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HERE WE GO AGAIN… OR THE 2004 FRASER RIVER SALMON FISHERY

REPORT OF THE STANDING COMMITTEE ON FISHERIES AND OCEANS

Tom Wappel, M.P.
Chairman

March 2005

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THE STANDING COMMITTEE ON FISHERIES AND OCEANS

has the honour to present its

SECOND REPORT

Pursuant to Standing Order 108(2), the Committee has studied the 2004 Fraser River sockeye salmon harvest and is pleased to report as follows:

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HERE WE GO AGAIN… OR THE 2004 FRASER RIVER SALMON FISHERY

Introduction

By the end of the summer of 2004 preliminary escapement estimates of Fraser River sockeye suggested a major ecological disaster was unfolding. Of the 182,000 Early Stuart sockeye that were counted at the Mission hydroacoustic station, only 9,244 had arrived at the spawning grounds. Later estimates for the total Fraser River sockeye run reported that 530,000 spawners arrived in 2004 compared to 2,353,000 in 2000, the previous year of this cycle. These tragically low spawning numbers mean that there will probably not be enough sockeye salmon to support commercial, recreational or Aboriginal fishing on the Fraser in 2008. Economic losses to the commercial fishery alone are estimated to be $78 million in 2008.[1] Economic activity lost because of the closure of the recreational fishery has not been calculated, but the Committee believes that it will be substantial. Run sizes for this cycle are unlikely to return to 2004 levels until at least 2020.

In June 2003, the Committee tabled its unanimous report on the Fraser River sockeye salmon fishery. The report highlighted problems with DFO's management of this fishery in 2001. Among other things, the Committee recommended that DFO end the Aboriginal Fisheries Strategy (AFS) pilot sales program on the West Coast and replace it with comparable opportunities for Aboriginal people in the commercial fisheries.

In its 2003 report, the Committee listed the legal principles that apply to the Fraser River sockeye fisheries:

(a) The Aboriginal right to harvest fish for food, social and ceremonial needs holds priority over the public commercial and recreational fisheries. The Department of Fisheries and Oceans has a constitutional obligation to ensure that these requirements are fulfilled.

(b) There is no general constitutional right for Aboriginal Canadians to fish commercially and each claim must be decided on its merits.

(c) There is currently no Aboriginal right to engage in commercial salmon fishing on the Fraser River.

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[1] See endnote at the end of the report.

(d) There is a public right to engage in the Fraser River commercial and recreational salmon fisheries that is held equally by all Canadians.

The Committee believed at the time, and does to this date, that it is important that all commercial fisheries be conducted under one set of rules and regulations. The report's 10 recommendations were:

1. That DFO return to a single commercial fishery for all Canadians, in which all participants in a particular fishery would be subject to the same rules and regulations. Consequently DFO should bring to an end the pilot sales projects and convert current opportunities under the pilot sales program into comparable opportunities in the regular commercial fishery.

2. That the government ensure that DFO respects the "public right to fish," and that the Minister of Fisheries and Oceans reassert his authority to manage the fishery.

3. That, as long as pilot sales agreements continue, food and sale fisheries on the Fraser River and elsewhere on the coast of British Columbia be kept completely separate; and

   That equal priority of access to the resource be provided to all commercial fisheries whether public or AFS pilot sales fisheries and that all measures required for conservation purposes be applied equally to both fisheries.

4. That DFO establish realistic Aboriginal food fisheries and that the Department follow through on the commitment of the previous Minister to the Standing Committee on Fisheries and Oceans to ensure that food fishery access is not being abused.

5. That funding be restored to DFO at levels adequate to the tasks of restoring science and enforcement programs critical to the conservation of the resource, habitat protection, enhancement and recruitment of professional fisheries managers and prosecution of commercial and recreational fisheries.

6. That DFO fund and support activities of more fisheries officers;

   That any person who has been convicted of a fisheries violation, not be designated as guardian;

   That DFO provide the resources for guardians to complete all phases of their training;

   That the monitoring and enforcement component be separated out of AFS agreements and that the guardian program be funded directly to ensure stability of the program and to provide autonomy to Aboriginal fisheries officers and guardians; and

   That, to provide greater independence for Aboriginal fisheries officers and guardians, they, together with DFO fisheries officers, be responsible to the head of DFO enforcement.

7. That DFO consider more flexible approaches to the management of fisheries along the lines proposed by the Area E Gillnetters Association.

8. That DFO provide more stable access to the resource for the commercial and recreational fisheries.

9. That DFO invest in more research to improve the run forecast system, including improving the test fishing system; and

   That DFO give high priority to research to determine the reason for the earlier than normal return of the Late-run sockeye.

10. That the Department of Fisheries and Oceans make a report to the Standing Committee on Fisheries and Oceans on an annual basis on the progress made in dealing with the issues and problems raised concerning the Fraser River salmon fishery, and that the report also be tabled in Parliament.

The Committee believes that the recommendations contained in its 2003 report are still pertinent and wishes to reiterate them. As will be seen from the balance of this report, the Committee believes that if DFO had implemented these recommendations, the likelihood of the problems faced in 2004 would have been greatly lessened if not avoided entirely.

The Government's Response

The Minister of Fisheries and Oceans responded to our report on behalf of the Government of Canada in November 2003.[2] It is fair to say that the federal government overall did not agree with the recommendations of the 2003 report of this committee. In the cases where it did agree in principle, the government said it already had equivalent programs in place or did not have the funding to initiate what was recommended. The Committee is of the unanimous view that the Government of Canada was wrong in rejecting this committee's recommendations.

In the time between the tabling of the Committee's and the government's response, there were a series of court decisions in matters related to the Fraser River sockeye salmon fishery. In *R v. Kapp et al.*, Judge Kitchen of the Provincial Court of British Columbia ruled that DFO's Native-only commercial fishery contravened the Charter of Rights. Mr. Kapp and his co-accused were charged with unlawfully fishing for salmon with a gillnet during a close time on 20 August 1998 in or near Area 29. The accused described their action as a "Protest fishery." Following the decision in the Kapp case, which the federal government had appealed to the Supreme Court of British Columbia and subsequently won, pilot sales agreements for 2003 fisheries on both the Somass and the Fraser rivers were terminated. That decision in turn is under appeal. On 28 July 2004, however, DFO announced that it had reached interim commercial fishing arrangements with First Nations on the Somass and Fraser rivers, valid for the 2004 fishing season only.

By the time the Standing Committee on Fisheries and Oceans reconvened shortly after the opening of the 38th Parliament in November, the situation had deteriorated. Members of the Committee agreed that the crisis had to be examined as quickly as possible.

On 4 November 2004, the Committee adopted the motion that the Committee travel to British Columbia to study the 2004 Fraser River sockeye salmon harvest. The Committee travelled to Vancouver where it held hearings for three days from 2 to 4 December 2004.[3] The Committee met with representatives from the offices of the Auditor General of Canada and of the Auditor General of British Columbia, commercial and recreational fishing sectors, unions, First Nations,

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[2] Fisheries and Oceans Canada, *Government Response to the Sixth Report of the Standing Committee on Fisheries and Oceans on the 2001 Fraser River Salmon Fishery*, Ottawa, 2003, http://www.dfo-mpo.gc.ca/communic/reports/fraser_2001/index_e.htm.

[3] Minutes of Proceedings, 4 November 2004 (No. 6). It was agreed, — That the Committee travel to British Columbia from November 25 to 29, 2004 in relation to its study on the 2004 Fraser River sockeye salmon harvest. Minutes of Proceedings, 16 November 2004 (No. 7). It was agreed, — That the Committee's order to travel of Thursday, November 4, 2004 be rescinded, and that 10 members of the Committee and the necessary staff travel to British Columbia from December 1 to 5, 2004 in relation to the Committee's study of the 2004 Fraser Valley sockeye salmon harvest.

the Pacific Salmon Commission (PSC), the Pacific Fisheries Resources Conservation Council, scientists, and officials from the RCMP and Fisheries and Oceans Canada.

For its study of the crisis of 2004, the Committee decided that it should hear from as many stakeholders and people involved in the fishery as possible, and table a report before the review process announced by the Minister was completed.

This report describes the evidence heard in Vancouver during the three days of hearings in December 2004. It describes the complex life cycle of the sockeye salmon, the challenge of the management of its fishery, and the 2004 season statistics available so far, and then comments on the possible reasons for problems encountered in 2004.

The Committee heard numerous times that the 2004 crisis was not new. In fact, witnesses repeatedly reminded us that this was the fourth time in only 12 years that management of the Fraser River sockeye fishery had warranted an investigation. On 2 December 2004, the Honourable John Fraser told the Committee:

> You may remember that some years ago I was asked by then-Minister Tobin to chair an inquiry into the missing sockeye salmon in the Fraser River and we seem to be doing it all over again. And remember that even before I was asked to do that, Dr. Peter Pearse was asked to do it in 1992. I would hope that with the attention all of you can give this and some of your colleagues who don't happen to be on this committee, we can make sure this time we get the answers we have to have in order to make sure this doesn't keep repeating itself.[4]

Historical background

The 1990 Sparrow Decision

In 1990, the Supreme Court of Canada ruled in the case of *Regina v. Sparrow* that a Lower Fraser River Band, the Musqueam, enjoyed an Aboriginal right to fish for salmon for food, social and ceremonial purposes.[5] The anthropological evidence relied on to establish the existence of the right suggested that, for the Musqueam, fishing for salmon had always constituted an integral part of their distinctive culture. Fishing for food, social and ceremonial purposes was said to be second in priority only to conservation.

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[4] John Fraser, Committee *Evidence*, 2 December 2004.

[5] *R. v. Sparrow*, [1990] 1 S.C.R. 1075.

The 1992 Pearse-Larkin Report

In the summer of 1992, Fraser River sockeye salmon reached their spawning grounds in much fewer numbers than expected. At the time, some stakeholders estimated that as many as 1.2 million fish had gone missing on their journey up river.

In June of that same year, the Department of Fisheries and Oceans launched its Aboriginal Fisheries Strategy (AFS). At the time it was introduced, DFO stated that it was a seven-year program intended to stabilize the fishery while increasing economic opportunities for First Nations. The AFS was DFO's response to the 1990 Supreme Court of Canada's *Sparrow* decision. Whether or not there was a direct connection between the alleged disappearance of the fish and the introduction of the AFS, it is fair to say that the 1992 fishing season was chaotic.

The situation prompted then-Minister of Fisheries and Oceans, the Honourable John Crosbie, to commission an independent investigation headed by Dr. Peter H. Pearse. Dr. Pearse was given the mandate to investigate the reasons for the shortfall of fish and to recommend corrective actions for the future. Minister Crosbie also appointed Dr. Peter A. Larkin to advise Dr. Pearse on scientific and technical matters.

Minister Crosbie released Dr. Pearse's report, *Managing Salmon in the Fraser* (also commonly referred to as the Pearse-Larkin Report) on 7 December 1992, and, at the same time, announced an action plan that responded to the Pearse report.

In the end, Dr. Pearse determined that 482,000 sockeye salmon seemed to have disappeared on their way to the spawning grounds in the Fraser River system. He concluded that the missing fish could not be attributed to an over-estimate of the number of fish entering the river by the hydroacoustic counting system at Mission. Dr. Pearse also concluded that official estimates did not adequately account for natural mortality and that the number of fish reaching the spawning grounds had probably been underestimated, though these factors could only account for a fraction of the missing fish.

Dr. Pearse concluded that most of the missing salmon could be accounted for by a combination of natural and fishing induced mortality and unusually intensive fishing activity on the Fraser River, which had produced catches substantially greater than estimated:

> Catches on the lower river and up through the canyon probably exceeded estimates by 200,000 fish. Significant losses can also be attributed to

> fishing-induced mortality — dead fish dropping out of nets and fish dying of stress after escaping from nets.[6]

He was also critical of the experimental Indian fisheries on the lower part of the river, organized under the Aboriginal Fisheries Strategy (AFS) which, he stated, had "invited abuse of fishing rights outside of the agreement area."

Dr. Pearse concluded that, although the program of rebuilding sockeye stocks had suffered a setback, the failure to reach escapement targets in the summer of 1992 was not a disaster. Nevertheless, he warned:

> **It cannot be repeated without seriously threatening salmon resources.** Major changes are needed in order to reconcile co-operative management with resource conservation and development.[7]

Following the 1992 season, only two years would pass before the federal government would have to order another investigation into missing sockeye salmon in the Fraser River.

The 1994 Fraser River Sockeye Public Review Board

At one stage in the late summer of 1994, it appeared that as many as 1.3 million sockeye salmon on their migration back up the Fraser River were unaccounted for. The failure of the fish to show up on their spawning grounds led to a great deal of acrimony and finger pointing. Four possible explanations for the missing fish were raised: 1) unauthorized and unreported harvest above Mission; 2) bad management; 3) inaccurate counting both at Mission and on the spawning grounds; and 4) environmental conditions.

On 15 September 1994, Minister Tobin announced a review of all aspects of in-river monitoring of sockeye abundance to be conducted by DFO officials in conjunction with the Pacific Salmon Commission. Shortly after, on September 26, Minister Tobin announced the appointment of an independent review board to oversee the examination of discrepancies between predicted and actual returns of sockeye salmon to the Fraser River in 1994.

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[6] Peter H. Pearse and Peter A. Larkin, *Managing Salmon in the Fraser*, Executive Summary, Ottawa, November 1992, p. 3.

[7] Ibid.

The Board was to be chaired by Dr. Paul LeBlond, an oceanographer from the University of British Columbia. Initially, the Board's mandate was to review the progress of, and to provide direction to, the management team set up to investigate the shortfall. Four technical teams were established to support the Board by investigating key areas: the accuracy of the estimates of sockeye passing the hydroacoustic facility at Mission; the accuracy of estimates of in-river sockeye catches in 1994; the mortality of sockeye in the Fraser River and on the spawning grounds, especially as a result of high water temperatures; and the accuracy of estimates of the number of sockeye on the spawning grounds.

On October 3, prompted by a further shortfall of Late-run sockeye, Minister Tobin expanded the Review Board to become the Fraser River Sockeye Public Review Board under the chairmanship of the Honourable John Fraser, P.C., Q.C., himself a former Minister of Fisheries and Oceans and also a former Speaker of the House of Commons. The Board's terms of reference were enhanced to include an examination of the Pacific Salmon Commission's system for estimating stocks.

The Board released its report, *Fraser River Sockeye 1994: Problems & Discrepancies*, on 7 March 1995. Based on a post-season estimate of 16.5 million fish, and taking account of the Canadian marine harvest, the U.S. marine harvest, the in-river fishery and the estimated spawning escapement, the Board concluded that half a million sockeye remained unaccounted for; however, the Board was unable to reach any definitive conclusion about the reasons for the discrepancy.

The Board was critical of Canada's "aggressive fishing policy," which was intended to intercept the fish before American fishermen, because, in the view of the Board, it had promoted a "grab all" attitude in the Canadian fleet and removed moral responsibility for conservation on the U.S. side. The Board also found flaws in the Pacific Salmon Commission's methodology for estimating run sizes in 1994 and identified illegal fishing and the laundering of fish into the commercial catch as two of many factors leading to weaknesses in the Late-run estimates.

The Board was also highly critical of the Department of Fisheries and Oceans. It noted that, as a result of reorganization and a reduction in funding, the Department's ability to manage its responsibilities was strained beyond its capacity leading to a virtual loss of control in areas ranging from catch estimates to regulatory enforcement. **The Board was particularly critical of senior DFO officials, whom it described as being in a state of denial about the dysfunction in their Department.**

In total, the Fraser River Sockeye Public Review Board made 35 recommendations addressing a series of issues including institutional problems, quality management, enforcement, the Aboriginal Fisheries Strategy, the environment, and the responsibility of user groups.

The 1996 Van der Peet Decision

In June 1993, the B.C. Court of Appeal considered the issue of an Aboriginal right to sell salmon in *R v. Van der Peet.* A majority of the Court ruled that the Aboriginal right did not include the right to sell. This case was subsequently appealed to the Supreme Court of Canada.[8]

In the case of *Van der Peet*, a majority of the Court held that the Sto:lo, a Lower Fraser River band, did not have an Aboriginal right to the sale of salmon.

In *Van der Peet*, the Court addressed the question of how Aboriginal rights should be defined as well as the purposes behind section 35 of the *Constitution Act*, *1982*, recognizing and affirming those rights. The Court ruled that existing Aboriginal rights entitled to constitutional protection are practices, customs or traditions that were integral to the distinctive culture of the Aboriginal group claiming the right prior to contact with Europeans. The Court also held that Aboriginal rights are not universal in nature but are, rather, specific to individual

Aboriginal communities. That is to say, their scope and content must be determined on a case-by-case basis.

The 1999 Report of the Auditor General of Canada

In 1999, the Auditor General of Canada tabled a report in which he stressed that better management and more stringent controls were needed in the short term to ensure that Pacific salmon survive for the benefit of future generations.[9] The report underlined the challenge for DFO to conserve existing stocks and rebuild those that are at low levels, while maintaining the viability of the fisheries.

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[8] *R. v. Van der Peet*, [1996] 2 S.C.R. 507. *R. v. N.T.C. Smokehouse Ltd.*, [1996] 2 S.C.R. 672. *R. v. Gladstone*, [1996] 2 S.C.R. 723.

[9] Auditor General of Canada, *1999 Annual Report*, "Fisheries and Oceans — Pacific Salmon: Sustainability of the Fisheries", Chapter 20, Ottawa, 1999.

At the time of the audit, DFO had received catch data for 1997 from fewer than 15% of the bands that were required to collect it. In 1998, the regional office reported that some First Nations on the north coast submitted either no catch data or unusable data. The Auditor General recommended that DFO evaluate the comprehensiveness and quality of data collected under the AFS and the adequacy of the standards and procedures that guide data collection, compilation and reporting, with a view to improving and expanding the role of the AFS in this area. Commenting about managing for biodiversity, the Auditor General noted that more precise catch data would be needed and that in-season sampling of numbers of returning salmon was important.[10]

The 2002 Post-season Review

The events of the 2002 Fraser River sockeye fishery precipitated yet another review, for reasons somewhat different, however, from those leading to the 1992 and 1994 reviews.

Two thousand and two is a dominant year in the four-year cycle of Fraser River sockeye.[11] Predictions for Fraser River sockeye runs were below average for the cycle; nevertheless, 2002 should have been a relatively good fishing season on the Fraser.

There were a number of concerns leading up to the season. Predictions for the Early Stuart and Early Summer aggregates indicated that there would likely be limited fishing opportunities on these stocks. There were also particular concerns for the Late-run sockeye. Since 1996, the Late-run had been entering the river early. Historically, these sockeye fall into a holding pattern in the Strait of Georgia for four to six weeks before beginning their migration up river. The Late-run sockeye had also been suffering from a parasitic infection. For reasons poorly understood, but likely linked to the early entry and the presence of the parasite, the Late-run fish had been experiencing very high rates, up to 90%, of in-river, pre-spawn mortality. In addition, the Cultus Lake population, a component of the Late-run, and other populations migrating through the Strait of Georgia such as the Sakinaw lake population had been assessed by the Committee on the Status of Endangered

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[10] Ibid., paragraph 20.54.

[11] Department of Fisheries and Oceans, External Steering Committee, *Review of the 2002 Fraser River Sockeye Fishery*, Ottawa, 2003, p. 30-31. “Most of the major populations follow persistent four-year cycles of abundance. While not all populations cycle synchronously, the fluctuations in abundance of some populations (Lower Adams River Lates and Quesnel River Summers) dominate the overall trend in a pattern termed ‘cyclic dominance’. Total returns during the dominant-year cycle line (i.e., 2002, 1998, 1994, etc.) have increased consistently since the 1960s from about 3 million in 1962, up to about 22 million in 1990. The subdominant-year cycle line (2001, 1997, 1993, etc.), which precedes each dominant year, has also increased over the same time period.”

