 191; Jeff Grout, 23 February 2011, p 32:3-33.

the demonstration fishery.[695] Areas B and H did proceed with a small individual transferable quota demonstration in 2008. However, there was very limited total allowable catch available that year and the fishery was only open for two or three days – thus, few fishers participated and there was little evidence with which to evaluate the demonstration.[696]

593. In 2009, DFO surveyed all fleets on their willingness to participate in demonstration fisheries.[697] However, as there was no TAC that year, no demonstration fisheries proceeded.[698] In 2010, demonstration fisheries for Fraser sockeye proceeded in a substantial way for the first time, with Areas B and H participating.[699]

iv) Evaluation of SBM and Future Steps

594. The pace at which evaluations of demonstration fisheries have occurred has been constrained by the closure of fisheries in recent years – planned demonstration fisheries have often been of short duration, or did not proceed.[700] However, evaluation of demonstration fisheries has already occurred, and will continue.[701] Such evaluations will focus on whether a demonstration fishery was successful in:

- maintaining or improving management control and conservation performance in the fishery;
- promoting the use of clearly defined shares to improve manageability and industry viability; and

[695] Exhibit 461: Davlin Pacific Inc., *Southern Salmon Integration Project Scoping* Report, 15 April 2008; Exhibit 464: Area B, D, H vote summary chart, undated; Policy and Practice Report 6, "Commercial Salmon Fishing: Licensing, Allocation, and Related Issues" 22 December 2010 at pp 76-77, paras 199-202; Jeff Grout, 23 February 2011, pp 32:43 to 33:17.
[696] Policy and Practice Report 6, "Commercial Salmon Fishing: Licensing, Allocation, and Related Issues" 22 December 2010 at pp 77-78, paras 202-203; Jeff Grout, 23 February 2011, p 33:8-17.
[697] Exhibit 462: Letter of DFO to Licence Holder, undated; Exhibit 463: Memorandum for the Deputy Minister: 2009 Commercial Salmon Demonstration Fishery Planning, 24 December 2008; Exhibit 468 at pdf p 10: *Defined Shares for Salmon Management: Building a strategy*, 21 July 2009; Jeff Grout, 23 February 2011, pp 38:18 to 39:16.
[698] Policy and Practice Report 6, "Commercial Salmon Fishing: Licensing, Allocation, and Related Issues" 22 December 2010 at p 78, para 204; Jeff Grout, 23 February 2011, p 33:7-21.
[699] Policy and Practice Report 6, "Commercial Salmon Fishing: Licensing, Allocation, and Related Issues" 22 December 2010 at p 78, para 205; Jeff Grout, 23 February 2011, p 33:7-21.
[700] David Bevan, 22 September 2011, p 73:25-38; Jeff Grout, 23 February 2011, pp 32:43 to 33:21.
[701] Exhibit 465: Gardner Pinfold, *A Review of Five Demonstration Projects from the 2008 Salmon Season Report*, October 2009; Exhibit 466: Jody Riley & Shawn Stebbins, *2003 Area H IQ Demonstration Fishery: Project Summary and Evaluation*, November 2003; Exhibit 467: GSGislason & Associations Ltd., *The Area H Troll Sockeye Demonstration Fishery in 2006: A Review*, June 2007 ; Susan Farlinger, 22 September 2011, p 76:3-25: Jeff Grout, 23 February 2011, pp 41:10 to 44:42.

- increasing the ability of harvesters to work cooperatively to harvest available surpluses and to take on greater responsibility for control and monitoring of their fishery.[702]

595. In addition to input from participants in and evaluation of demonstration fisheries, DFO may rely on other studies or analysis – including socio-economic studies, surveys of harvesters and others, feedback from consultations and analysis of conservation profitability data – in formulating its advice to the Minister on a more permanent move to share-based management.[703]

596. A timeframe for the provision of DFO advice to the Minister on share-based management in the Pacific salmon fishery has not yet been determined.[704]

6. Confidence and trust among all parties in the in-season management system, that fisheries are being effectively managed, fishing regulations are being followed, that data on catch levels and spawner abundance are reliable, and aquaculture operations are effectively regulated

a) Overview

597. The purpose of this section is to describe how confidence and trust is increased through and effective in-season fisheries management system, compliance with fisheries regulations, reliable data on catch and spawner levels, and effective regulation of finfish aquaculture.

598. This section describes some of the challenges associated with increasing confidence and trust through these means, and how Canada is addressing those challenges.

b) Instilling Confidence Through Effective In-season Fisheries Management

599. While pre-season forecasts of abundance are made and provide the initial assumptions of run size upon which the Integrated Fisheries Management Plan for South Coast salmon is

[702] Exhibit 445 at pdf p 1: *Pacific Region Integrated Fisheries Management Plan Salmon Southern B.C. June 1, 2010 to May 31, 2011*, 2010/2011.
[703] Exhibit 950: Letter of Mitchell R. Taylor, Q.C. to Brian Wallace, Q.C., 11 May 2011; Susan Farlinger, 22 September 2011, p 71:10-38, 76:3-25; Claire Dansereau, 22 September 2011, pp 73:40 to 74:32, p 75:1-22; David Bevan, 22 September 2011, pp 75:23 to 76:2.
[704] Susan Farlinger, 22 September 2011, p 76:26-35.

developed, it is not until the fish start their return migration and enter near coastal waters, that in-season estimates of abundance can be made. [705]

600. Key programs and facilities for obtaining in-season run size estimates include:

- Gillnet, seine and troll test fisheries in marine approach areas and the lower Fraser River;
- Hydro-acoustic estimates of fish passage at Mission in the lower Fraser River;
- A more recent hydro-acoustic program at Qualark, further upstream from Mission; and
- Stock composition information from biological sampling programs, including DNA and scale sampling, in test fisheries.[706]

601. It is not only abundance that is important to the effective in-season management of Fraser sockeye, but also the environmental conditions in the river that can affect the relative success of prospective spawners in reaching their spawning grounds.[707] Important environmental data include:

- Pre-season forecasts and in-season estimates of Fraser River water temperature and discharge, and upstream migration timing serve to inform the Management Adjustment used to account for potential in-river mortality in order to better meet spawning escapement goals;

- Monitoring in-river flows can also feed into the need to be more or less cautious in fishing intensity as both high and low flows can have negative impacts on spawning migrations; and

- For late run sockeye, timing of entry into the Lower Fraser has been an important variable used for setting management adjustments.[708]

602. Reliable in-season data is critical for informing a fisheries management system equipped with pre-determined decision rules to make the appropriate in-season decisions to achieve

[705] Policy and Practice Report 5, "Overview of Fraser River Sockeye Salmon Harvest Management" 9 November 2010 at pp 90-94; Exhibit 718: Technical Report No 7, "Fraser River Sockeye Fisheries and Fisheries Management and Comparison with Bristol Bay Sockeye Fisheries", February 2011 at pp 80-83.
[706] Policy and Practice Report 5, "Overview of Fraser River Sockeye Salmon Harvest Management" 9 November 2010 at pp 90-94; Exhibit 718: Technical Report No 7, "Fraser River Sockeye Fisheries and Fisheries Management and Comparison with Bristol Bay Sockeye Fisheries", February 2011 at pp 80-81; Jim Cave, 31 January 2011, pp 5:01 to 10:39.
[707] John Davis, 8 July 2011, p 13:3-7.
[708] Policy and Practice Report 5, "Overview of Fraser River Sockeye Salmon Harvest Management" 9 November 2010 at pp 49-55.

conservation and fishery objectives.[709] In this respect, the Integrated Fisheries Management Plan for South Coast Salmon contains decision rules for management responses that will be taken for a range of conditions. For example, conservation objectives are set out for stocks of concern (eg Cultus sockeye), escapement plans are provided for Fraser sockeye that specify escapement targets over a range of run sizes for each management group, and specific fishery measures (eg dates of the early Stuart window closure) are also outlined.[710]

603. The Pacific Salmon Commission staff use the escapement plan from Canada and International sharing arrangements to determine the total allowable catch for Canada and the United States and monitors in-season catch data to ensure compliance with sharing arrangements. [711]

604. The Fraser River Panel of the Pacific Salmon Commission plays an important role in reviewing in-season information on Fraser sockeye and arriving at consensus decisions on in-season fishing plans on both sides of the border. The Panel is supported in this time-sensitive and technically challenging work by the staff of the Pacific Salmon Commission and the Panel's own technical committee comprised of Canadian and United States experts.[712]

605. As further described below, DFO supports a number of in-season consultation processes to share, review, and discuss in-season information with Aboriginal groups and stakeholders, and to develop fishing plans that are responsive to changing information.[713] The Department's fishery notice system is used to publicly communicate information on updated information from Fraser River Panel meetings to announce fishery openings.[714]

606. A responsive in-season management system is essential for instilling confidence that conservation objectives will be achieved while still permitting sustainable fishing opportunities.

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[709] Jeff Grout, 28 February 2011, p 108:29-43.
[710] Policy and Practice Report 5 at pp 61-62; Exhibit 317: *Pacific Region, Integrated Fisheries Management Plan Salmon Southern B.C., June 1, 2009 to May 31, 2010*; Exhibit 445: *Pacific Region, Integrated Fisheries Management Plan Salmon Southern B.C., June 1, 2010 to May 31, 2011*.
[711] Policy and Practice Report 5 at pp 82-83, 97-98.
[712] Policy and Practice Report 5 at pp 97-98.
[713] Policy and Practice Report 5, "Overview of Fraser River Sockeye Salmon Harvest Management" 9 November 2010 at pp 64-66.
[714] Policy and Practice Report 5 at pp 99-100.

c) Instilling Confidence Through Compliance with Fishing Regulations

607. In 2005, DFO introduced the National Compliance Framework which sets out a three pillar approach to DFO work to promote compliance in fisheries.[715] The Framework describes three categories – ie three "pillars" – of activities that DFO undertakes to promote compliance:

> Pillar 1 focuses on public education and stewardship activities that are help to build relationships with resource users and a "culture of conservation".[716] Pillar 1 activities have always been part of the role of DFO fishery officers but the National Compliance Framework reinforces the significance of these activities in promoting compliance.[717] Pillar 1 activities have contributed to the significant improvement in relationships between DFO fishery officers and First Nations.[718] First Nations in the lower Fraser have a better relationship with the fishery officers than they have had in the past and now know many of the officers in that area by name.[719]
>
> Pillar 2 consists of the patrol activities traditionally undertaken by DFO fishery officers.[720] Experience has shown that fishery officer presence in a fishery is the best deterrent to illegal fishing.[721] The funding that was provided following the Williams review contributed to a significant increase in Pillar 2 activities on the Fraser River.[722]
>
> Pillar 3 is DFO's intelligence-led policing and major case management initiative.[723] A Special Investigation Unit that has been operating in DFO - Pacific Region since the mid-1980s.[724] This unit, now know as Intelligence and Investigative Services, specializes in covert and complex investigations aimed at high value targets whose illegal activities have heightened potential to impact the resource.[725]

[715] Exhibit 878: *DFO National Compliance Framework*.
[716] Randy Nelson, 17 May 2011, p 59:31-34; David Bevan, 22 September 2011, p 11:32-45.
[717] Exhibit 878: *DFO National Compliance Framework*; Exhibit 879: *Draft DFO National Compliance Framework*, 4 December 2006; Randy7 Nelson, 17 May 2011, p 63:39-46; David Bevan, 22 September 2011, p 11:32-45.
[718] Randy Nelson, 18 May 2011, pp 82:32 to 83:13.
[719] Grand Chief Ken Malloway, 12 May 2011, p 88:18-21.
[720] Exhibit 878: *DFO National Compliance Framework*; Exhibit 879: *Draft DFO National Compliance Framework*, 4 December 2006.
[721] Randy Nelson, 17 May 2011, p 14:1-38.
[722] Exhibit 866 at pp 12, 39: *Conservation and Protection Information Request – For Second Interview with Randy Nelson on Fisheries Enforcement.*
[723] Exhibit 878: *DFO National Compliance Framework*; Randy Nelson, 17 May 2011, pp 8:47 to 9:47.
[724] Scott Coultish, 17 May 2011, p 68:15-26.
[725] Scott Coultish, 17 May 2011, pp 36:46 to 37:10; Randy Nelson, 17 May 2011, p 60:7-13.

608. The National Compliance Framework reflects "a modern understanding of the factors that influence compliant behaviour and a more integrated and strategic use of available tools to address non-compliance".[726] A strategic use of available tools to address non-compliance is especially important as fisheries evolve. As the Deputy Minister testified, "As the fisheries change, how we enforce and how we monitor also ought to change".[727]

609. The 2004 *Southern Salmon Fishery Post-Season Review, Part One Fraser River Sockeye Report* (Williams Report) highlighted the challenges faced by DFO fishery officers in investigating the illegal sale of salmon caught for food, social and ceremonial purposes.[728] These challenges continue to exist, in part because no offense occurs until the point of sale.[729] It is very difficult to track fish to the point of sale and, once sold, difficult to trace back to its source.

610. DFO has been aware that illegal sales of salmon have been a significant issue in the lower Fraser area for at least the past two decades.[730] Illegal sale of salmon is less of an issue in other parts of the Fraser watershed.[731] Investigating the illegal sale of salmon caught for food, social and ceremonial purposes occupies a significant amount of DFO fishery officers' time and resources, especially in the lower Fraser.[732]

611. Over the past five years, DFO fishery officers have been able to maintain a credible enforcement presence on the Fraser River with respect to monitoring fishery closures.[733]

612. Previous reviews of the Fraser sockeye fishery had identified significant deficiencies with DFO enforcement, and led to recommendations to increase DFO's enforcement capacity.[734] In particular, the Williams Report highlighted the inability of DFO fishery officers to effectively monitor fishery closures, and to prevent illegal harvest, in the Fraser River.[735]

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[726] Exhibit 879 at p 1, para 3: *Draft DFO National Compliance Framework*, 4 December 2006.
[727] Claire Dansereau, 22 September 2011, p 5:10-30.
[728] Exhibit 606 at p 41, para 31: *2004 Southern Salmon Fishery Post-Season Review, Part One Fraser River Sockeye Report* (Williams Report).
[729] Randy Nelson, 17 May 2011, p 28:41-47.
[730] Randy Nelson, 18 May 2011, p 21:6-20.
[731] Randy Nelson, 17 May 2011, p 34:25-31.
[732] Scott Coultish, 18 May 2011, p 92:5-13.
[733] Randy Nelson, 17 May 2011, p 8:38-47.
[734] Randy Nelson, 17 May 2011, pp 4:30 to 5:11.
[735] Exhibit 606 at p 40: *2004 Southern Salmon Fishery Post-Season Review, Part One Fraser River Sockeye Report (Williams Report).*

613. DFO substantially increased the funding for DFO's Conservation and Protection Sector following the Williams Report for a five year period starting in 2007.[736] This funding has paid for helicopter patrols, increased night patrols, overtime for fishery officers and the temporary relocation of fishery officers to the Fraser River.[737] It is standard government practice to review temporary funding programs in their last year of operation, so as to benefit from the experience and information obtained over the past years of operation.[738]

614. However, DFO fishery officers' time and resources are under pressure due to new and evolving enforcement priorities, such as those associated with Marine Protected Areas, the *Species at Risk Act*, and the Canadian Sanitary Shellfish Program.[739] In addressing new enforcement challenges and priorities, it is important to look at opportunities for using new technologies, new approaches and new methodologies.[740] DFO needs to identify the risks associated with non-compliance in fisheries, and find the most effective ways to address those risks.[741]

d) Instilling Confidence Through Reliable Data on Spawner Abundance

615. Monitoring spawner levels (ie escapement) for Fraser sockeye is fundamentally important – it is the "backbone" on which Fraser sockeye fisheries are managed.[742] The escapement time series data for Fraser sockeye stocks represents a critical baseline for other activities and research.[743] The escapement data set for Fraser sockeye is more robust and complete than the escapement data set for any other species on the west coast of North America.[744]

616. There is a high degree of confidence in the adequacy of DFO's current spawner enumeration work for Fraser sockeye.[745] Over the past 18 to 20 years, significant refinements

[736] Randy Nelson, 17 May 2011, p 5:26-29.
[737] Exhibit 866 at pp 12, 39: *Conservation and Protection Information Request – For Second Interview with Randy Nelson on Fisheries Enforcement*; Randy Nelson, 17 May 2011, pp 8:47 to 9:47.
[738] Claire Dansereau, 23 September 2011, p. 7:3-9.
[739] Randy Nelson, 17 May 2011, pp 15:40 to 16:17.
[740] David Bevan and Sue Farlinger, 22 September 2011, pp 5:31 to 8:4, 14:31 to 15:1.
[741] David Bevan, 22 September 2011, p 24:7 to p 25:6.
[742] Dr Brian Riddell and Timber Whitehouse,2 February 2011, pp 70:40 to 73:33: Joe Tadey, 3 March 2011, p 3:1-13
[743] Timber Whitehouse, 2 February 2011, p 72:1-5.
[744] Dr Brian Riddell and Timber Whitehouse, 2 February 2011, pp 62:20 to 63:8.
[745] Timber Whitehouse, 2 February 2011, p 32:24-25.

have been undertaken to ensure defensible estimates of spawners.[746] High precision spawner enumeration methods are used for 70-95% of the total escapement of Fraser sockeye in the watershed.[747]

617. Fisheries management needs drive DFO's stock assessment work. Those needs have changed as fisheries management has evolved from focusing primarily on the strongest Fraser sockeye stocks.[748] Priorities for DFO stock assessment work change accordingly.[749]

618. DFO has a structured approach to annual budgeting for stock assessment work so that the work done meets current priorities.[750]

619. Stock assessment work for Fraser sockeye stocks has priority over stock assessment work for other species.[751] The priority for stock assessment work for Fraser sockeye relates to Canada's obligations under the Pacific Salmon Treaty.[752]

620. Shortfalls in funding available for DFO stock assessment work for Fraser sockeye have been addressed by reallocating funding for stock assessment work for other species.[753]

621. Maintaining the priority for Fraser sockeye stock assessment work has come at a high cost with respect to DFO's stock assessment work for other species.[754]

622. Even though Fraser sockeye stock assessment work has had top priority, there is more that could be done, especially with respect to research relating to lakes, marine survival and downstream migration.[755]

623. DFO's stock assessment work supports the delivery of the Wild Salmon Policy by increasing the understanding of the health and status of each salmon stock in the watershed.[756]

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[746] Timber Whitehouse, 2 February 2011, p 32:25-46.
[747] Timber Whitehouse, 2 February 2011, p 32:33-42.
[748] Timber Whitehouse, 3 February 2011, pp 38:5 to 46:16.
[749] Dr Brian Riddell, 2 February 2011, pp 43:9-38, 44:22-39.
[750] Dr Brian Riddell, 2 February 2011, p 43:09-38.
[751] Dr Brian Riddell and Timber Whitehouse, 2 February 2011, p 60:15-46.
[752] Policy and Practice Report 12, "Fishery Monitoring and Catch Reporting for Commercial and Aboriginal Fraser River Sockeye Salmon Fisheries" 17 March 2011 at p 8.
[753] Dr Brian Riddell and Timber Whitehouse, 2 February 2011, p 60:15-46.
[754] Timber Whitehouse, 3 February 2011, p 31:17-28.
[755] Dr Brian Riddell and Timber Whitehouse, 2 February 2011, pp 70:40 to 73:33.

The Wild Salmon Policy is an integrated salmon management framework requiring a better understanding of all salmon species.[757]

624. DFO's current stock assessment programs for Fraser sockeye can accommodate enumeration at the Conservation Unit level. In fact, DFO already enumerates many Fraser sockeye stocks at a finer resolution than Conservation Units.[758]

625. In addition, priorities associated with implementation of the Wild Salmon Policy, licence retirement initiatives, in-river fisheries, selective fishing initiatives, and the priority for food, social and ceremonial fishing have all affected DFO's stock assessment work.[759] To address these new priorities, DFO has identified gaps in stock assessment work and adapted the work to fill those gaps. For example, DFO has adapted its stock assessment work to better support in-season management by incorporating information regarding environmental conditions and en-route loss.[760]

626. DFO's stock assessment work often involves collaboration with other parties and such collaboration should be increased and improved where it makes sense to do so.[761]

627. Examples of collaborations with respect to stock assessment work include partnerships between DFO and other research groups funded through the Southern Endowment Fund and DFO's involvement in the Fraser Salmon Watershed Program.[762] Also, DFO stock assessment staff have worked closely with researchers from the University of British Columbia and Carleton University. [763]

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[756] Timber Whitehouse, 2 February 2011, pp 81: 13 to 82:3.
[757] Dr Brian Riddell and Timber Whitehouse, 2 February 2011, pp 62:20 to 63:8.
[758] Timber Whitehouse, 2 February 2011, pp 31:43 to 32:9.
[759] Timber Whitehouse, 3 February 2011, pp 38:5 to 39:18.
[760] Timber Whitehouse, 3 February 2011, p 39:1-47
[761] Dr Brian Riddell and Timber Whitehouse, 2 February 2011, pp 67:29 to 69:23 and Timber Whitehouse, 3 February 2011, pp 57:46 to 58:09.
[762] Timber Whitehouse, 2 February 2011, pp 82:27 to 84:11; Dr Brian Riddell and Timber Whitehouse, 2 February 2011, pp 84:35 to 86:45.
[763] Timber Whitehouse, 2 February 2011, pp 82:27 to 84:11.

628. There are a number of parties that have resources or capacity that could be used for stock assessment work in the Fraser Watershed.[764] There are a variety of business models that can be applied to forming partnerships with these parties depending on their capacity.[765]

629. Opportunities for future collaborative stock assessment work include working with the University of Northern British Columbia and Thompson Rivers University to develop research programs.[766]

630. In collaborating with universities and other parties on shorter term projects, it is important not to lose sight of the importance of long term monitoring and the time series data that is generated by it.[767] Universities are generally not interested in long term monitoring of stocks and such work should continue to be conducted by DFO. [768] DFO has a very good collection of long term stock assessment data, and it is important that such data continue to be available for research and management.[769]

631. When collaborating on stock assessment work, coordination is critical.[770] It is important keep everyone involved and informed.[771]

632. First Nations are already extensively involved, through DFO's Aboriginal Fisheries Strategy, in doing stock assessment work in the Fraser Watershed. This work has enabled Aboriginal groups, such as Carrier-Sekani Tribal Council, Northern Shuswap Tribal Council, Upper Fraser Fisheries Conservation Alliance, Tsilquot'in National Government to develop capacity in delivering stock assessment programs.[772] Many First Nations want to get involved in stock assessment work.[773]

[764] Dr Brian Riddell, 3 February 2011, pp 57:19 to 58:35.
[765] Timber Whitehouse, 2 February 2011, pp 82:27 to 84:11.
[766] Dr Brian Riddell, 2 February 2011, pp 86:46 to 88:04.
[767] Dr Brian Riddell and Timber Whitehouse, 2 February 2011, pp 84:35 to 86:45.
[768] Timber Whitehouse and Dr Brian Riddell, 2 February 2011, p 70:08-39.
[769] Timber Whitehouse and Dr Brian Riddell, 2 February 2011, p 70:08-39.
[770] Timber Whitehouse, 2 February 2011, pp 64:09 to 65:20.
[771] Dr Brian Riddell, 3 February 2011, pp 57:19 to 58:35.
[772] Timber Whitehouse, 2 February 2011, pp 64:09 to 65:20; Timber Whitehouse, 2 February 2011, pp 82:27 to 84:11.
[773] Timber Whitehouse, 2 February 2011, p 84:12-34.

633. Some of the challenges associated with stock assessment work for Fraser salmon stocks may be addressed by increasing and improving collaborations with First Nations, universities and other parties. Technology, such as radio tagging, may also help address some of the challenges by providing opportunities for better and more effective stock assessment.[774] However, traditional means of stock assessment work will remain important, especially if funding is not available to acquire and test new technology[775]

e) Instilling Confidence Through Reliable Catch Data

634. Effective catch monitoring is an essential component of effective fisheries management.[776]

635. The Pacific Salmon Commission uses DFO's catch reporting data in making estimates of Fraser sockeye abundance.[777]

636. DFO provides its catch estimates to the Pacific Salmon Commission very frequently, sometimes within 24 hours of the closure of a fishery, and these estimates are then refined over time.[778]

637. DFO's catch monitoring programs are funded from DFO's Resource Management and Stock Assessment budgets.[779] DFO fishery officers also contribute to catch monitoring by ensuring compliance with catch monitoring requirements.[780]

638. DFO's catch monitoring work is aligned with the WSP.[781] The catch data collected can assist in assessing the status of CUs.[782]

[774] Timber Whitehouse and Dr Brian Riddell, 2 February 2011, pp 88:28 to 90:31.
[775] Timber Whitehouse and Dr Brian Riddell, 2 February 2011, pp 88:28 to 90:31.
[776] Exhibit 268 at pdf p 1: Pacific Region Fishery Monitoring and Reporting Framework, January 2002; Colin Masson, 12 May 2011, p 71:45-47; David Bevan, 22 September 2011, pp 18:13 to p 19:37.
[777] Mike Lapointe, 8 November 2010, pp 83: 05 to 84:47; Joe Tadey, 3 March 2011, p 8:7-27.
[778] Mike Lapointe, 9 November 2010, p 27:35-42.
[779] Colin Masson, 12 May 2011, p 25:11-17.
[780] Colin Masson, 12 May 2011, p 25:25-31.
[781] Lester Jantz,11 May 2011, pp 32:45 to 33:05 and Colin Masson on May 12
[782] Lester Jantz, 11 May 2011p 33:7-15 and Colin Masson on May 12 and draft Strategic Framework

639. DFO's catch monitoring programs for Fraser sockeye fisheries were reviewed by the Marine Stewardship Council and were assessed favourably in the Council's certification of Fraser sockeye fisheries.[783]

640. From a statistical perspective, catch reporting is not needed from all participants in a fishery provided that the sample that does report its catch is representative.[784] Lack of understanding on the part of some fishers regarding catch monitoring programs and statistical methods can be a problem.[785]

641. Different fisheries require different levels of monitoring in different years depending on factors affecting conservation risks.[786] Lack of understanding regarding why different fisheries are monitored differently, coupled with concerns about allocations between sectors, can create acrimony between sectors in the fishery.[787] As described below, there is increasing understanding amongst fishers regarding how various fisheries are monitored – and increasing understanding that consistent catch monitoring criteria and standards are being applied across fisheries.[788]

642. Catch estimates for commercial fisheries for Fraser sockeye are generally good.[789] DFO's catch estimates for those fisheries account for approximately 95% of the catch.[790]

643. More dockside monitoring and levels of verification improves the accuracy of catch estimates.[791] Dockside monitoring has increased in recent years in some commercial fisheries for Fraser sockeye with demonstration projects in the commercial fisheries in Areas B and H, and dockside monitoring in the regular commercial fishery in Area E.[792]

[783] Exhibit 343 at p 169: "The British Columbia Commercial Sockeye Salmon Fisheries Public Certification Report Volume 1", 28 July 2010; Colin Masson, 12 May 2011, p 43:29-35.
[784] Dr Robert Houtman, 11 May 2011, pp 7:44 to 8:05.
[785] Lester Jantz, 11 May 2011, pp 59:42 to 60:27.
[786] Colin Masson, 12 May 2011, pp 18:40 to 19:20.
[787] Colin Masson, 12 May 2011, pp 3:47 to 4:8.
[788] Grand Chief Malloway, 12 May 2011, p 35:27-38; and Susan Farlinger, 22 September 2011, pp 20:45 to 21:19.
[789] Dr Robert Houtman, 11 May 2011, p 13:11-16.
[790] Dr Robert Houtman, 11 May 2011, p 51:30-46.
[791] Karl English, 14 April 2011, p 13: 22-33.
[792] Dr Robert Houtman, 11 May 2011, p 10:10-20.

644. In recreational fisheries in the Fraser River, catch estimates are based on "creel surveys" which incorporate "rod counts", "activity profiles" to account for changes in fishing activity, and information from interviews with anglers.[793] The precision of such "creel surveys" depends largely on the size of the sample and DFO arranges for as many angler interviews as possible with the budget available for the work.[794]

645. In First Nations' fisheries in the lower Fraser, there has been some difficulty in getting catch reports, or timely catch reports, from some First Nations and some members of First Nations.[795] In such circumstances, DFO monitors the fisheries and generates reliable catch estimates.[796]

646. Catch reporting by a First Nation often depends on DFO's relationship with the First Nation.[797] DFO is working to improve relationships with First Nations and developing incentives – such as more opportunities for collaborative management – to encourage First Nations to provide better catch reporting.[798]

647. In First Nations' fisheries in the BC Interior Area, catches are validated by DFO staff conducting boat patrols and doing sampling.[799] In First Nations' fisheries in the Lower Fraser Area, catches are validated by First Nations' staff and DFO staff.[800] Generally, catch estimates for First Nations' fisheries for Fraser sockeye are good.[801] Catch estimates for the First Nations drift net fishery in the lower Fraser could be improved.[802] More independent validation of catch information would also improve the estimates and confidence in these.[803]

648. DFO's 2002 *Pacific Region Fishery Monitoring and Reporting Framework* set out key principles "intended to provide a transparent basis for the establishment of appropriate fishery

[793] Joe Tadey, 3 March 2011, pp 12:12 to 13:12.
[794] Joe Tadey, 3 March 2011, p 12:12-47.
[795] Matthew Parslow, 11 May 2011, p 14:20-25.
[796] Matthew Parslow, 11 May 2011, p 15:2-5.
[797] Matthew Parslow, 11 May 2011, p 53:12-28.
[798] Exhibit 847: *Forum on Conservation and Harvest Planning For Fraser Salmon Catch Monitoring Workshop - November 22 and 23;* Matthew Parslow, 11 May 2011, p 53:20-28, p 54:25-41; Colin Masson, 12 May 2011, p 39:10-20.
[799] Les Jantz, 11 May 2011, p 16:5-27.
[800] Matthew Parslow, 11 May 2011, pp 16:30 to 17:13.
[801] Matthew Parslow, 11 May 2011, p 53:20-28.
[802] Matthew Parslow, 11 May 2011, p 20:23-26.
[803] Matthew Parslow, 11 May 2011, p:20-27-29.

monitoring and reporting standards and for dialogue with First Nations and commercial and recreational stakeholders on the selection of appropriate fishery monitoring and reporting tools and requirements in order to best meet these standards".[804]

649. The *Pacific Region Fishery Monitoring and Reporting Framework* served to elevate the profile of catch monitoring and reporting issues and set a path for work that followed.[805]

650. One element of the Pacific Integrated Commercial Fisheries Initiative has been promoting "enhanced accountability" in fisheries.[806] This element of the Pacific Integrated Commercial Fisheries Initiative reflects DFO's long term vision for compliance incentives, harvester participation in monitoring, and catch data management.[807] The largest single investment of the Pacific Integrated Commercial Fisheries Initiative "enhanced accountability" funding has been to improve catch data information systems.[808]

651. DFO's draft *Strategic Framework for Fishery Monitoring and Catch Reporting in Pacific Fisheries* was developed by DFO in consultation with First Nations, commercial and recreational harvesters and other stakeholders as part of the *Sustainable Fisheries Framework*.[809] The draft *Framework* sets out DFO's objectives and provides direction.[810] The ecosystem and sustainability considerations that underlie the WSP also underlie the draft *Strategic Framework* and DFO's monitoring programs generally.[811]

652. DFO is doing the work associated with the draft *Strategic Framework for Fishery Monitoring and Catch Reporting in Pacific Fisheries* collaboratively with harvesters – and that work is ongoing.[812]

653. Work outside of DFO has complemented the work that is associated with the draft *Strategic Framework for Fishery Monitoring and Catch Reporting in Pacific Fisheries*. The

804 Exhibit 268, p. 1: Pacific Region Fishery Monitoring and Reporting Framework January 2002
805 Colin Masson, 12 May 2011, pp 5:41 to 6:03.
806 Colin Masson, 12 May 2011, p 7:12-14.
807 Colin Masson, 12 May 2011, p 7:30-46.
808 Colin Masson, 12 May 2011, p 8:29-47.
809 Exhibit 429 at p 1: Draft Strategic Framework for Fishery Monitoring and Catch Reporting in the Pacific Fisheries: A Discussion Paper, November 2010.
810 Colin Masson, 12 May 2011, pp 13:45 to 14:5.
811 Colin Masson, 12 May 2011, p 80:2-24.
812 Colin Masson, 12 May 2011, p 15:1-29.

Fraser River Salmon Table, originally established by First Nations and the commercial sector to discuss Cultus sockeye issues, has fostered dialogue regarding the nature of the fisheries and their associated monitoring programs and is supported by DFO.[813]

654. The Integrated Salmon Dialogue Forum, less locally focused than the Fraser River Salmon Table, has also fostered dialogue between sectors.[814] The Integrated Salmon Dialogue Forum is an inclusive place to incubate ideas and build trust between harvesters.[815] DFO supported the establishment of the Integrated Salmon Dialogue Forum because DFO recognized that it cannot resolve all issues on its own.[816]

655. The Monitoring and Compliance Panel was developed as part of the Integrated Salmon Dialogue Forum because catch monitoring and compliance arose as topics of importance in ongoing discussions at the Integrated Salmon Dialogue Forum.[817] The diversity on the Panel, along with government involvement, has been very important in making it effective.[818]

656. Through the work of the Monitoring and Compliance Panel, observed relationships and understanding among the sectors have grown.[819]

657. DFO contributes funding to support the work of the Monitoring and Compliance Panel.[820] Other organizations also contribute funding to the Panel.[821]

658. The Monitoring and Compliance Panel has work effectively at two levels – both promoting dialogue and interaction between the sectors but also focusing on all the work required to develop *Charting Our Course: Fishery Monitoring in the Pacific Region – A Strategy*

813 Exhibit 859: Dave Moore, Draft 2010 Fraser River Salmon Table: Lower Fraser Salmon Fisheries: Exploring Ways to Improve Our Understandings Around Monitoring and Compliance, 17 November 2010; Grand Chief Ken Malloway, 12 May 2011, p 56:11-21.
814 Policy and Practice Report 12, "Fishery Monitoring and Catch Reporting for Commercial and Aboriginal Fraser River Sockeye Salmon Fisheries" 17 March 2011 at p 39, para 89.
815 Colin Masson, Peter Sakich and Grand Chief Ken Malloway, 12 May 2011, pp 65:35 to 66:11.
816 Colin Masson, 12 May 2011, p 67:5-10.
817 Exhibit 855: *Charting Our Course: Fishery Monitoring in the Pacific Region: A Strategy for Improved Confidence and Support – Final Report*, April 2011.
818 Peter Sakich, 12 May 2011, p 10:7-17; Colin Masson, 12 May 2011, p 59:10-19.
819 Colin Masson, 12 May 2011, p 72:18:23.
820 Colin Masson, 12 May 2011, p 11:21-30 and Susan Farlinger, 22 September 2011, p 20:19-44.
821 Colin Masson, 12 May 2011, p 11:21-30.

for Improved Confidence and Support.[822] There are some differences between that document and DFO's draft *Strategic Framework for Fishery Monitoring and Catch Reporting in Pacific Fisheries* but the development of each document has been informed by the other.[823]

659. First Nations, recreational and the commercial sector appreciate that they need to work with each other on monitoring and compliance issues.[824] The Monitoring and Compliance Panel has "only scratched the surface" of what can be achieved.[825]

660. Improvements can still be made in monitoring and compliance in all sectors – and in continuing to build trust.[826] Until sectors "can believe each others' stories", work will be required.[827]

661. Future work will be aimed at identifying priorities and gaps with respect to catch monitoring.[828] Existing resources may need to be reprioritized in order to address priorities such as improving capacity in the sectors to do catch monitoring work.[829]

f) Instilling Confidence Through Effective Regulation of Finfish Aquaculture

662. DFO has had a shared ongoing role in the management of aquaculture for many years. Prior to the decision of the Supreme Court of BC in *Morton*,[830] the Province had the lead responsibility in the management of aquaculture in British Columbia. In this regard, British Columbia undertook the Salmon Aquaculture Review in 1995. As part of the implementation of recommendations from the review, more formal structures for evaluation of wild-farmed interactions were put in place. In 2000, the Fish Farm Review Committee was struck, establishing a multi-agency review of salmon farm applications including a federal provincial

[822] Exhibit 855: *Charting Our Course: Fishery Monitoring in the Pacific Region: A Strategy for Improved Confidence and Support – Final Report*, April 2011; Colin Masson, 12 May 2011, p 12:13-24, pp 36:14 to 37:4.
[823] Colin Masson, 12 May 2011, p 14:6-11.
[824] Peter Sakich, 12 May 2011, p 35:6-17; Grand Chief Ken Malloway, 12 May 2011, p 35:23-38.
[825] Exhibit 429: *Draft Strategic Framework for Fishery Monitoring and Catch Reporting in the Pacific Fisheries: A Discussion Paper*, November 2010; Colin Masson, 12 May 2011, p 73:3-12.
[826] Colin Masson, 12 May 2011, 91:27-42.
[827] Grand Chief Ken Malloway 12 May 2011, p 30:24-32.
[828] Colin Masson, 12 May 2011, pp 27:33 to 28:4.
[829] Colin Masson, 12 May 2011, pp 27:12 to 28:38.
[830] *Morton v British Columbia (Agriculture and Lands)*, 2009 BCSC 136, 92 BCLR (4th) 314, 2010 BCSC 100, 2 BCLR (5th) 306 [*Morton*].

referral process.[831] In 2003, this Fish Farm Review committee evolved into the Project Review Team and DFO took on the coordination role for this process and the revision of the siting criteria for salmon farms.[832]

663. Until 2003, Transport Canada was the lead authority under the *CEA Act*, with review of habitat and fish population interactions provided by DFO. In 2003, DFO assumed the lead role in environmental reviews. With the introduction of the new regulatory regime for aquaculture in British Columbia, in December 2010, aquaculture licences became the central instrument used to manage aquaculture in British Columbia. Habitat issues are now managed under the licence. During the consideration of applications for new licences and application to amend existing licences that have the potential to substantially increase the environmental footprint, DFO will conduct environmental reviews, including consideration of fish habitat, water quality, algae, fish populations and fish health, ecosystems effects and Aboriginal use of land and resources for traditional purposes. At the same time, virtually all marine aquaculture sites require a *Navigable Waters Protection Act* permit, thus triggering a CEAA review with Transport Canada again being the lead authority (as it was before 2003).

664. Public participation in the review process and consultation with Aboriginal groups will be improved through the Integrated Management of Aquaculture Plans (IMAP) process. Communication will be further strengthened through public reporting on regulatory and fish farm operation information, which is being posted on the DFO website.

665. In 2010, in response to the *Morton* decision holding that aquaculture constituted a fishery under the *Fisheries Act*, new *Pacific Aquaculture Regulations* [833] were established under the Act. DFO put in place a British Columbia Aquaculture Regulatory Regime to implement its new regulatory authority. The regulations and the program regime are designed to ensure that

[831] Gavin Last, 30 August 2011, p 48:34-44.
[832] Gavin Last, August 30, 2011, pp 48:45 to 49:4.
[833] *Fisheries Act*, RSC 1985, c F-14 [*Fisheries Act*]; *Pacific Aquaculture Regulations*, SOR/2010-270 [*Pacific Aquaculture Regulations*]; Policy and Practice Report 20, "Aquaculture Regulation in British Columbia" 28 July 2011 at p 63, para 121.

appropriate measures are in place so that aquaculture activities do not negatively affect fish populations and fish habitat, which includes sockeye salmon and their habitat.[834]

666. The Department developed the Sustainable Aquaculture Fisheries Framework to frame the management regime and to strengthen DFO's leadership in aquaculture regulation and to ensure consistency with other fisheries and overall DFO directions and policies. The Sustainable Aquaculture Fisheries Framework forms the basis for the ongoing management of aquaculture under the PAR and related authorities under DFO's responsibility.[835] The framework identifies a set of objectives, principles and policies and encompasses the following elements: 1) conservation, ecosystem and sustainable use policies and approaches; 2) economic and governance policies and approaches; 3) planning processes and regime performance monitoring tools; and 4) operational implementation.

667. Many of the aspects of the former provincial regulatory regime with respect to finfish aquaculture are continued as part of the new federal regulatory regime. In part, this is of necessity, given the short time frame that Canada had to develop and implement a new regulatory regime following the *Morton* decision. This new regulatory regime includes, but is not limited to, such measures as containment of fish, requirements for fish health management and sea lice control and limits on extent and intensity of organic deposition from food. In addition, many aspects of the former DFO regime have also been carried forward. This includes, but is not limited to, environmental reviews, fish transfer controls, predator management, fish health controls, habitat mitigation and compensation.[836]

668. A particular focus of testimony was with respect to measures to prevent introductions of exotic diseases such as infectious salmon anemia, and the spread of pathogens to and from

[834] Exhibit 1624: Practitioners Guide to the Risk Management Framework for DFO Habitat Management Staff; Andrew Thomson, 30 Aug 2011, Panel 58 p 60:9-43.
[835] Exhibit 1598: *Draft British Columbia Aquaculture Regulatory Regime: A Sustainable Aquaculture Fisheries Framework*, 29 June 2011; Andrew Thomson, 30 August 2011, pp 37:47 to 38:11.
[836] Exhibits 1610: *Draft Pacific Aquaculture Regulations Approach to Managing Non Feed-Related Organic Deposition in Aquaculture*; Exhibit 1611: *Draft Pacific Aquaculture Regulations Approach to Fish Health*; Exhibit 1612: *Draft Pacific Aquaculture Regulations Approach to the Use of Noise; Exhibit*; 1613: *Draft Pacific Aquaculture Regulations Approach to Managing Fish Transfer, Removal and Production in Aquaculture Facilities* and Exhibit 1614: *Draft Pacific Aquaculture Regulations Approach to Chemicals and Litter Management at Aquaculture Sites*.

finfish farms.[837] As to preventing introduction of exotic diseases, the import controls that have been in place in British Columbia for a number of years are internationally renowned and very strict.[838] DFO has a high degree of confidence that the regulatory regime with respect to import controls effectively prevents the introduction, via egg or sperm imports, of disease into Canada.[839] For finfish, only gametes (eggs or sperm) are permitted to be brought into British Columbia from outside sources. Importation of live fish is prohibited. Strict controls as to source, testing and isolation are in place to prevent imported eggs from introducing pathogens.[840] The federal government is in the process of moving responsibilities for disease control with respect to importations from DFO and the *Fisheries Act* to the Canadian Food Inspection Agency, acting under the, *Health of Animals Act* with equally strict measures being implemented and enforced.[841] Fish farms use eggs from their own brood stock or eggs from away that have been subjected to these strict controls. Enhancement hatcheries use eggs from adjacent natal streams or eggs from a nearby stream.

669. DFO is in the process of developing a suite of policy and practice documents[842] describing the current program and policy approach and is consulting concurrently on future directions to keep the policy base and resulting decision-making in line with the evolving science and regulatory needs. The guiding policy direction focuses on monitoring and minimizing the effects of fish farms on wild fish populations and fish habitat, including Pacific salmon, while facilitating sustainable aquaculture development.