Wildlife in Canada (COSEWIC) as endangered in October of 2002. The ministers of the Environment, the Honourable Stéphane Dion, and of Fisheries and Oceans, the Honourable Geoff Regan, have however since recommended not to extend the *Species at Risk Act*'s protection to these populations.[12]

To respond to these concerns, an exploitation rate limited to 15% for Late-run sockeye had been adopted in 2002, although the management plan allowed for additional harvesting opportunities, if warranted by sufficient abundance and if the fish returned to their customary migration pattern of delaying entry to the river by four to six weeks.

Returns of the Early Stuart, Early Summer and Summer runs were consistent with pre-season estimates. The Early Stuart and Summer runs came in between the pre-season forecasts at the 75% and the 50% probability levels, while the Early Summer-run exceeded the 50% probability level estimate. The Late-run, however, greatly exceeded pre-season estimates (by more than twice at the 50% level and more than three times at the 75% level).[13]

Although some additional fishing opportunities were provided for the Late-run through August, given the higher than forecasted abundance and a much reduced in-river mortality of only about 20%, they were much less than the stock could have supported. In addition, restrictions on the harvesting of Late-run fish had prevented harvesting of Summer-run sockeye at levels they could have supported. The end result was that escapement targets for the Early Summer, Summer and Late runs were exceeded by substantial margins. The Early Stuart-run, however, failed to meet the escapement target and was even below the average escapement for this cycle.

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[12] The Minister of the Environment in consultation with the Minister of Fisheries and Oceans recommended against listing the Cultus Lake sockeye population under SARA for primarily economic reasons: Listing Cultus and Sakinaw Lake sockeye salmon — which make up less than 1% of all B.C. sockeye salmon populations — under SARA could cost the sockeye fishing industry $125 million in lost revenue by 2008. There would also be significant impacts on First Nations food, social and ceremonial fisheries, many coastal communities dependent on the fishing industry, sports fishing, tourism and other related industries. The ministers plan instead to protect these fish under tools already available in the *Fisheries Act*.

Environment Canada, News Release, "Minister of the Environment Makes Recommendations on Adding New Species to the *Species at Risk Act*", 22 October 2004.

[13] These forecasts are made at two probability levels. These are the probability that the actual run will reach or exceed forecast levels. The 50% probability level forecast corresponds to a higher number of fish in the run than the 75% level, and is therefore a less conservative estimate.

On the one hand, there were positive aspects to escapements that exceed targets — it indicated that good numbers of fish were surviving to the spawning grounds. On the other hand though, fish in excess of spawning requirement represented lost opportunities for harvesters, whether commercial fishermen, First Nations or sport fishermen. Particularly at a time when the commercial fishing industry was facing chronic economic hardship, this was difficult to accept. Indeed, commercial fishing interests protested what they saw as an inflexible adherence to the 15% exploitation limit, the inability to make in-season adjustments and the quality of information to support in-season management. There was also a belief that overescapements would lead to poor returns of fish in the next cycle.

In September 2002, in response to stakeholders' concerns, the Minister of Fisheries and Oceans, the Honourable Robert Thibault, committed to a review of the management of the Fraser River sockeye salmon fishery. A formal post-season review process was implemented in November 2002, with the objective of providing recommendations to improve the future management of the fishery. The review was directed by the Assistant Deputy Minister of Fisheries Management, Mr. Patrick Chamut, who chaired a multi-sectoral External Steering Committee.[14]

Minister Thibault released the External Steering Committee's report, *Review of the 2002 Fraser River Sockeye Fishery*, on 8 April 2003. The Committee identified a series of key concerns including: a lack of clarity around policy objectives for the conservation of wild salmon; the transparency, participation and timeliness of consultation on pre-season management plans and in-season decision making; the need to improve the process for developing the Integrated Fisheries Management Plan; shortcomings with respect to in-season management; the need to establish effective coordination and clear accountabilities for DFO, the Pacific Salmon Commission and the United States; and clarification of the roles and responsibilities of departmental staff. The report made a total of 14 recommendations. In particular, the External Steering Committee recommended the adoption of a Wild Salmon Policy and the establishment of two regional integrated salmon harvest planning committees.

[14] The Committee included representatives from: Fisheries and Oceans Canada, the Province of British Columbia, the Pacific Fisheries Resource Conservation Council, the British Columbia Aboriginal Fisheries Commission, the Sport Fishing Advisory Board, commercial representatives of the Fraser River Panel, the Canadian Commissioner from the Pacific Salmon Commission, and Sierra Club (an environmental organization).

The 2002 Johnstone Strait Protest Fishery

DFO's adherence to the 15% exploitation for the Late-run sockeye, despite obviously much larger numbers of fish than anticipated, caused great frustration among fishermen. On 20 August 2002, 39 trollers and 1 gillnetter staged a protest fishery in Johnstone Strait. The number of fish harvested, a little over 5,000 (in terms of the total number of returning Late-run fish) was quite small. Nevertheless, DFO decided to have the protesters charged with illegal fishing during closed times. The protestors pled guilty and the Crown demanded that they pay substantial fines. The defendants believed that they should receive discharges.

During the sentencing hearing, the defendants alleged that, for the previous decade, the federal government had been aware of illegal fishing by Native people, but for political reasons had chosen to ignore this and had refused to enforce the rules relating to the food and pilot fisheries. On 17 June 2003 in Campbell River provincial court, Judge Brian Saunderson granted the 40 fishermen an absolute discharge. Judge Saunderson was scathing in his criticism of DFO and its failure to treat all commercial fishermen in an even-handed manner:

> …nevertheless, on the undisputed facts of this case an objective observer can reasonably conclude that the government of Canada, in the person of the Minister of Fisheries and Oceans, has intentionally refused to provide the means and instructions to enforce the rules relating to the Fraser River sockeye Indian food and pilot commercial fisheries. The political masters of the enforcement section of the DFO have prevented fishery officers from doing the very job for which they were hired and trained, destroying their morale in the process. The plea of budgetary constraints emerges from the evidence, but the objective observer might be forgiven a degree of scepticism in light of the fact that the DFO managed to muster men, equipment and aircraft to investigate and prosecute these non-aboriginal defendants who had the temerity to make their case publicly
>
> The result of what some might describe as the DFO's policy of political correctness, but what I choose to call a lack of courage to carry out its mandate as defined by our highest court, is the loss of its moral authority. The issue here is whether acts of civil disobedience should be punished when the civil authority, through its own policies, action and inaction, has lost the right to demand the respect of the public.

Reports of the Commissioner for the Environment and Sustainable Development and the Auditor General of British Columbia

The fifth chapter of the 2004 Report of the Commissioner for the Environment and Sustainable Development is entitled *Fisheries and Oceans Canada — Salmon Stocks, Habitat, and Aquaculture*. Between 1997 and 2000, the Auditor General of Canada and the Commissioner of the Environment and Sustainable Development conducted three audits that focused on Pacific salmon, and in 2004 it completed a follow-up of these audits in collaboration with two provincial auditors general. The Auditor General of British Columbia examined the provincial government's role in sustaining wild salmon, and the Auditor General of New Brunswick looked at salmon aquaculture in that province.

All three audits identified gaps in coordination between the federal and provincial governments, and in the scientific knowledge about the potential effects of salmon aquaculture. According to the B.C. Auditor General, "British Columbia's ability to ensure sustainability of wild salmon is handicapped by the lack of a clear vision to guide priority setting." The B.C. Auditor General therefore recommended that "the provincial government, in conjunction with the federal Department of Fisheries and Oceans, develop a clear vision, with goals and objectives for sustaining wild salmon. The two levels of government need to jointly provide the direction of public policy on the questions of what is an acceptable risk to salmon habitat and what is an acceptable loss of salmon runs."[15]

The Commissioner of the Environment and Sustainable Development identified a number of specific deficiencies:[16]

- The Department has not finalized the Wild Salmon Policy[17] to provide clear objectives and guiding principles for fisheries and resource management and habitat protection.

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[15] Office of the Auditor General of British Columbia, News Release "*Auditor General says the province should take more aggressive actions to ensure the future of wild salmon in British Columbia*," 26 October 2004.

[16] Commissioner of the Environment and Sustainable Development, *Annual Report*, Chapter 5 — Fisheries and Oceans Canada — Salmon Stocks, Habitat, and Aquaculture, Ottawa, 2004.

[17] A draft of the Wild Salmon Policy was finally released for consultations in December 2004. The final policy is expected in May 2005. The policy covers only Pacific salmon species.

- Significant gaps continue to exist in information on Pacific salmon stocks and their habitat, and in scientific knowledge about the potential environmental effects of salmon aquaculture, including diseases and sea lice infestation.

- Improvements are needed in the approval of aquaculture site applications, the assessment of cumulative effects of each site's operations, and the monitoring of salmon aquaculture operations to prevent harmful destruction of fish habitat.

- The coordination between the federal and provincial governments in terms of managing fish habitat, undertaking research, approving aquaculture site applications, and sharing information has been inadequate.

Life cycle of the Sockeye Salmon

Sockeye salmon have a four-year cycle. This cycle started in 2000 when returning female sockeye throughout the Fraser River and its tributaries deposited their eggs in the gravel of the streams where they themselves had been spawned. In the spring of 2001, millions of alevins emerged from the gravel. After a year, they swam down the Fraser River and then migrated thousand of kilometres into the North Pacific. The young sockeye face many dangers such as unfavourable ocean temperature, scarcity of foods, and variety of predators including human harvesters.

Eventually in the spring of 2004, 5.2 million adult sockeye began their migration back to their original spawning grounds. It is estimated that this number represents about one eighth of 1% of the eggs laid by female sockeye at the beginning of the four-year cycle.[18] The sockeye salmon made it through the Alaskan and the Canadian commercial marine fisheries. After arriving at the mouth of the Fraser River, the sockeye moved upstream, a period during which the fish underwent important physical changes. The salmon also stopped feeding and had to depend on stored energy reserves to survive the remainder of the trip and spawning. In 2004, for every 20 mature sockeye salmon returning to spawn, about 18 were either taken by the various fisheries, or unaccounted for, leaving a single pair to escape to the spawning grounds.

[18] Based on a spawning escapement of 2,352,930 for year 2000, and the fact that each female sockeye lays 3500 eggs in the gravel. This calculation was used in the Fraser River Sockeye 1994 report.

The salmon returning to the spawning beds of the Fraser River watershed are categorized into four runs: Early Stuart, Early Summer, Summer and Late-run. According to the draft Wild Salmon Policy released in December 2004, there are approximately 100 "conservation units"[19] or populations of sockeye salmon in British Columbia and Yukon, 20 to 25 of which belong to the Fraser River watershed. By comparison, there are respectively 15, 30, 25, and 15 populations of coho, chinook, pink, and chum salmon in the same area.

Cyclic fluctuations in abundance are characteristic of fish species such as the sockeye salmon. Of the 20 or so sockeye populations in the Fraser River watershed, 8 exhibit a predictable dominant-year cycle line every four years, when the run size is larger than the other cycle lines. For example, the 2004 cycle line was a low or off cycle year for the Early Stuart stock group; 2001 was a dominant one and 2002, a subdominant line.

In the opinion of DFO, despite declines in abundance during the past decade, wild Pacific salmon in Canada are still relatively plentiful.[20] However, as mentioned in the section on the 2002 Post -season Review above, the diversity of Pacific salmon has been an increasing concern, and there are problems with certain populations.

Process of Estimating Sockeye Salmon Runs and Escapements

Before the start of the fishing season, the Department of Fisheries and Oceans prepares forecasts for each stock group. A pre-season plan with escapement goals and total allowable catch for each stock group is developed. The involvement of the Pacific Salmon Commission (PSC) and its Fraser River panel is most apparent during the season. The PSC is the body formed by the governments of the United States and Canada to implement the Pacific Salmon Treaty. The Fraser River Panel of the PSC has the responsibility for in-season harvest regulation of Fraser River sockeye salmon within Fraser River Panel Area waters. Management in non-panel area waters in Canada is regulated by DFO. The Fraser River Panel Area comprises waters surrounding the southern portion of Vancouver Island and including the straits of Georgia and Juan de Fuca, the delta of the Fraser River and the river itself up to Mission. During the fishing season, PSC biologists provide technical information and advice concerning Fraser River sockeye salmon-

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[19] A "conservation unit" or CU reflects the geographic and genetic diversity of Pacific salmon. A CU is a group of wild salmon sufficiently isolated from other groups that, if lost, is very unlikely to recolonize naturally within an acceptable timeframe. A sockeye CU will typically be at the level of an individual lake, though sometimes it may turn out that several small lakes will constitute one CU, or that different timing components ("runs") within large lakes may represent separate CUs.

[20] Fisheries and Oceans Canada, *A Policy Framework for Conservation of Wild Pacific Salmon*, Vancouver, December 2004.

run size assessments and harvest opportunities. The in-season programs of the PSC include: the Mission hydroacoustic program, the test fishing program, the racial analyses program, and the catch estimation program. Biologists use the data collected and analyzed from these programs in their run-size models. The run-size estimates for each sockeye salmon stock group are provided to the Fraser River Panel which issues decisions on opening and closing of the fishery.

Accurate run-size estimates are crucial to meet conservation and allocation objectives. At the present time, run-size assessment in marine areas requires catching fish in test fisheries. Certainty in run-size estimates depends on the fraction of fish being caught. Test fisheries provide catch-per-unit-effort information as well as biological information for stock composition estimates. In 2004, there were nine PSC test fisheries in Johnstone Strait, the Strait of Georgia, the Juan de Fuca Strait, and the Lower Fraser River.[21]

The hydroacoustic program at Mission was established in 1977. Before 1977, test fisheries in the Fraser River were the principal means for estimating gross escapements. The hydroacoustic program uses a vessel-based, downward looking, single-beam acoustic transducer to detect fish in mobile and stationary modes. The data provides daily upstream migrating fish flux. From this data, the PSC derives estimates that are needed to update the abundance of each stock group. From this, it can be seen that this program is critical to accurate estimates of abundance.

The process ends with the count of spawners on the grounds. This number is also essential to start the estimation process for the next run cycle four years down the road. The success of the management program is determined by the number of spawners on the grounds. Estimates of spawning escapement depend on three types of measurements: mark-recapture studies, enumeration fences, and visual surveys. For large runs where over 75,000 fish are expected, the mark-recapture method is used. The preliminary data on these estimates are typically available during the fall, and the data for the Late-run stocks is available in December or January. The 2004 Late-run stock spawning estimates were made available in mid-December 2004.

[21] The first marine test fishery began in the 1960s out of conservation concerns. These early test fisheries were designed to determine if the abundance was sufficient to commence the fisheries, and to fill in the gaps in data between commercial fisheries. They were not designed for run-size estimation. Run-size estimates were primarily obtained from analysis of catches from commercial fisheries. Nowadays, the PSC relies increasingly on test fisheries for run-size estimation.

Mr. Murray Chatwin, a member of the Fraser River Panel told the Committee that the mandate of the Panel was to "deliver the fish at Mission". This mandate was fulfilled in 2004 since 2.7 million sockeye salmon were counted at Mission out of a total run of 5.2 million.

The 2004 Fraser River Sockeye Salmon Run and Harvest

The best estimate of the size of the 2004 Fraser River sockeye salmon run at the time of writing this report is 5.2 million fish. Of this number, the total reported harvest for all sectors amounted to a little over 3 million fish or 58% of the total run (Table 1). However, these numbers are preliminary as some catch data is not yet available. In absolute numbers, this harvest is 40% less than the average for the past 13 years (Table 3).

Canadian commercial fisheries[22] and First Nations accounted respectively for 60% and 29% of the total harvest. Fraser River First Nations caught most of the Aboriginal share. The Aboriginal harvest in the Fraser River included catches from interim commercial fishing arrangements agreed upon in July 2004 with the Musqueam, the Tsawwassen, and the Stó:lõ First Nations (43%), and food, social and ceremonial (FSC) fisheries (57%).

Non-commercial (mostly recreational), U.S. commercial/non-commercial, and test fisheries accounted for much smaller shares of the total harvest. The share of each sector and their relative importance is summarized in Figure 1.

[22] According to the First Nation Panel on Fisheries, 32% of the Canadian commercial salmon licenses were Aboriginal owned and operated in 2003. First Nation Panel on Fisheries, *Our place at the table: First Nations in the B.C. Fishery*, Vancouver, 2004, p.12.

Table 1: Preliminary estimates of fishery catches, spawning escapement and total run of Fraser River sockeye salmon during the 2004 season

Canada	Number of fish	% of total run	Sources[23]
Commercial catch			
Seine	771,137		a
Gillnet	884,446		a
Troll	151,073		a
Selective Fisheries	13,100		b
Total Canadian commercial	1,819,756	35%	
First Nations catch			
Mouth of the Fraser River to Mission	199,092		c
Mission to Sawmill Creek	282,813		c
Above Sawmill Creek	147,137		c
Total Fraser River	629,042[24]		
Areas 12-124	256,200		b
Total First Nations	885,242	17%	
Non-commercial catch			
Charter	-		b
Recreational Fishery	52,200		b
Total non-commercial	52,200	1.0%	
Total Canada	2,757,198		
United States			
Commercial catch			
Washington	192,100		b
Alaska	-		b
subtotal	192,100		
Non-commercial catch			
Ceremonial & Subsistence	100		b
Total United States	192,200	3.7%	
Test fishing			
PSC	24,300		b
Areas 12 and 13	49,400		b
Total Test fishing	73,700	1.4%	
Total Catches	3,023,098	58%	
Spawning escapement	530,301	10%	Table 2
Unaccounted fish	1,642,549	32%	
Total run	5,195,948	100%	

[23] **Sources:**

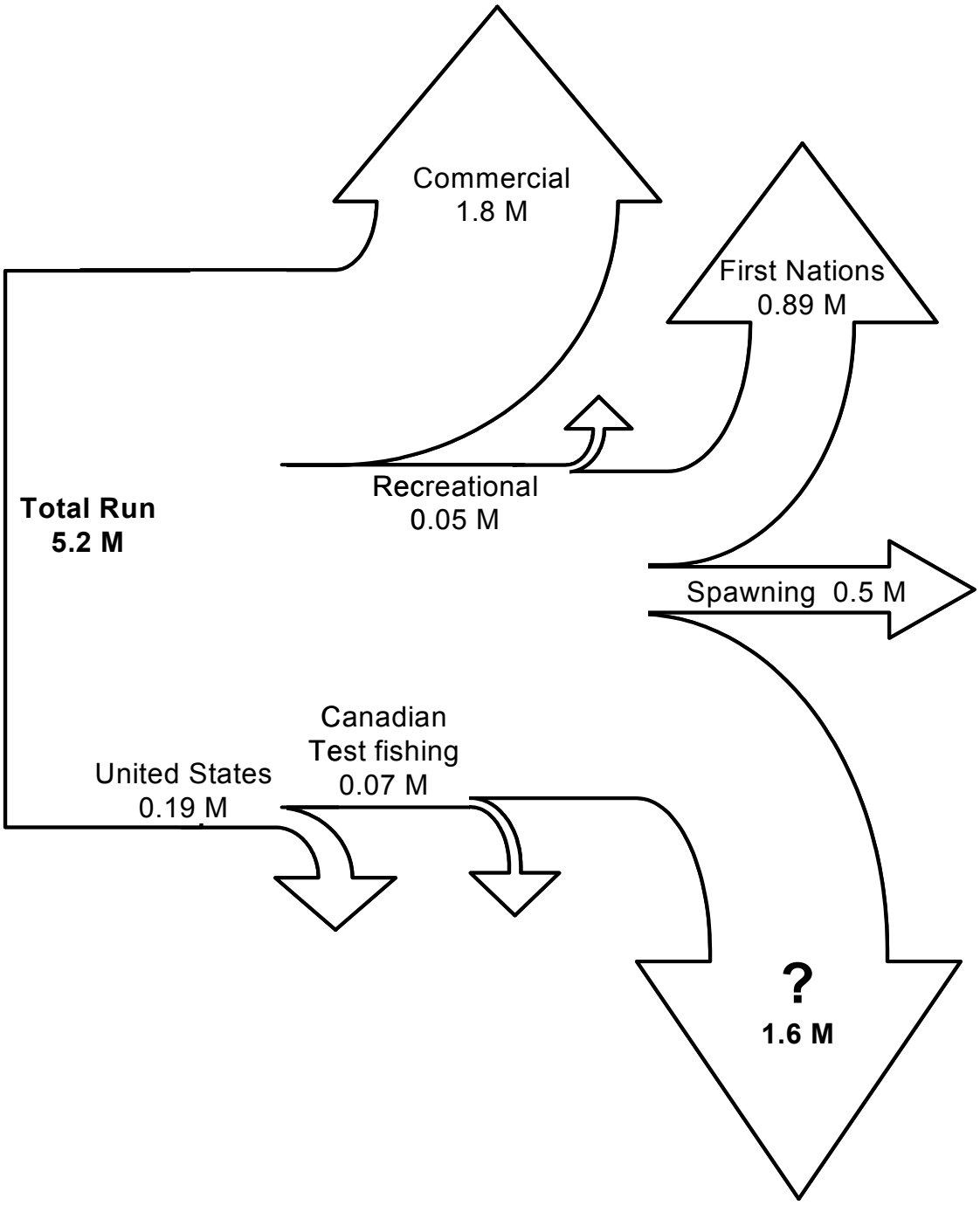
(a) Fisheries and Oceans Canada, Pacific Region, Fraser River/BC Interior Area Resource Management and Stock Assessment, 3 December 2004.

(b) Pacific Salmon Commission, Fraser River Panel, 13 October 2004.

(c) Fisheries and Oceans Canada, Pacific Region, Fraser River/BC Interior Area Resource Management and Stock Assessment, 30 November 2004.

[24] This number can be broken down between Fraser River food, social and ceremonial (FSC) fisheries (361,242) and Fraser River Aboriginal Economic Opportunities (267,800).

Figure 1: Various fates of the Fraser River sockeye salmon during the 2004 season



A total of 2.7 million fish were counted at the hydroacoustic station of Mission. The number of fish counted for each stock group is shown in Table 2. The latest estimate of the spawning escapement includes the Late-run, for a total at the time of writing of 530,301 fish. The *potential* spawning escapement of 2.2 million is calculated by subtracting the reported catch above Mission from the escapement past Mission. The difference between the potential spawning escapement and the number of fish estimated to have reached the spawning grounds, which represents the number of fish unaccounted for, is 1.6 million.

Table 2: Preliminary estimates of total run, escapement past the Mission counting station, and spawning escapement of, and unaccounted Fraser River sockeye salmon during the 2004 season, by stock timing groups[25]

	Total run	**Escapement past Mission**	**Spawning escapement**		**Unaccounted fish**	
	number of fish	*number of fish*	*number of fish*	*% of esc. past mission*	*number of fish*	*% of total run*
Stock groups						
Early Stuart		187,000	9,244	5%		
Early Summer		974,000	156,953	16%		
Summer		1,287,000	272,051	21%		
Late		207,000	92,053	44%		
subtotal		2,655,000	530,301	20%		
Catch above Mission		482,150				
	5,195,948	**2,172,850**[26]	**530,301**	**24%**	**1,642,549**	**32%**

In 2004, the sockeye counted on the spawning grounds represented only 20% of the numbers counted at Mission, and 24% of the potential spawning escapement (Table 2). The picture is bleaker for some stock timing groups. For example, only 9,244 Early Stuart were counted on the spawning grounds, which is 5% of the escapement past Mission.

Overall, the number of unaccounted fish represents a third of the total run. By comparison, in 1992 and 1994, years also infamous for “missing fish”, the unaccounted fish represented respectively 11% and 5% of the total runs (Table 3). The phenomenon observed in 2004 is more comparable to 1998 and 1999 when 31% and 34% of the runs disappeared. What makes 2004 unique is that first, the run was smaller than most of the other “crisis” years, and second, the ratio of unaccounted fish to spawners was 3 to 1 (Figure 2).

[25] **Sources:** Fisheries and Oceans Canada, Pacific Region, Fraser River/BC Interior Area Resource Management and Stock Assessment, and Pacific Salmon Commission, Fraser River Panel.

[26] Potential spawning escapement.

Table 3: Preliminary estimates of total run, total catches and spawning escapement and unaccounted Fraser River sockeye salmon for the year 1992 to 2004

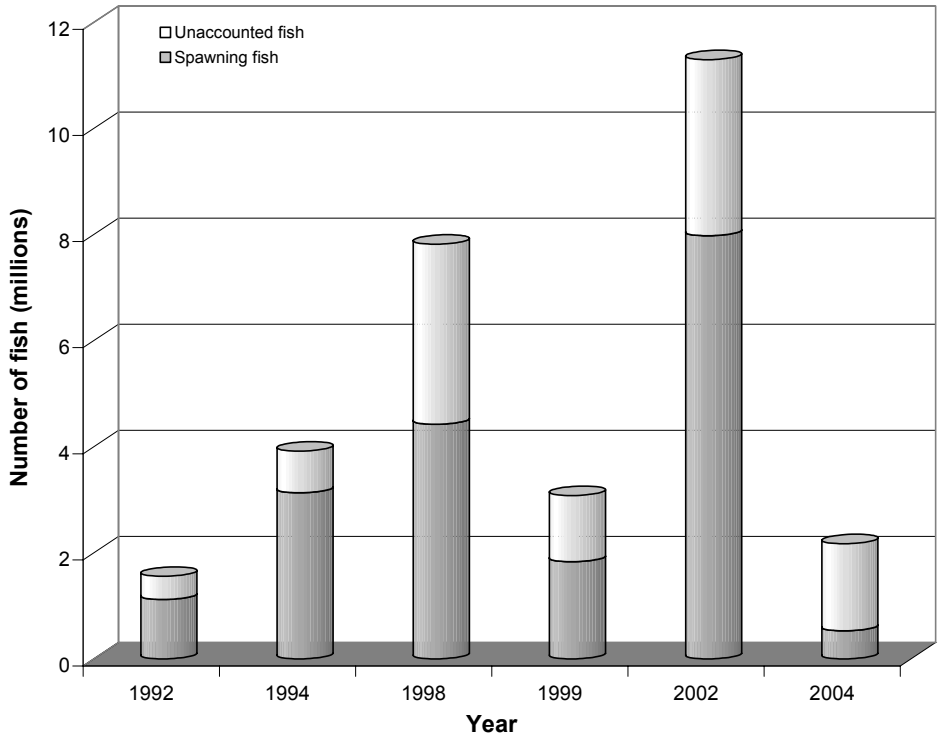
	Total Run	Total Catches		Spawning Escapement	Unaccounted Fish [a]		Sources
	number of fish		*% of total run*			*% of total run*	
2004	5,196,000	3,023,000	58%	530,000	1,643,000	32%	this report
2003	4,828,000	2,268,000	47%	1,986,000	574,000	12%	b
2002	15,356,000	4,058,000	26%	7,979,000	3,319,000	22%	c
2001	7,196,000	1,587,000	22%	5,278,000	331,000	5%	c
2000	5,217,000	2,463,000	47%	2,354,000	400,000	8%	c
1999	3,643,000	561,000	15%	1,833,000	1249,000	34%	c
1998	10,873,000	3,054,000	28%	4,425,000	3,394,000	31%	c
1997	16,414,000	11,425,000	70%	4,261,000	728,000	4%	c
1996	4,519,000	2,187,000	48%	2,091,000	241,000	5%	c
1995	4,006,000	2,255,000	56%	1,751,000	-	0%	c
1994	17,241,000	13,322,000	77%	3,133,000	786,000	5%	c
1993	24,195,000	17,768,000	73%	6,427,000	-	0%	c
1992	6,493,000	4,671,000	72%	1,120,000	702,000	11%	b

(a) For the purpose of this table, this number was calculated by subtracting the total catch and the spawning escapement from the total run. This number would include "en-route" mortality. For most years for which data was readily available, the number of unaccounted fish also correspond to the escapement past Mission minus the catch above Mission and the spawning escapement.

(b) Pacific Salmon Commission (Mr. Victor Keong, personal communication), "Preliminary estimates of fishery catches and total run of Fraser River Sockeye salmon during the 1992 and 2003 fishing season, by country and area." [from the *Reports of the Fraser River Panel to the Pacific Salmon Commission on the Fraser River Sockeye Salmon Fishing Season*].

(c) Pacific Salmon Commission (Mr. Jim Gable, personal communication), "Preliminary estimates of fishery catches and total run of Fraser River Sockeye salmon during the 1993-2002 fishing season, by country and area." [from the *Reports of the Fraser River Panel to the Pacific Salmon Commission on the Fraser River Sockeye Salmon Fishing Season*]

Figure 2. Comparison of the number of unaccounted and spawning Fraser River sockeye salmon for the critical years 1992, 1994, 1998, 1999, 2002 and 2004



Possible Explanations for the Problem Encountered in 2004

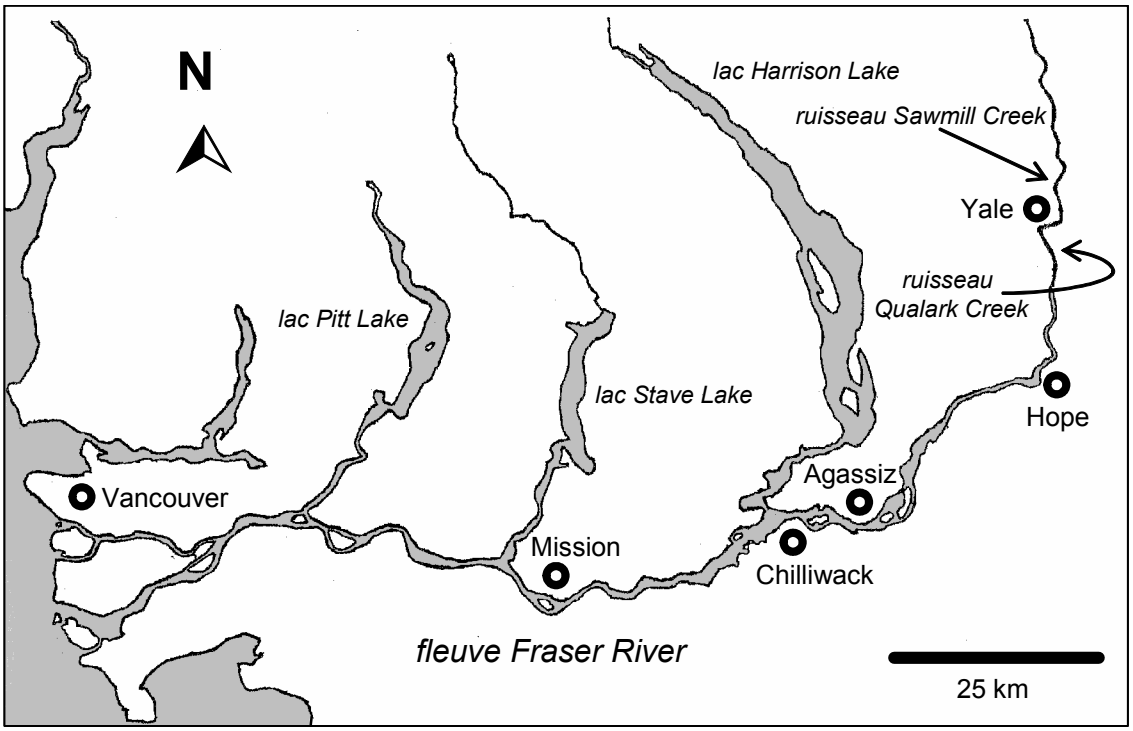
The Committee noted that during its hearings there was considerable disagreement over the possible causes of the missing salmon. Four main explanations were offered: inaccurate counting either at Mission and/or on the spawning grounds; high mortality due to record high temperatures in the river; increased fishing pressure, both sanctioned and non-sanctioned, above Mission; and, problems with enforcement of fisheries regulations and unauthorized or illegal fisheries.

Inaccurate Counting

The possibility that counting methods might be unreliable was raised by some witnesses, including DFO officials. An overestimate of the number of fish passing the counting facility at Mission (see the map of the Lower Fraser River area to locate this facility and other sites mentioned in this report), an underestimate of fish on the spawning grounds, or some combination of the two factors could

contribute to an apparent loss of salmon in the river. Since the counts are critical to ensuring proper spawning escapement, any serious deficiency in the counting methods would have major implications for the management of the fishery.

Figure 3: Map of the Lower Fraser River Area



After the 1992 shortfall, the counting methods at Mission were rigorously analyzed by Pearse and Larkin who concluded that the counter at Mission was accurate to plus or minus 10% and that the number was no more likely to be overestimated than underestimated. Furthermore, Pearse and Larkin's review of the number of fish reaching the spawning grounds confirmed the Department's estimates. The Fraser Report said that positive biases could result in overestimation of the number of sockeye by 20% or higher, but also that there were sources of negative biases that could lead to underestimation.[27]

Dr. Blair Holtby, scientific advisor to the Pacific Fisheries Resource Conservation Council (PFRCC) seconded from DFO, emphasized that the Mission acoustic site was never intended to be a highly accurate estimator of fish abundance. Its purpose was rather to indicate qualitatively the magnitude and timing of the run to assist in the control of the fishery. As an assessment tool to generate

[27] Fraser River Sockeye Public Review Board, *Fraser River Sockeye 1994: Problems and Discrepancies*, Ottawa, 1995, p. 21.

highly accurate counts, the Mission acoustic site is not optimal. [28] Counting the migrating salmon serves multiple purposes. First, the in-season management of fisheries for which an approximate estimate of abundance and timing upstream of commercial fisheries is needed; the estimate made at Mission is quite well suited for that. Second, to calculate stock recruitment for assessment purposes; the Mission station is very poorly suited to that because it is highly uncertain. Third, to compare what passed through the commercial fishery and arrived at Mission, and the much more accurate and reliable counts of escapement that are used to determine what disappeared or unaccounted for; the Mission estimate is extremely poorly suited for this particular purpose. In fact, efforts are being made to improve the accuracy of the counts. Furthermore, Dr. Holtby stressed the need to put in place additional acoustic monitors at various strategic points in the Fraser and Thompson rivers to make quantitative estimates of fish and their stock identity.

DFO admitted that there were problems observed at Mission in the past; consequently, changes are being brought in. Two different methods to estimate fish as they migrated upstream were operational in 2004, and the Department and the PFRCC are currently performing a post-season evaluation of these systems.

The strengths and weaknesses of the two acoustic systems were discussed at a DFO-sponsored workshop on run-size estimation in 2003. The newer system, still in development, is the Split-Beam Hydroacoustic System. It produces more accurate estimates for a broader range of fish behaviours. By contrast, the older system, which is still in use, produces reliable estimates when fish behave normally, i.e. move upstream and not too close to the surface or bottom. The estimates are believed to be biased by occasional abnormal behaviour such as milling, surface/shore-oriented distributions. A plausible hypothesis is that these abnormal behaviours would be more frequent in periods of extraordinary environmental conditions such as the high river temperatures of 2004.

The second issue pertaining to escapement counts is the accuracy of data from the spawning grounds. Spawning estimates are also subject to inherent methodological biases. Estimates of spawning escapement are based on three types of measurements: mark-recapture studies, enumeration fences, and visual surveys.

For large runs where over 75,000 fish are expected, the mark-recapture method is used. This threshold of 75,000 used to be set at 25,000, and was raised for the 2004 season because of severe budgetary shortfalls.[29] The basis of the mark-recapture technique is that a number of salmon are caught, identified with a uniquely numbered tag, and released. The proportion of tags recovered from dead

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[28] Blair Holtby, Committee *Evidence*, 4 December 2004.

[29] From DFO's 2004 Escapement Estimation Plan for the Early Summer-run stocks.

sockeye over the entire spawning area enables an estimate to be made of the total spawning population. The technique assumes that the behaviour of tagged salmon represents the larger population which may not be true if, for example, the salmon have been stressed by being tagged. It is also subject to errors due to tag loss and tagging mortality, which lead to positive biases.

The Fraser Report for the 1994 season noted that there were important differences between the different types of measurements. For example in 1994, three spawning populations were estimated by both mark-recapture and visual surveys. The first method seemed to consistently give larger estimates than the second.[30] This is likely because mark-recapture estimates tend to be subject to a positive bias while visual estimates tend to be subject to a negative bias. The report further noted that the most accurate estimators of spawning populations tend to be fence enumeration and visual spawning channel counts.

Most Summer-run stocks had expected escapements below 75,000 spawners in 2004, and consequently, they were assessed visually on foot, by boat or by helicopter. This could have lead to a lower estimate of the number of fish reaching their spawning grounds than would have been the case if mark-recapture had been used.

Dr. Holtby also informed the Committee that in 2004, some enumerations were poor because of weather conditions at the time. He added that it was a known fact that some of the counts were low. Dr. Holtby discounted however, the inaccuracies of Mission and spawning grounds estimates as a major contributor for the problem observed in 2004. He said:

> In general, the discrepancy between Mission and the escapement counts are so large that it is unlikely that either inaccuracy in Mission or inaccuracies in the escapement counts are sufficient to even come close to explaining the very large discrepancy that was seen this year. [31]

The Committee agrees. Dr. Holtby added:

> [I]t's clear there is a significant gap in our information, and that's the abundance of fish in-river at various points along their migration path. A lot of these issues about: do the fish die in-river or are they illegally removed are made very difficult because we only have two point estimates of abundance, one of which is very poor, and that's the Mission count, and the

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[30] Fraser River Sockeye Public Review Board, *Fraser River Sockeye 1994: Problems and Discrepancies*, Ottawa, 1995, p. 25.

[31] Blair Holtby, Committee *Evidence*, 4 December 2004.

> others of which are, generally, very good, which is escapement up to a month later.
>
> Resolution of the issue of what's happening to the fish really requires basic information of the sort that can only be collected with quantitative, probably acoustic, in-river estimates of abundance at various points along the migration pathway, so the abundance of fish, over time and space, can be accurately tracked. Of course, along with the acoustic estimates, there's generally biologically sampling, so that you would know, in space and in time, not only the abundance, but the condition of the fish.[32]

The Committee heard that around the time of the 1994 crisis, an echosounding station (based on the latest technology) was established at Qualark Creek almost at the mouth of the Fraser River canyon. The up-river station-produced estimates were then correlated with the data obtained at Mission. The echosounding program at Qualark was discontinued in 1998. For many witnesses, the Qualark facility had been valuable.

> [The Qualark acoustic site] was used, I cannot remember off hand how many years, several years it was developed and it demonstrated very well the feasibility of such sites or the feasibility of obtaining very accurate counts of passing fish.[33]

The Temperature of the River

Record-high temperatures in the Fraser River was the initial reason provided by DFO to explain the discrepancy between the number of fish that were counted on the spawning grounds and the number of fish that were reported in the River. At one point in August, water temperature was four degrees higher than normal, well above the reported optimum temperature for successful migration; however, by that time, Early Summer-runs would have already reached the spawning grounds.

The hypothesis is that, coupled with increased fishing pressure or increased harassment, and ensuing susceptibility to diseases, the unusually high temperatures in the Fraser River caused the fish to run out of energy resources before they could reach the spawning grounds. **However, numerous witnesses told the Committee that they had serious reservations about this explanation because there was no evidence of a massive fish kill.**

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[32] Ibid.