670. The science underpinning management decisions is a critical element in setting current practice and future directions. Throughout the last two decades, there has been ongoing investment and leadership in research by DFO to better understand the potential risks associated with the interaction of farmed and wild salmon. This includes a broad spectrum of research from

[837] Dr Peter McKenzie, 31 August 2011, pp 31:42 to 32:13.
[838] Dr Peter McKenzie, 31 August 2011, p 30:13-17.
[839] Trevor Swerdfager, 31 August 2011, p 32: 25-35.
[840] Andrew Thomson, September 1, 2011, p 51:10-18.
[841] Peter McKenzie, 31 August 2011, Panel 59, p 31 31:2 to 32:13.
[842] Exhibits 1610: *Draft Pacific Aquaculture Regulations Approach to Managing Non Feed-Related Organic Deposition in Aquaculture*; Exhibit 1611: *Draft Pacific Aquaculture Regulations Approach to Fish Health*; Exhibit 1612: *Draft Pacific Aquaculture Regulations Approach to the Use of Noise; Exhibit*; 1613: *Draft Pacific Aquaculture Regulations Approach to Managing Fish Transfer, Removal and Production in Aquaculture Facilities* and Exhibit 1614: *Draft Pacific Aquaculture Regulations Approach to Chemicals and Litter Management at Aquaculture Sites*.

a very fine level of detail such as the mortality of juvenile pink salmon exposed to sea lice to large scale projects modelling water movement in the Broughton Archipelago.[843] DFO has also, through the Aquaculture Collaborative Research and Development Program, carried out research intended to improve the environmental performance of salmon aquaculture at the local farm level and further the development and effectiveness of mitigative measures. More recently through the Program for Aquaculture Regulatory Research[844], DFO has continued to develop and advance both an understanding of potential interactions and management measures to address them.

671. In addition, the Commission, itself, retained scientists to undertake an assessment of the impacts of salmon farms on Fraser sockeye was carried out to evaluate the role of aquaculture, if any, in the ecology and survival of Fraser sockeye (Project 5). The project was completed in four parts and included evaluation of factors such as: sea lice exposure, farm wastes (habitat quality), Atlantic salmon escapees and disease[845]. Siting and operation of aquaculture facilities in the marine environment were identified as ephemeral and dynamic environmental factors that could affect sockeye salmon in the absence of appropriate environmental regulation.

672. The key findings of the Project 5 Technical Reports are that, overall, salmon farms pose no significant threat to Fraser sockeye and that salmon farming has not caused the decline in Fraser sockeye productivity.[846] More specifically, there is insufficient evidence to find a link between waste, escapes or sea lice on fish farms with a decline in Fraser sockeye productivity.[847]

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[843] Exhibit 1473: Simon RM Jones & N Brent Hargreaves, "Infection threshold to estimate *Lepeophtheirus salmonis*-associated mortality among juvenile pink salmon" (2009) 84 Dis Aquat Org 131; Exhibit 1529: Kyle Garver et al, *Risks of Infectious Hematopoietic Necrosis Virus (IHNV) dispersion associated with Atlantic Salmon Net Pen Aquaculture*; Exhibit 1772: Kenneth M Brooks & Simon RM Jones "Perspectives on Pink Salmon and Sea Lice: Scientific Evidence Fails to Support the Extinction Hypothesis" (2008) 16:4 Reviews in Fisheries Science 403; Dr Simon Jones, 6 September 2011, pp 15:25 to 16:26; Dr Laura Richards, 26 September 2011, pp 63:40 to 64:07.
[844] Exhibit 1608: *Program for Aquaculture Regulatory Research (PARR) Call for Proposals (2009/10)* and Exhibit 1609: *Program for Aquaculture Regulatory Research (PARR) Directed Call for Proposals (2010-2011)*.
[845] Exhibit 1536: Technical Report No 5C, "Impacts of salmon farms on Fraser River sockeye salmon: results of the Noakes investigation", June 2011; Exhibit 1540: Technical Report No 5D, "Impacts of salmon farms on Fraser River sockeye salmon: results of the Dill investigation", June 2011; Exhibit 1543: Technical Report No 5A, "Summary of Information for Evaluating Impacts of Salmon Farms on Survival of Fraser River Sockeye Salmon", May 2011; Exhibit 1545: Technical Report No 5B, "Examination of relationships between salmon aquaculture and sockeye salmon population dynamics", June 2011.
[846] Exhibit 1536 at pp i-ii, 32: Technical Report No 5C, "Impacts of salmon farms on Fraser River sockeye salmon: results of the Noakes investigation", June 2011.
[847] Exhibit 1536 at p 16; Exhibit 1450 at p 22: Technical Report No 5D, "Impacts of salmon farms on Fraser River sockeye salmon: results of the Dill investigation", June 2011.

Any impacts are local and not sufficient to affect sockeye at the population level or drive a long term decline.

673. As to pathogens and disease, Dr. Kent, Technical Report 1, and Dr. Johnson both conclude that there are no direct links between a specific pathogen and sockeye salmon survival at a population level in British Columbia.[848] The incidence of disease on fish farms in the last decade is low, and farm fish are pretty healthy.[849] There was a spike in mortality on some farms in 2003, which serves to show that disease outbreaks are easy to see when they occur. There has not been a significant disease outbreak seen on finfish farms for many years.

674. Importantly, pathogens and diseases which have been identified on farms are endemic in British Columbia and are found in wild stocks regardless of whether fish farms are present. There is no evidence that any exotic pathogens or diseases have been introduced by the salmon farming industry.[850]

675. Good, detailed health and fish husbandry records and monitoring of farms and farmed fish are required in order to detect and prevent fish health problems from arising and taking hold.[851] As Dr. Dill notes, this is because there is the potential for problems for wild salmon populations as the fish farm pens are open to the environment.[852] The new DFO regulatory regime requires that such records be kept and disclosed. Further, DFO posts farm and fish health information on its public website, so there is transparency.[853]

676. Also important, are multiple year surveys, data sets and scientific research on both farmed fish and wild stocks. The state of the science for understanding pathogens and disease on farmed fish is better than for wild stocks. Farmed fish are easier to study. Wild stocks are largely invisible to scientists and fish managers from the time they leave the river, or at least the inside marine areas, until they return two years later. The ocean is large, the fish migrate and it is difficult and expensive to track them. In many ways, information on farm fish health serves as

[848] Exhibit 1449 at pp i, 1, 19-20: Technical Report No 1, "Infections Diseases and Potential Impacts on Survival of Fraser River Sockeye Salmon", February 2011; Dr Michael Kent, 22 September 2011, p 18:34-47.
[849] Exhibit 1536 at p ii.
[850] Exhibit 1449 at pp i, 1, 19, 20; Exhibit 1536 at p 24.
[851] Exhibit 1536 at p 24.
[852] Exhibit 1450 at p 1.
[853] Andrew Thomson, 1 September 2011, p 79:20-38.

a real-time marine laboratory and proxy for understanding the effects of sea lice and pathogens on wild stocks.

677. Alexandra Morton, in her viva voce evidence and her written account of evidence, takes quite a different view from that presented by the recognized experts.[854] She believes that fish farms are an incubator of pathogens and disease and, in the past at least, have contributed to the amplification of sea lice in wild stocks. As a first point, Alexandra Morton did not testify as an expert witness and is not an expert in fish health, sea lice or pathogens and disease. The evidence of the recognized experts – the authors of Technical Reports 1, 1A and 5, the DFO scientists, the veterinarians and other witnesses who were qualified as experts, should be given far greater weight than Alexandra Morton's. Second, Exhibit 1976 and Alexandra Morton's evidence generally contain many factual errors, incomplete accounts and analysis of available information or information taken out of context, and speculation. Her evidence is results driven. Between a third and half the documents she refers to in exhibit 1976 are not in evidence, thus further undermining the weight to be given to what she says.

678. Considerable attention has been given to the ongoing study of genomic signatures in salmon which is being undertaken by Dr. Kristy Miller, and whether there is any link between genomic signatures and finfish farms. Dr. Miller's study is a work in progress, and still in its early days. It is leading edge science and potentially very important. It is too early to draw conclusions from this work, however. Both Dr. Miller and Dr. Garver, who is the virologist working with Dr. Miller, emphasized this. As Dr. Garver testified:

> As a scientist, I'm really concerned with all the speculation that's going on here. We have a parvovirus sequence. We don't have it linked to a disease. We don't have it linked to mortality. We don't know how it's transmitted. We don't know if it causes disease. We don't have any pathology associated with it. So if we're sitting around discussing scientifically hypothesis, this is fine, but if we're actually trying to get to some answers, it's pure speculation.[855]

679. We do know that the genomic signature is found in sockeye salmon before they leave the Fraser River on their outward migration, thus indicating that it is present early in their lifecycle.

[854] Exhibit 1976: Alexandra Morton, *What is Happening to the Fraser Sockeye?*, 14 August 2011.
[855] Dr Kyle Garver, 24 August 2011, pp 98:47 to 99:10.

680. Overall, the evidence suggests that fish farms do not pose a significant health risk to wild stocks and the risk level that does exist can be successfully managed. With the current regulatory measures in place, impacts from salmon farms (eg sea lice exposure, farm wastes (habitat quality), Atlantic salmon escapees and disease) are likely to be local and insufficient alone or in concert to cause either long term population declines or the 2009 return decline.[856]

681. The preponderance of evidence is that pathogens and/or disease from enhancement or salmon farming activities have not impacted Fraser sockeye at population levels. Further, proper fish husbandry and management practices will prevent transmission that could cause disease or other health concerns at the population levels. As noted, if a problem were to arise it would likely manifest itself at the farms, where fish are concentrated and visible. Disease outbreaks have not occurred on farms in the past 9 years, and only rarely before then dating back to 2002.[857] Still, DFO realizes that robust fish health monitoring, management regimes and enforcement are required for finfish aquaculture. As a result and being precautionary, DFO continues to manage disease risks through the Pacific Aquaculture Regulations.[858] Specifically, these are managed and regulated through a comprehensive suite of Conditions of Licence for Marine Finfish Aquaculture including control measures implemented during Transfer of Fish (section 4), requirements for Fish Health Management Plans (Section 5), sea lice monitoring requirements (Section 6), mandatory Fish Health Record Keeping (Section 7), and Fish Health Event Response requirements (Section 8).[859] The terms of licence, implemented in 2010, are currently under review, and will remain so on an ongoing basis, to ensure that they meet current needs. This review will be done in consultation with interested parties and the fish farm operators including as outlined below.

682. Moving forward, DFO continues its work to implement integrated management of Pacific fishery resources, including aquaculture, relying on science to inform its management

[856] Dr Donald Noakes, 26 August 2011, p 44:13-28.
[857] Exhibit 1454: Technical Report No 1A, "Assessment of the potential effects of diseases present in salmonid enhancement facilities on Fraser River sockeye salmon", July 2011; Exhibit 1536: Technical Report No 5C, "Impacts of salmon farms on Fraser River sockeye salmon: results of the Noakes investigation", June 2011, at p. ii, para 5; Exhibit 1540: Technical Report No 5D, "Impacts of salmon farms on Fraser River sockeye salmon: results of the Dill investigation", June 2011.
[858] Exhibit 1611: *Draft Pacific Aquaculture Regulations, Approach to Fish Health.*
[859] Exhibit 1594 at pp 7-8, 10-11: *Finish Aquaculture Licence 2010 under the Pacific Aquaculture Regulations.*

approaches and adapting its regulatory regime to respond to evolving context and science information.

683. Similar to the consultative approach with capture fisheries, a formal planning process is being established under British Columbia Aquaculture Regulatory Regime through Integrated Management of Aquaculture Plans processes.[860] Although consultations are just getting underway, it is expected that advisory panels made up of industry, Aboriginal groups and stakeholder representatives will be struck, operating under terms of reference developed with DFO.[861] When implemented, this multi-stakeholder approach will support prioritization of, and consultation on, changes to regulatory management and stewardship. It is the DFO's intention to also implement an approach that will support First Nations engagement and planning with respect to overlapping management areas between the marine finfish Integrated Mangement of Aquaculture Plan and the Pacific salmon IFMP.[862]

684. Along with consultation processes, continued investment in science supports DFO's implementation of adaptive approaches to management. This in turn supports a regulatory framework for aquaculture that is effective in protecting fish and fish habitat, while allowing for sustainable activities and development.

7. *The incentives, structures and supports to promote effective collaboration and shared responsibility for future sustainability of the Fraser River sockeye fishery.*

a) Overview

685. Working effectively with clients, stakeholders, and key partners is essential to delivering on the DFO's mandate and vision.[863] DFO is committed to building on existing partnerships and improving the quality of engagement and consultation with Aboriginal groups and stakeholders, as well as with non-governmental organizations and advisory bodies on resource management

[860] Exhibit 1604: *Draft Pacific Aquaculture Regulations: Integrated Management of Aquaculture Plans (IMAP.*
[861] Andrew Thomson, August 30, 2011, Panel 58, pp 25:17 to 26:41.
[862] Exhibit 1604: *Draft Pacific Aquaculture Regulations: Integrated Management of Aquaculture Plans (IMPA) Guidance.*
[863] Exhibit 1941 at p 9: Honourable Keith Ashfield, "Fisheries and Oceans Canada – Report, Minister's Message" *Treasury Board of Canada Secretariat* (9 June 2011), online: The Department of Fisheries, www.dfo-mpo.gc.ca/index-eng.htm.

and stewardship issues.[864] This is also identified as a key ingredient to ensure success in implementing the Wild Salmon Policy.[865]

686. Collaboration and co-management related to Fraser sockeye will vary depending on the nature of the activity or decision involved. Because of the many and varied agreements and arrangements currently in place, as well as for legislative reasons, the nature of the collaboration is also tied to the scale of the activity.[866] For example, in some cases DFO will collaborate with a major international organization to build large-scale scientific studies, while in other situations, DFO will work with a particular First Nation to co-manage an issue of local interest.[867] DFO is involved in collaboration and shared responsibility at all levels and scales in many different forms tailored to the issue at hand.[868]

687. Through policies and initiatives, including Strategy 4 of the Wild Salmon Policy, DFO recognizes the importance of co-management and, in particular, that it is important for all sectors to collaborate and build trust in each other's information, such as catch data.[869] The Integrated Harvest Planning Committee is a key venue for supporting engagement and collaboration between DFO and various interests, as well as a focal point for fishery planning conducted by DFO.[870] In addition to the Integrated Fisheries Management Plan, DFO consults directly with First Nations (including at the community and aggregate level) and other interests around the development and implementation of the annual salmon Integrated Fisheries Management Plan. There are many habitat related initiatives and activities that depend on collaboration to sustain the resource. DFO is also trying new approaches to partnership building in an effort to generate consensus among stakeholders.

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[864] Exhibit 1941 at p 9: Honourable Keith Ashfield, "Fisheries and Oceans Canada – Report, Minister's Message" *Treasury Board of Canada Secretariat* (9 June 2011), online: The Department of Fisheries, www.dfo-mpo.gc.ca/index-eng.htm.
[865] Exhibit 8 at p 35: Department of Fisheries and Oceans *"Canada's Policy for Conservation of Wild Pacific Salmon"* 2005.
[866] Susan Farlinger, 26 September 2011, p 3:36-41.
[867] Susan Farlinger, 26 September 2011, p 3:41-47.
[868] Susan Farlinger, 26 September 2011, p 4:2-8.
[869] Susan Farlinger, 26 September 2011, pp 78:28 to 79:14.
[870] Susan Farlinger, 26 September 2011, p 4:33-38.

b) Incentives for Collaboration

688. Incentives are closely tied to collaboration. If people feel that they are involved in the decisions, they will have a greater "stake" in the implementation and results of those decisions, including potentially benefitting from future stock abundance or the availability of fisheries resources for the future.[871] With each stakeholder coming to the table with a different perspective, it can be a challenge to build consensus.[872] A key incentive for collaboration among stakeholders is concern for the conservation of the resource, and the availability of fish in the future. This incentive can often lead to broad support for necessary conservation measures to manage the fishery.[873] Market-based incentives for the conservation and the sustainable rebuilding of the fishery, such as eco-certification and defined share fisheries management approaches like Individual Quota and pool arrangements, can also encourage responsible and cooperative fisheries management among groups with different perspectives.[874]

689. Finally, the Minister of Fisheries and Oceans, must make decisions to best meet the needs of conservation and sustainable fisheries, and it is often in the interest of potentially affected groups to collaborate and provide joint or consensus advice where possible.[875]

c) Current Processes for Collaboration

690. As noted previously, there are many structures and processes in place to support collaboration among DFO, Aboriginal groups, stakeholders, and others who share responsibility for the sustainability of the Fraser sockeye resource. To a large extent, these processes are aimed at promoting effective collaboration and engagement on different aspects of fisheries and resource management, and reflect the value of stakeholder engagement in the decision making process.

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[871] Exhibit 900 at p 8: John C Davis, *"Setting the stage - Rebuilding sustainable fisheries for the future - challenges and opportunities for fisheries managers and decision-makers"*, Invited address-Organization For Economic Co-operation and Development (OECD), Paris, workshop on the Economics of Rebuilding Fisheries, May 2009.
[872] John Davis, 30 May 2011, p 44:7-20.
[873] John Davis, 30 May 2011, p 44:27-38.
[874] Exhibit 900: John C Davis, *"Setting the stage - Rebuilding sustainable fisheries for the future - challenges and opportunities for fisheries managers and decision-makers"*, Invited address-Organization For Economic Co-operation and Development (OECD), Paris, workshop on the Economics of Rebuilding Fisheries, May 2009.
[875] Susan Farlinger, 26 September 2011, p 7:19-42.

i. First Nations Collaboration

691. Moving toward co-management, including an increased role for Aboriginal groups in policy development and decision-making, is an objective for DFO.[876] While progress has been made, the work required to build collaboration and co-management with Aboriginal groups remains ongoing. In British Columbia, it is considered to be part of efforts to move forward on the Wild Salmon Policy and broader fisheries reforms.[877] In many cases, work is underway to move beyond traditional consultation approaches to deeper engagement based on co-management and shared-stewardship.[878] This kind of collaboration is part of DFO's approach to engaging Aboriginal groups all across the country.[879] In British Columbia, DFO is engaged in the Forum process with First Nations to build consensus amongst all First Nations who harvest Fraser sockeye on the management of the Aboriginal fishery.[880]

692. In addition to establishing co-management processes, DFO has programs such as AFS and AAROM that support the skills, resources and capacity of Aboriginal groups to engage in fisheries management, policy development, and decision-making at a local and aggregate level.[881] Further, one objective of the PICFI program is to support the transition toward co-management, including the establishment of new collaborative processes, capacity building for catch monitoring and enforcement, as well as technical and policy capacity for Aboriginal groups to engage at the Tier 1, 2 and 3 levels.[882]

693. Aboriginal groups' involvement and perspectives in collaborative planning processes is also important in the context of habitat related work because Aboriginal groups bring to the table their interests in an ecosystem-based regime.[883] DFO has supported a number of Aboriginal groups' capacity building work to assist them bringing relevant information, traditional

[876] Exhibit 1220: Department of Fisheries and Oceans, *"Fraser River Salmon Roadmap Background Document Overview of the Fraser River Salmon Roadmap Initiative"*.
[877] Claire Dansereau, 23 September 2011, p 38:33-38.
[878] Exhibit 1220: Department of Fisheries and Oceans, *"Fraser River Salmon Roadmap Background Document Overview of the Fraser River Salmon Roadmap Initiative"*.
[879] Claire Dansereau, 23 September 2011, p 38:33-38.
[880] Susan Farlinger, 26 September 2011, p 4:14-24.
[881] Exhibit 1187 at p 16: Department of Fisheries and Oceans, *"An Integrated Aboriginal Policy Framework 2006-2010"*, 2007; Barry Huber, 28 June 2011, p 73:26-33.
[882] Exhibit 1437 at pp 2-3, 14-20, 28-35: Department of Fisheries and Oceans, *"Pacific Integrated Commercial Fisheries Initiative (PICFI) 5-Year Plans"*, 12 December 2008.
[883] Rebecca Reid, 5 April 5 2011, p 85:19-29.

ecological knowledge and other information into any planning and decision-making process in the management of habitat.[884]

694. DFO is currently looking at practical ways to move co-management forward, including engaging Aboriginal groups and stakeholders in the development of a co-management framework to provide more consistency and guidance. This work is guided not only by government policy, but also by practical issues regarding around the management of fisheries.[885] Further, discussions on how to move forward are underway between DFO and the First Nations Fisheries Council (FNFC) as part of the DFO-FNFC co-management working group.[886]

ii. Integrated Harvest Planning Committee (IHPC)

695. The Integrated Harvest Planning Committee is the key advisory process used by DFO for integrated planning of the Pacific salmon fishery. Its purpose is to "promote a more streamlined, representative, cross-sectoral advisory process related to salmon harvest planning, management and post-season review."[887] At the Integrated Harvest Planning Committee, an integrated fishing plan is developed by bringing together input from the bilateral processes with the different stakeholders, including the negotiations and consultations with First Nations.[888] The Integrated Harvest Planning Committee is an important focus of DFO collaboration efforts with the fishery's stakeholders and as such DFO is constantly trying to improve the Integrated Harvest Planning Committee process.[889] The Integrated Harvest Planning Committee typically meets four times a year.[890]

696. Structuring First Nations' participation at the Integrated Harvest Planning Committee is an ongoing challenge.[891] There are currently eight First Nations representatives at the Integrated Harvest Planning Committee appointed by DFO based on recommendations made by the major

[884] Patrice Leblanc, 5 April 2011, p 85:30-38.
[885] Susan Farlinger, 26 September 2011, p 6:23-35.
[886] Exhibit 1192: "Draft FNFC Co-Management Working Group Terms of Reference", Department of Fisheries and Oceans, 27 May 2010; Barry Huber, 28 June 2011, pp 71:42 to 72:7.
[887] Exhibit 342 at p 1: Department of Fisheries and Oceans, *"Integrated Salmon Harvest Planning Committee (IHPC): Terms of Reference"* May 2005.
[888] Susan Farlinger, 26 September 2011, p 4:33-43.
[889] Susan Farlinger, 26 September 2011, p 4:43-47.
[890] Jeff Grout, 17 January 2011, p 12:5-12.
[891] Paul Ryall, 16 March 2011, p 16:19-21.