[33] Ibid.

The Committee heard one expert witness on the subject of water temperature. Dr. Anthony Farrell from the University of British Columbia (and recipient of at least one DFO research grant) indicated there was considerable evidence suggesting the high temperatures in 2004 likely played a major role in causing in-river mortalities, and were detrimental to the migration of probably all of the run timing groups.

In 2004, the temperatures reached or exceeded the temperatures recorded during the migration of the Early Stuart, the Early Summer, and the Summer runs during the preceding 60 years. Dr. Farrell explained:

> On July 16, the 60-year average maximum from the graph I presented to the panel is about 19 degrees. That's the 60-year maximum, so it has never in 60 years of measurement exceeded 19 degrees on that particular day. The average temperature on that day is about 16 degrees, so this species over the past 10,000 years, every year, has experienced on average 16 degrees on that particular day, give or take global changes. So this species has evolved to tolerate those temperatures.[34]

On average, the Early Stuart, during their migration through the Fraser River averaged 18.2ºC; the Early Summer, 20ºC; and the Summer, 19.8ºC. According to Dr. Farrell, these fish would have been exposed to those temperatures for 10 to 20 days, depending upon the run. For the Early Stuart-run, the temperature increased by three degrees over five days in mid-July. This increase occurred at the peak of the run. Toward the end of the Early Stuart-run, temperatures were approximately 19.5 to 20ºC. The Committee notes however, that these temperatures were recorded at only one location on the Fraser River. Through their migration, the fish were not necessarily exposed to water temperatures identical to those recorded. However, Dr. Farrell's evidence indicates that high temperatures were also encountered upstream of Mission in 2004.

Until recently, the best available and most relevant published data on the effect of warm river temperature on sockeye migration was from Servizi and Jensen in 1977. These researchers established that exposure for 15 days to temperatures between 15 and 21ºC did not cause mortality. However, the fish were treated with an antibiotic and dipped in a fungicide to prevent disease. The Committee heard from Dr. Farrell that this result was thus not applicable to salmon in the wild.

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[34] Anthony Farrell, Committee *Evidence*, 4 December 2004.

The results of the studies presented by Dr. Farrell indicated that when captured fish under study were not treated with antibiotics, extensive mortality was observed at temperatures lower even than 21ºC. Dr. Farrell indicated that he and his collaborators observed 50% mortality for Fraser River adult sockeye salmon after a 16-day exposure at 18ºC and after 9 days at 19.6ºC.

According to Dr. Farrell, high temperature has the following effects on sockeye salmon:

- It promotes infections, reduces swimming, leads to exhaustion and enhances mortality;
- It increases daily energy use, depleting energy stores faster;
- It affects maximum swimming speed, lowers maximum metabolic rate and maximum cardiac performance;
- It reduces reproductive hormone levels and impacts reproductive development;
- It affects fish behaviour as they seek cool water for relief from excessive temperature; and
- It compounds the effects of all other stress factors such as harassment, migration, skin and scale damage.

The sockeye salmon recovery capacity is normally remarkable in cold water. However, warmer temperatures impair recovery following encounters with fishing gear or any other obstacles to migration upriver. The effect of repeated encounters on recovery capacity is unknown, but, according to Dr. Farrell, warmer temperatures will likely emphasize any negative effects:

> No study has done them with repeated encounters, but one of the things that I've introduced into my research program is repeat swimming performance. And so we are actually interested in how well fish recover. What amazed us that with these data is in a healthy fish in cold water, how remarkable the recovery is for salmon and this is the basis for the recovery…
>
> When you move up to warm water, recovery is impaired. So again, you see this additive effect of temperature. You can say, sure you know, we'll go run a hundred yard dash and the bottom line is we can keep up our best athletes, we'll be 50% slower. The thing that they'll do is they'll walk back to the start line and do it again. You and I'll go have a beer. We can't do it, and

> it's to do with recovery is an important component there, so that will be impaired at higher temperatures.[35]

Dr. Farrell emphasized that different sockeye salmon stocks faced different temperatures during their migration, and that there were differences in terms of temperature tolerance, disease susceptibility, and exercise performance for different stocks. It is therefore possible that while temperatures in early July were significantly lower than in late July or August, Early Stuart salmon still experienced temperatures that were near the all-time highs for this timing group and therefore they might have been affected as much as later runs. Dr. Farrell pointed out that there were important knowledge gaps in this area mainly because the specific studies that needed to be done to address this question had not been done. The witness added that in order to establish definitively the role of river temperature on the migration of sockeye salmon, the appropriate studies will have to be performed.

The Committee was also interested by the lack of clear evidence of a massive kill of sockeye salmon on the Fraser River. Dr. Farrell indicated that dead adult sockeye salmon are not always visible. His group observed that carcasses often "disappeared," that dead fish did not necessarily float immediately or could remain in the depths of some of the Fraser River watershed lakes, and that dead fish could become food for other fish such as sturgeon. The Committee doubts though that these explanations would account for the absence of 1.6 million sockeye carcasses.

Dr. Farrell concluded his opening remarks by pointing out that temperature and predisposing factors could not be ignored. Four times (1992, 1994, 1998 and 2004) in the past 12 years, there were problems with the number of unaccounted fish (see Table 3) that led to some sort of inquiry into the management of the fishery.[36] In each of these years, unusually high temperatures were involved.

Fishing Pressure

Commercial and recreational fishermen pointed to poaching and inadequate supervision of the Native fishery as a major cause of the salmon disappearance. The B.C. Aboriginal Fisheries Commission (BCAFC) and representatives from the First Nations, particularly the Cheam, the Stó:lõ and the

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[35] Ibid.

[36] See the section of the report on Historical Background. In 1998, the government of British Columbia mandated former Newfoundland and Labrador Premier, Mr. Brian Peckford, to conduct an inquiry into the management of the Fraser River sockeye fishery. The federal government did not participate to the process. Brian Peckford, *Reaching out… Final Report of the Peckford Inquiry*, November 1998.

Tsawwassen disputed this allegation, claiming that the Aboriginal fishery was closely monitored and that it was inconceivable that Native fishermen could have mounted an illegal fishery of this magnitude. Some First Nations representatives further commented:

> [I]t's always a finger pointing game at the end of the season. But in the beginning of the season we sit in the same room, natives and non-natives, to discuss the pre-season plans and how we're going to implement them. But after every year we sit here and we as first nations are always being pointed at as the cause and the problem.[37]

> This is a situation that cannot go on. We're sick and tired of being blamed for this situation.[38]

The Committee observed that there was a clear conflict between the claims of some First Nations and the evidence of commercial and recreational fishermen.

Below Mission and in marine areas, the Canadian commercial fishery represented 35% of the total run, which is comparable to its average share for the years 1993-2002 (with the exception of 1999 and 2001 when commercial catch opportunities were minimal). The commercial fleet did not contribute to the apparent disappearance of the salmon above Mission as it operates downstream.

The Committee heard that there was increased fishing pressure during the 2004 Fraser River sockeye salmon fishery in the area above Mission. Witnesses pointed to the following factors leading to increased fishing pressure in 2004: the number of nets in the Fraser River above Mission; the type of gear used; some fishing practices such as the amount of time nets were left in the water; and the number of fishing days allowed. **The Committee believes that the last factor is the most significant**.

The BC Fisheries Survival Coalition directed us to DFO statistics showing that First Nations were allowed to fish for 25 days in June 2004, every day in July, and for at least 21 days in August.[39] At times, there were hundreds of nets set in the water.

This increased fishing pressure could have amplified the effect of elevated temperature of the water. Dr. Anthony Farrell told the Committee that mortality resulting from the stress caused by net entanglement would be greater at 21ºC than

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[37] Josh Duncan, Committee *Evidence*, 3 December 2004.

[38] Arnie Narcisse, Committee *Evidence*, 3 December 2004.

[39] Does not take into account any unauthorized harvest.

at 17ºC. Given this evidence and the level of fishing pressure in 2004, the Committee concurs with Dr. Farrell that "allowing the set-netting in the confines of an area like the Fraser Canyon during these warm water temperatures [was] not advisable."[40] During periods of extreme warm temperatures, migrating fish should be allowed to move up the river freely. In fact, the Committee is surprised by DFO's decision to allow any fishery to proceed given the evidence of warm temperature and its effect on the fish, and the recognition by the Fraser River Panel as early as July 16 of the potential for problems:

> Fraser River water temperature (at Qualark Creek) is presently 18.2ºC. Although present conditions in the Fraser River mainstream are generally satisfactory for sockeye migration, Fraser River water temperature is forecast to increase over the next several days, which may cause physiological stress in migrating sockeye.

On August 6, the Fraser River Panel noted:

> Fraser River water temperatures (measured at Qualark Creek) have averaged approximately 20ºC for the past fifteen days and it is presently 19.9ºC. Fraser sockeye exposed to river temperatures in this range for sustained periods, will likely experience substantial in-river mortality. Fraser River water temperatures are forecast to range from 19.4ºC to 20.1ºC over the next week.

Finally, on August 24, the Panel wrote:

> The recent record-breaking temperatures have occurred during the peak migration of Summer-run sockeye (returning to the Stellako, Stuart, Quesnel and Chilko systems) in the Fraser River. Early Summer-run sockeye (consisting of many smaller stocks) which migrated into the Fraser River earlier than the Summer-runs, were also exposed to generally high river temperatures including the new record temperature near the end of their migration. The Pacific Salmon Commission has estimated that 30% or more of the potential spawning escapement of Summer-run sockeye and approximately 42% of Early Summer-run sockeye will die en route to their natal streams this summer.

Another significant factor associated with increased fishing pressure is the in-river use of gillnets, and particularly the impact of the amount of time nets are left in the water. In a study released in 2000, DFO concluded that "in-river gillnet fisheries caused delays in migration and likely force fish into river locations that are sub-optimal migration habitats."[41] The issue of net entanglement and its impact was

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[40] Anthony Farrell, Committee *Evidence*, 4 December 2004.

[41] J.S. Macdonald, M.G.G. Foreman, T. Farrell, I.V. Williams, J. Grout, A. Cass, J.C. Woodey, H. Enzenhofer, W.C. Clarke, R. Houtman, E.M. Donaldson, D. Barnes, The influence of extreme water temperatures on migrating Fraser River sockeye salmon (*Oncorhynchus nerka*) during the 1998 spawning season, Canadian technical report of fisheries and aquatic sciences; No. 2326, Burnaby, 2000, p. 19.

raised by Mr. Bob Gould who performed independent research in this field for several years. Mr. Gould's research shows that because of a "drop-out" phenomenon, a set net left unattended in the water for 24 hours will land only one sixth of what would have been landed if the net had been checked every two hours. Mr. Gould assumed that the remaining five-sixth of the catch dies, falls from the net, is swept downstream, and is unaccounted for. Mr. Gould argued that set nets are extremely destructive and their use was a major contributing factor to the missing fish in 2004.

Scientific Knowledge Gaps

According to our scientific witnesses the most significant knowledge gaps that interfere with proper management of the fishery are the following:

- The impact of the in-river use of gillnets, particularly in terms of the amount of time they are left in the water (i.e. soak time);

- The impact of elevated temperatures in the Fraser River and other B.C. watersheds. (A witness emphasized that higher temperatures on the Fraser River will be more and more common as the 50-year trend shows that temperatures have increased by one degree over the 50 years);

- The need for quantitative estimates of spawning fish in time and space; and

- The development of predictive models of river conditions.

Dr. Farrell and Dr. Holtby indicated that this research should be done by a "consortium" involving all stakeholders including commercial fishermen, DFO scientists, researchers, and First Nations people.

In commenting about the need for specific scientific studies, Dr. Holtby noted:

> I'd like to re-emphasize the importance of obtaining quantitative estimates in time and space. That information is going to be central to the resolution of these issues because it constitutes actual observations of what happened. Without those observations the models that Dr. Farrell is talking about will

> remain hypothetical. You won't be able to conclude whether or not temperature had a role or what the magnitude of the role was without observations on how many fish survived to various points in the river and of course what their condition was, what the temperatures and migratory conditions were. So all that basic information is essential.[42]

Unauthorized or Illegal Fisheries and Enforcement of Fisheries Regulations on the Fraser River

While most witnesses included the possibility that the fish were removed illegally among theories to account for the missing fish (which would denote serious problems with DFO's enforcement of fisheries regulations), DFO's Director General for the Pacific Region, Mr. Paul Sprout said in contrast:

> We know there's a discrepancy. That discrepancy occurs from the river, in Mission, to the spawning grounds. There's three possible sources to explain that discrepancy. The first is that between Mission, where the fish are estimated, which is not very far from here, and the spawning grounds fish went missing because they were caught and unreported. That's a possibility. Another possibility is the Mission estimate is wrong: not as many fish moved past Mission and, therefore, the number is incorrect. The third possibility is that, because of environmental conditions in the river, a high proportion of those fish that swam above the Mission counting system died. The issue is how to tease out which of those three factors is the most important or whether those three factors are relevant to explain the discrepancy.[43]

Although Mr. Sprout referred to fish that were caught and unreported, he did not specifically mention the possibility of an unauthorized or illegal fishery.[44] Yet, the Committee heard numerous allegations and even clear admissions of fishing which both DFO and this committee consider to be illegal. The Committee also heard that there were serious problems with enforcement in 2004. Mr. Ken Malloway of the Stó:lõ First Nation, also a member of the BCAFC and the Fraser River Panel, said:

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[42] Blair Holtby, Committee *Evidence*, 4 December 2004.

[43] Paul Sprout, Committee *Evidence*, 4 December 2004.

[44] Both phrases "unauthorized" or "illegal fishery" were used during the hearings but they describe the same thing, and in the words of a witness, Mr. Bill Otway, "the fishery is closed unless opened by regulation and fishing in any manner during the time when there is not an opening by regulation is illegal. The fisheries are illegal unless authorized."

> I've talked to people up in Tl'azt'en; I have friends up there. When I talked to one of the fellows up there and asked him how many fish he got, he said he got 18, and that was a good year for him. I don't know why the Creator put us where he put us and I don't know why he put them where he put them, but virtually every sockeye that enters the Fraser River swims through our territory. We've always caught a lot of fish and we've always sold a lot of fish. We've traded among ourselves and with other people. When the Hudson's Bay Company set up here in 1827, the first day they were here we sold them a sturgeon. Then we sold them chinook; then we sold them sockeye. In 1849 we sold them 239,000 sockeye from our area. That's the Chilliwack area. It outstripped fur as a trade item. For whatever reason, we're placed in a strategic place on the Fraser River. Who will question the Creator, "Why did you put the Stó:lõs there anyway?" We are here; we were born here.
>
> …
>
> We had been trying to get agreements with [DFO] for years and years to sell a portion of our catch, as we had before it was outlawed in 1878. We always traded and bartered and sold fish, and we never ever stopped. We sell fish to white people who want to buy fish. For years and years, I sold fish. [45]

The Department of Fisheries and Oceans rejected the claim that the Aboriginal food, social and ceremonial rights included the right to sell the fish following the decisions of the Supreme Court of Canada:

> Although some of the first nations claim they have a right to sell fish, we dispute that claim. We do not agree. Unless that has been determined in court, we do not accept their view that they have the right to sell Pacific salmon. It is our view, as determined by Supreme Court decisions, that they have a right to catch fish for food, social and ceremonial purposes. We attempt to negotiate with each individual community and determine their catch for food, social and ceremonial purposes.[46]

The Committee heard numerous witnesses from the commercial and recreational fishing sectors who reported observing unauthorized or illegal catches during the 2004 sockeye salmon season, which had contributed to a large extent to the number of unaccounted fish this year.

> The question of whether there are illegal harvests, illegal sales or unreported catches is not one for debate. It has been highlighted repeatedly as a potential major cause of disappearing or unaccounted fish in the 1992 Pearse-Larkin report, the 1994 Fraser report, and in the 2001 Standing Committee report. The question in 2004 is: could this problem

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[45] Ken Malloway, Committee Evidence, 3 December 2004.

[46] Paul Sprout, Committee *Evidence*, 4 December 2004.

> account for 2 million missing fish above Mission? It is our opinion that it could be responsible for much of it, although there could have been also some loss due to unfavourable environmental conditions.[47]

The evidence presented to the Committee was anecdotal and based on the testimony of fishermen who have observed fishing at times when there was not supposed to be any. Mr. Bill Otway of the Sportfishing Defense Alliance (SDA) and other witnesses observed "many, many" such events during the months of June, July and August 2004. Mr. Chris Gadsden and Mr. Gwyn Joiner, also of the SDA, provided the Committee with video footage supporting their allegations. Concerns recounted by witnesses included:

- increase in set gillnet and drift net activity in the Lower Fraser River;
- aggressive First Nation set net activity, increased by 500% (five times) over the past seven years;
- illegal drift netting for salmon for the past four seasons with very little enforcement;
- lack of consideration of the concerns of local DFO personnel and scientists pertaining to the award in 2004 of a legal drift net fishery to the Cheam First Nation after years of illegal drift net fishing;
- a number of fixed wing and helicopter flights were done, and in all instances, illegal nets were observed;
- stationary gillnets during closed time in the Agassiz-Rosedale bridge area;
- drift net fishery carried out 24 hours a day during the month of August;
- regular use by First Nation fishermen of monofilament set net, which are outlawed in the commercial sector because of fishing induced mortalities;
- several occurrences of drift net and set net and one occurrence of unloading fish;
- lack of monitoring and accountability allowing Aboriginal catches to move in and out of legitimate storage facilities on a regular basis; and,

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[47] Chris Ashton, Committee *Evidence*, 2 December 2004.

- reports of Enforcement officers watching unloading and transporting of unreported fish throughout the lower mainland.

In one instance, witnesses told the Committee they had observed, in the presence of DFO staff, an illegal drift net catching a total of 53 sockeye and 3 Chinook in 20 minutes of fishing. From their observations they concluded the following:

> There are those that say that it is not possible for the in-river native fisheries to catch this number of fish. We can only report what we know and what our members have observed. Our members, at times in company with DFO technical staff have observed the catches in these drift nets. For a 10 to 15 minute drift, observations run between 35 to 50 sockeye per drift. If one simply takes an average of 40 per drift and 4 drifts an hour for 12 hours a day you come up with 1,920 fish per net per day. Taking just the 53 days from July 1 through August 22, one net fishing over this time frame would produce a catch of 99,840 Fraser River Sockeye. Our members witnessed up to 20 of these nets working throughout the Fraser in the Chilliwack area, 7 days a week and in many cased 24 hours a day. There were also illegal drift nets operating all the way down river to the Port Mann Bridge once it became known that DFO tolerated this type of activity. We have no knowledge of the total scope of those fisheries, just that they existed. It is to be remembered that the numbers we are quoting cover only the 53 days from July 1 to August 22, but these nets were in the river in numbers beginning in May and running right through to October.[48]

Several of the alleged violations were reported to DFO through the "Observe, Record and Report" hotline. According to the witnesses, little or no action was taken by DFO in response to these reports.

> The Wildlife Federation and a community have put together a program call Observe, Record and Report, are the words known as, ORR. And with both the provincial and federal we established a 24 hour a day call-in number, toll free, and provided information sheets so that people can record and call in to report transgressions of whatever they see dealing with fisheries, hunting, the environment, whatever. This is primarily fishing. And at that time that is supposed to be referred to the officers. If it's an ongoing incident it's supposed to be reported directly to the officer in the field and action taken and a follow-up to the person who called in who indicates if they're prepared to testify. The way it's worked in the past five years is that you phone it in and it disappears into the great black maw of DFO. As a matter of fact I do know because I have followed it up with field officers and quite often, or too often, it is not even referred back to the officer in the field.[49]

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[48] Sportfishing Defense Alliance, Brief to the Committee, p.7.

[49] Bill Otway, Committee *Evidence*, 3 December 2004.

Mr. Herb Redekopp, Chief of DFO's Conservation and Protection for the Lower Fraser Area, told the Committee however, that the Fraser Valley East office received over 440 occurrence reports dealing with all kinds of salmon violations and responded to 210 of those. Priority for follow up was established primarily on the basis of the timeliness of the report (period between observing and reporting the incident) and the gravity of the alleged violation. The existence and the preservation of a chain of custody were also identified as essential factors in the decision to prosecute an alleged violation.

As was the case in previous years, DFO negotiated fishing agreements with First Nations in 2004. Consequently, the Department issued communal fishing licences reflecting the details of these agreements. For the area of the Lower Fraser River between Mission and Sawmill Creek, licences were delivered to the Yale, the Stó:lõ and the Cheam First Nations.[50] Between June 30 and August 22, the fisheries for sockeye salmon was opened full-time for 34 and 38 days for the Stó:lõ and the Yale respectively. The Cheam were allowed to fish on average 12 hours per day for 14 days between August 4 and 21. DFO also negotiated economic fishing opportunities arrangements with the Musqueam, the Tsawwassen and the Stó:lõ First Nations, through which 50% of the food, social and ceremonial allocation could be transferred to a commercial fishery. During the summer of 2004, there were sale fisheries for sockeye salmon taking place during the two weeks ending August 8. Therefore, illegal Aboriginal fisheries would have had to occur outside the fishing sites covered by the agreements with First Nations, or during periods when the fisheries were not opened.

As part of the 2004 agreement between the Cheam First Nation and DFO, the use of drift nets was allowed for the sockeye fishery in the river above Mission. It is generally understood that Aboriginal fishing rights include the choice of their preferred method of harvest. The Committee however, noted that before the summer of 2004, drift nets had never been allowed in the Lower Fraser River above Mission, and were therefore believed to be illegal by many. Several witnesses expressed concerns over allowing drift net fishing to continue.

Is it possible that the large number of unaccounted fish this year had been caught above Mission through illegal fisheries? The Committee was guided through an interesting analysis by Mr. Scotty Roxborough, a former fishery officer:

[50] The Cheam belong to the Stó:lõ First Nations, but negotiated a separate agreement with DFO.

> …the first nations groups from Mission Bridge to Sawmill Creek caught 372,333 sockeye salmon[51] during the weeks July 4 to the week ending August 29. The amount of effort recorded for that area was 2,890 gillnets. This works out to be an average of 129 sockeye caught per net fished. Based on that average catch per net, there would have to be 15,625 nets in the river to catch the 2 million missing sockeye salmon, an average of 171 gillnets per day over the period July 1 to September 26. Even if one were to make an assumption that the reported data was out by 100%, that would still mean there would have to be 85 nets fishing in the river each day.[52]

Mr. Roxborough also offered the Committee an alternative perspective on the transportation and processing of such a volume of fish:

> Two million sockeye salmon represents, give or take, 12 million pounds of salmon. Based on the fact that an average semi-trailer can carry 30,000 pounds, 12 million pounds of salmon would represent 400 semi-trailers. This would mean that over the 91-day period, July 1 to September 30, four and a half semi-trailer loads of salmon would be moved out of the area from the Mission to Sawmill Creek per day. These four and a half semi-trailer loads of sockeye salmon would have to be processed, stored in processing plants in cold-storage facilities, and/or trucked, shipped, or flown out of the country. Each container of salmon would require false paperwork to allow for the processing, storing, sale, and/or export of the salmon. If one is to believe that the first nation members caught and disposed of all these salmon, one should take a further look at the data. Twelve million pounds of salmon have to be transported from the netting site to a central location for further transportation. It has been my experience that first nation members transport their salmon either in plastic tubs in the trunk of their cars or, with large quantities of salmon, in insulated totes in the back of a pickup. On occasion, two insulated totes may be used. Assuming that all of the salmon was transported in insulated totes, 6,000 to 12,000 pickup trucks would be needed to transport the salmon from the fishing sites to the central location. Each tote roughly carries 1,000 pounds. Again, during the timeframe of July 1 to September 30, 66 to 132 pickup trucks per day would be moving salmon from the river to the central location.
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> To move 12 million pounds of salmon, fishery officers, the public, U.S.A. customs officers, fish processors, storage plants, and air cargo employees must see that something is not right. So where is the evidence of 2 million pieces of salmon being moved around the countryside?[53]

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[51] This number actually corresponded to the catches from Port Mann (below Mission) and Sawmill Creek. The catches for the area between Mission and Sawmill Creek were 282,813 fish (see Table 1).

[52] Scotty Roxborough, Committee *Evidence*, 4 December 2004.

[53] Ibid.

The Committee also heard about the illegal sale of unreported fish. Mr. Larry Wick from North Delta Seafood told us:

> When I started with the Salmon Commission, the treaty had an allotment of 400,000 pieces for native food fishing. We are now managing to a million. We can no longer make a decent living for our crews and boat owners, licence fees are too high. As a processor, I'm unsure if I'm buying legal or illegal fish in the Fraser River when there's fish offered to us by truck loads, through phone calls. We refuse to buy it because we feel it's illegal. But we don't know. The recording and the tracking system with DFO, well there is no system, it's just lax words.
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> …
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> The fish have gone missing. There's been no commercial fishery on those fish other than native fishery up the river. As I've travelled through the interior this summer, every fruit stand is selling sockeye. There's no end to it. There's no recording, nothing going on. We need a judicial enquiry here to help bring some sort of control to this. It's completely out of hand.[54]

The Committee feels that any significant unauthorized fishing taking place in 2004 indicates problems with enforcement. The Committee heard that staff and resources had been reduced in recent years and fisheries officers lacked staff and budgets to adequately monitor the fishery at crucial times. A number of other reasons were also suggested to explain the lack of enforcement:

- DFO's apparent determination to avoid violent confrontation with First Nations at all costs (even in terms of conservation of the stocks);
- a lack of control and a lack of monitoring of First Nations catches;
- a lack of compliance of some members of First Nations with the conditions of the agreements negotiated with DFO and the terms of the communal fishing licenses;
- little or no enforcement actions against sales of salmon illegally caught; and
- a loose interpretation of what constitutes food, social and ceremonial fisheries.

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[54] Larry Wick, Committee *Evidence*, 2 December 2004.

DFO provided the Committee with information on enforcement in the region. Following a request for information at its hearing on 29 April 2004, the Committee learned that there were 174 fishery officers in the Pacific Region, 10 of whom were self-identified as Aboriginal (one was assigned to the Lower Fraser area).

Although the Committee heard early during its hearings that there were only 13 enforcement officers for the Lower Fraser River, Mr. Redekopp told the Committee that there were 29 full-time officers for the area from Squamish to Boston Bar (which includes the Strait of Georgia tidal waters). This number compares to 33 full-time fishery officers and approximately 8 seasonal officers in 1994 for a total of 41-42 available officers.

In 2004, DFO focused on vessel and vehicle patrols for enforcement. There were no helicopter patrols. Moreover, DFO's efforts were strategically conducted during the fisheries' closed time, including an increase in the number of night patrols. Mr. Redekopp told the Committee that fishery officers detected over 50% more violations by using this strategy.

In the Lower Fraser area, DFO's Conservation and Protection processed a total of 342 charges: 88 violations related to the Aboriginal salmon fisheries, 58 from the commercial salmon fishery, 76 from the recreational salmon fishery, and 120 pertaining to unlicensed fishing.

Nevertheless, for many witnesses, this was not enough. For them, DFO has undermined the management of the fishery because of its desire to avoid violent confrontation with First Nations at all costs. In their view, this DFO "policy" has weakened conservation and enforcement efforts, and created an appearance of unfairness in the allocation of the resources among all stakeholders.

Asked to comment about this situation (differences in the enforcement of the regulations), Superintendent Reg Reeves, RCMP/DFO Liaison Officer for the Pacific Region, said:

> Yes, there's certainly some very volatile situations and there's a lot of sensitivities in regards to the issues that you've mentioned, without question. I believe that's one of the reasons why I'm in the position that I'm in and they've created a liaison position here in this particular region. The RCMP has identified that, along with management at the Department of Fisheries and Oceans, to try to address some of those issues, to try to bring parties and groups together for better understanding of each other's positions. That's another way or manner of enforcement in regards to trying to be preventative and proactive in what the issues are, bring them out, discuss them in a reasonable way to try to prevent any breaches of the peace, or any assaults or confrontations. That's exactly what we attempt to do in any situation where we know that there may be a potential for conflict.[55]

Mr. Murray Chatwin of the Fraser River Panel characterized the issue of enforcement this way:

> I know that river reasonably well. I've flown it in part of my job. You get up above that river and you quickly realize that enforcement is not the only answer. Same on the whole coast, you couldn't possibly put an enforcement coverage in place. You need an enforcement ethic. I think that the other thing I'd want to say is that these enforcement people need the world to know they are going to do their jobs, and they're going to be supported in doing their jobs. And that's just as big a factor.[56]

Divergent Views on Food, Social and Ceremonial and the Right to Sell Salmon

At the beginning of this report, the Committee reiterated the legal principles listed in its 2003 report that apply to the Aboriginal fisheries in general, and to the Fraser River salmon fisheries in particular. Central to this issue is the principle that there is currently no Aboriginal right to engage in commercial salmon fishing on the Fraser River.

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[55] Reg Reeves, Committee *Evidence*, 4 December 2004.

[56] Murray Chatwin, Committee *Evidence*, 4 December 2004.

The Committee noted during its hearings in Vancouver in 2004, that there were still divergent views on food, social and ceremonial fisheries and the right to sell salmon. For some First Nations fishermen, the "social" portion of FSC means looking after their social needs, which would in some cases extend to selling one's catch in order to provide subsistence. The representatives of the Cheam First Nation told the Committee that they believe they have the inherent constitutional right to fish, and the right to harvest fish for food, social and ceremonial needs, including the right to sell the fish. In Sparrow, the Supreme Court of Canada indicates however that the word "social" refers to "fish consumed for social… activities."[57]

Mr. Paul Sprout said that there was no right to sell salmon "unless determined by the courts or possibly a policy tool." Although these statements appear to indicate a clear position by DFO on this issue, the Department's negotiation of fishing agreements with the First Nations suggests that their position is more equivocal. For example, the preamble of the 2004 Cheam First Nation Salmon Fishing Plan signed by the leaders of the First Nation and DFO officials states that "each party has its own views with respect to Aboriginal rights." It further states that the plan "does not fix or define the positions that either party may take with respect to the existence or scope of Aboriginal rights in any legal proceedings or elsewhere."[58]

The Committee thinks there is an added problem. In negotiating the fishing agreements with each community, DFO manages the allocation for the FSC fisheries in a collective manner:

> We do not break it down by each of those categories and we do not accept the view of some communities as expressed here the other day by the Cheam band that they have a right to sell. We realize that some groups believe they have that right, but it is not a view that is accepted by the Department of Fisheries and Oceans. So, after negotiating, we establish a food, social and ceremonial catch number which is deducted from the total allowable catch after first making allowances for the operational conservational objective that I spoke about earlier.[59]

The Committee believes that there has to be a clarification of the definition of the three components of FSC fisheries.

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[57] *R. v. Sparrow*, [1990] 1 S.C.R. 1075.

[58] Cheam First Nation, *Cheam First Nation Salmon Fishing and Monitoring Plan*, Preamble, July 2004, p. 2.

[59] Paul Sprout, Committee *Evidence*, 4 December 2004.

The 2004 Post-season Review

On 20 October 2004, the Minister of Fisheries and Oceans, the Honourable Geoff Regan, announced a post-season review of the management of southern British Columbia salmon fishery in 2004. The stated purpose of the review was to address the reasons for the poor spawning returns in 2004 and to inform development of fishing plans in 2005 and beyond.

The review is to be conducted by the Integrated Salmon Harvest Planning Committee (ISHPC), which had been recently established by DFO to provide formal advice and make recommendations to the Department on operational decisions related to salmon harvesting in the Pacific region. The post-season review was to be the ISHPC's first task.

The ISHPC comprises representatives from First Nations and commercial, recreational and environmental interests and is intended to form the basis of a new advisory process in which all participants work together to attempt to revive the economy of the salmon fishery, address First Nation aspirations and achieve a balance in fishing opportunities.

On 18 November 2004, Minister Regan announced the appointment of Mr. Bryan Williams as the chairperson of the 2004 post-season review. Mr. Williams was Chief Justice of the Supreme Court of British Columbia from 1996 to 2000. Mr. William's appointment was, however, controversial in some sectors of the fishery.

The mandate of the review includes examining consultation processes, conservation objectives, risk management, adequacy of and timeliness of in-season data, in-season decision making processes, DFO fisheries management processes, and enforcement and compliance measures. The intent of the review is to focus on recommendations for future management of southern B.C. salmon fisheries. The Committee is to report its conclusions and recommendations to the Minister of Fisheries and Oceans by 31 March 2005. The Terms of Reference of the review committee specified that "recommendations must be consistent with Government of Canada and Fisheries and Oceans Canada (DFO) policy, and able to be implemented within the existing resource capability of DFO, Pacific Region."[60] Thus, the scope of the review committee is limited from the outset.

Concerns were raised over the potential size of the review committee — possibly as many as 25 to 30 individuals. However the Department indicated that it had not intended that the review would be conducted by the entire Integrated

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[60] Fisheries and Oceans Canada, *2004 Southern Salmon Fishery Post-Season Review — Terms of Reference*, BG-PR-04-067e, 18 November 2004.

Salmon Harvest Planning Committee. Rather, the details were to be worked out between Mr. Williams and the ISHPC during their first meeting, planned for 7 December 2004.[61] The review committee held 12 public hearings in January and February 2005. It also maintains an Internet site where a very limited amount of information has been made available.

Concluding Remarks, Findings and Recommendations

Like many witnesses, the Committee believes that a combination of factors have lead to the "disappearance" of perhaps as many as 1.6 million sockeye salmon in 2004.

The main contributing factors that were proposed were overestimation of the fish passing Mission, underestimation of the fish on spawning grounds, in-river mortality due to elevated water temperature, and illegal catches between Mission and the spawning grounds.

No matter what the cause of the "missing" fish was in 2004, everything points back to problems with the management of the fishery and the lack of resources to do the job effectively. This means the lack of resources to count the fish using the best technology at multiple sites in the river, the lack of resources to use the right methods to count the fish on the spawning grounds, the lack of resources to do the scientific research to assess the impact of climate change and higher river temperatures on the migration of salmon, lack of resources to monitor **all** fisheries, and finally the lack of resources to fully enforce fisheries regulations and to apply consistently the conservation principles that will preserve the health of all stocks.

Both the Honourable John Fraser and Mr. Wayne Strelioff, Auditor General of British Columbia, emphasized the lack of vision and leadership at the Department of Fisheries and Oceans. Mr. Fraser stressed that there was no disagreement that there has been a blatant absence of leadership in the management of fisheries in British Columbia. For years now, the Pacific Region has been missing a clear chain of command.[62]

Compounding the absence of leadership, there has been insufficient strategic planning associated with budget cuts. According to Mr. Fraser, these budget cuts are not that important, "maybe $25 million to $35 million, but they are affecting everything. They are creating a situation inside the Department where

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[61] Don Radford, Committee *Evidence*, 4 December 2004.

[62] Prior to the nomination of Mr. Paul Sprout as Regional Director General (RDG) this fall, the previous RDG that was not "acting" was Ms. Petrachenko appointed in 1997.

nobody feels they can do anything."[63] These cuts have been applied across the board, which, according to Mr. Fraser, is a disastrous approach: "Financial resources ought to be linked to a plan that was made as a consequence of looking at the things that must be done, not the other way around."[64] Mr. Fraser emphasized that economists and financial experts should not be setting fisheries management policy.

Mr. Wayne Strelioff supported Mr. Fraser's comments about leadership and clarity of vision. In his view, clarity of vision is essential to set out explicitly the goals that need to be achieved:

> To dwell a little bit further on that, clarity of vision would say: are we planning to sustain our existing salmon stocks and genetic diversity or not? Are we trying to rebuild or not? Are we planning to let it deplete? Currently, it's very difficult for all those valuable officials and policy setters and program management people to decide what to do and what success looks like, and vision is what does success look like.[65]

The Pacific Fisheries Resource Conservation Council stressed the issue of leadership and vision, as it is increasingly concerned that the federal government is failing to meet its obligations to conserve and scientifically manage the resource. The Council is specifically concerned about Fraser sockeye, and wishes to determine whether the assessment and management program in place for Fraser sockeye is adequate to identify and resolve the issues that are clearly present in Fraser sockeye, and the Council is certainly prepared to fulfil its role in providing the Minister with advice on how to improve the assessment program and management programs so as to avoid future crises of the sort that have appeared this year in 2004.

For the fourth time in only 12 years, the Fraser River sockeye fishery is facing a major crisis. There have been three previous major investigations in addition to a study by this committee of problems in the 2001 Fraser River fishery, yet, once again, we are faced with major problems in the fishery due to the failure to put adequate numbers of fish on the spawning grounds. Coming to the end of its study, the Committee makes the following findings:

- As many as 1.6 million sockeye were unaccounted for between Mission and the spawning grounds during their migration up the Fraser River in 2004.

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63 John Fraser, Committee *Evidence*, 2 December 2004.

64 Ibid.

65 Wayne Strelioff, Committee *Evidence*, 2 December 2004.

- Overall spawning targets (pre-season escapement goals) were not met by 73%, by 90% for the Early Stuart-run. Only 530,000 sockeye salmon reached their spawning grounds. Therefore, based on the salmon four-year cycle, there will be limited or no fishery in 2008, and the forecast for 2012 and 2016 is bleak.

- In 2004, Fraser river water temperatures during the migration of the Early Stuart, the Early Summer, and the Summer runs were well above the average temperature of the preceding 60 years, and at times reached or exceeded the maximum temperatures recorded during these same 60 years.

- Elevated water temperature amplifies the incidence of diseases, impairs swimming performance, and reduces the ability to recover from net encounters, all potentially leading to increased mortality.

- There was increased fishing pressure in 2004 related to the following factors:

    - number of fishing days allowed,

    - illegal fishing,

    - number of nets in the Fraser River above Mission,

    - some fishing practices such as the length of time nets were left in the water unattended, and

    - type of gear used.

- Sockeye salmon are counted once at the Mission hydroacoustic station, and then again when the fish have reached their spawning grounds. A lack of accuracy in these two counts has a negative effect on the management of the fishery.

- The estimated number of fish passing Mission was probably inaccurate due to sporadic problems with the counter, and fish behaviours linked to the elevated water temperatures. The magnitude of this error is unknown.

- The number of fish reaching the spawning grounds was likely underestimated, in part because of the increased reliance on visual survey methods.

- There are a number of important scientific knowledge gaps pertaining to the Fraser River sockeye salmon migration.

- A significant number of fish unaccounted for this year were caught above Mission through both authorized and unauthorized fisheries. Illegal sale of salmon also occurred.

- DFO has been overly cautious in its dealings with First Nations out of the fear of confrontation. This “policy” has led to uneven application of regulations to all participants in the Fraser River fisheries.

Therefore, the Committee concludes that:

- No single factor explains the missing 1.6 million sockeye salmon.

- Higher water temperature in the Fraser River alone does not account for the missing fish.

- Higher water temperature combined with other factors such as increased fishing pressure, is more likely to have caused significant mortality on the way to the spawning grounds.

- Fishing pressure of any kind during periods of record high water temperature should be avoided.

- Higher water temperature in the Fraser River was not properly managed by the Department of Fisheries and Oceans. DFO has no control over environmental factors, but has control over management decisions that can mitigate their impact. In particular, the Department must revise its opening and closure policy, and its equitable application to all sectors involved in the fishery.