Aboriginal groups in the South and in the North.[892] The Integrated Harvest Planning Committees terms of reference call for DFO to continue to work with Aboriginal groups on a suitable process for representation.[893] Many of the processes for collaboration with Aboriginal groups at the tier 1 (Aboriginal groups with each other) and tier 2 levels (Aboriginal groups with DFO) work at building capacity for Aboriginal groups to participate more fully in tier 3 (multi-interest) processes such as the Integrated Harvest Planning Committee. Aboriginal groups' participation enhances the discussions at the Integrated Harvest Planning Committee and it would improve the process if Aboriginal groups' representation would be broader.[894] An element of the work undertaken by the Forum and the Roadmap processes on building co-management is to look for ways to improve Aboriginal groups' collaboration with the Integrated Harvest Planning Committee.[895]

iii. Habitat and Stewardship Processes

697. Collaboration is also a central element in the management of human activities such as industrial activity and urbanization projects, where DFO works with many partners to ensure that the interests of fish and fish habitat are taken into consideration at the decision making table. Building these partnerships is a necessary part of ensuring the protection of fish habitat and the sustainability of the sockeye fishery. DFO is involved in many habitat related processes and stewardship initiatives aimed at working with other levels of government and agencies, industry, and the general public.

698. Industrial activity can have many impacts on fish habitat and in turn affect the sustainability of Fraser sockeye. Collaborative work involving the Province of BC and Canada is a key partnership in the management of a number of industry sectors and activities. This collaboration has included forestry monitoring and enforcement work with to the *Forest Range Practices Act*, as well as the development of various guidebooks and joint working groups.[896] BC and DFO have collaborated on research on forestry impacts on fish, and this collaboration is

[892] Exhibit 342 at p 3: Department of Fisheries and Oceans, *"Integrated Salmon Harvest Planning Committee (IHPC): Terms of Reference"* May 2005.
[893] Exhibit 342 at p 3: Department of Fisheries and Oceans, *"Integrated Salmon Harvest Planning Committee (IHPC): Terms of Reference"* May 2005.
[894] Paul Ryall, 16 March 2011, p 16:25-30.
[895] Paul Ryall, 16 March 2011, p 17: 10-18.
[896] Ian Miller, 17 June 2011, pp 16:39 to 18:12.

increasing as DFO moves forward with the implementation of the Wild Salmon Policy.[897] Collaboration also occurs in the hydro-power industry. DFO has been an active partner in the water use planning process at BC Hydro facilities such as the Bridge Seton complex.[898] It is part of the Fish/Hydro management committee, working with BC Hydro and the province of BC.[899] This collaboration has led to co-developed processes and instruments for better management of habitat impacts of hydro power facilities.[900] In some industrial sectors, such as mines and pulp mills, there is work to be accomplished to better coordinate the various levels of governments and interacting with proponents and with the private sector.[901]

699. DFO's mandate to protect fish habitat overlaps with those of other agencies, jurisdictions and levels of government who have an interest in promoting development and encouraging proponents to set up urbanization projects. Regulating the pace of urban development has led to the building of collaborative relationships between DFO and the province of BC.[902] Gravel removal is an example where DFO collaborates closely with BC's flood prevention initiatives on a planning scale to ensure proper consideration of fish habitat.[903] Coordination on the management and delivery of the Riparian Areas Regulation of the BC *Fish Protection Act* is another example of collaboration between DFO and BC in the conservation and regulation of foreshore areas that have overlapping and complimentary jurisdictional interests.[904]

700. In some cases where the protection of riparian habitat is more dependent on the will of local governments, cooperation can be more of a challenge because such governments are often interested in expanding development activities close to water to meet recreational, private landowner, or commercial objectives.[905] It is important for local communities and the general public to work with their municipal or regional governments to push for good planning and

[897] Dr Tschaplinski, 17 June 2011, pp 57:29 to 58:34.
[898] Policy and Practice Report 21 at pp 42-43, *"Regulation of Water Uses in the Fraser River Watershed"* 18 August 2011.
[899] Exhibit 1878: *"*Terms *of Reference for DFO, MOE, BC Hydro Fish / Hydro Management Committee"*, Department of Fisheries and Oceans, Ministry of Environment, BC Hydro, 9 December 2004.
[900] Exhibit 1881: "Compliance Protocol between BC Hydro, MOE and DFO".
[901] Bob Grace, 13 June 2011, p 60:29-47.
[902] Crowe, 8 June 2011, pp 23:10 to 24:15.
[903] Jason Hwang, 16 June 2011, p 90:27-31.
[904] Exhibit 1007 at p 24: Minister of Land and Air Protection, "Riparian Areas Regulation Implementation Guidebook, British Columbia" January 2006; Michael Crowe, 8 June 2011, p 31:4-41, p 35:23-30, pp 57:40 to 58:28; Stacey Wilkerson, 8 June 2011, pp 74:44 to 75:12.
[905] Michael Crowe, 8 June 2011, pp 23:10 to 24:15.

implementation processes that take into account the value of fish habitat in local zoning and bylaw decisions so as to work collaboratively with DFO to build the key partnerships that will ensure that urbanization does not conflict with the sustainability of the sockeye fishery.[906] DFO supports the Province of BC's efforts to modernise water management in BC.[907] The proposed *BC Water Sustainability Act* is intended to incorporate ecological and fisheries interests in water management and licensing decisions, providing increased protection of water for fish.[908]

701. In some areas of the province DFO collaborates on watershed planning initiatives. These processes can be led at the local level to address an issue for which there is a publicly supported desire for change.[909] In the BC Interior, the DFO has supported the Shuswap Lake Integrated Planning Process (SLIPP). The Shuswap Lake Integrated Planning Process initiative is an example where local citizens, elected officials and First Nations communities, BC and Canada acted on their concerns over the pace of urbanization and destruction of habitat in their area.[910] The Shuswap Lake Integrated Planning Process is built on the recognition that successful management of habitat, water quality and development must engage all stakeholders, including the public, as partners.[911] It brings to the table people with divergent interest to figure out ways to collaborate and share objectives and understanding.[912] Success requires leadership and focus.[913] DFO is also part of the Nechako Watershed Council, another multi-stakeholder body, which provides management advice to the Nechako Environmental Enhancement Fund.[914]

702. The Fraser River Estuary Management Plan is another example of a long standing collaborative approach to the management of development activities in areas of sensitive fish habitat.[915]

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[906] Corino Salomi, 8 June 2011, pp 73:14 to 74:8.
[907] Jason Hwang, 16 September 2011, p 40:1-8.
[908] Policy and Practice Report 21, "Regulation of Water Uses in the Fraser River Watershed" 18 August 2011 at p 26-28.
[909] Michael Crowe, 8 June 2011, pp 61:47 to 63:24.
[910] Exhibit 1014 at p 3: SLIPP Steering Committee, "Shuswap Lake Integrated Planning Process".
[911] Exhibit 1014 at p 4: SLIPP Steering Committee, "Shuswap Lake Integrated Planning Process".
[912] Michael Crowe, 8 June 2011, p 64:33-47.
[913] Exhibit 1014 at p 7: SLIPP Steering Committee, "Shuswap Lake Integrated Planning Process".
[914] Policy and Practice Report 21 at p 67, "Regulation of Water Uses in the Fraser River Watershed" 18 August 2011.
[915] Corino Salomi, 8 June 2011, p 11:2-45.

703. DFO collaborates on habitat and stewardship not only with formal organizations but also with volunteer groups and community initiatives.

d) Testing New Approaches

704. In addition to the collaboration processes described above, DFO has tested new approaches to shared responsibility and stewardship. With more parties involved in the fishery than before, DFO faces different views and added layers of complexity in the overall decision making process.[916] The aim of the new initiatives is to improve the current level of collaboration by involving First Nations and other levels of government in the management of the resource at an earlier stage in the decision making process. Although DFO policies are approved by the government, the interests and contributions of those affected is critical.[917]

i) Integrated Salmon Dialogue Forum (ISDF)

705. The origin of the Integrated Salmon Dialogue Forum lies in the recognition that bilateral collaboration initiatives can be supported by a forum drawing those bilateral conversations together and focused on issues touching all sectors of the integrated fishery.[918] The Integrated Salmon Dialogue Forum "provides a collaborative and inclusive opportunity for all interests to work towards a fully integrated sustainable salmon fishery in ways that respects the Wild Salmon Policy."[919] Participants meet to have conversations on difficult issues with the aim of resolving or narrowing differences to build a more fully integrated salmon fishery and establish mutual trust.[920] Participants have agreed to give effect to consensus reached at the Integrated Salmon Dialogue Forum and work to address emerging differences.[921] The Integrated Salmon Dialogue

[916] Paul Ryall, 16 March 2011, p 35:5-21; Susan Farlinger, 23 September 2011, p 78:9-17.
[917] Colin Masson, 12 May 2011, p 9:27-31.
[918] Exhibit 392 at p 1: Glenn Sigurdson and Barry Stuart, "Framework for the Integrated Salmon Dialogue Forum", March 2007.
[919] Exhibit 392 at p 2: Glenn Sigurdson and Barry Stuart, "Framework for the Integrated Salmon Dialogue Forum", March 2007.
[920] Policy and Practice Report 12, "Fishery Monitoring and Catch Reporting for Commercial and Aboriginal Fraser River Sockeye Salmon Fisheries" 17 March 2011 at p 39.
[921] Exhibit 392 at p 2: Glenn Sigurdson and Barry Stuart, "Framework for the Integrated Salmon Dialogue Forum", March 2007.

differs from many other collaborative processes in that the mandate of the Integrated Salmon Dialogue Forum was set by its participants, not by the government.[922]

706. The Integrated Salmon Dialogue Forum process brought together all its participants around the recognition that certain activities, such as catch monitoring, were critical to the fishery, and this led to the development of some new initiatives like the Monitoring and Compliance Panel (M&C Panel).[923] The purpose of this panel is to explore issues around fishery monitoring and catch reporting to identify how to make improvements, which in turns feeds into DFO policy options moving forward.[924] There is recognition that having all the stakeholders involved in the Monitoring and Compliance Panel facilitates the reaching of consensus.[925] First Nations participants have supported the work of the Monitoring and Compliance Panel.[926]

ii) The Roadmap Process

707. This process is described in more detail in section D iii. The Roadmap was established for the purpose of establishing a common vision, common goals, and common objectives that will define the collaboration between DFO and Aboriginal groups in the Fraser watershed and approach areas.[927] An aim is to develop a new management process that allows for shared decision making.[928] This includes collaboration in other areas of fisheries and resource management such as conservation, catch monitoring and habitat assessment.[929] DFO intends the Roadmap to have linkages with other collaboration processes, such as the Integrated Harvest Planning Committee.[930] Building on the experience of the Forum process, the Roadmap process

[922] Policy and Practice Report 12, "Fishery Monitoring and Catch Reporting for Commercial and Aboriginal Fraser River Sockeye Salmon Fisheries" 17 March 2011 at p 39.
[923] Colin Masson, 12 May 2011, p 9:10-21.
[924] Colin Masson, 12 May 2011, p 9:32-38.
[925] Peter Sakich, 12 May 2011, p 10:7-17.
[926] Ken Malloway, 12 May 2011, p 10:1-3.
[927] Exhibit 1188 at p 1: Department of Fisheries and Oceans, "Draft, Themes for Discussion at DFO-First Nations Fraser Salmon Roadmap Workshop" 10 December 2009.
[928] Exhibit 1188 at p 1: Department of Fisheries and Oceans, "Draft, Themes for Discussion at DFO-First Nations Fraser Salmon Roadmap Workshop" 10 December 2009.
[929] Exhibit 1220 at p 3: Department of Fisheries and Oceans, "Fraser River Salmon Roadmap Background Document, Overview of the Fraser River Salmon Roadmap Initiative".
[930] Exhibit 1188 at p 2: Department of Fisheries and Oceans, "Draft, Themes for Discussion at DFO-First Nations Fraser Salmon Roadmap Workshop" 10 December 2009.

is currently in its building phase and is making some progress, with the intention to begin negotiating a watershed wide agreement in the near future.[931]

iii) Fraser River Sockeye Spawning Initiative (FRSSI)

708. The Fraser River Sockeye Spawning Initiative is a "participatory process to develop guidelines for setting annual escapement and exploitation targets for Fraser sockeye stocks."[932] It stems from DFO's review of the rebuilding strategy undertaken prior to the 2003 fishing season as part of the objective to establish a formal framework for setting escapement targets.[933] This approach is consistent with the implementation the *Wild Salmon Policy*,[934] and in particular Strategy 4 which calls for the establishment of an effective planning process that involves those affected by the decisions in the management of the fishery.[935]

709. One of the goals of Fraser River Sockeye Spawning Initiative is to "improve the existing consultation processes by focusing on a proactive discussion of targets and operational guidelines, rather than reactive in-season decision-making".[936] Fraser River Sockeye Spawning Initiative had a steering committee and a technical working group with membership from all stakeholders, and also held workshops for the stakeholders and environmental groups.[937] It was an attempt to implement structured decision making with a view to building consensus.[938]

[931] Barry Huber, 28 June 2011, pp 24:16 to 25:10.
[932] Exhibit 400 at p 3: Michael Staley, "Fraser River Sockeye Spawning Initiative (FRSSI): A Review for the Cohen Commission" October 2010.
[933] Exhibit 400 at p 3: Michael Staley, "Fraser River Sockeye Spawning Initiative (FRSSI): A Review for the Cohen Commission" October 2010.
[934] Paul Ryall, 16 March 2011, p 12:16-40, p 50:11-24.
[935] Exhibit 8 at pp 24-29: Department of Fisheries and Oceans, "Canada's Policy for Conservation of Wild Pacific Salmon" 2005.
[936] Policy and Practice Report 5, "Overview of Fraser River Sockeye Salmon Harvest Management" 9 November 2010 at p 34.
[937] Paul Ryall, 16 March 2011, p 2:1-8.
[938] Paul Ryall, 16 March 2011, pp 49:35 to 50:12.

V. CONCLUSION

710. The work of the Commission has provided an important opportunity for continuing to seek a better understanding of Fraser sockeye and their ecosystem, to investigate and make independent findings of fact regarding the causes of decline of Fraser sockeye, their current state and long term projections, and to develop recommendations for improving the future sustainability of the sockeye salmon fishery in the Fraser River. The Commission has a challenging and important mandate, and Canada commends the Commission for its work in fulfilling it. Canada acknowledges the considerable task before the Commissioner in developing practical and effective recommendations from the enormous body of evidence and information presented to the Commission.

711. These submissions are intended to provide a fair, neutral, and factual summary of the key evidence presented in the Commission's hearings. The intent is not to advocate for any position or make recommendations, but rather to assist the Commissioner in the preparation of his final report.

712. In this context, Canada has provided contextual information - and has summarized and highlighted key evidence presented in the Commission's hearings. In doing so, Canada has recognized the variability in annual Fraser sockeye returns, the uncertainty surrounding the causes of the decline of Fraser sockeye and the uncertainty regarding the future. Canada has outlined the following six elements of its science-based management system that Canada believes are important to the future sustainability of the Fraser sockeye fishery:

1) A clear conservation framework to guide the planning, consultations and work required to enable future sustainability of a healthy Fraser sockeye resource;

2) A strong scientific foundation to support discussions around risks, benefits and trade-offs;

3) An approach to managing Aboriginal fisheries in an effective and respectful manner;

4) Clear rules for sharing the Fraser sockeye harvest, including more flexible approaches to avoid weak stocks, address First Nations' fishery aspirations, and improve the economic viability of the commercial fishery;

5) Confidence and trust among all parties that fisheries are being effectively managed, that fishing regulations are being complied with, that data on catch and spawner levels are reliable, and that finfish aquaculture is being effectively regulated; and

6) The incentives, structures and supports exist to promote effective collaboration and shared responsibility for future sustainability of the Fraser sockeye fishery.

713. In his Interim Report, the Commissioner referred to the goal of securing a sustainable Fraser sockeye resource for generations to come. In seeking to achieve that goal, Canada clearly has an important role to play. Provincial and municipal governments, First Nations, commercial and recreational harvesters, environmental groups and others who care about Fraser sockeye, also have important roles to play. It is by working together that the shared common goal – a sustainable Fraser sockeye resource for generations to come – can best be achieved.

714. Canada looks forward to the Commissioner's final report.

All of which is respectfully submitted.

Dated at Vancouver, BC this 17th day of October 2011

Mitchell R Taylor QC.

Counsel for the Participant Government of Canada

COMMISSION OF INQUIRY INTO THE DECLINE OF THE 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 to issue under Part 1 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 the sockeye Salmon in the Fraser River

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WRITTEN SUBMISSIONS OF THE GOVERNMENT OF CANADA IN RESPONSE TO THE POLICY AND PRACTICE REPORT ENTITLED "LEGISLATIVE FRAMEWORK OVERVIEW" OCTOBER 19, 2010

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I. INTRODUCTION

1. Understanding the legal framework that underlies the Fraser River sockeye fishery is critical to understanding the fishery. That framework is founded on constitutional provisions, statutory and regulatory provisions, and the common law.

2. The Commission's Policy and Practice Report titled *"Legislative Framework Overview"* (the "Paper") provides an overview of part of that legal framework – the legislative framework. The Commission's Policy and Practice Report titled "*The Aboriginal and Treaty Rights Framework Underlying the Fraser River Sockeye Salmon Fishery*" provides an overview of another important part of the legal framework. It is important to recognize, however, that there are other important parts of the legal framework, such as arrangements between the Government of Canada ("Canada") and the Government of British Columbia, that are not addressed in this Paper.

3. Generally, the Paper provides a good overview of the legislative framework that underlies the Fraser River sockeye fishery but there are statements and references in the Paper that, Canada submits, are unclear, incomplete or inaccurate. In these submissions, Canada offers its views regarding those statements and references.

II. CONSTITUTIONAL JURISDICTION OVER FISHERIES

Division of Powers

4. In paragraph 5, the Paper states that Canada "has jurisdiction over the related areas of marine pollution and the environment". Canada submits that this statement is potentially misleading and that it would be more accurate to refer to Canada having jurisdiction over some matters associated with the protection of the marine and freshwater environment.

The Public Right to Fish

5. Canada submits that, when considering the public right to fish, it is important to

recognize that the exercise of this right in Canada is subject to, and limited by, the *Fisheries Act* and regulations made under that Act and other federal fisheries legislation. This point was made by the British Columbia Court of Appeal in *R v. Kapp.*[1] In discussing what he referred to as the "common law right to fish" emanating from Magna Carta, Lowe J. A. stated at para. 19:

> The common law right to fish in Canada has been substantially limited by the *Fisheries Act*. That statute and the regulations passed pursuant to it control fishing. A right to fish in waters to which the statute has application does not exist in law unless authorized under that statute usually by licence.

6. Paragraphs 4 and 14 of the Paper refer to the public right to fish applying in tidal and "navigable non-tidal waters". Canada submits that this statement is incorrect. Gerard V. La Forest, Q.C., and Associates, *Water Law in Canada: The Atlantic Provinces,* (Ottawa: Department of Regional Economic Expansion, 1973), states at 196:

> While it is clear in England that the public right of fishing is limited to tidal waters,[167] there is some Canadian authority for the view that the public right of fishing also exists in waters that are navigable though not tidal.[168] If this were so the restriction in Magna Charta against the granting of several fisheries by the Crown would be inapplicable, that restriction being limited to tidal waters.[169] In any event the weight of authority is very clearly against the existence of a general public right of fishing in non-tidal waters.[170] There are some statements, however, that a public right of fishing exists in non-tidal waters where the bed is owned by the Crown,[171] but while fishing may be public in the sense that it is provincial property and the province may permit the public to fish there, it is not public in the sense that a general right exists in the public. [emphasis added]
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> [167] See *Attorney-General of British Columbia v. Attorney-General of Canada*, [1914] A.C. 153; *Attorney-General of Canada v. Attorney-General of Quebec*, [1921] 1 A.C. 413.
> [168] *Gage v. Bates* (1858), 7 U.C.C.P. 116; *Reg. v. Robertson* (1882), 6 S.C.R. 52, *per* Strong J.; Moffatt *v. Roddy* (1889), 4 Ont. Cas. Law Dig. 7323; *Re Provincial Fisheries* (1895), 26 S.C.R.444, *per* Strong C.J. and Girouard J.
> 169 *Re Provincial Fisheries* (1895), 26 S.C.R. 444, *per* Strong J.; *Moffatt v. Roddy* (1889), 4 Ont. Cas. Law Dig. 7323.
> [170] *Steadman v. Robertson* (1879), 18 N.B.R. 580; *Reg. v. Robertson* (1882), 6 S.C.R. 52, *per* Ritche C.J.; *Re Provincial Fisheries* (1895), 26 S.C.R. 444; *Keewatin Power Co. v. Town of Kenora* (1908), 16 O.L.R. 184; *R. v. Harron* (1912), 21 O.W.R 951; Attorney-General *of British Columbia v. Attorney-General of Canada* [1914] A.C. 153; *Barber v. Andrews* (1921), 20 O.W.N. 239; *Rice Lake Fur Co. v. McAllister*, [1925] 2 D.L.R. 506
> [171] See *Robertson v. Steadman* (1876), 16 N.B.R. 621 (the court, however, reversed this view in the later case of *Steadman v. Robertson*, (1879), 18 N.B.R. 580); R*e Iverson and Greater Winnipeg Water District* (1921), 57 D.L.R. 184, *per* Dennistoun J.; *McDonald v. Linton* (1926), 53 N.B.R. 107, *per* Barry C.J.