- The management of the fishery would benefit from more accurate and numerous counting stations along the Fraser River.

- The failure of DFO to clearly distinguish between food, social and ceremonial fisheries and Aboriginal sale fisheries is a major contributor to the enforcement problems on the Fraser River.

- DFO must strictly enforce the fisheries regulations and apply these rules evenly to all participants in the Fraser River fisheries.

- Enforcement in the Fraser River is inadequate because of a lack of resources, a lack of vision and a lack of leadership.

In December 2004, the House of Commons defeated a motion asking the Government of Canada to establish an independent judicial inquiry to determine the cause of the collapse of the sockeye salmon stocks on the Fraser River.[66] This inquiry into the management of the 2004 Fraser River sockeye fisheries could have focused on enforcement, accuracy and reliability of the various methods for estimating fish abundance including test fisheries at sea, in-river estimates and escapement estimates. Supporters of the motion believed that it was important to persuade the Department to take its responsibilities seriously.

Instead of recommending a judicial inquiry at this time, the Committee suggests a two-pronged approach. Firstly, the Committee was told that if the recommendations from the Pearse-Larkin and the Fraser reports, as well as from this committee's 2003 report had been fully implemented by DFO, we would probably not be discussing this issue today. After all, **all** the contributing factors identified in these two reports 10 and 12 years ago, are now considered to explain the disappearance of fish in 2004. Therefore the Committee believes that there should be a review of the findings and recommendations of the reports of the past 12 years from the investigations of the management of the Fraser River sockeye salmon fishery, as well as this committee's current report and recommendations. The mandate of this review should include looking at the implementation of issued recommendations, and also where appropriate bringing the relevant recommendations up to date.

Secondly, the Committee proposes that the Government of Canada a) invest to provide more enforcement capability, b) fill key scientific gaps, and c) establish additional and more effective counting stations. An amount of $25 to $30 million would be a good start.

In closing, the Committee noted that despite the critical and disastrous nature of the problems encountered in 2004 during the Fraser River sockeye salmon fishery, and the tensions between the various sectors involved in that fishery, there is currently an opportunity for all stakeholders to solve these issues once and for all. This is the fourth time in 12 years: there may not be another opportunity.

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[66] House of Commons, *Journals* No. 42, 38th Parliament, 1st Session, 9 December 2004.

Therefore the Committee recommends:

Recommendation 1

That, in agreement with the 1995 report of the Fraser River Sockeye Public Review Board, the Department of Fisheries and Oceans establish an enforcement branch in DFO Pacific Region, separate from fisheries mangement; and

That this new branch be headed by a regional director, Enforcement, with extensive law enforcement experience, who would report to an assistant deputy minister, Enforcement, and who would be responsible for developing and maintaining enforcement capability at a level of competence and coverage that would ensure that the Minister's mandate to conserve and protect Canada's Pacific fisheries resources will be fulfilled.

Recommendation 2

That the Department of Fisheries and Oceans restore the number of fishery officers in the Lower Fraser River area at least to the highest level of the 1994-2003 period. DFO's Conservation and Protection Branch should also be given all the resources necessary to carry on their enforcement activities and statutory responsibility to conserve the fishery, particularly during fisheries' closed times.

Recommendation 3

That the Department of Fisheries and Oceans and the Fraser River Panel adopt and use more stringent guidelines for closing the fishery when water temperatures reach dangerous levels. In particular, the Department should not shy away from limiting all fishing opportunities, both below and above the Mission bridge when the conservation of salmon stocks is at stake.

Recommendation 4

That the Department of Fisheries and Oceans undertake immediately a study on the impacts of drift gillnets and set gillnets in the Fraser River on the mortality of migrating salmon. In particular, the so-called "drop rate" and any

compounding effects of elevated water temperature should be studied. In the interim, the Department should disallow the use of drift gillnets above the Mission bridge pending the findings of the study.

Recommendation 5

That the Government of Canada mandate an independent body to review the findings and recommendations of reports of the past 12 years investigating the management of the Fraser River sockeye salmon fishery, including the recommendations of this committee's 2003 report on the matter and those of the current report. The mandate should include determining which previous recommendations have been effectively implemented, and which others should still be implemented; and,

That the Government of Canada commit the necessary resources to implement the resulting recommendations.

The Committee believes that the PFRCC is the best suited body to carry out such a review. This assignment would fit well with the current mandate of the independent body. It is interesting to note that the PFRCC was established in response to a recommendation of the Fraser Report on the 1994 sockeye salmon fishery. The Committee received testimony from both the Chair and the Scientific Advisor of the Council, and it feels that they have a very good understanding of the situation.

The Committee further recommends:

Recommendation 6

That the government of Canada ensure, as a matter of priority, that the Mission hydroacoustic station be equipped with the latest technology, and establish additional acoustic estimation stations at various strategic locations in the Fraser and Thompson rivers to accomplish quantitative estimates of fish and their stock identity.

Recommendation 7

That the Department of Fisheries and Oceans re-establish the threshold of 25,000 fish for the mark-recapture method to be used for the estimation of spawning escapement.

Recommendation 8

That the Government of Canada support, fund, and collaborate with a scientific consortium established to study and fill the knowledge gaps related to the biology and the management of wild Pacific salmon. The Committee would like to see such a consortium developed as a Network of Centres of Excellence, and would encourage the Department of Fisheries and Oceans to be a partner in this NCE. As a matter of priority, the following knowledge gaps should be investigated:

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

Recommendation 9

That the Department of Fisheries and Oceans allocate more resources and implement procedures to ensure that prosecutions are not dropped because the chain of evidence has been broken.

Recommendation 10

That the Department of Fisheries and Oceans promote stability and corporate continuity at the upper management level in the Pacific Region.

Recommendation 11

That, in agreement with the 2004 Report of the Commissioner for the Environment and Sustainable Development of Canada, the Department of Fisheries and Oceans collect and analyze information to provide up-to-date assessments on habitat conditions and Pacific salmon stocks that are below departmental targets and declining.

Recommendation 12

That the Government of Canada secure and increase the annual budget of the Pacific Fisheries Research Conservation Council to enable it to hire professional, independent staff.

The above recommendations are offered in the belief that, if implemented, the systemic problems that led to the collapse of the Fraser River sockeye salmon fishery will be addressed. However, it is clear that DFO's track record of implementing recommendations is unacceptable and the Committee is concerned that its recommendations will, like recommendations from its previous reports, be ignored. Therefore, the Committee is asking the Minister of Fisheries and Oceans for a written response indicating his intention to implement this report's recommendations. Because of the need to prepare for the upcoming season, the Committee is asking for that response within 60 days of the tabling of this report. If such a commitment is not forthcoming, or if it appears that in spite of a commitment no serious attempt is being made to implement the recommendations, the Committee will use all possible means to convince the Government of Canada to conduct a judicial inquiry into the Fraser River sockeye fishery, and that the focus of this inquiry be on enforcement and other issues relating to how the fishery was managed in 2004.

Endnote from page 1

Assuming that 1.6 million fish failed to reach the spawning grounds in 2004, and by using a conservative spawner to return ratio of 1 to 2, it can be estimated that the 2008 run would be reduced by 3.2 million fish. At an exploitation rate of 50% this would result in a loss of 1.6 million fish to harvesters. Using the average landed value per piece for B.C. sockeye salmon between 2000 and 2004 of $10.13, this shortfall would reduce the landed value of the 2008 Fraser sockeye salmon harvest by $16,208,000. Using a factor of 2.4 to include processing and retail margins,* the total direct economic losses in 2008, attributable to the 2004 disaster can be estimated at $38,900,000. If an economic benefits spin-off ratio of 2 is then applied, to account for indirect economic activities, the total economic losses would reach as much as $77,800,000.

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* The Government of British Columbia estimated in a report entitled *Strengths, Weaknesses, Opportunities and Threats: An Assessment of the BC Seafood Sector and Tidal Water Recreational Fishing — 2004*, that the total direct economic contribution of the BC capture fisheries for 2002 at the retail level was 2.4 times the catch landed value.

APPENDIX A
LIST OF WITNESSES

Associations and Individuals	Date	Meeting
Department of Fisheries and Oceans	02/11/2004	5
David Bevan, Assistant Deputy Minister		
Paul Macgillivray, Acting Regional Director, Fisheries and Aquaculture Management		
John Pringle, Manager, Marine Environment and Habitat Sciences Division		
Area B Harvest Committee	02/12/2004	12
Chris Ashton, Chair		
Area D (Johnstone Straits) Salmon Gillnetter's Association		
Ken Martin, Member of the Board of Directors		
Les Rombough, President		
Area E (Fraser River) Gillnetter's Association		
Mike Forrest, Director		
Bob McKamey, Director, Fraser River Fishery		
Area H Gulf Trollers Association		
Michael Griswold, Director		
B.C. Vietnamese Fishermen's Association		
Kim Nguyen, Spokesperson		
Fishing Vessel Owners' Association of British Columbia		
Glenn Budden, Vice-president		
North Delta Seafoods		
Larry Wick, Director		
Office of the Auditor General of British Columbia		
Wayne Strelioff, Auditor General		
Morris Sydor, Senior Principal, Health Sector		
Office of the Auditor General of Canada		
Gerry Chu, Director		
Eric Hellsten, Principal		
Ronald Thompson, Assistant Auditor General		
Pacific Fisheries Resource Conservation Council		
John Fraser, Chairman		

Associations and Individuals	Date	Meeting
B.C. Aboriginal Fisheries Commission	03/12/2004	13
Doug Kelly, Political Executive		
Ken Malloway, Interior Co-chair		
Arnie Narcisse, Chair		
Edwin Newman, Coastal Co-chair		
B.C. Federation of Drift Fishers		
Frank Kwak, Director		
B.C. Fisheries Survival Coalition		
Phil Eidsvik, Spokesperson		
Cheam First Nation		
Darwin Douglas, Aboriginal Rights, Title Coordinator		
Lincoln Douglas, Councillor		
Saul Milne, Member		
Chilliwack Fish & Game Protective Association		
Alexander Ritchie, Director		
Bill Wimpney, President		
Fraser Valley Angling Guides Association		
Tony Nootebos, Director		
Fraser Valley Salmon Society		
Fred Helmer, President		
Native Brotherhood of British Columbia		
Bill Duncan, Business Agent		
Josh Duncan, President		
Doug Larden, Vice-president		
Sportfishing Defence Alliance		
Chris Gadsden, Director		
Gwyn Joiner, Director		
Bill Otway, President		
Sto:lo Nation		
Ken Malloway, Member		
Tl'azt'en First Nation		
Jim Webb, Fisheries Manager		
Tsawwassen First Nation		
Nikki Jacobs, Fisheries Assistant		
Tony Jacobs, Fisheries Manager, Negociator		

Associations and Individuals	Date	Meeting
United Fishermen's and Allied Workers Union	03/12/2004	13
Mike Emes, Member, General Executive Board		
Garth Mirau, Vice-president		
Department of Fisheries and Oceans	04/12/2004	14
David Patterson, Habitat Research Biologist, Science, Pacific Region		
Don Radford, Acting Regional Manager, Fisheries Management, Pacific Region		
Herb Redekopp, Area Chief, Conservation and Protection, Lower Fraser Area		
Laura Richards, Regional Director, Science Branch		
Paul Ryall, Lead, Salmon Team		
Neil Schubert, Area Chief, Stock Assessment		
Paul Sprout, Associate Regional Director General		
Timber Whitehouse, Program Head Sockeye, Sockeye Salmon Stock Assessment, Kamloops, B.C. Interior Area and Science Branch		
Jim Wild, Area Director		
Pacific Fisheries Resource Conservation Council		
Blair Holtby, Science Advisor		
Pacific Salmon Commission		
Murray Chatwin, Canadian Member, Fraser River Panel		
Royal Canadian Mounted Police		
Reg Reeves, RCMP/DFO Liaison Officer, Pacific Region		
As Individuals		
Anthony P. Farrell		
Bob Gould		
Scotty Roxborough		

APPENDIX B
LIST OF BRIEFS

Area B Harvest Committee

Area D (Johnstone Straits) Salmon Gillnetter's Association

Area E (Fraser River) Gillnetter's Association

Area H Gulf Trollers Association

B.C. Aboriginal Fisheries Commission

B.C. Federation of Drift Fishers

B.C. Fisheries Survival Coalition

B.C. Vietnamese Fishermen's Association

Bella Coola Fisheries

Cheam First Nation

Chilliwack Fish & Game Protective Association

Department of Fisheries and Oceans

Farrell, Anthony P.

Fishing Vessel Owners' Association of British Columbia

Fraser Valley Angling Guides Association

Fraser Valley Salmon Society

Gould, Bob

Musqueam Band

Native Brotherhood of British Columbia

Office of the Auditor General of British Columbia

Office of the Auditor General of Canada

Pacific Salmon Commission

Roxborough, Scotty

Royal Canadian Mounted Police

Sierra Club of Canada (B.C. Chapter)

Sportfishing Defence Alliance

Tsawwassen First Nation

United Fishermen's and Allied Workers Union

REQUEST FOR GOVERNMENT RESPONSE

Pursuant to Standing Order 109, the Committee requests that the government table a comprehensive response to this report, however, notwithstanding the deadline of 120 days stipulated in Standing Order 109, the Committee requests that the comprehensive response to this report be tabled within 60 days of the presentation of the report to the House.

A copy of the relevant Minutes of Proceedings (*Meeting No. 27*) is tabled.

Respectfully submitted,

Tom Wappel, M.P.
Chairman

SUPPLEMENTARY OPINION TO THE STANDING COMMITTEE ON FISHERIES AND OCEANS REPORT INTO FRASER RIVER SOCKEYE IN 2004

By

JOHN CUMMINS, M.P.
DELTA RICHMOND EAST

TABLE OF CONTENTS

I. INTRODUCTION

Post-season estimates prepared by the Pacific Salmon Commission show that 2,334,000 sockeye salmon passed the sonar recorder at Mission during the 2004 Fraser River sockeye migration. The catch upriver of Mission was 480,000 sockeye and the actual spawning estimate was 529,000 sockeye which leaves 1,325,000 sockeye unaccounted for.

These numbers are eerily similar to those presented to the House of Commons' Forestry and Fisheries Committee in 1993 by Drs. Pearce and Larkin who, on behalf of the then Fisheries Minister John Crosbie, conducted an investigation into the mismanagement of the 1992 Fraser River fishery.

Dr. Larkin told the committee, in 1992 "something like 1.5 million fish had gone by. The estimate of the catch was 382,000 fish. There were 789,000 fish recorded on the spawning grounds, which meant that 482,000 fish had gone missing. . . Where did the missing 482,000 go? Well, 201,000 were caught; 248,000 died en route and 33,000 were on the spawning grounds."

Dr. Larkin provided a substantive rational for the adjusted numbers:

> "There are some obvious potential explanations for this; it could be that the echo sounder at Mission doesn't count the fish properly and it had overestimated how many went by; it could be that more were caught than were recorded; it could have been that some of the fish had died en route; and it could have been that some of the estimates of the numbers of fish on the spawning grounds were incorrect. We focused on trying to find out which of those four explanations accounted for the missing fish.
>
> An intensive study of the counter suggested that the counts were correct, that it wasn't fish running back and forward or it wasn't a bias in the counter, so we exonerated the counter from any blame.
>
> When it came to estimating the numbers caught, it was very difficult. There were roughly 1,000 nets in the river above Mission, 700 between Mission and Sawmill Creek, which is close to Yale, and roughly another 300 above. With that many nets in the river, it was very difficult to monitor the catch. The sales slip system was not working perfectly, in consequence of which, a number of fish were caught that were not recorded on sales slips. Almost certainly a fairly substantial number of fish were sold outside the province in Alberta or in the United States, or in Saskatchewan. They slipped away from the normal recording channels. Certainly, then, a greater number were caught than were recorded. I estimated that roughly 201,000 more fish were caught than were said to have been caught.
>
> It was a very warm summer, temperatures in the river were very high, and in those circumstances many of the fish don't make it. At the same time, with so many nets in the river, many of the fish were caught in gillnets and dropped out dead or were exhausted and subsequently didn't make the spawning grounds. I estimated that this accounted for another 248,000 fish.

> Finally, the estimates of the numbers of spawners on the spawning grounds were more or less correct. Just a few stragglers maybe accounted for the difference of about 33,000."

The misreporting of catch and the increased in-river mortality identified by Pearce and Larkin stemmed from the Aboriginal Fishing Strategy (AFS) and the Pilot Sales program introduced by Minister Crosbie in 1992. These programs were seen as a way of resolving an increasing poaching problem on the Fraser River by giving natives a bigger say in the management of the fishery and allowing them to sell their food fish.

Nothing came of the public outcry over the missing fish in 1992 and 1994. DFO paid short-lived attention to the reports it commissioned about the tragedies. Fraser River fishery management was marked by more fruitless negotiations, increased lawlessness and predictably, 1.3 million missing sockeye in 2004.

The Standing Committee report which precedes this supplemental opinion is useful because it provides long-term measures to assist in the management of the Fraser River fishery. This supplementary report takes into account information which became available after the Committee conducted its hearings. New information includes transcripts from the Williams hearings and the post-season review of the Mission sonar station by the Pacific Salmon Commission. This supplementary report details what is needed to protect the 2005 sockeye runs which will soon be making their way back to the Fraser.

II. SCOPE OF THE 2004 DISASTER

The post-season review of catches and escapement prepared by the Pacific Salmon Commission on February 5, 2005 concludes that 1,325,000 sockeye disappeared between Mission and the spawning grounds.

Gross Escapement past Mission	2,334,000
Catch Upstream of Mission	480,000
Actual Spawning Escapement	529,000
Missing Fish	1,325,000

The 1.3 million missing salmon represent an investment in the future by the aboriginal, commercial and recreational fishermen downriver from Mission and in the ocean. These fish were allowed to pass through their fisheries to provide spawning stocks to ensure that there would be commercial, recreational and aboriginal fisheries in 2008.

The true value of the lost 1.3 million spawners this year, is the loss of 5.2 million sockeye in 2008. Setting aside 1.3 sockeye million for spawning purposes in 2008, some 3.9 million sockeye would have been available for harvest in 2008 if not for this disaster. At $30 per fish this represents a direct loss of $117 million to the BC fishing industry and a far greater loss to the BC economy when economic multiplier effects are considered.

III. PUBLIC COMMERCIAL FISHERY NOT A FACTOR

In-season estimates indicated that the Fraser Panel which manages the U.S. and Canadian commercial fisheries on Fraser sockeye delivered an in-season estimate of 2.7 million sockeye to the bridge spanning the Fraser River at the city of Mission. For more than a century, the public commercial fishery has been prohibited from fishing upriver from the Mission Bridge. Clearly, it was not a factor in the disappearance of fish upriver from Mission.

The extreme precautionary manner in which the public commercial fishery is managed is demonstrated by the table below which shows how escapement at Mission in 2004 compares to previous years on this cycle.

Gross Escapement at Mission[1]	
1980	1,034,603
1984	1,287,671
1988	1,786,000
1992	2,036,000
1996	2,872,000
2000	3,167,000
2004	2,334,000

The 2004 run of 4.4 million is 15 percent larger than the 1988 run of 3.8 million, so an increase in fishing time for the public commercial fleet in comparison to 1988 could be justified on a run size basis alone. The facts are dramatically otherwise as demonstrated in the charts below:

- In July and August 1988, gillnetters fished almost 13,989 net days on Fraser sockeye. In the same two months in 2004, they fished 992 net days which is a decrease of 93%;
- In July and August 1988, trollers fished almost 24,515 boat days on Fraser sockeye, but in the same two months in 2004, they fished 1,944 days which represents a decrease in effort of 92 percent;
- In the seine fleet, during July and August 1988, seiners[2] fished almost 3,550 net days on Fraser sockeye, but only 125 net days in the same two months in 2004; a decrease in effort of 96 percent.