7. It is also important to recognize that, in describing the public right to fish in its decision in *R. v. Gladstone*[2], the Supreme Court of Canada referred to the right applying only in tidal waters:

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[1] 2006 BCCA 277
[2] [1996] 2 S.C.R. 723.

67 It should also be noted that the aboriginal rights recognized and affirmed by s. 35(1) exist within a legal context in which, since the time of the Magna Carta, there has been a common law right to fish in tidal waters that can only be abrogated by the enactment of competent legislation:

> . . . the subjects of the Crown are entitled as of right not only to navigate but to fish in the high seas and tidal waters alike.
>
> . . .
>
> [I]t has been unquestioned law that since Magna Charta [*sic*] no new exclusive fishery could be created by Royal grant in tidal waters, and that no public right of fishing in such waters, then existing, can be taken away without competent legislation.

(*Attorney-General of British Columbia v. Attorney General of Canada*, [1914] A.C. 153 (J.C.P.C.), at pp. 169-70, *per* Viscount Haldane.)

While the elevation of common law aboriginal rights to constitutional status obviously has an impact on the public's common law rights to fish in tidal waters, it was surely not intended that, by the enactment of s. 35(1), those common law rights would be extinguished in cases where an aboriginal right to harvest fish commercially existed. As was contemplated by *Sparrow*, in the occasional years where conservation concerns drastically limit the availability of fish, satisfying aboriginal rights to fish for food, social and ceremonial purposes may involve, in that year, abrogating the common law right of public access to the fishery; however, it was not contemplated by *Sparrow* that the recognition and affirmation of aboriginal rights should result in the common law right of public access in the fishery ceasing to exist with respect to all those fisheries in respect of which exist an aboriginal right to sell fish commercially. As a common law, not constitutional, right, the right of public access to the fishery must clearly be second in priority to aboriginal rights; however, the recognition of aboriginal rights should not be interpreted as extinguishing the right of public access to the fishery. [emphasis added]

Federal Jurisdiction in Respect of Fisheries in Non-Tidal Waters

8. The Paper suggests in paragraph 6 that federal jurisdiction in respect of fisheries in non-tidal waters applies only to navigable waters. This is incorrect. Federal jurisdiction in respect of fisheries in inland, non-tidal, waters is not limited to navigable waters. In *Attorney General for British Columbia v. Attorney General of Canada,*[3] the Judicial Committee of the Privy Council held as follows at 173:

> So far as the waters are tidal, the right of fishing in them is a public right, subject only to regulation by the Dominion Parliament. So far as the waters are not tidal, they are matters of private property, and all these proprietary rights passed with the grant of the railway belt, and became vested in the Crown in right of the Dominion. The question whether non-tidal waters are navigable or not has no bearing on the question. The fishing in navigable non-tidal waters is the subject of property, and, according to English law, must have an owner, and cannot be vested in the public generally. [emphasis added]

[3] [1914] A.C. 158

9. Federal jurisdiction in respect of fisheries in non-tidal waters, whether navigable or not, includes the jurisdiction to conserve and protect those fisheries. Federal jurisdiction in respect of fisheries in non-tidal waters was affirmed by the Judicial Committee of the Privy Council in *Attorney General for the Dominion v. the Attorneys General for the Provinces*,[4] at pages 712-713:

> ...Whatever proprietary rights in relation to fisheries were previously vested in private individuals or in the provinces respectively remained untouched by that enactment [that is, s.91(12)]. Whatever grants might previously have been lawfully made by the provinces in virtue of their proprietary rights, could lawfully be made after that enactment came into force. At the same time, it must be remembered that the power to legislate in relation to fisheries does necessarily to a certain extent enable the legislature so empowered to affect proprietary rights. An enactment, for example, prescribing the times of the year during which fishing is to be allowed, or the instruments which may be employed for the purpose (which it was admitted the Dominion legislature was empowered to pass) might very seriously touch the exercise of proprietary rights, and the extent, character and scope of such legislation is left entirely to the Dominion legislature. The suggestion that the power might be abused so as to amount to a practical confiscation of property does not warrant the imposition by the courts of any limit upon the absolute power of legislation conferred. [emphasis added]

10. The above passage from the decision of the Judicial Committee of the Privy Council in *Attorney General for Canada v. the Attorneys General for the Provinces* was cited with approval by the Ontario Court of Appeal in *Re: Peralta et al. and the Queen in right of Ontario et al.*,[5] affirmed by the Supreme Court of Canada.[6]

11. Paragraph 12 refers to "provincially-owned fisheries". Canada submits that a more accurate description of such fisheries is "fisheries in non-tidal waters over provincial Crown land".

12. In paragraphs 12 and 14, the Paper refers to "waters owned by a province or private individuals". Canada submits that it is not ownership of waters but rather the ownership of the solum under the waters that gives rise to fishing rights in non-tidal waters. In *Attorney General for British Columbia v. Attorney General of Canada*,[7] the Judicial Committee of the Privy Council stated as follows at page 167:

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[4] [1898] A.C. 700
[5] (1985) 16 D.L.R. (4th) 259
[6] [1988] 2 S.C.R. 1045
[7] *supra* note 3.

> It remains to consider the consequences as regards fishing rights. These are, in their Lordships' opinion, the same as in the ordinary case of ownership of a lake or riverbed. The general principle is that fisheries are in their nature mere profits of the soil over which the water flows and that the title to a fishery arises from the right to the solum. A fishery may of course be severed from the solum, and it then becomes a profit à prendre in alieno solo and an incorporeal hereditament.
> [emphasis added]

13. In paragraph 13, "docks" are referred to as "natural resources". Canada submits that docks should not be considered to be natural resources.

14. Paragraph 13 uses oysters as an example of "marine resources attached to the seabed". The use of oysters as an example highlights one of the limitations of the Paper that is noted above – *i.e.* that it does not describe the various arrangements made by Canada and the Government of British Columbia to cooperatively address issues arising from the governments' respective jurisdictions relating to fisheries. The oyster fishery in British Columbia was the subject of a 1912 agreement between Canada and the Government of British Columbia that was described by Mr. Justice Hinkson in *Morton v. British Columbia (Agriculture and Lands)* ("*Morton*"):[8]

> [175] What then of the provincial Crown's jurisdiction over agriculture? In ***Water Law in Canada – The Atlantic Provinces*** by Gerard V. La Forest., Q.C., *et al.* (Ottawa: Department of Regional Economic Expansion, 1973) at 40, the authors state:
>
> > It is obvious nonetheless, that in most cases, at least, development of provincially owned fisheries will require the co-operation of the federal and provincial authorities. For example, where fishing, such as lobster fishing, requires use of subsoil belonging to the province, provincial permission will be required even though a Dominion licence has been granted. Only in the case of ordinary fishing in tidal waters may the Dominion completely ignore provincial ownership of fisheries. That is because there has from immemorial antiquity been a right in the public to fish in tidal waters that overrides the usual exclusive common law right of the landowner to fish on his land. This right being a public, not a proprietary, right comes within the federal power to legislate respecting fisheries, and since the public right overrides the private right, there is nothing left for the provinces to legislate upon. It would require a federal statute to give an exclusive right or fishery in tidal waters. The public right of fishing, it should be repeated, is limited to ordinary fishing. It does not include fishing by weirs or other methods involving the use of the soil.
>
> [176] The Oyster Fisheries Agreement from 1912 provided that the Province was, subject to the Fishery Regulations of Canada, authorized by the agreement to:
>
> > ...grant leases from time to time of such areas of the sea coast, bays, inlets, harbours, creeks, rivers and estuaries of said Province as the Government of the said Province may consider suitable for the cultivation and production of oysters and the lessees of said Province shall, subject, however, to the Fishery Regulations of Canada, have the exclusive right to the oysters produced or found on the beds within the limits of their respective leases.

[8] 2009 BCSC 136

> Provided, however, that in respect of Public Harbours, this agreement shall not prejudice the right or title of the Dominion of Canada to enjoy and use the same for any purpose other than the cultivation and production of oysters. [emphasis added.] [Footnotes omitted.]

15. Paragraph 13 of the Paper notes that some solum under tidal waters in British Columbia is Provincial Crown land. As is highlighted in paragraph 14, regardless of the ownership of the solum under tidal waters, the public right to fish will apply.

16. Canada submits that it is also important to recognize that the public right to fish includes the right of fishing on the shore between the high and low water marks. S.A. Moore & H.S. Moore, *The History and Law of Fisheries* (London: Stevens and Haynes Law Publishers), at 96:

> As incident to the right of public fishery in tidal water there exists the right of fishing over the foreshore when it is not within the limits of a several fishery, and of laying lines, drawing nets (not being of the nature of fixed engines) over it, and presumably of drawing nets on the beach above ordinary high water mark in the act of fishing. It does not extend to the right of fixing stakes or fixed engines on the foreshore nor of drawing up boats above high water mark (except in case of peril and necessity) and leaving them there for future use[i].
>
> [i] *Ward v. Creswell*, (1741) Willes, 265; *Ilchester v. Raishleigh*, (1889); 61 L.T.N.S. 477; *Att.-Gen. v. Wright*, [1897] 2 Q.B. 318.

17. Paragraph 13 of the Paper refers to provincial jurisdiction over "sailing in the straits" and "mooring in a bay". Pursuant to section 91(10) of the *Constitution Act*,[9] the federal government has exclusive legislative jurisdiction with regard to navigation and shipping which, Canada submits, includes regulation of sailing or mooring in all navigable waters.

18. Paragraph 14 of the Paper states that whether solum under waters in which the public right to fish exists is provincial Crown land is "irrelevant". Canada submits that whether such solum is provincial Crown land *is* relevant with respect to, for example, the granting of tenures for aquaculture purposes.

[9] 1867, 30 & 31 Victoria, c. 3. (U.K.), [Reprinted in R.S.C. 1985, App. II, No. 5]

Federal Legislation

19. Paragraph 16 of the Paper describes DFO's mandate and objectives as "originating" in various statutes. One of the statutes cited is the *Canadian Environmental Protection Act* ("*CEPA*").[10] However, that statute is administered by the Department of the Environment. One statute that is relevant to DFO's mandate and objectives, and potentially relevant to the Cohen Commission is the *Coastal Fisheries Protection Act.*[11] That statute applies to fishing by foreign fishing vessels in Canadian waters. Another statute that may be potentially relevant to the Cohen Commission is the federal *Fish Inspection Act*[12] which is administered by Canadian Food Inspection Agency.

20. The last sentence in paragraph 16 suggests, perhaps inadvertently, that the precautionary principle cannot be applied in respect of the authorities set out in the *Fisheries Act.*[13] Canada submits that the precautionary principle can be applied in respect of the authorities in the *Fisheries Act.*

21. Paragraph 16 of the Paper also makes reference to the precautionary principle in relation to the *Canadian Environmental Assessment Act* ("*CEAA*"),[14] the *CEPA*[15], the *Oceans Act*[16], and the *Species at Risk Act* ("*SARA*")[17]. It further provides a general indication of what is meant by the precautionary principle, *i.e.* "it is preferable to err on the side of caution even if the scientific evidence is not readily available". Canada submits that this description of the precautionary principle does not accurately reflect the relevant provisions of the statutes referred to[18]. The definition of "precaution" in the *CEPA* is [19]

> where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation

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[10] S.C. 1999, c. 33
[11] R.S.C. 1985, c. C-33
[12] R.S.C. 1985, c. F-12
[13] R.S.C. 1985, c. F-14
[14] S.C. 1992, c. 37
[15] *supra*, note 10
[16] S.C. 1996, c. 31
[17] S.C. 2002, c. 29
[18] There is no definition of precaution in *CEAA*.
[19] *supra*, note 10

A similar formulation is found in the *SARA*[20]:

> if there are threats of serious or irreversible damage to a wildlife species, cost-effective measures to prevent the reduction or loss of the species should not be postponed for a lack of full scientific certainty

The definition under the *Oceans Act* is:

> erring on the side of caution

22. The Paper places considerable emphasis on the precautionary principle - and not on other important principles that can be reflected in federal fisheries-related statutes, or in the application of those statutes: See, for example, the principles set out in the preamble of the *Oceans Act*[21] and the principles set out in the preamble of *SARA*[22].

23. Paragraph 17 refers to the *Fisheries Act*[23] and regulations providing authority for "the management and regulation of fisheries and the protection of fish habitat". Canada submits that it would be more accurate to describe the Act and regulations as providing authority for the management and regulation of fisheries and the conservation and protection of fish and fish habitat".

24. Paragraph 18 of the Paper describes the discretion of the Minister of Fisheries and Oceans with respect to issuing licences under the *Fisheries Act*[24]. What is not described in paragraph 18 is that the Minister's discretion is subject to:

- express limitations in the *Fisheries Act* and other statutes;
- requirements of administrative law, which provide that the Minister must exercise her discretion in good faith, and must base her decisions on relevant considerations and avoid arbitrariness; and
- other obligations arising from the *Constitution Act*; land claims agreements; and case law.

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[20] *supra*, note 17
[21] *supra* note 16
[22] *supra*, note 17
[23] *supra* note 13
[24] *supra* note 13

25. Paragraph 19 inaccurately states that "the licensing power includes... variation orders". The authority to make variation orders under the *Fishery (General) Regulations*[25] is, Canada submits, separate from the "licensing power".

26. Paragraphs 20, 21, and 22 cite some of the key habitat protection provisions in the *Fisheries Act*[26]. Other habitat protection provisions in the *Act* include those that deal with obstructions[27] and ensuring adequate flows of water[28].

27. Paragraph 22 of the Paper refers to section 36 of the *Fisheries Act*[29]. It is important to recognize that this section of the *Act* (and the pollution-related regulations described in paragraph 26 of the Paper), is administered by the Department of the Environment.

28. Paragraph 24 refers to the *Fishery (General) Regulations*[30] as governing "the economic operation of the fisheries". Canada submits that this statement is inaccurate. The *Fishery (General) Regulations*[31] pertain to many aspects of various fisheries, including non-commercial fisheries, and also include provisions relating to, *inter alia*, fish habitat and enforcement matters.

29. Canada submits that, in accordance with the decision of the Supreme Court of British Columbia in *Morton*,[32] the reference in paragraph 27 to "aquaculture operations in the country" should be to *finfish* aquaculture operations *in British Columbia*. Further, Canada submits that it is important to recognize that the Government of British Columbia will remain responsible for issuing tenures and other matters related to aquaculture.

30. Paragraph 29 of the Paper refers to section 35 of the *Fisheries Act*[33] applying to "localized works, usually streamside or at the shoreline". Canada submits that it is important to

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[25] SOR/93-53
[26] *supra* note 13
[27] *supra*, note 13, at section 20
[28] *supra*, note 13, at section 22
[29] *supra* note 13
[30] *supra* note 25
[31] *supra* note 25
[32] *supra* note 8
[33] *supra* note 13

recognize that section 35 applies to "any work or undertaking that results in the harmful alteration, disruption or destruction of fish habitat", and that fish habitat is defined to mean "spawning grounds and nursery, rearing, food supply and migration areas on which fish depend directly or indirectly in order to carry out their life processes ", in both marine and freshwater environments.

31. Paragraph 32 of the Paper mischaracterizes, in several respects, DFO's roles and responsibilities with respect to the *SARA*[34]. Paragraph 32 should be revised as follows:

> The DFO is one of three federal government departments charged with SARA's implementation (the others being the Department of the Environment and the Parks Canada Agency) and it is responsible for protecting aquatic species at risk (other than individuals in or on federal lands administered by the Parks Canada Agency) and their critical habitat. The DFO's area of responsibility includes the legal requirements ~~to enforce automatic prohibitions~~ to develop recovery strategies, management plans and action plans within specified timelines; to identify and protect the critical habitat ~~for~~ of listed endangered or threatened species and of listed extirpated species if a recovery strategy has recommended their reintroduction into the wild in Canada; and to ~~conduct consultations~~ satisfy cooperation and consultation requirements within specified timelines. DFO is also responsible for enforcing automatic prohibitions, as well as the prohibition with respect to the destruction of critical habitat where the critical habitat is located in a marine protected area and where an order has been made by the Minister of Fisheries and Oceans triggering the prohibition on destruction of critical habitat in respect of the critical habitat (or portion of it) identified in the order.

32. Paragraph 33 of the Paper describes the application of *CEAA*[35], but that description is incomplete and somewhat inaccurate. The reference to "environmental assessment of projects or prescribed activities which involve a decision by the federal government" should instead be to "environmental assessment of projects, i.e. physical works or prescribed activities, which require certain decisions by the federal government". Paragraph 33 describes the need for environmental assessment of certain activities set out in Part VII of the *Inclusion List Regulations*[36]. DFO is also required to conduct environmental assessments of physical works for which it may issue various authorizations.

33. Paragraph 34 of the Paper refers to the *Navigable Waters Protection Act*[37]. It is important to recognize that that Act is administered by the Department of Transport.

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[34] *supra* note 17
[35] *supra* note 14
[36] SOR/94-637
[37] R.S.C. 1985, c. N-22

III. APPLICABLE PROVINCIAL LEGISLATION

34. Canada submits that the description of "applicable provincial legislation" in paragraphs 36 to 40 is incomplete. The Government of British Columbia has jurisdiction over a wide range of matters, such as forestry, mining agriculture and water licences, which have the potential to affect Fraser sockeye. Accordingly, reference to provincial statutes such as the *Water Act*[38] and the *Forest Range and Practices Act*[39] should be added to the Paper.

III. SUMMARY OF PROPOSALS TO MODERNIZE THE FISHERIES ACT

35. Canada submits that the bills described in the paper should appropriately be referred to as proposals rather than "attempts".

36. Paragraph 41 of the Paper refers to one of the goals of the bills being "the delegation of management responsibility to the fisheries users themselves". Canada submits that this is a mischaracterization and that the bills instead aimed to provide an increased role for fisheries users in the management of the fisheries.

37. Paragraph 59 of the Paper refers to decisions being "potentially susceptible to political considerations". Considerations taken into account by Canada's elected political representatives are, by definition, "political considerations". Canada submits that it is inappropriate to suggest that such considerations are not an appropriate part of the decision-making process. Further, paragraph 59 does not make it clear that Bill C-45[40] envisioned that "decisions concerning the development of licensing policies" would continue to be made by the Minister.

38. Paragraph 60 of the Paper states that Bill C-45 "would have transferred, again through FMAs, some control and responsibility for fisheries management to the resource users themselves". Canada submits that a more accurate description of this aspect of Bill C-45 would

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[38] R.S.B.C. 1996, c. 483
[39] S.B.C. 2002, c. 69
[40] *An Act respecting the Sustainable Development of Canada's Seacoast and Inland Fisheries*, First Sess., 39th Parl., 2006.

be that it envisioned sharing some decision making with respect to the fisheries management with the resource users themselves.

39. Canada points out that Bill C-45 (and Bill C-32) did not include the concept of delegation of habitat responsibilities to provinces that was included in Bill C-62[41].

IV. CONCLUSION

40. Generally, the Paper provides a good overview of the legislative framework that underlies the Fraser River sockeye fishery but, as described above, there are statements and references in the Paper that are unclear, incomplete or inaccurate. Canada offers these submissions to assist the Cohen Commission in understanding the legislative framework - a fundamental part of the legal framework - that underlies the Fraser River sockeye fishery.

Dated at the City of Vancouver, BC, this 26th day of October 2010.

Mitchell Taylor, Q.C.
Tim Timberg
Hugh MacAulay
Counsel for the Participant the Government of Canada

[41] *An Act Respecting Fisheries*, Second Sess., 35th Parl., 1996.

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

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SUBMISSIONS OF THE GOVERNMENT OF CANADA REGARDING THE COMMISSION'S POLICY AND PRACTICE REPORT ON THE INTERNATIONAL LAW RELEVANT TO THE CONSERVATION AND MANAGEMENT OF FRASER RIVER SOCKEYE SALMON

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INTRODUCTION

1. These are the submissions of the Participant Government of Canada ("Canada") in response to the Commission's September 27th letter inviting written comments from the Participants in respect of the Commission's Policy and Practice Report on International Law Relevant to the Conservation and Management of Fraser River Sockeye Salmon (the "PPR").

2. Paragraph 4 of the PPR sets out the purpose of the document as follows:

> It is not intended as a scholarly effort; nor is it comprehensive. Rather, the intent of this Report is to provide participants and the public with information on relevant international law frameworks and to assist them in understanding and contextualizing the evidence to be presented in the commission's hearings.

3. Canada finds that, considering the context for which it was written as stated above, the PPR presents a good summary of the international legal instruments and a fair assessment of the international law in so far as it is relevant to the conservation and management of Fraser River Sockeye.

4. Canada's comments presented in these submissions aim to provide more detail on the operation of some of the legal instruments and concepts discussed in the PPR for the benefit of the Commission.

5. The PPR notes, in the introduction, that "[t]his Policy and Practice report is also intended to build upon information given by Canada to the commission." Because the Commission is a legal arm of the Crown, to avoid ambiguity in the eyes of an international tribunal or court, or even foreign governments, Canada submits that it would be appropriate for the PPR to include a disclaimer stating that its content is not considered to represent the position of Canada on international law. Similarly, should the Commissioner discuss issues of international law in his report and recommendations, it would be appropriate for him to explicitly state that his views are not necessarily those of the Government of Canada on international law.

6. As well, silence on the part of Canada on any aspect or issue discussed in the PPR should not be construed as an admission for international law purposes or binding Canada to a position in international law matters or forums in pending or future proceedings or policy, or estopping the Crown from taking any step or position in the future.