The 2004 run of 4.4 million is 15 percent larger than the 1988 run of 3.8 million. In contrast to the dramatic *reductions* in fishing effort by the public commercial fleet, the effort in the Fraser River aboriginal fishery *increased* dramatically:

- In July and August 1988, aboriginal fishermen below the Mission Bridge fished using drift gillnets for 147 net days, but in the same two months in 2004, they fished 1,230 net days, an 840 percent increase in effort;

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[1] This table was compiled from the 1980, 1984, 1988, 1992, 1996 and 2000 reports titled in each year "*Report of the Fraser River Panel to the Pacific Salmon Commission on the ____ Fraser River Sockeye Salmon Fishing Season,* Pacific Salmon Commission and *News Release #9,* Pacific Salmon Commission*,* September 3/04, (p. 4)

[2] The effort in the seine fleet was also reduced by a requirement to brail and sort fish which reduced their efficiency by a factor of about 50 percent.

- Above the Mission Bridge in the set net fishery, in 1988, during July and August, the aboriginal effort was 6,229 days. In 2004, the effort increased by 78 percent to 11,064 net days.

Clearly, effort declined precipitously in the public commercial fishing fleet between 1988 and 2004 despite a small increase in run size. In marked contrast, the reported effort in the in-river aboriginal fishery *increased* dramatically.

The table below shows the percentage of the run harvested by the public commercial fleet. Since the 1992 disaster, the public fleet has harvested just 28 percent of the run on this cycle, compared to an average of 69 percent on the five cycles before 1992.

Fraser River Sockeye All-Canadian Commercial Harvests (2004 cycle)			
Year	Total Run	U.S. & Canada Public Commercial Fisheries (35% aboriginal in Canada)	Percent of Run Harvested by Public Commercial Fisheries
1972	3,708,000	2,743,000	74%
1976	4,341,000	3,284,000	76%
1980	3,133,000	2,069,000	66%
1984	5,919,000	4,572,000	77%
1988	3,744,000	1,917,000	51%
1992	6,493,000	4,220,000	65%
1996	4,523,000	1,248,000	28%
2000	5,217,000	1,448,000	28%
2004	4,383,000	1,249,500	29%

IV. POSSIBLE CAUSES OF THE 2004 DISASTER

As was noted in previous reports, such as the 1992 Pearse/Larkin report, after the fish reached Mission, there are four possible causes for missing Fraser River sockeye:

a. Miscounting or inaccurate data provided by the Pacific Salmon Commission sonar station near the bridge over the Fraser River at Mission;

b. Miscounting of the number of fish on the spawning grounds;

c. Unreported legal or illegal harvests between the Mission Bridge and the spawning grounds;

d. Fish mortality between Mission and the spawning grounds.

This report reviews each of these causes in the order above.

V. THE MISSION SONAR STATION

The Pacific Salmon Commission operates two types of sonar stations at Mission. The first is a single beam sonar station that has a 30 year track record of providing accurate

estimates of sockeye passing Mission. The same staff person has been reading the data produced by this sonar for the last 27 years.

This sonar was carefully reviewed during the 1992 investigation by Pearse/Larkin who concluded:

> "First, there were no significant mistakes, misallocations of stocks or unusual sources of bias in the data or analysis in 1992. Second, the estimates are subject to error (as all sampling estimates are) but it is unlikely that the error would exceed 10 percent in total. Third, the estimating technique is such that the probability of error leading to an over-estimate of salmon of the numbers passing Mission is no greater than the probability of an under-estimate. This leaves little scope for attributing the missing fish to faulty counts of fish entering the river." (p. 22)

In his supplemental written analysis Peter Larkin wrote:

> ". . . some comfort may be gained from the results of such an analysis, because over the past fifteen years there has been at least an approximate degree of confirmation of the accuracy of the Mission counts. When the various stocks are aggregated, the overall discrepancy plus or minus over the 15 years was 7.7 percent." (p. 6)

And in his testimony before the Parliamentary Standing Committee on Fisheries and Oceans, Dr. Larkin stated:

> "An intensive study of the counter suggested that the counts were correct, that it wasn't fish running back and forward or it wasn't a bias in the counter, so we exonerated the counter from any blame."

In 1994, a group of DFO, Pacific Salmon Commission and university scientists conducted a thorough analysis of all aspects of the Mission station operations as part of the Fraser investigation and concluded:

> "The Report of the *Mission Hydroacoustic Facility Working Group* provides an assessment of the Pacific Salmon Commission's hydroacoustic facility for estimating salmon escapement at Mission . . . It concludes that although the potential biases raise some concerns, these are unlikely to lead to serious errors in escapement estimation. . . . We concur with the main conclusions and recommendations of the report. . ." (p. 85)

Following the Fraser review, a DFO and Pacific Salmon Commission team was formed to develop and test new technology to improve the data from the Mission counter. A new split-beam sonar station was tested resulting in the existing configuration which was first deployed in 2001. In 2004, the system was used for the first time to generate "real" time daily estimates of salmon passing the Mission station. The new split-beam system did not replace the single-beam sonar, rather the PSC operated both stations in tandem to ensure the best possible data.

A problem with the split-beam system developed early in the sockeye migration, but the problem was corrected in-season. The problem, it turned out, was not with the new technology, but in reading the sophisticated data it generated.

The PSC's post-season review of the data generated by the counting station was consistent with tagging data and test fishery results. The new split-beam post-season estimates, the PSC concluded, are the best estimates of sockeye that passed Mission in 2004. The PSC also concluded that that the disappearance of 1.3 million spawners, was "due to factors that occurred upstream of Mission."

The always cautious staff at the Pacific Salmon Commission is so confident in the precision of their revised estimates that they were able to advise the Williams Committee in late February that the Mission estimates had a coefficient of variation of only 4 percent."

VI. EN-ROUTE MORTALITY

En-route mortality can be attributed to natural causes such as disease, high water temperatures, extremes of water flows or obstructions such as landslides. Fishing-induced mortality relates to encounters with nets or hooks.

VII. EN-ROUTE MORTALITY FROM NATURAL CAUSES

Flow Conditions

With respect to flow conditions, the 2004 conditions mirror the conditions in 1992 when Pearse Larkin concluded:

> "In the Fraser itself, flows were low last summer, but no blockages were recorded and reduced flows are not likely to have caused any significant delay or stress to the salmon." (p. 23)

In 1994, the Fraser investigation concluded that "The high temperatures were mitigated to some extent by essentially normal river levels and flows." (p. 23).

At the peak of the Early Stuart run in the Fraser Canyon, the Fraser Panel News Release of July 16, 2004 stated:

> "The discharge level in the Fraser River (at Hope) is currently 3,550 cms [cubic meters per second], which is 37% lower than normal. Fraser River water temperature (at Qualark Creek) is presently 18.2 C. Although present conditions in the Fraser mainstem are generally satisfactory for sockeye migration, Fraser River water temperature is forecast to increase over the next several days which may cause physiological stress in migrating sockeye."

As in 1992, flow conditions assisted sockeye migration. Instead of fighting river velocities of 3,865 cubic meters per second (cms), migrating sockeye in the mainstem on August 9th, for example, encountered flows of only 2,550 cms – a 34% reduction in velocity[3]. In effect, in 2004, it took 1/3 less effort for a sockeye to swim upstream in 2004 compared to a normal year.

Landslides and Other Natural Obstacles

The only landslide or natural obstruction on the Fraser River or its tributaries this year was a large landslide that completely blocked the Chilcotin River (an important tributary of the Fraser) near Farewell Canyon for approximately 14 hours on August 29th.

Fortunately, the impacts of the slide were not severe, as was noted by DFO stock assessment head Mr. Timber Whitehouse because "80 percent of the total run would have been above Farewell at the time of the slide."

Water Temperature and Disease

Pearse Larkin in 1992 and Fraser in 1994 dismissed high water temperatures as the principle cause of the missing salmon. In 2004, an examination of the same factors considered by Pearse Larkin and Fraser leads to the same conclusion.

Carcass Counts

There was no indication of a fish kill of the scale that could account for 1.3 million missing sockeye. The vast majority of the evidence was in concurrence with the comments of Fishery Officer Supervisor Tom Grantham in the Lillooett office who stated:

> "One observation worth noting that there was not the large schools of sockeye seen pooling along the Fraser as I noted in 1998 when we encountered similar environmental conditions." (Feb 1, 2005, Williams Committee)

Mr. Brian Richman, a retired Fishery Officer area chief for the Lower Fraser stated:

> "In response to fish mortality because of temperature, there is no doubt that there is some death and mortality of salmon at 18.5 degrees Celsius. However, it's used as a rule of thumb in an answer - - a pat answer as saying yes, you know, we're missing all these fish because they died and they sunk. I find it is – an over-statement at minimum and an over-exaggeration . . . And regardless if sockeye sinks, one of the things that shows up in the canyon . . . when you have large mortalities showing up, they were on the surface, on the edge, because the turbulence of the water brought them up." (Jan 19/05, Williams Committee, p. 115)

Fishery Officer Ray from DFO's Chilliwack office stated:

[3] Fraser Panel News Release, August 9, 2004

> ”I can say that I've been a fishery officer in Chilliwack and worked in the area from the Mission Bridge to Hell's Gate for 16 years now. And I have seen years of -- I believe it was 1998 when there was high incident of pre-spawning mortality. And it was quite visible on the Fraser River that year. There were large numbers of fish, particularly sockeye, floating dead. But I didn't see any evidence of that in 2004.”

And Fishery Officer Clift who is also from the Chilliwack office stated:

> ”Just to correlate it, there is always some pre-spawn mortality coming down the river. Every year you see it. But I don't think this year was abnormal.”

Pre-spawning Mortality

In 2004, however, there was a noted absence of pre-spawn mortality. According to Mr. Timber Whitehouse, DFO’s head of stock assessment for the BC interior where 90 percent of the Fraser sockeye spawn:

> ”In fact spawning success in almost all terminal areas was well above the long-term cycle average.” January 24, 2005 (p. 101)
>
> “And what we did not see across the board throughout the watershed was much in the way of elevated pre-spawn mortality rates. In fact spawning success in almost all terminal areas was well above the long-term cycle average.” (p. 102)

Early Stuart Sockeye: Temperature Impacts or?

It is estimated that 129,00 Early Stuart sockeye passed the sonar station at Mission, but only 9,000 arrived on the spawning grounds though only 75,000 were recorded as harvested in the aboriginal fishery.

On July 13, 2004 during the peak of the Early Stuart migration, the Pacific Salmon Commission reported that “The Fraser River water temperature at Hell’s Gate on July 11th was about 16.2 C, which is slightly above normal for this date.”

Extreme mortalities from high water temperatures cannot be expected when the water temperature is only “slightly above normal,” yet only 7 percent of the Early Stuart sockeye that passed Mission arrived on the spawning grounds.

Fishery Officer Supervisor Grantham from DFO’s Lillooet office advised the Williams Committee that it was his observation that “that migrating conditions were excellent for Early Stuart sockeye.”

He also noted that aboriginal fishermen in the Lillooet area required long soak periods for gill nets to obtain fish, or extensive hours spent dipping to obtain fish.” This suggests that the Early Stuart run never made it above the Fraser Canyon.

Early Stuart sockeye that did make it to the spawning grounds had 10 times the average number of net marks, but enjoyed exceptional levels of spawning success suggesting; (a), nets used in the aboriginal fishery, rather than environmental factors, were responsible for the lowest number of spawners on the grounds in 30 years (there was no public commercial fishery on the Early Stuart run in 2004), and (b) water temperature was not a factor in the disappearance of the Early Stuart run.

No Correlation Between Spawning Ground Counts and Temperature

In his presentation to the Williams Committee, DFO stock assessment head Mr. Timber Whitehouse advised that only 6 percent of the Early Stuart fish that passed Mission arrived on the spawning grounds; 19 percent of the Early Summers passing Mission made it as did 29 percent of the Summer run stocks.

If temperature was the primary factor in the disappearance of the fish, a greater percentage of the fish should have died as the temperature increased. It was suggested to Mr. Whitehouse that if the missing fish died from high water temperatures, the increasing percentage of fish that arrived on the spawning grounds as the temperature increased was the polar opposite of what should have happened. Mr. Whitehouse replied, "I can't disagree with your general observation at all . . . . I would agree."

VIII. FISHING-INDUCED MORTALITY

Drop-out Rates

Set-nets positioned in the fast flowing waters of the Fraser Canyon are regularly left untended for long periods as the canyon offers little in the way of refuge for the fishermen. Fish go into rigor mortis after death and drop from untended nets to become another missing in transit statistic.

The problem of drop-outs was brought to DFO's attention in 1992, by Dr. Peter Larkin who stated:

> "At the same time, with so many nets in the river, many of the fish were caught in gillnets and dropped out dead . . . "

Larkin's conclusion was confirmed by Dr. Blair Holtby, a DFO employee seconded to the Pacific Resource Conservation Council, who appeared before the Fisheries Committee and stated that ". . . dropout from gillnets is a well-known problem."[4]

[4] Dr. Blair Holtby, testimony, Parliamentary Standing Committee on Fisheries and Oceans, December 4, 2004

The potential scale of the problem was brought to the Fish Committee's attention by Mr. Robert Gould. Mr. Gould conducted a study of drop-out rates on the Stikine River in northern BC and concluded that:

> "The principle works like this. If any of the net is set in a fast-current eddy, the one you're looking at on that chart, and it's not picked every two hours, by the 24th hour it will have lost, theoretically, according to this, five times as many fish as it lands."

Mr. Gould expressed his frustration that the drop-out rate problem had been brought to DFO's attention on numerous occasions in the past decade, yet DFO refuses to conduct the necessary studies to determine the actual drop-out rate on the Fraser River.

Fishing-induced Mortality from Net Encounters

Salmon migrating in the swift Fraser Canyon waters are forced to hug the canyon wall and dash from back eddy to back eddy as they fight their way upriver. During an aboriginal fishery, set-nets create an almost impenetrable barrier to fish. The set-nets hang from the upriver end of each back eddy and are often made of monofilament creating an almost invisible barrier in the silt-laden water.

To bypass the nets, the fish must squeeze between the rock wall of the canyon and the upper end of the net or swim under it. Fish which choose to ignore the back-eddy and fight the current are often caught in the surging water and swept back downstream.

Sockeye have limited energy reserves because they do not eat once they enter fresh water. Repeated encounters with nets severely impairs their ability to reach the spawning grounds. In 1992 Pearse/Larkin stated:

> "In addition to any temperature stress they may have encountered, these fish showed evidence of having been hampered by gillnets. When salmon pass through gillnets, some become entangled but subsequently escape. These fish show characteristic net-marks. The effort in fighting free of the nets also saps their energy. Experienced field personnel reported that Early Stuart spawners especially, arrived in conspicuously poor condition, with an unusually high incidence of net-marks indicating these fish encountered heavy gillnet fishing downstream." (p. 24)

In his testimony before the Williams Committee, DFO official Timber Whitehouse, the head of stock assessment in the BC interior said:

> "Net marks were one of the largest consistent remarks by survey crews throughout the watershed this year, all run timing groups. Net marks were prevalent." (p. 107)

When asked to provide specific data, Mr. Whitehouse replied:

> "We saw net marks -- and those are the three systems where we have direct hands-on handling of fish, where you can have a 100 percent confidence that where the mark was described as a net mark it was a net mark. At Chilko the incidence in 2004 was as you mentioned; it's just about 39 percent. At Kynoch the incidence is about 13 percent, and at Tachie it was just over 60 percent. For comparison, the average net mark incidence between '95 and 2003 at Chilko was 14.8 percent, at Kynoch, which is the Early Stuart, 1.4 percent, and at Tachie River 19.5 percent."

The unusually high incidence of net-marked fish on the spawning grounds in 2004 is convincing evidence of heavy gillnet fishing downstream from the spawning grounds. Given that the public commercial fishery on Fraser sockeye in 2004 was limited to 39 hours, the only explanation for the heavy percentage of net-marked fish is the authorized and unauthorized in-river aboriginal fishery.

A clear picture of the barrier created by set-nets in the Fraser Canyon comes from Ian Todd, the former head of the Pacific Salmon Commission from 1986 to 1999.[5] During his testimony in the BC provincial court trial in *Regina v. Sonnenberg*[6], Mr. Todd advised the Court that after the in-river aboriginal fishery was closed on August 17, 1992:

> "I actually went to Hells Gate and on that day, our count of fish going by was something like ninety-two thousand which was the highest single day we'd seen all year. It was certainly larger than anything we'd seen all year. I think our maximum, up to that point, had been three or four thousand. . . . It's a combination of removal and also, in our view, delays that were caused to the fish that weren't caught. . . that sudden surge suggested to us that there was a double impact of the fishery - - one of very heavy removals and secondly, that just the number of nets in the river and the conditions in the river at the time contributed to - - to fish delay."

The report of the Pacific Salmon Commission's Fraser Panel into the 1992[7] fishery provides further details on what happened after the in-river aboriginal fishery was closed:

> "Comparison of the estimated passage at Mission and spawning escapements showed that Early Stuart and early summer-run sockeye were intensively exploited in Indian fisheries. Arrivals on the spawning grounds averaged 24% of the numbers estimated to have passed Mission.
>
> "Indian fishery impacts on summer-run stock migrating past Mission prior to August 17 were high as well… removal rates were close to zero for fish migrating after that date as these fish were protected by the closure of the mainstem Fraser River commercial and Indian fisheries… Arrival of Chilko sockeye at a counting site below Chilko Lake showed that nearly 100% of Chilko fish that migrated past Mission after August 16th arrived at the site compared to 21% of fish that migrated past Mission from August 2-8 and 52% of fish that migrated from August 9-15 (this latter group was partially protected by upstream closures)."

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[5] Mr. Todd holds a Masters of Science in biology and worked at DFO from 1957 to 1978 and became the first head of the Pacific Salmon Commission a position which he held until retirement in 1999.

[6] Proceedings at Trial in the Provincial Court of BC, *Regina v. Sonnenberg*, April 5, 2001

[7] *Report of the Fraser River Panel to the Pacific Salmon Commission on the 1992 Fraser River Sockeye Salmon Fishing Season*, Pacific Salmon Commission, 1996,(p. 28)

In 2000, BC fishery scientists also noted the dramatic impact of aboriginal set-nets in the Fraser Canyon:

> ". . . While the nets were in the water fish passage was concentrated towards the river bottom and at an increased range (from shore). Passage numbers dropped dramatically from an average of 1,000 fish/hr to less than 200 fish/hr at the onset of the fishery. Once the fishery closed, passage moved back towards the shore and became spread throughout all aims. The second [aboriginal set-net] opening, on August 5-8 1998, caused a similar response. Fish passage dropped from a high of 8,000 fish/hr to less than 1000 fish/hr immediately following the onset of the fishery. "[8]

The variation in daily estimates of fish passing Hell's Gate in 2004 also highlights the blockage effect of the set-net fishery. In 2004, the intensive aboriginal fishery between Mission and Sawmill Creek was closed on August 15th. In the next four days, 80,200 sockeye were recorded going by the counter at Hell's Gate. In the previous 10 days, only 52,800 sockeye were recorded passing Hell's Gate or 5,280 per day.

The daily count of 20,050 per day after the closure of the aboriginal fishery compared to a daily count of 5,280 when the aboriginal fishery was open is highly indicative of the blockage effect of the aboriginal fishery (these numbers do not represent the total number of fish passing).