PPR SECTION 2 – SOME RELEVANT RULES AND PRINCIPLES OF INTERNATIONAL ENVIRONMENTAL LAW

7. Paragraph 16 of the PPR refers to the "international law principle of integration." Canada submits that the meaning of this expression is unclear. "Integration" is not a principle of customary international law. Further, the principle of integration is embedded within the concept of sustainable development for which the PPR states at

footnote 60 that "[i]t does not appear that sustainable development should itself be understood as a principle of international law." This adds to the ambiguity of what is intended to be understood as the "international law principle of integration."

PPR SECTION 2.1 – PRECAUTIONARY PRINCIPLE

8. Paragraph 17 of the PPR states that "the precautionary principle, also known as the precautionary approach, is a central principle of international environmental law." Canada submits that the meaning of "central principle of international environmental law" is unclear. The precautionary principle is not an established principle of customary international law. The following passage is of assistance:

> [T]he uncertainties in the meaning, application, and implications of the precautionary principle or approach outlined above suggest that the proposition that it is, or that it is not, customary international law is too simplistic.[1]

9. Paragraph 23 of the PPR describes the precautionary principle as an "international law principle" and refers to the Supreme Court of Canada's use of the precautionary principle in interpreting a statute in *Spraytech*.[2] Canada submits that *Spraytech* does not support the proposition that the precautionary principle is a customary international law principle. The Supreme Court in *Spraytech* stated that "there may be 'currently sufficient state practice to allow a good argument that the precautionary principle is a principle of customary international law.'"[3] Canada submits that the Court's use of the words "may be" indicate that the Court was not endorsing that position but rather recognizing a possible argument.

10. Paragraph 24 of the PPR states that the precautionary principle "requires government actors to grapple with how they make regulatory decisions and specifically how they determine the level of permissible risk to the environment." Because the precautionary principle is not established as part of customary international law, it does not necessarily compel government actors to take the actions described in paragraph 24. On the other hand, where the precautionary principle is prescribed in a domestic enactment, it does have the effect that the paragraph describes. Canada has embraced the precautionary principle in many aspects of its management of sockeye salmon but these are beyond the scope of this discussion on international law.

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[1] Patricia Birnie, Alan Boyle & Catherine Redgwell, *International Law and the Environment*, 3rd ed., (Oxford: Oxford University Press, 2009) [Birnie and Boyle] at p. 160.

[2] *114957 Canada Ltée (Spraytech, Société d'arrosage) v. Hudson (Town)*, [2001] 2 S.C.R. 241. [*Spraytech*]

[3] *Spraytech*, para. 32 [citing J. Cameron and J. Abouchar, "The Status of the Precautionary Principle in International Law", in D. Freestone and E. Hey, eds., *The Precautionary Principle and International Law* (The Hague: Kluwer Law International, 1996.) at 52.

PPR SECTION 2.3 – DUTIES TO ENSURE ENVIRONMENTAL ASSESSMENTS AND PUBLIC PARTICIPATION – PRINCIPLES 10, 15 AND 17 OF THE RIO DECLARATION

11. The author of the PPR twice says that: "It seems that principle 10, 15 and 17 of the *Rio Declaration* have the status of general international law".[4] In support of these conclusions, the author refers to scholarly writing.[5] Canada submits, with due respect to these academics, that the term "general international law" is unclear and is not a term widely used to describe a source of international law. More importantly, "general international law" is not listed with the sources of international law in paragraph 38(1)(c) of the *Statute of the International Court of Justice* and should not be confused with "general principles of law recognized by civilized nations" or with customary international law, both of which are recognized sources of international law.[6]

12. Canada submits that the *Rio Declaration* is not a binding instrument which imposes obligations on Canada, except as those obligations may independently exist as a matter of customary international law. Canada also submits that none of principles 10, 15 and 17 of the *Rio Declaration* are obligatory under customary international law. For example, neither the conduct of environmental assessments wholly within a nation's borders, nor the application of the precautionary principle, are obligatory under customary international law.

13. Paragraphs 32 and 33 of the PPR note several international instruments relating to the involvement of citizens generally and, more specifically, indigenous peoples in environmental decision-making. None of these instruments, however, create any international or domestic obligations. Rather it is the domestic regime regarding environmental decision-making that is already in place which applies.

14. With particular reference to the *UN Declaration on the Rights of Indigenous People* (UNDRIP), as set out in its recent Statement of Support, Canada confirmed that UNDRIP is a non-legally binding document that does not reflect customary international law nor change Canadian laws.[7] Accordingly, Canada submits that UNDRIP is not part of the international law applicable to the conservation and management of Fraser River sockeye salmon.

PPR SECTION 2.5 – SUSTAINABLE DEVELOPMENT AND AGENDA 21

15. Paragraph 39 of the PPR states that "[s]ustainable development is an overarching and fundamental international law concept." Again, Canada submits that the expression

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[4] PPR, footnote 47 to paragraph 29 and footnote 53 to paragraph 32.
[5] The reference cited in the PPR is Birnie and Boyle at p. 138.
[6] *Statute of the International Court of Justice*, article 38(1) b. and c.
[7] *Canada's Statement of Support*, Nov12, 2010, at http://www.ainc-inac.gc.ca/ap/ia/dcl/stmt-eng.asp . See also: *Statement by Ambassador McNee to the UN General Assembly on the Declaration on the Rights of Indigenous Peoples*, September 13, 2007, online: http://www.canadainternational.gc.ca/prmny-mponu/canada_un-canada_onu/statements-declarations/general_assembly-assemblee-generale/10373.aspx?lang=eng.

"overarching and fundamental international law concept" is unclear and there is the potential for confusion with "customary international law" which would render the statement erroneous.

16. Paragraph 43 of the PPR states that "International law thus recognizes that environmental protection and development are interdependent and must be regulated in an integrated manner and not as opposing objectives [...]". Canada submits that this sentence could be read as implying that international law's "recognition" of the interdependence between these two concepts is rooted in customary international law, which is not the case.

17. Paragraph 44 of the PPR describes the "principle of integration" as "reinforced" by the *New Delhi Declaration of Principles of International Law Relating to Sustainable Development*. We note that the *New Delhi Declaration* was produced by the International Law Association (ILA) Committee on the Legal Aspects of Sustainable Development and, as such, should not be confused with a declaration made by states. Furthermore, the ILA is a non-governmental organization, which should not be confused with the International Law Commission, based at the UN, having considerably higher status and influence.

PPR SECTION 3.1.4 – MARINE SCIENTIFIC RESEARCH UNDER THE UNITED NATIONS CONVENTION ON THE LAW OF THE SEA (UNCLOS)

18. Paragraph 89 of the PPR states that other states may conduct research in the Exclusive Economic Zone (EEZ) and on Canada's continental shelf. The PPR neglects to point out an important element of marine scientific research under UNCLOS. The consent of a coastal state is required for other states to conduct marine scientific research in the coastal state's territorial sea.[8] In consequence, under UNCLOS, other states may conduct research in the EEZ and on Canada's continental shelf only if they have previously obtained Canada's consent to the research.

PPR SECTION 5.1.1 - THE FAO COMPLIANCE AGREEMENT

19. On the topic of the United Nation's Food and Agricultural Organization's Agreement to Promote Compliance with International Conservation and Management Measures by Fishing Vessels on the High Seas (the "FAO Compliance Agreement"), the first sentence of paragraph 128 of the PPR reads "The FAO Compliance Agreement applies to fishing vessels." Canada submits that it is necessary to emphasize that the FAO Compliance Agreement applies only to vessels used or intended for fishing on the high seas, as the full title of the FAO Compliance Agreement clearly indicates, and not to all fishing vessels wherever they may be.

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[8] UNCLOS, article 245 and paragraph 246.2.

PPR SECTION 5.2 - THE 1995 UNITED NATIONS FISH STOCKS AGREEMENT (UNFA)

20. On the topic of UNFA, Canada has three comments applicable to the statements in paragraph 151 of the PPR, all of which are discussed in the following paragraphs.

21. The first is that unlike what is suggested by the text in parentheses in the first sentence of that paragraph, UNFA article 3(2) only applies to the EEZ, not to internal waters and territorial seas. As stipulated at UNFA article 4, UNFA must be interpreted and applied in a manner consistent with UNCLOS. UNFA article 3(2) refers to the "exercise of [the coastal state's] sovereign rights for the purpose of exploring and exploiting, conserving and managing [...]". As can be seen by reference to subparagraph 56.1(a) of UNCLOS, this is the exact wording used to describe the EEZ. Canada submits that the corrected first sentence of paragraph 151 of the PPR should read: "The UN Fish Stocks Agreement requires coastal states like Canada to apply these same general Article 5 principles to their EEZ."

22. The second comment about paragraph 151 of the PPR involves the part which reads: "and to ensure the consistency of conservation and management measures established for the high seas with measures for areas of national jurisdiction." Canada submits that this wording misconstrues the duty of coastal states in that it implies a unilateral duty of coastal states. The actual obligation as expressed in article 7(2) of UNFA is "coastal States and States fishing on the high seas have a duty to cooperate for the purpose of achieving compatible measures." Paragraph 151 is silent on the duty of states fishing on the high seas so the balance struck in article 7 has been lost. In addition, Canada notes that the PPR is inaccurate in its use of the word "consistency" while the UNFA wording refers to "compatible".

23. The third comment about paragraph 151 of the PPR involves the last sentence which reads "In this manner, [UNFA] directs coastal states to regulate domestic fisheries at a standard no less rigorous than that required by international law governing high seas fisheries" [Emphasis added]. In addition to Canada's submission at para.21 that article 3(2) of UNFA only applies to the EEZ, we add that UNFA, as its full title suggests,[9] and confirmed by article 3(1), only applies to straddling and highly migratory stocks. It is incorrect to expand the application of UNFA to all the stocks included in the expression "domestic fisheries" as is stated in paragraph 151.

PPR SECTION 6.1 - POLLUTION TREATIES

24. Paragraph 158 of the PPR describes Canada as being a party or signatory to four International Maritime Organisation (IMO) treaties. It is important to take into account the difference in terms of legal effect between signature and ratification.

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[9] The full title is: "The United Nations Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea of 10 December 1982 relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks"

Canada is not bound by treaties until they are ratified, but is obliged not to defeat the object and purpose of a treaty it signs.

25. Canada submits that there is an incorrect description in paragraph 158 of the PPR. The *Stockholm Convention on Persistent Organic Pollutants* is not an IMO treaty, rather a UN Environment Programme Treaty.

26. Paragraph 164 of the PPR states: "To dump an Annex 1 substance, a ship needs a permit that satisfies Article 9 of the *London Protocol*." To clarify, under the *London Protocol*, the permit also needs to comply with the provisions of annex 2, as required by article 4(1).2.

PPR SECTION 6.3 - ENVIRONMENTAL ASSESSMENT AND PUBLIC PARTICIPATION

27. Canada submits that it is necessary for the contextualization of paragraph 184 of the PPR to note that Canada has filed a reservation to the *Espoo Convention* which essentially limits Canada's obligations to the scope of the *Canadian Environmental Assessment Act*, S.C. 1992, c. 37.

28. Footnote 274 to paragraph 184 states that:

> "The fact that Canada has not signed the *Aarhus Convention* does not, by itself, dispose of the question of whether Canada may nonetheless have general international law obligations related to public participation and access to information."

Canada submits that the status of the principle of public participation in relation to customary international law is open to debate.

29. Paragraph 197 of the PPR states that "[i]n the context of Fraser River sockeye salmon, Articles 4 and 5 of the *Aarhus Convention* may be of interest." Canada is not a party to the *Aarhus Convention* and submits that this convention is not relevant to the international law framework for the conservation and management of Fraser River Sockeye Salmon.

All of which is respectfully submitted.

Dated at Vancouver, B.C. this 1st day of December 2010.

On behalf of: Mitchell Taylor, Q.C.
Tim Timberg
Charles Fugère

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

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SUBMISSIONS OF THE GOVERNMENT OF CANADA REGARDING THE COMMISSION'S POLICY AND PRACTICE REPORT ON THE OVERVIEW OF THE *PACIFIC SALMON TREATY* AND THE PACIFIC SALMON COMMISSION REGARDING MANAGEMENT OF FRASER RIVER SOCKEYE SALMON

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I. INTRODUCTION

1. These are the submissions of the Participant Government of Canada ("Canada") in response to the Commission's October 18, 2010, letter inviting written comments from the Participants in respect of the Commission's Policy and Practice Report entitled "Overview of the *Pacific Salmon Treaty* and the Pacific Salmon Commission Regarding Management of Fraser River Sockeye Salmon" (the "PPR").

2. Canada finds that the PPR generally presents a good summary of the topic and is a helpful introduction to the Pacific Salmon Commission ("PSC") and the *Pacific Salmon Treaty* ("*PST*").

3. Canada's comments presented in these submissions aim to provide additional clarification on certain subjects discussed in the PPR for the benefit of the Commission.

II. COMMERCIAL HARVEST MANAGEMENT UNDER THE PST

4. The PPR, at page 6, appears to conflate the pre-season and in-season processes of the Fraser River Panel ("FRP"). The second paragraph begins by describing the pre-season decision process, but refers without transition to aspects of the in-season process. Then the first sentence of the following paragraph refers to the description as "[t]his in-season decision process". This is confusing and suggests an inadvertent omission of information about the in-season process. The 2002 FRP Report (CAN002564) referred to in the PPR provides a more complete explanation of the changes to the in-season decision process starting in 2002, at 6:

> Second, the Commission provided instructions to the Panel and the PSC staff on a new in-season decision process. Prior to 2002, the PSC staff made recommendations to the Panel for fisheries in Panel waters. These recommendations were then subject to modification by the Panel and approval required bilateral agreement by the Parties. Under the new decision process, the Parties made fisheries recommendations, and staff evaluated these proposals against criteria specified in the Treaty and the pre-season plan. If the PSC staff evaluation supported the recommendations, the Panel adopted the fisheries proposals. The Panel could also adopt fisheries proposals that were not supported by PSC staff review, through bilateral agreement.

IV. ORGANIZATIONAL STRUCTURE OF THE PSC

5. At page 16, the PPR presents a chart of the organizational structure of the PSC. It should be noted that a new technical committee was established in 2010. The Habitat and Restoration Technical Committee ("HRTC") should be added to the chart. The HRTC should also be mentioned under the heading "Committees" at page 17 and following.

V. THE PSC BUDGET AND THE RESTORATION AND ENHANCEMENT FUNDS

6. Canada submits that the last sentence of the last paragraph at page 20 of the PPR is too imprecise to be helpful. Canada submits that, for a more complete picture of how the PSC manages its budget, the Commissioner should refer to the PSC's official annual expenditures documents found on the PSC website.[1]

7. Canada submits that the first paragraph at page 21 of the PPR is incorrect. DFO continues to have an International Directorate, which provides funding to Canada's portion of the PSC budget. It is also incorrect to say that the PSC's funds have come out of DFO's Regional operational budget.

8. The last sentence of the second paragraph at page 21 of the PPR reads "[...] most of the negotiations around the budget are between the PSC and Canada and the United States then provides a portion equal to Canada's contribution." Canada submits that this sentence requires clarification. Canada and the United States collaborate in the Standing Committee on Finance and Administration to develop a mutually agreed budget proposal that is presented to the PSC.

9. At page 22, the last words of the first paragraph should read "area directors", not "area managers".

[1] http://www.psc.org/publications_annual_pscreport.htm

VI. THE FRASER RIVER PANEL

10. On page 25, Canada notes that it does not exchange formal "diplomatic letters" with the PSC in connection with the transfer of regulatory control described in Annex IV, Chapter 4, paragraph 12. Rather, a more accurate description of Canada's correspondence to the PSC would be "ministerial correspondence".

VII. TEST FISHING

11. At page 28, last paragraph, the PPR states that "[i]n case of a short-fall to pay for test fishing, there is no mechanism for the PSC to ask for more money from the Parties." While it is correct that there is no in-season mechanism enabling the PSC to seek more money from the Parties, the PSC has been adding budget overruns from the previous season to its budget requests for the next season. The end result is that Canada has been providing money to compensate the PSC for these in-season test-fishing short-falls through the funding for the following season.

VIII. APPENDIX 2: PACIFIC SALMON TREATY, ANNEX IV, CHAPTER 4

12. A typographical or formatting error in transcribing Annex IV, Chapter 4, of the PST in Appendix 2 may create confusion. In particular, the first full paragraph on page 33 should be re-numbered paragraph "10". Consequentially, paragraph 11 and 12 on page 33 will become paragraphs 12 and 13.

IX. APPENDIX 3: CURRENT LIST OF PACIFIC SALMON COMMISSION COMMISSIONERS, PANEL, COMMITTEE AND STAFF

13. Susan Farlinger has replaced Paul Sprout as a Canadian Commissioner.

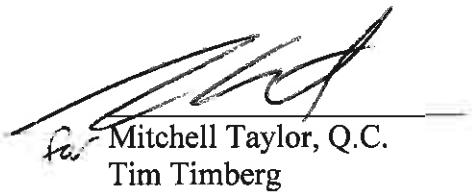
14. Lisa Kerr has replaced Roy Neighbor on the Standing Committee on Finance and Administration.

15. Dr. Mark Saunders has replaced Dr. Dick Beamish on the Standing Committee on Scientific Cooperation.

16. Diana McHugh and Matt Mortimer are not official members of Fraser River Panel Technical Committee, but Beth Pelcher from the Department of Fisheries and Oceans is.

17. Antonio Velez-Espino from the Department of Fisheries and Oceans should be added as a member of the Joint Technical Committee on Chinook.

Dated at the City of Vancouver, BC, this 1st day of November 2010.



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COMMISSION OF INQUIRY INTO THE DECLINE OF THE 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 to issue under Part 1 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 the sockeye Salmon in the Fraser River

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WRITTEN SUBMISSIONS OF THE GOVERNMENT OF CANADA IN RESPONSE TO THE POLICY AND PRACTICE REPORT ENTITLED "THE ABORIGINAL AND TREATY RIGHTS FRAMEWORK UNDERLYING THE FRASER RIVER SOCKEYE SALMON FISHERY," OCTOBER 1, 2010

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I. INTRODUCTION

1. Canada submits that an understanding of the Aboriginal and treaty rights framework that underlies the Fraser River sockeye fishery is critical to understanding the fishery and Canada's role and responsibilities in its management.

2. The Commissioner, in order to understand and make recommendations on, *inter alia*, the Department of Fisheries and Ocean's (DFO) fisheries policies and programs, management practices and procedures, and risk management, in accordance with his mandate, requires an understanding of the legal context in which Canada operates.

3. Canada has an obligation to manage the fisheries for all Canadians, and also in a manner consistent with the constitutional protection afforded to Aboriginal and treaty rights[1]. In managing the fisheries, consistent with the requirements of the Constitution and jurisprudence regarding those requirements, Canada seeks to avoid unjustifiably infringing Aboriginal and treaty rights. Where a claimed Aboriginal right may be adversely affected by Canada's proposed actions or decisions, Canada consults with the Aboriginal group claiming the right and, where appropriate, seeks to accommodate its interests.

4. While it is essential that the Commissioner be cognizant of the legal framework in forming his recommendations pursuant to his mandate, Canada submits that the Commissioner's role is to apply the law as it stands currently, not to pronounce upon or seek to direct the evolution of the Aboriginal or treaty rights framework[2]. The law of Aboriginal and treaty rights is particularly complex and dynamic; many of the subjects discussed in the Commission's paper, "*[t]he Aboriginal and Treaty Rights Framework Underlying the Fraser River Sockeye Salmon Fishery,*" dated October 1, 2010 (the "Paper"), are the subject of active litigation. Interpretations of the law, or opinions expressed about possible future directions of this legal framework, could prove prejudicial to Participants' legal positions in, or conduct of, litigation, or impact upon ongoing consultation and rights negotiation processes.

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[1] *Comeau's Sea Foods Ltd. v. Canada (Minister of Fisheries and Oceans)*, [1997] 1 S.C.R. 12 at paragraph 37. (*"Comeau's Sea Foods"*); *R. v. Gladstone,* [1996] 2 S.C.R. 723 at paragraph 67 (*"Gladstone"*)

[2] "A commission of inquiry has no authority to decide legal rights or obligations; the fact-finding function of a commissioner has an intrinsic value quite apart from that of serving as the foundation for determining rights or obligations." Ratushny, Ed. *The Conduct of Public Inquiries: Law, Policy and Practice* (Toronto: Irwin Law, 2009), page 162.

5. As a general comment, and subject to the comments made in these submissions, the Paper is mostly a fair and balanced effort to explain a complicated and often contentious area of the law. However, Canada submits that, in places, the Paper engages in unnecessary and sometimes unhelpful speculation on the future direction or evolution of the Aboriginal and treaty rights framework. Some examples of such speculation include (but are not limited to):

> [paragraph 25] ...aboriginal title to submerged lands or the foreshore has the possibility of providing for a different set of rights than those that may be obtained through successful claims to an aboriginal right to fish...This may arguably encompass alternative uses of marine resources that might not constitute aboriginal rights on their own.
>
> [paragraph 70] ...the right to fish for commercial purposes may take a variety of forms. This may range from the right to "exchange fish for money or other goods" to, at least, a right to fish "on a commercial basis".
>
> [paragraph 130] Although it is possible that other fishing rights may derive from this treaty [i.e. Treaty 8]... [emphasis added]

6. Aboriginal issues are often controversial and, in some cases, subject to ongoing litigation. It is inappropriate to speculate as to the future direction of the law in this area. The courts have been clear that important and complex questions of Aboriginal law should not be decided in the abstract, but rather that questions of Aboriginal and treaty rights must necessarily be considered in relation to specific fact situations and not according to hypothetical arguments or general principles[3]. Such issues and questions are best considered by courts in proceedings where the parties have the ability to present and test the evidence in an adversarial process.

7. Canada therefore submits that the Commissioner should, in preparing his report and recommendations, disregard those passages in the Paper that reflect opinion or speculation as to the possible evolution of the law. At a minimum, in considering the issues discussed in the Paper, the Commissioner should be aware that many of these issues are controversial, and he should refrain from endorsing any positions or opinions that are not based on jurisprudence that exists currently.

II. ABORIGINAL TITLE TO MARINE AREAS OR RIVERS

Aboriginal Title – Interest in Aboriginal Title and Reserve Lands

8. Paragraphs 9-11 of the Paper cite authorities describing the relationship of Aboriginal interests in Aboriginal title land and in reserve lands. The jurisprudence is clear that the incidents of

[3] *R. v. Marshall*, [1999] 3 S.C.R. 533, at paragraph 22; *Cheslatta Carrier Nation v. British Columbia*, 2000 BCCA 539 at paragraphs 13-19.

Aboriginal title, and the corresponding obligations of government, will be quite different from those relating to a reserve interest. The differences between Aboriginal title and reserve lands are discussed in *Osoyoos Indian Band v. Oliver*[4]. Specifically, the Supreme Court of Canada (SCC) clarified that:

> In sum, aboriginal interest in reserve land is entirely distinct and independent from aboriginal title. Furthermore, it does not fall into the same category of "aboriginal right", subject to the same legal principles, as aboriginal title and the other aboriginal rights referred to above; in other words, a bare interest in reserve land which is not also the object of aboriginal title, treaty rights or such other aboriginal rights cannot be considered to be an "aboriginal right" that is protected under s. 35 of the *Constitution Act, 1982*.[5]

9. The statements in paragraph 10 of the Paper relating to the nature of the Crown's fiduciary relationship with Aboriginal peoples refer primarily to Aboriginal interests in reserve lands. In particular, the passage quoted from *Wewaykum* at paragraph 10 ("the fiduciary duty, where it exists, is called into existence to facilitate supervision of the high degree of discretionary control gradually assumed by the Crown over the lives of aboriginal peoples") is clearly in relation to a reserve interest and not as to Aboriginal title. Indeed, the SCC in *Weywaykum* specifically notes that case is not about Aboriginal title[6].

Aboriginal Title – Date of the Assertion of Crown Sovereignty

10. At footnote 28, the Paper notes that the parties in *Delgamuukw* did not dispute that British sovereignty was "conclusively established" in British Columbia by the Oregon Boundary Treaty of 1846. However, it is important to note that Aboriginal title is determined as of the date of the assertion of Crown sovereignty[7]. The date for the assertion of Crown sovereignty in any given case is a question of fact, and such date may vary not only between provinces and territories of Canada, but also arguably within the Province of British Columbia.

Aboriginal Title – Proof of Occupation – *Bernard and Marshall*

11. The Paper sets out at paragraphs 12 the three elements of the test for proof of Aboriginal title, and noted at paragraph 13 that a central and necessary criterion in any claim for Aboriginal title is evidence of the Aboriginal use and occupation of the land in question. Since all three elements described at paragraph 12 are concerned with "occupation", the question of what actually

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[4] *Osoyoos Indian Band v. Oliver (Town)*, [2001] 3 S.C.R. 746, paragraphs 41, 160-169 ("*Osoyoos*").
[5] *Osoyoos*, at paragraph 169.
[6] *Wewaykum Indian Band v. Canada*, [2002] 4 S.C.R. 245, at paragraph 3.
[7] *Delgamuukw*, at paragraphs 144-145.

constitutes "occupation" is central to determining whether the test has been met. Therefore the absence in the Paper of any reference to or discussion of the SCC decision in *Bernard and Marshall* is particularly significant[8]. This decision is, among other things, the leading authority on the question of what constitutes "occupation" sufficient to ground Aboriginal title, and it is therefore a decision of central relevance and importance to any question as to whether an Aboriginal group could establish Aboriginal title to submerged lands in marine areas or in rivers.

12. The SCC in *Bernard and Marshall* ruled that "occupation" means "physical occupation":

> This "may be established in a variety of ways, ranging from the construction of dwellings through cultivation and enclosure of fields to regular use of definite tracts of land for hunting, fishing or otherwise exploiting its resources": *Delgamuukw, per* Lamer C.J., at para. 149.[9]

13. Further, the SCC ruled in each case that the respective trial judges were correct in requiring proof of regular and exclusive use of specific sites to establish Aboriginal title. The Court found that seasonal hunting and fishing rights exercised by pre-sovereignty Aboriginal groups will typically only translate to modern hunting or fishing rights, rather than to Aboriginal title. Hunting, fishing and other exploitation of natural resources will translate into Aboriginal title only if the activity was sufficiently regular and exclusive to the land in question to comport with title at common law[10]. The degree of regularity and exclusivity required to prove Aboriginal title was indicated to be very high. Referring to its decisions in *Van der Peet*, *Nikal*, *Adams* and *Côté*, the Court said:

> In those cases, aboriginal peoples asserted and proved ancestral utilization of particular sites for fishing and harvesting the products of the sea. Their forebears had come back to the same place to fish or harvest each year since time immemorial. However, the season over, they left, and the land could be traversed and used by anyone. These facts gave rise not to aboriginal title, but to aboriginal hunting and fishing rights.

This passage from *Bernard and Marshall* suggests that a claim to Aboriginal title cannot be maintained absent proof of regular and exclusive physical occupation.

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[8] *R. v. Marshall; R. v Bernard,* [2005] 2 S.C.R. 220 (*"Bernard and Marshall"*).
[9] *Bernard and Marshall,* at paragraph 56.
[10] *Bernard and Marshall,* at paragraph 58.

Aboriginal Title – Requirement of Exclusivity

14. Another element in the test for Aboriginal title from *Delgamuukw*, described at paragraph 12 of the Paper, is the requirement that, at the date of the assertion of sovereignty, occupation of the land claimed must be "exclusive":

> Finally, at sovereignty, occupation must have been exclusive. The requirement for exclusivity flows from the definition of aboriginal title itself, because I have defined aboriginal title in terms of the right to exclusive use and occupation of land. Exclusivity, as an aspect of aboriginal title, vests in the aboriginal community which holds the ability to exclude others from the lands held pursuant to that title. The proof of title must, in this respect, mirror the content of the right. Were it possible to prove title without demonstrating exclusive occupation, the result would be absurd, because it would be possible for more than one aboriginal nation to have aboriginal title over the same piece of land, and then for all of them to attempt to assert the right to exclusive use and occupation over it.[11]

15. Lamer C.J.C. observed that it could be possible to demonstrate exclusive occupation even if other Aboriginal groups were present or frequented the claimed lands. Under such circumstances, exclusivity would be demonstrated by an Aboriginal group's intention and capacity to retain exclusive control. An isolated act of trespass would not undermine a general finding of exclusivity if an Aboriginal group intended to and attempted to enforce their exclusive occupation of a particular site[12]. Lamer C.J.C. also noted that where Aboriginal groups can show that they occupied a particular site, but did not do so exclusively, it would still be possible to establish Aboriginal rights short of title[13].

16. In *Bernard and Marshall*, the Court reiterated these principles[14], and then provided clarification of the test for exclusivity in the following terms:

> [64] [...] The right to control the land and, if necessary, to exclude others from using it is basic to the notion of title at common law. In European-based systems, this right is assumed by dint of law. Determining whether it was present in a pre-sovereignty aboriginal society, however, can pose difficulties. Often, no right to exclude arises by convention or law. So one must look to evidence. But evidence may be hard to find. The area may have been sparsely populated, with the result that clashes and the need to exclude strangers seldom if ever occurred. Or the people may have been peaceful and have chosen to exercise their control by sharing rather than exclusion. It is therefore critical to view the question of exclusion from the aboriginal perspective. To insist on evidence of overt acts of exclusion in such circumstances may, depending on the circumstances, be unfair. The problem is compounded by the difficulty of producing evidence of what happened hundreds of years ago where no tradition of written history exists.
>
> [65] It follows that evidence of acts of exclusion is not required to establish aboriginal title. All that is required is demonstration of effective control of the land by the group, from which a reasonable inference can be drawn that it could have excluded others had it chosen to do so. The fact that

[11] *Delgamuukw*, at paragraph 155.
[12] *Delgamuukw*, at paragraph 156.
[13] *Delgamuukw*, at paragraph 159.
[14] *Bernard and Marshall*, at paragraph 57.

> history, insofar as it can be ascertained, discloses no adverse claimants may support this inference. This is what is meant by the requirement of aboriginal title that the lands have been occupied in an exclusive manner.

17. In summary, in *Delgamuukw* and *Bernard and Marshall*, the SCC confirmed that Aboriginal groups claiming Aboriginal title would need to establish that at the date of the assertion of sovereignty, their ancestors had effective control of the claimed lands (including any submerged lands, marine areas and rivers). That is, that those ancestors exclusively and physically occupied the lands claimed, and had the intention and capacity to exclude others from those lands. Moreover, with respect to the need to prove effective control of their respective claim areas, *Bernard and Marshall* emphasized that this control must be over "definite tracts of land"[15]. Aboriginal title is site specific, and the whole territory over which Aboriginal title is claimed must have been used regularly, not just on irregular occasions.

Aboriginal Title – Submerged Lands and Test for Title

18. Paragraph 22 of the Paper states that "[n]o Canadian court has yet to fully apply the concept of Aboriginal title to marine areas or rivers." This comment actually overstates the current state of the law: to date no Canadian court has accepted to any extent the concept of Aboriginal title to marine areas or submerged land under rivers or lakes. Based on the foregoing discussion, Canada submits that it would be very difficult in most instances for an Aboriginal group to demonstrate the requisite degree of exclusive and physical occupation to submerged lands required to establish Aboriginal title at common law. This is particularly true for much of the Fraser River and its tributaries, which was and is traversed by many Aboriginal groups and other peoples for fishing and navigation[16]. It would be even more difficult to establish exclusive and physical occupation in marine areas, particularly in areas far from shore.

Aboriginal Title to Submerged Lands – Limitations of Common Law Title

19. Another reason why Aboriginal groups would face difficulties proving Aboriginal title to submerged lands arise from the finding in *Bernard and Marshall* that Aboriginal title is based in the

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[15] *Bernard and Marshall* at paragraph 70.

[16] In *Tzeachten First Nation v. the Attorney General of Canada*, 2008 FC 928, at paragraph. 40, the trial judge, in assessing certain Sto:lo First Nations' claims to aboriginal title that encompassed parts of the Fraser River and tributaries, noted that "... the fact that a portion of the territory claimed was underwater and used as a transportation and trading route makes the exclusive occupation of this particular portion all the more difficult to prove."

common law.[17] Title at common law may be subject to or influenced by other common law rights and principles (as noted in the Paper at paragraph 29). In particular, claims to Aboriginal title to submerged lands may be incompatible with the public rights of fishing or navigation.

20. In marine (tidal) areas, the Crown's title to the seabed includes all the land below the high water mark, with the effect that no common law property or fishing rights can exist in those waters other than the public rights of fishing and navigation[18]. The equivalence stressed in *Bernard and Marshall* between Aboriginal title and common law title suggests that, if common law title cannot exist below the high water mark, then Aboriginal title cannot exist there either.

21. In non-tidal waters, the solum of a river bed can be the subject to title at common law. Therefore it is conceivable that Aboriginal title could exist to such lands in some jurisdictions. In particular, it is conceivable that title could be held to submerged lands *ad medium filum aquae*, similarly to a riparian right, by an Aboriginal group who could establish Aboriginal title to the adjoining dry land. However, in British Columbia, common law title cannot exist a*d medium filum aquae* to navigable water bodies[19].

Aboriginal Title – Public Right of Navigation

22. Any claim to Aboriginal title to navigable waters is inconsistent with the common law public right of navigation, which is held in common by all Canadians and can only be taken away by statute. It is paramount over any right that the Crown or any person may possess in navigable waters, including the rights of the owner of the solum[20]. Aboriginal title, by its very definition including the right to the exclusive use and occupation of the lands, and including the right to exclude others, would be incompatible with a public right of navigation. Such a claim for Aboriginal title is fundamentally inconsistent with the essential part of the common law that protects the public's access to navigable waters and is therefore not cognizable to the common law.

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[17] *Bernard and Marshall,* at paragraphs 38, 51.
[18] *Halsbury's Law of England,* 4th Edition, 2004 Re-issue, vol. 49(2), at paragraph 56. In the Fraser River, DFO considers the Mission bridge as the boundary between tidal and non-tidal waters.
[19] *R. v. Lewis,* [1996] 1 S.C.R. 921 at paragraphs 56-65 (*"Lewis"*); *R. v. Nikal,* [1996] 1 S.C.R. 1013 at paragraphs 65-75 *("Nikal")*
[20] *Friends of the Oldman River Society v. Canada (Minister of Transport),* [1992] 1 S.C.R. 3 at paragraphs 53-59; Gerard V. LaForest, Q.C. and Associates, *Water Law in Canada: the Atlantic Provinces* (Ottawa: Information Canada, 1973), page 185. ("LaForest, *Water Law in Canada*").

23. In *Walpole Island First Nation v. Canada*, a case involving a claim of Aboriginal title to submerged lands in the Great Lakes, the Ontario Superior Court considered the issue of the relationship between the public right of navigation and Aboriginal title. While the Court did not grant the Crown's preliminary motion to strike portions of the Statement of Claim relating to Aboriginal title to the lakebed on the basis that is was not "plain and obvious", the motions judge did describe Canada's arguments as "powerful and persuasive"[21].

24. Whether a waterway, particularly a river or lake, is considered "navigable" is a question of fact and, therefore, claims must be individually assessed. A water body is considered "navigable" if canoes or boats can travel down it, or if timber and logs can float on the river or lake:

> In Quebec, Ontario, the Prairie Provinces, and British Columbia, the rule is that if waters are *de facto* navigable, the public right of navigation exists there, whether the waters are tidal or non-tidal...[22]

Even if only part of a river is, in fact, navigable, the whole will be held to be navigable at law[23]. Based on this definition, the rivers and lakes of the Fraser River watershed in which sockeye salmon swim and spawn are almost certainly considered to be "navigable" water bodies.

Aboriginal Title – Fisheries as a Common Property Resource and the Public Right to Fish

25. In marine (tidal) waters, the fisheries have been described in the courts as a "common property resource"[24]. Any claim for Aboriginal title to submerged lands would not only be incompatible with the concept of the fishery as a "common property resource", but also incompatible with the common law public right to fish. Since the time of the *Magna Carta*, the Crown has no power – except by statute – to grant an exclusive fishery in tidal waters to the owner of submerged lands or to anyone else[25].

26. In *Gladstone*, the SCC confirmed that Aboriginal rights exist within the context of the public right to fish:

> It should also be noted that the aboriginal rights recognized and affirmed by s. 35(1) exist within a legal context in which, since the time of the Magna Carta, there has been a common law right to fish in tidal waters that can only be abrogated by the enactment of competent legislation:

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[21] *Walpole Island First Nation v. Canada (Attorney General)*, [2004] 3 C.N.L.R. 351, at paragraph 16.
[22] LaForest, *Water Law in Canada*, page 178.
[23] LaForest, *Water Law in Canada*, p. 180: *Nikal* at paragraph 74.
[24] *Comeau's Sea Foods*, at paragraph 37.
[25] *A.G. (B.C.) v. A.G. (Canada)*, [1914] A.C. 153 at 170.

> . . . the subjects of the Crown are entitled as of right not only to navigate but to fish in the high seas and tidal waters alike.
>
> . . .
>
> [I]t has been unquestioned law that since Magna Charta *[sic]* no new exclusive fishery could be created by Royal grant in tidal waters, and that no public right of fishing in such waters, then existing, can be taken away without competent legislation.
>
> (Attorney-General of British Columbia v. Attorney General of Canada, [1914] A.C. 153 (J.C.P.C.), at pp. 169-70, per Viscount Haldane.)

> While the elevation of common law aboriginal rights to constitutional status obviously has an impact on the public's common law rights to fish in tidal waters, it was surely not intended that, by the enactment of s. 35(1), those common law rights would be extinguished in cases where an aboriginal right to harvest fish commercially existed. As was contemplated by *Sparrow*, in the occasional years where conservation concerns drastically limit the availability of fish, satisfying aboriginal rights to fish for food, social and ceremonial purposes may involve, in that year, abrogating the common law right of public access to the fishery; however, it was not contemplated by *Sparrow* that the recognition and affirmation of aboriginal rights should result in the common law right of public access in the fishery ceasing to exist with respect to all those fisheries in respect of which exist an aboriginal right to sell fish commercially. As a common law, not constitutional, right, the right of public access to the fishery must clearly be second in priority to aboriginal rights; however, the recognition of aboriginal rights should not be interpreted as extinguishing the right of public access to the fishery.[26]

27. In summary, Aboriginal title to submerged lands, and in particular to lands under marine (tidal) waters or navigable rivers and lakes, is inconsistent with the common law rights of public navigation and the public right to fish, as well as with the common property nature of the fisheries. Because Aboriginal title encompasses the right to exclusive use and occupation of the area subject to title, Aboriginal title to marine areas and submerged lands under rivers and lakes is irreconcilable with the common law and not cognizable in law. The foregoing arguments were made to Justice Garson in *Ahousaht*, and, although she declined to decide upon the plaintiffs' Aboriginal title claim to submerged lands in the circumstances of that case, she nevertheless expressed "some doubt" that the claim was legally tenable[27].

28. Based on the difficulties an Aboriginal group would likely face in establishing a claim of Aboriginal title to submerged lands, Canada submits that the Paper likely goes too far in asserting that "[i]n the interim *[i.e. to the development of jurisprudence on aboriginal title to marine areas or rivers]*... the assertion of aboriginal title to marine areas or rivers may be sufficient to place certain obligations of consultation and possibly reasonable accommodation upon the Crown" (paragraph 30). As the Federal Court recently discussed in *Athabasca Regional Government v. Canada*[28]:

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[26] *Gladstone*, at paragraph 67.
[27] *Ahousaht Indian Band and Nation v. Canada (Attorney-General)*, 2009 BCSC 1494 (*"Ahousaht"*), at paragraph 502.
[28] *Athabasca Regional Government v. Canada (Attorney-General)*, 2010 FC 948, at paragraph 210.

> [210] As the Respondents point out, the duty to consult may not be triggered at all where there is a relatively minimal adverse effect on claims to Aboriginal title or rights or treaty rights claims. In *The Duty to Consult: New Relationships with Aboriginal Peoples* (Saskatoon: Purich, 2009 at page 34), Professor Dwight Newman summarizes when the duty to consult may be triggered:
>
> > ****
> > Government departments need not consult in circumstances where there are overriding doubts about the Aboriginal title or right or treaty right. They need not consult in circumstances where there is no plausible adverse effect on an Aboriginal claim. They need not consult if they are not involved in the kinds of action that trigger a duty to consult. However, it is not always easy for government officials to make those determinations with certainty, which may support the notion that to avoid the risk of not consulting in circumstances where consultation should have occurred, where there is any argument for doing so and it is practical to do so, at least notice to Aboriginal communities should be extended. It would be impractical to consult on every governmental decision, though, so there is a need for good judgment in applying this principle. [emphasis added]

29. Canada submits that the Crown may not have a duty to consult with Aboriginal groups based on legal arguments and positions that are theoretical and hypothetical in nature. In particular, the statement in paragraph 30 as to a possible duty to consult in connection with claims to Aboriginal title to marine areas and rivers is both speculative and subject to "overriding doubts".

III. ABORIGINAL RIGHTS

Aboriginal Rights – Site-Specific Nature of Aboriginal Fishing Rights

30. The Paper at paragraph 63 states that the right to fish for FSC purposes "may also be limited to specific area". In *Sappier*, the SCC noted that it has imposed a site-specific requirement on Aboriginal hunting and fishing rights in cases such as *Adams*, *Côté*, *Mitchell*, and *Powley*. The Court stated that the right "imports a necessary geographical element..."[29].

Aboriginal Rights – Right to Fish for Commercial Purposes

31. In paragraphs 68 and 69, the Paper states that *Ahousaht*, along with *Gladstone*, is a case where the court found a right to fish for "commercial purposes". In *Gladstone* the SCC confirmed that the Heiltsuk have an Aboriginal right to harvest and sell herring spawn on kelp "on a scale best characterized as commercial" (in addition to an Aboriginal right to sell spawn on kelp for money

[29] *R. v. Sappier; R. v. Gray*, [2006] 2 S.C.R 686, at paragraphs 50-51.

and other goods)[30]. The SCC referred to this right to sell "on a scale best characterized as commercial" as a right to sell on a "commercial basis"[31].

32. In *Ahousaht*, by contrast (and as described in the Paper at paragraph 69), Garson J. described the plaintiffs' right to harvest and sell fish as broader than a right to "exchange for money or other goods", but less than a right to "a modern industrial fishery or to unrestricted rights of commercial sale"[32]. While the right to fish and sell fish confirmed in *Ahousaht* is something more than "[t]he small-scale sale of fish outside the commercial market", Garson J. declined to characterize the plaintiffs' right as "commercial," to the extent that judicial authorities use that term to indicate sale "on a large industrial scale". Garson J. expressly declined to use this characterization, given that the plaintiffs' right "was not for the purpose of accumulating wealth". It is therefore inaccurate to state that the court in *Ahousaht* found a right to fish for "commercial purposes".

33. In addition to the cases cited involving Aboriginal claims to rights to harvest and sell fish, including rights to harvest and sell fish on a commercial basis, there are two trial decisions of the Provincial Court of British Columbia involving claims to harvest and sell Fraser River salmon on a commercial basis. In *R. v. Coutlee and McCaleb*[33], members of the Lower Nicola and Kamloops bands were charged with the unlawful sale of sockeye salmon. The defendants asserted an Aboriginal right to engage in commercial sales of salmon. The trial judge characterized the right claimed as a right to harvest and exchange salmon for money or other goods. After a trial of approximately 50 days, the trial judge concluded that the defendants had failed to establish that the Thompson and Shuswap Aboriginal people had traditionally exchanged salmon for money or other goods.

34. In *R. v. Billy* and Johnny[34], the two defendants, who are members of the Anahim Band and Tsilhqot'in First Nation, were charged with multiple counts of unlawfully harvesting and selling salmon. The defendants asserted in defence an Aboriginal right to harvest and sell fish for commercial purposes. In a trial lasting 48 days, the trial judge ultimately concluded that the defendants had failed to establish an Aboriginal right to commercially sell salmon.

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[30] *Gladstone*, at paragraph 26.
[31] *Gladstone*, at paragraph 30.
[32] *Ahousaht*, at paragraphs 486-487.
[33] *R. v. Coutlee and McCaleb*, B.C. Prov. Ct., Kamloops Registry No. 58374-C, May 7, 2004, unreported.
[34] *R. v. Billy and Johnny*, 2006 BCPC 0048.

Aboriginal Rights – Justification of Infringements – Valid Legislative Objectives – Management of the Resource

35. In *Sparrow*, in considering the issue of justification of infringements, the SCC held that (in addition to those factors noted at paragraph 98 of the Paper) "[a]n objective aimed at preserving s. 35(1) rights by conserving and managing a natural resource...would be valid" [emphasis added]. The SCC upheld the finding the B.C. Court of Appeal that regulations could be valid if reasonably justified for the proper management and conservation of the resource, noting that "[t]he justification of conservation and resource management, on the other hand, is surely uncontroversial"[35].

Aboriginal Rights – Justification of Infringements – Valid Legislative Objectives - Conservation Measures

36. As noted in paragraph 102 of the Paper, in *Nikal* and other cases, the courts have consistently upheld the principle that management of the fishery for conservation imports a duty to maintain and increase reasonably the resource[36]. In *R. v. Douglas*[37], the appellants asserted that the DFO's policy of optimal escapement targets to rebuild diminished fish stocks beyond minimal levels of catch for all user groups was not a valid legislative objective. The appellants argued for a narrower definition of escapement within the broader concept of sustainability, and submitted that DFO should adhere to prescribed escapement levels.

37. The trial judge disagreed, noting that:

> "...such a narrowing is not possible as it would restrict the contextual and fact-specific inquiry mandated by *Sparrow*, the standard of reasonableness required by [*Nikal*], and would impair the DFO's responsibility to manage the resource, which may require it to make adjustments to the fishing plan on very short notice, for the benefit of all user groups.[38]

The Court expressly endorsed the principle of managing the conservation of fisheries for all user groups as a valid legislative objective:

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[35] *R. v. Sparrow*, [1990] 1 S.C.R. 1075 at 1113 (*"Sparrow"*).
[36] *R. v. Nikal*, [1996] 1 S.C.R. 1013, at paragraph 102 (*"Nikal"*).
[37] *R. v. Douglas*, 2008 BCSC 1097. This is one of four 2008 BCSC appeal decisions released in relation to prosecutions of (primarily) Cheam band members charged with unlawful fishing activities in 1999. This decision is in respect of a charge of fishing in a closed time for late summer sockeye The other three decisions are *R. v. Douglas*, 2008 BCSC 1098 (mid-summer sockeye), *R. v. Aleck*, 2008 BCSC 1096 (Early Stuart sockeye) and *R. v. Tommy*, 2008 BCSC 1095 (Chinook salmon). *R. v. Tommy* is cited in the Paper as *"Douglas, 2008"*. None of these decisions should be confused with the earlier BCCA decision in *R. v. Douglas*, 2007 BCCA 265 *(Douglas, 2007)*.
[38] *Douglas*, 2008 BCSC 1097, at paragraphs 84-85.

> [86] The DFO's policy of risk aversion is an integral part of its management of the Fraser River fisheries. As noted previously, the DFO's mandate includes the complex and dynamic task of planning, coordinating and allocating the fisheries among a variety of user groups with often competing interests. It would be impossible in any given year, given the variety of in-season changes that occur, to follow mandated prescribed levels of escapement. Such a policy would, in my view, abrogate the government's obligation to reconcile aboriginal with non-aboriginal interests.
>
> [87] The Supreme Court of Canada has endorsed the notion of enhancement and sustainability of the resource in general terms, as a valid legislative objective. *Sparrow* described resource enhancement for all user groups as "uncontroversial"; *Nikal* observed that "management [of the resource] imports a duty to maintain and increase reasonably the resource". This responsibility was not qualified or limited to certain user groups. Ultimately, the DFO must make decisions regarding the allocation of the resource among the various competing user groups.[39]

38. The Court made similar rulings in *R. v. Aleck* (where the Court noted in particular that "the objectives of preservation and sustainability of the resource apply also amongst the 93 Fraser River First Nations")[40], in *R. v. Douglas* (mid-summer sockeye)[41], and in *R. v. Tommy*[42].

Aboriginal Rights – Justification – Allocation of Priorities

39. The British Columbia Court of Appeal decision in *Douglas, 2007* is the leading decision in British Columbia regarding issues of the priority of First Nations' Aboriginal rights to fish for food, social and ceremonial (FSC) purposes[43]. The Court emphasized that the consideration of issues of harvest priority requires a "contextual analysis", and concluded in that case that small incidental harvests of mixed stock interception recreational fisheries do not necessarily violate the priority enjoyed by First Nations' FSC fisheries. The Court noted that the correct standard to apply was "reasonableness" in the context of the specific circumstances, and that DFO "properly took account of all of the First Nations' interests.

> This is not to say that the priority required by *Sparrow* means that the food, social and ceremonial fisheries must always precede or occur contemporaneously with the non-aboriginal fisheries. As part of the contextual analysis into priority, it will sometimes be necessary to consider the practical difficulties occasioned by the movement of the fish themselves. The Fraser River sockeye encounter numerous fisheries, including aboriginal, recreational and commercial, as they migrate from the Pacific to their spawning grounds. If a non-aboriginal fishery could never precede any of the aboriginal fisheries, the result would be an exclusive food, social and ceremonial fishery, regardless of need and abundance of stock. That cannot be the intended result of *Sparrow*, where the Court stated that the objective of the priority requirement is to guarantee that fisheries conservation and

[39] *Douglas*, 2008 BCSC 1097, at paragraphs 86-87.
[40] *R. v. Aleck*, at paragraphs 36-46.
[41] *R. v. Douglas*, 2008 BCSC 1098, at paragraphs 28-35.
[42] *R. v. Tommy*, paragraphs 50-68. In particular, at paragraph 57, the trial judge found that the jurisprudence "establishes that sustainability is an integral part of the concept of conservation. Sustainability requires enhancement of the resource for the future benefit of both aboriginal and non-aboriginal Canadians."
[43] *Douglas, 2007*, see note 37. The Paper refers to aspects of the decision at paragraph 59.

management plans "treat aboriginal peoples in a way ensuring that their rights are taken seriously" (at 1119). DFO's actions in this case were consistent with that purpose.[44]

Aboriginal Rights – Justification – Minimal Infringement

40. In *R. v. Douglas* (mid-summer sockeye)[45], the appellants argued that DFO, in closing the mid-summer sockeye fishery when (with the benefit of hindsight) escapement goals were exceeded, failed to minimally infringe the appellants' Aboriginal rights to fish for FSC purposes. The Court stressed that the appellants' argument ignored the contextual basis upon which the closures were imposed, and that "[t]he management of migrating fish cannot be undertaken in hindsight. I am satisfied the closures were reasonable and necessary at the time the decision to impose them was made"[46].

41. The trial judge in *Douglas* also relied on the Alberta Court of Appeal decision in *R. v. Lefthand*[47] to explain that the analysis of minimal impairment must be considered in the context of the valid legislative objective:

> The analysis of whether the impairment of the aboriginal right is minimal cannot be conducted in isolation from the "valid legislative objective". The two must be balanced. What the inquiry seeks is the minimal infringement that will still leave room for some level of achievement of the objective.

Aboriginal Rights – Justification – Fair Compensation (in a Situation of Expropriation)

42. The Paper at paragraph 110 notes that the case law to date "has not demonstrated that compensation is typically awarded for an infringement of the Aboriginal right to fish". The trial judge in *R. v. Douglas* (mid-summer sockeye) firmly rejected the appellants' arguments that compensation should be paid where the infringement of the Aboriginal right to fish results in the Aboriginal group failing to meet its FSC needs:

> [59] Compensation for an infringement of an aboriginal right pre-supposes that the infringement amounts to an expropriation. Conservation measures to protect a resource do not, in my view, amount to an expropriation of an aboriginal right. The aboriginal right is not an absolute or exclusive right; it is subject to valid conservation measures that must be borne by all user groups. To find otherwise would be to ignore the descending order of priorities that was established in *Sparrow*.[48]

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[44] *Douglas, 2007*, at paragraph 54.
[45] *R. v. Douglas*, 2008 BCSC 1098.
[46] *Douglas*, 2008 BCSC 1098, at paragraphs 43 and 45.
[47] *R. v. Lefthand*, 2007 ABCA 206, leave to appeal to S.C.C. refused, 32250 (February 21, 2008).
[48] *R. v. Douglas*, 2008 BCSC 1098, at paragraph 59.

The courts have reached similar conclusions in *Douglas, 2007* (summary conviction appeal)[49] and in *R. v. Aleck*[50].

Aboriginal Rights – *R. v. Kapp* – No Finding of "Exclusive Fishery"

43. At paragraph 118, the Paper refers to the SCC holding that DFO's pilot sales program provided "exclusive" commercial fishing opportunities to Aboriginal fishers. To clarify, the B.C. Court of Appeal in *Kapp* considered the appellants' claim that the First Nations' pilot sales fishery was an "exclusive fishery", as that term is understood in the common law (and thus, in the appellants' submission, *ultra vires* the authority of the Minister under the *Fisheries Act*). Low J.A. for the Court rejected the appellants' argument that the pilot sales program created an "exclusive fishery" in law, but rather that the communal fishing licences issued to First Nations in the program were a method of allocation of resource and tool for managing the fishery; it was not a transfer of a property right over the fishery[51].

IV. TREATY RIGHTS

Modern Treaties – Principles of Interpretation

44. The principles of treaty rights and treaty interpretation described in the Paper at paragraphs 123 to 126 are derived from jurisprudence arising from the interpretation of historical treaties[52]. These principles, while general in nature, must, when applied to the modern treaty context, take into account the differences in how modern treaties are negotiated in comparison to historical treaties. In particular, modern treaties are complex legal agreements, negotiated over several years by sophisticated parties represented by experienced legal counsel. First Nations negotiating modern treaties arguably do not share the unique vulnerability of Aboriginal signatories to historical treaties.

45. In particular, in the case of modern treaty agreements, ambiguities or doubtful expressions in the wording of the treaty or document need not necessarily be resolved in favour of the Aboriginal

[49] *R. v. Douglas,* 2006 BCSC 284.
[50] *Aleck*, paragraphs 77-84.
[51] *R. v. Kapp*, 2006 BCCA 277, at paragraphs 52-66.
[52] While the Paper appropriately cites *R. v. Badger* for the principles of historical treaty interpretation, leading cases on the principles of historical treaty interpretation also include *R. v. Marshall*, 3 S.C.R. 456 and *R. v. Marshall*, 3 S.C.R. 533.

party. In the *Eastmain Band* case, which interpreted the provisions of the James Bay and Northern Quebec Agreement (JBNQA), the Federal Court of Appeal stated that the rule that doubtful expressions be construed in favour of the Aboriginal parties does not apply to the interpretation of modern treaties[53].

46. More recently, the SCC considered the differences in interpreting modern and historical treaties in *Quebec (Attorney General) v. Moses*[54]. Binnie J. for the majority noted that modern treaties are "meticulously negotiated by well-resourced parties," that the parties were represented by counsel in negotiations that produced a detailed, 450-page legal document, and that the importance and complexity of this text is a feature that distinguishes the JBNQA as a modern treaty from historic treaties. Because the JBNQA is so analogous to a contract, and because of the importance and complexity of the negotiated text, Binnie J. took the position that in interpreting the JBNQA, the Court should "pay close attention to its terms"[55].

47. Applying *Moses*, it is important to consider whether modern treaty agreements contain provisions that provide guidance on the rules of interpretation agreed to by the parties. For example, section 60 of the General Provisions Chapter of the *Tsawwassen First Nation Final Agreement* confirms the agreement of the parties that "[t]here will be no presumption that doubtful expressions, terms or provisions in this Agreement are to be resolved in favour of any particular Party"[56].

Historic Treaties – Douglas Treaties

48. The 14 treaties entered into by Governor James Douglas on Vancouver Island between 1850 and 1854 were with "tribes" or families of various named groups. For some of the Douglas Treaties, it is not clear from the tribal or family name which modern First Nations can claim historical treaty rights arising from the Douglas treaty.

49. The Paper at paragraph 133 refers to *Snuneymuxw First Nation v. British Columbia* for the proposition that the Douglas Treaty rights to carry on "fisheries as formerly" was "at the very least, to entitle the First Nation to priority over the fish stocks that exist," and that it "...vests the First

[53] *Eastmain Band v. JBNQA (Administrator)*, (Fed. CA), 99 D.L.R. (4th) 16 at 25.. See also *R. v. Howard*, [1994] 2 S.C.R. 299 at 306-7; *Cree School Board v. Canada (Attorney General)*, [2002] 1 C.N.L.R. 112 (Q.C.A.).
[54] [2010] 1 S.C.R. 557 ("*Moses*").
[55] *Moses*, at paragraph 7.
[56] *Tsawwassen First Nation Final Agreement*, General Provisions Chapter, s. 60, available at http://www.bclaws.ca/EPLibraries/bclaws_new/document/ID/freeside/07039_05.

Nation with powers to manage the fishery"[57]. In this case the Snuneymuxw First Nation was seeking an interlocutory injunction to limit or prohibit the storage of log booms in the Nanaimo River Estuary pending trial. Canada submits that the comments made by the motions judge, Groberman J., were *obiter* to the issues before him. Moreover, he acknowledged that "the contours of the right to "carry on fisheries as formerly" have not been fully articulated by the courts." Moreover, the motions judge acknowledged that he "would be ill-advised to come to any definitive view of the rights incidental to the right to "carry on fisheries as formerly" on this interlocutory application".[58]

Modern Treaties – Full and Final Settlement

50. At paragraph 146, the Paper refers to treaties as "an important source of information in assessing rights held by aboriginal peoples", yet "they nevertheless cannot be taken as comprehensive". While in *Mikisew* Cree the SCC was likely not distinguishing between historical and modern treaties when confirming that "[t]reaty making is an important stage in the long process of reconciliation…", modern treaties are as a general rule intended to be comprehensive in setting out the rights of the treaty First Nation under s. 35 of the *Constitution Act, 1982*[59]. This is express, for example, in the *Tsawwassen First Nation Final Agreement*. Section 11 of the General Provision Chapter provides that "[t]his Agreement constitutes the full and final settlement in respect of the aboriginal rights, including aboriginal title, in Canada of Tsawwassen First Nation" [emphasis added]. Section 12 confirms that "[t]his Agreement exhaustively sets out the Section 35 Rights of Tsawwassen First Nation, their attributes, the geographic extent of those rights, and the limitations to those rights to which the Parties have agreed"[60]. All modern treaties contain similar provisions.

51. The extent to which the duty to consult arising from the honour of the Crown applies to modern treaty agreements, and the related issue of the comprehensiveness of a modern treaty, is the subject of the appeal to the SCC in *Little Salmon/Carmacks*, heard November 12, 2009, and under reserve (as noted at paragraph 188 of the Paper).

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[57] *Snuneymuxw First Nation v. British Columbia*, 2004 BCSC 205 (*"Snuneymuxw"*), at paragraph 20.
[58] *Snuneymuxw*, at paragraph 23.
[59] *The Constitution Act, 1982*, being Schedule B to the *Canada Act 1982* (U.K.), 1982, c. 11.
[60] *Tsawwassen First Nation Final* Agreement, General Provisions Chapter, sections 11-12.

Modern Treaties – Governance Rights

52. As described at paragraph 149 of the Paper, modern treaties provide First Nations with rights to make laws, including laws in relation to the First Nations' fisheries. In some instances, those laws will prevail over federal or provincial law to the extent of any conflict. However, neither the Tsawwassen Final Agreement, nor other modern treaty agreements, provide First Nations with "exclusive" law-making power, if by this the Paper suggests that federal or provincial laws do not apply. Rather, the Tsawwassen Final Agreement expressly provides that federal and provincial laws apply to Tsawwassen lands and people, concurrently with Tsawwassen laws[61].

V. MANAGEMENT OF THE FISHERY

Canada's Obligation to Manage the Fishery

53. With respect to Canada's obligation to manage the fishery, *Nikal* provides a definitive rejection to the argument that an Aboriginal individual or group is free to follow his own or his group's discretion in exercising Aboriginal rights:

> This position cannot be correct. It has frequently been said that rights do not exist in a vacuum, and that the rights of one individual or group are necessarily limited by the rights of another... The government must ultimately be able to determine and direct the way in which these rights should interact. Absolute freedom in the exercise of even a *Charter* or constitutionally guaranteed aboriginal right has never been accepted, nor was it intended. [62]

Responsibility to Make Allocation Decisions amongst Aboriginal Groups

54. In *R. v. Michell*[63], the Provincial Court judge, relying on Gladstone, ruled that the Crown had failed in its responsibility to allocate fish amongst the 93 bands on the Fraser River, and ruled that DFO cannot transfer this responsibility to the Aboriginal groups.

> *R. v. Gladstone*, [1996] 109 C.C.C. (3d) 193 (S.C.C.) at page 221 established that the Crown must allocate fish between different aboriginal rights holders. That being the law, the Department failed by virtue of its abdication of that responsibility. The difficulty of the task does not justify an attempt to transfer the responsibility to the aboriginal groups. Unless it is beyond the realm of possibility to make the necessary allocations, the law requires that the Crown do so.

The *Michell* decision underscores the central role of DFO in managing the fisheries, including its responsibilities to make allocation decisions for and between First Nations.

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[61] General Provisions Chapter, section 19.
[62] *Nikal*, at paragraph 92.
[63] *R. v. Michell*, B.C. Prov. Ct., Lytton/Kamloops Registry No. 2958/66171-1-T, November 15, 2002, unreported.

VI. DUTY TO CONSULT

Reciprocal First Nation Obligations to Engage in Consultations

55. *Douglas, 2007*, is another example of a First Nation failing to meet its reciprocal obligation not to frustrate a consultation process by imposing unreasonable conditions. In that case, the defendants relied in their defence to the charges on the failure of DFO to consult with it on a recreational opening (that proved to have an insignificant impact on the First Nation's fishing opportunities). The trial judge concluded that it was unreasonable to fault DFO on failing to consult on this "minor matter" when the First Nation had systematically failed to respond to DFO's efforts to consult on major issues:

> [45] Finally, it is illogical to conclude that DFO failed to conduct adequate consultations with the Cheam because DFO did not approach them on a minor matter, when the trial judge found that the Cheam had failed to respond to repeated requests to meet, consult or respond on the major issues. Significantly, the Cheam failed to communicate their needs in concrete terms in response to DFO's request that they do so. The Cheam did not fulfil their reciprocal obligation to carry out their end of the consultation. To hold that members of a First Nation who deliberately frustrated all of the government's attempts to consult, and thereby failed in its own obligations should receive a remedy for an infringement of its aboriginal right because the government did not approach it on a minor issue goes far beyond what is required to justify DFO's conduct. The DFO's duty as described by the Supreme Court of Canada in *Sparrow* was to uphold the honour of the Crown and conform to the unique contemporary relationship between the Crown and aboriginal peoples. As the trial judge held, "the refusal by the Cheam to meet, to communicate, and to refuse to attend group discussions has direct implications on the assertion the consultation efforts of government are flawed" (at para. 73).[64]

See also *Heiltsuk Tribal Council v. British Columbia (Minister of Sustainable Resource Management),* where the trial judge concluded that the First Nation had frustrated the process of consultation by taking intransigent positions and refusing to participate in consultation regarding any type of accommodation concerning the proposed hatchery[65].

Requirement of Consent as an Element of the Duty to Consult

56. In addition to the cases cited at paragraphs 180-181 of the paper, the reasons of the trial judge in *R. v. Aleck* are particularly relevant:

> The appellants maintain the Cheam's consent was required before any changes could be made to the annual fishing plan. The jurisprudence does not support them in this position. The inability of the parties to reach a consensus does not entitle the Cheam to exercise a right of veto. If that were the case, the resource would have long been dissipated before any conservation measures could have been imposed. A requirement for the DFO to secure the consent of 93 First Nations before it could impose closures in the midst of a crisis would have been an abrogation of its mandate, if not an impossibility. The management of a finite resource that is dynamic, variable and constantly changing does not typically offer the luxury of time for the purpose of competing interests to reach a consensus on

[64] *Douglas, 2007, at* paragraph 45.
[65] 2003 BCSC 1422, at paragraphs 103-108, 117-118.

urgent issues. Unlike land which can be controlled and protected during the consultation process, fish continue to migrate to their spawning grounds.[66]

VII. CONCLUSION

57. Paragraph 191 of the Paper states that "aboriginal peoples have both proven and unproven claims to Aboriginal rights and title...that affect the management of the Fraser River sockeye salmon fishery". In saying this it is important to recognize that no Aboriginal claimant has yet established a claim to Aboriginal title in the province[67].

Dated at the City of Vancouver, BC, this 19th day of October 2010.

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[66] *Aleck*, at paragraph 73.
[67] This comment applies also to the statement at paragraph 145 of the Paper that "...fisheries management decisions will require consideration of proven or unproven aboriginal rights or title..." [emphasis added].

COMMISSION OF INQUIRY INTO THE DECLINE OF THE 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 to issue under Part 1 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 the sockeye Salmon in the Fraser River

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