Summary of Natural and Fishing-induced Mortality

In 1992, Pearse Larkin stated:

> "Our conclusion from all this evidence is that mortality among sockeye before they reached their spawning grounds was somewhat higher than normal and in the order of 20 per cent of the Early Stuart stocks that entered the river, 10 per cent of the Early Summers, and seven per cent for the Summer stocks – a weighted average of about 10 percent." (p. 24)

In 1994, the Fraser Committee rejected a 15% mortality rate:

> "The estimate of 15 percent mortality proposed by the working group is merely an educated guess, largely based on an extrapolation from Dr. Peter Larkin's 1992 mortality estimate of 10 percent. Larkin's estimate, perhaps adequate at the time, should not be the foundation for subsequent estimates. Furthermore, the working group estimate is likely overstated in that it fails to adjust for fish caught in the river above Mission."

Mindful of Fraser's rejection of a 15 percent in-river mortality rate, if applied, it would only account for 200,000 of the 1,325,000 missing sockeye leaving 1,125,000 unaccounted for.

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[8] *The Influence of Extreme Water Temperatures on Migrating Fraser River Sockeye Salmon During the 1998 Spawning Season*. J.S. MacDonald et. al., DFO, 2000, (p. 19).

IX. UNREPORTED CATCH IN THE IN-RIVER ABORIGINAL FISHERY

Unreported aboriginal catches are, yet again, a key factor in the 2004 disaster given the highly aggressive aboriginal fishery up-river from Mission and demonstrated ability of aboriginal fishermen to move vast quantities of fish without reporting the harvest to DFO.

The DFO Authorized Aboriginal Fishery

A comparison of the aboriginal fishery in 1988 (the same cycle as 2004) with the aboriginal fishery this past season highlights the deadly increase in effort in the in-river aboriginal fishery. In July 1988, for example, the set-net effort in the aboriginal fishery between Mission and North Bend totaled 1,744 days. In 2004, effort increased to 5,461 net days. The in-river aboriginal fishing effort increased by more than 300 percent between 1988 and 2004.

Impact of DFO Authorized Aboriginal Fisheries on the Early Stuart Run

The impact of increased fishing effort is clearly evident in a comparison of the effort targeted on the 1988 and 2004 Early Stuart migration from Mission to Sawmill Creek. In 1988, the Early Stuart run was 195,000 sockeye - statistically identical in size to the 191,000 in-season estimation of the 2004 run.

July is the key month for Early Stuart sockeye migration through the Fraser Canyon on their way to their spawning grounds northwest of Prince George. Despite a much smaller and less aggressive aboriginal fishery in 1988 compared to 2004, DFO closed the fishery from July 6th to July 29, except for a single day, to protect the Early Stuart run.

In 2004, the department did the exact opposite. They opened an aboriginal fishery above Mission every day throughout July. DFO's senior official in BC is demonstrative of DFO's callous attitude towards its duty to protect the fishery:

> *Mr. John Cummins:* And that's the problem. There were very important cultural fisheries in 1987 and 1988. Nothing has changed. But to protect the resource--as the Supreme Court of Canada said in Sparrow, first is conservation, and second is native food, social, and ceremonial--they shut the fishery in 1987. They shut it in 1988. And you folks didn't do it in 2004. That's the issue, isn't it, Mr. Sprout?
>
> *Mr. Paul Sprout:* Again, I thought the discussion today was on the 2004 fishery. I appreciate that an honourable member has raised a fishery that occurred 14 years ago. We will do our best to provide further information to elaborate on the response we've made so far.

To date, the Fisheries Committee has received no information from the department to explain its decision to authorize the decimation of the 2004 Early Stuart sockeye run.

Only 9,000 Early Stuart sockeye arrived on the spawning grounds this year, just 7% of the 129,000 that passed the Mission counter. It is the lowest escapement on this cycle in three decades, a startling fact which does not seem to be of any concern to the senior DFO official in BC.

Unreported Catches in the Aboriginal Fishery

In virtually every fishery in the world, some fishermen will fail to accurately report their catches. The in-river aboriginal fishery on the Fraser River is noted for the scale of its unreported catches. This problem was recognized by Fisheries Minister John Crosbie before the Forestry and Fisheries Committee in May of 1993 when he speculated that legalizing the sale of food fish would end the problem:

> " . . . with respect to the sale of fish, we are not saying that we have to do this because of Sparrow. We are doing this because we think it's the best public policy because we know that for years . . . The Aboriginals have been taking the fish and selling the fish in great quantities. It's an experiment to see whether this is a better way to do it . . . That's why we're trying these experiments." (emphasis added)

In their 1992 report, Pearse Larkin noted:

> "Some argue that hundreds of thousands of excess fish could not have been handled and disposed of without attracting attention. The evidence leaves little room for concern on this point, however. In 1990, when only half as much gear was used, the reported catch on the lower river was almost double the estimated catch in 1992. Most of it is believed to have been sold.[9]

The 1994 John Fraser investigation made similar findings:

> "Given information from numerous interveners, we agree with the In-river Catch Estimation Working Group that the reliability of reported catch estimates cannot be verified. Furthermore, because of reductions in DFO enforcement staff, there simply are not enough officers in place to estimate the magnitude of the illegal catch." (p. 21)

It has been argued that the aboriginal fishery could never harvest, let alone sell 1.1 million sockeye, but as noted by Pearse/Larkin above, the aboriginal fishery caught and sold illegally some 890,000 sockeye in 1990. In 2004, it is unrealistic to assume that in-river aboriginal fishermen cannot catch, transport and sell some 200,000 sockeye more than their 1990 harvest of 890,000.

In 2004, the fishing effort in the lower Fraser aboriginal fishery was more than double the 1990 effort. In 2004, aboriginal fishermen enjoyed legal access to fish processing plants (including two new fish plants on Lower Fraser aboriginal reserves) and access to commercial freezing operations. Trucking companies were legally permitted to run

[9] Managing Salmon in the Fraser, Report to the Minister of Fisheries and Oceans on the Fraser River Salmon Investigation, Peter Pearse, Peter Larkin, December 1992, (p. 27)

refrigerated containers with carrying capacities of 40,000 pounds to locations near the riverbank to assist in the transport of fish.

Aboriginal fishermen also had access to unscrupulous fish brokers and a legal ability to transport fish in semi-trailers across the Canada/US border as well as into Alberta. A hands-off enforcement policy in certain areas of the river also facilitated the harvest, transport and processing of unreported harvests.

In 1992, Pearse Larkin concluded that aboriginal catches were significantly higher than the Department's estimates. The reasons include a reliance on hails, the common practice of fishing with multiple nets and unauthorized nets used at night or nets fished before openings or after closures (p. 26).

The unreliability of hailed catches results in DFO continuously under-estimating the aboriginal catch.[10] Pearse/Larkin wrote in 1992:

> ". . . increased reliance was put on "hailing" – asking fishermen about their catches. However, hail information is notoriously unreliable. Checks on the Lower River last year revealed that actual catches were usually more than double the catches hailed." (p. 26) (emphasis added)

In 1999, Fishery Officer supervisor Herb Redekopp directed an audit of the Musqueam Indian Band fishery and concluded[11]:

> "Furthermore, today's audit confirms investigative data from previous weeks which indicates a discrepancy of around 300% overall . . . The catch data provided to DFO by the Musqueam fishers is poor at best and should not be used to make fisheries management decisions."

A 2000 report on illegal aboriginal fishing on the Fraser prepared for DFO by ESSA Technologies stated:[12]

> "Also, this report does not address potential unsanctioned fishing activity occurring during dry-rack fisheries in the last three weeks of July 2000 [where] Fishery Officers reported observing individuals taking fish out of the area, especially at night, without reporting their catches in the voluntary hail system operated by local First Nation Bands."

Despite the well-documented failure of the hailing system for recording catches, in February 2005, Mr Bert Ionson, DFO's salmon coordinator for the Pacific Region, stated that the best way to improve catch monitoring in the in-river aboriginal fishery is to "put more people out on the water to actually undertake hails . . . "

[10] In the hail or interview process fishermen simply tell the aboriginal or DFO monitor how many fish they catch. No or little attempt is made to verify the catch.

[11] Memo from Herb Redekopp to Paul Ryall, Bert Ionson and others dated June 30, 1999, Subject: Audit of Area 1 Native Catch Data

[12] ESSA Technologies, Unsanctioned, Partially Monitored First Nations Fisheries on the Lower Fraser River: A Conservation Risk, 2000

Clearly, senior officials in the department do not want to admit the failure of the systems they rely upon to manage the in-river aboriginal fishery.

The testimony referenced by Provincial Court of BC Judge Jardine in his 2004 judgment in *Regina v. Douglas et. al* is startling. .:

> "On the evidence of Mr. Quipp, Mr. Wood and Mr. Victor, no one actually counts how many fish the Cheam catch. Mr. Quipp estimated his catch with Mr. Wood, his partner, to be conservatively 10,000 or more Sockeye, as well as more than 1,000 Chinook. If he is correct and there are 60 such fishers, the Cheam take a large number of fish. This would constitute an estimate in the hundreds of thousands. Mr. Quipp was candid when he said that of the fish he caught, he first satisfied his need, and then he sold approximately 90 percent of the remainder." (para. 51)

These 10,000 sockeye and 1,000 chinook were caught in a 60 foot set-net anchored to the bank of the river. There are more than 500 of these set-nets in the Fraser River during the peak of the sockeye run.

Mr. Brian Richman, a Fishery Officer and Associate Area Chief of Enforcement on the Lower Fraser who retired from DFO last November after 29 years with the department commented on the in-river aboriginal fishermen's ability to transport fish[13]:

> " . . . I talked to a senior person in customs on the border. And he told me that customs, for some unknown reason, had decided to identify -- more than 1,500 pounds of fish going across the border would be identified by customs as a commercial load, even though it wasn't a commercial load, even though it was claimed to be a personal -- for personal use. And he told me that 100 vehicles a day were going across the border with more than 1,500 pounds of fish."

In 1992, Pearse Larkin concluded "that catches [in the aboriginal fishery] were significantly higher than the department's estimates." (p. 26)

In 1994, the Fraser report stated:

> "That the reliability of catch estimates cannot be verified. Furthermore, because of reductions in DFO enforcements staff there are simply not enough officers in place to estimate the magnitude of the illegal catch."

The extent of the harvest and illegal sales of salmon as described in Judge Jardine's court and in the testimony given by retired Fishery Officer Mr. Brian Richman shocked long time observers of the in-river aboriginal fishery. If one net can catch 10,000 sockeye and there are more than 500 nets fishing, it is absurd to conclude that the remaining 499 nets caught less than 1,000 fish each as DFO contends in their published catch estimates.

[13] Mr. Brian Richman, testimony , Williams review, January 19, 2005

With fewer Fishery Officers in place in 2004 than in 1994 and the increasing defiance of fisheries regulations by the Cheam and certain other aboriginal groups it is reasonable to assume that matters were worse in 2004 than in 1994.

As John Fraser said in his 1994 report, "evidence will not be found if no resources are assigned to search for it."

X. ENFORCEMENT: THE ONGOING CRISIS

Providing sufficient resources to the Conservation and Protection Branch of Fisheries and Oceans Canada is essential if Canada is to fulfill its duty to British Columbia under BC's Terms of Union which required the federal government to protect and encourage the BC fishery[14]. Despite this constitutional obligation, the federal government has willfully undermined DFO's Conservation and Protection Branch by imposing severe budget cuts, by failing to provide a effective regulatory regime to manage the aboriginal fishery and by a systemic lack of commitment to the enforcement function of the department.

The evidence presented to the Fisheries Committee by senior DFO officials about the department's enforcement capabilities is in marked contrast to the evidence presented by Fishery Officers to the Williams review.

Mr. Robert Melvin, a Fisheries Officer with the department's Special Investigations Unit stated (Feb 1/05):

- The illegal sale of aboriginal caught fish drives the entire closed time fishery. His office had made a number of recommendations to deal with illegal sales, but no action had been taken to implement the recommendations.
- When confronted with an aggressive approach by aboriginal fishermen in the Lower Fraser, the department has always backed off rather than enforce the closed time regulations.

Mr. Douglas Cowen, a Fisheries Officer Supervisor in the city of Salmon Arm in BC interior stated:

- Reduced staffing levels coupled with budget and overtime restrictions has "crippled" C&P operations in his field unit
- The majority of black market fish from the BC interior is sold in the Okanagan area and in 2002 this was identified as a priority for our office, but we haven't done any black market work since 2002.
- Our patrols are limited to core hours and a maximum distance of 3 hours from our office. This effectively precludes any patrols in much of the area the office is supposed to cover.

[14] Term 5e

- Several years ago we lost the authority to participate in road blocks, yet the Trans Canada highway runs directly through my detachment area and is a major conduit of fish products going to the Prairies.

- "In order to do our job it takes more than money, it takes the proper legislation and the political will."

Mr. Tom Grantham, a Fisheries Officer Supervisor in Lillooet which is just upriver from the Fraser Canyon stated:

- Our approximate patrol area is 12,000 square miles. We have four field officers and one detachment supervisor.

- We don't have a helicopter budget anymore. We used to have a fairly substantial budget. Due to the distance for the Lillooet office and the distance to the fishing sites patrols are limited because of overtime restrictions.

- Illegal sales are not addressed due to budget constraints.

Mr. Cartwright, a Fisheries Officer in Chilliwack which is just downriver from the Fraser Canyon advised:

- In the years gone by we have had directions long before 2004 not to enforce the law against natives.

Mr. Brian Richman, a C&P Area Chief for the Lower Fraser stated:

- "I asked the customs officer to provide me with details of the fish crossing the border and he said no because we're not considered an enforcement agency."

- "In 2001 or 2002 I was given the task of developing a strategy to deal with illegal sales. It was a three year job when I was assigned. Within two days of starting the assignment I was told it was only 60 percent of my job. Within a year I was told it was less than 50 percent . . . then after a year and a half came by, I was told to drop the whole thing."

- "As a matter of a fact, for over a year, the officers were not in Cheam territory in an enforcement capacity other than just passing by . . . "

Mr. Ray, a Fishery Officer from the Chilliwack detachment stated:

- "There was 168 reports of illegal fishing in and around the Agassiz Bridge, and in the first part of 2003 and the last part of 2004 our enforcement program didn't include conducting enforcement."

- "In 2000, the department entered into protocols. And we were instructed at the time to have no enforcement contact with members of the Cheam First Nation. We were to conduct opportunistic enforcement. And the protocols became ever, ever restricting in our in our work because of the interpretation of the protocols. They continued into 2001 and 2002 really hampering our ability to conduct enforcement operations. At the same time it antagonized other members on the river to conduct illegal fishing because they weren't being treated in the same fashion. We simply got overwhelmed by the number of violations."

Mr. Laverty, a Fishery Officer from the Chilliwack detachment stated:

- "Again, it's not a food, social and ceremonial fishery, it's a large extensive commercial fishery that takes place. Such to the extent that the weekend fishery goes, whether it be targeting on springs or sockeye, the food, social and ceremony through explosion of a number of ceremonial licences during the closed time. You get your two week fishery taking place and then the food, social and ceremonial fishery takes place during the closed time."

- "I don't have any confidence -- anybody in this room from my perspective could during the open time throw 100 set-nets in the Fraser and fish and put some – some number on it, and I wouldn't know the difference."

- "Call the fishery what it is and regulate it as such. Otherwise we just spin down the same road. Like I don't really expect anything to happen here, right. You give a couple more fish cops, nothing will change. I've been through this before, and nothing ever changes, right. You have to sit down and seriously start thinking about what you want to do with the fishery and manage it accordingly."

Mr. Powers, a Fishery Officer from the Chilliwack detachment stated:

- "We would at least need a commitment by our own management to support the enforcement actions that we take. Up until now most of the time we don't. We don't have that support."

Mr. Clift, another Fishery Officer from the Chilliwack detachment stated:

- "In regards to the budget, we were cut back in 2001 . . . I think it was approximately 50 percent. . . . There's a small graph here. And I think it's part of Ottawa's. With less enforcement, less resources, you're not out there finding violations, therefore the violation [rate] drops. Therefore, if there's not so many violations, obviously you have more compliance. . . "

These comments by concerned Fishery Officers are nothing new. In 1992 Pearse Larkin stated at p. 18:

- "Fishery Officers had been instructed not to lay charges while delicate negotiations about fishing agreements were ongoing."

- "Requests by field officers for policy direction went unanswered. As violations became conspicuous in certain areas, local Fishery Officers were flooded with complaints and accusations of having failed to do their jobs. As their hands were tied, this criticism took a heavy toll on morale and pride."

- "Upriver, beyond the Agreement area, surveillance and enforcement was abandoned altogether. Faced with cuts in staff and instructions not to lay charges, the Department's field staff threw up their hands."

- "Major enforcement problems developed. Formerly rare illegal practices such as drift gillnet fishing were observed."

In 1994, the Fraser report found that the enforcement capabilities of the department had further deteriorated (pp. 58-60):

- "In 1994, a culmination of long-term budget decline, organizational change, increasing enforcement demands and low morale led to an unfortunate breakdown in DFO enforcement capacity."

- "Large areas of the coast and interior were left without effective protection, creating low-risk opportunities for poachers . . .

- "The level of enforcement and capacity was grossly inadequate in 1994 . . . If permitted to continue, the attitudinal anarchy reflected in many user groups during 1994 will sooner or later destroy the fishery."

All senior department officials who testified before the Fisheries Committee or the Williams review complained that a lack of funds was preventing the department from undertaking the enforcement activities necessary to protect the resource in 2004.

Despite the claims of a lack of funds, documents released under the *Access to Information Act* state the Pacific Region of DFO spent $7.1 million in travel expenditures in the year ended on March 31, 2004. Another $159,000 was spent on "hospitality", $140,000 on the department's public relations and the office of the Regional Director General spent $1.6 million.

In 1994, the Fraser report concluded that the lack of funds for enforcement did not reflect an actual lack of funds, but misplaced priorities within the department. It has been a decade since the Fraser report, but the misplaced priorities are still with the department.

XI. FINDINGS

The Fraser Panel provided competent management of the public commercial and recreational fisheries in 2004 as evidenced by the 2.3 million sockeye which the sonar stations at Mission. Given competent management of the in-river aboriginal fishery by DFO, sufficient sockeye passed Mission to ensure sufficient fish to meet aboriginal FSC fisheries and spawning requirements.

In 2004, the sonar station at Mission provided accurate fish passage estimates within reasonable margins of error.

DFO's estimates of in-river catches, especially between Mission and Sawmill Creek, are inadequate. Considerably more fish was removed from the river than was accounted for in DFO's published estimates.

Unreported legal and illegal catches in the aboriginal fishery are a primary cause of the missing fish in 2004.

DFO sanctioned fisheries between Mission and Sawmill Creek were excessive and showed a complete disregard for environmental conditions.

DFO authorized openings for food, social and ceremonial purposes were far in excess of the requirements needed to harvest fish for FSC purposes.

There is no substantive evidence to conclude that high water temperatures were the primary cause of the loss of the migrating sockeye.

Even though spawning ground counts of salmon are inadequate for the proper management of the fishery, there is no evidence that miscounting on the spawning grounds accounted for a significant number of missing fish. The inadequate counting system may just as easily have over-estimated the numbers of fish on the spawning grounds.

Encounters with in-river aboriginal nets likely caused significant en-route mortality.

XII. SUPPLEMENTARY REPORT RECOMMENDATIONS

Introduction

The purpose of these recommendations is to ensure the survival and enhancement of Fraser River sockeye. Implementation will ensure the adequate management of the 2005 Fraser River fishery and allow time for more comprehensive restructuring of Fisheries and Oceans Canada.

Fishery Management

1. All fisheries on Fraser River salmon in Canadian and US waters must come under the management authority of the Fraser River Panel. This includes the opening and closing of all aboriginal fisheries.

2. All set-net and drift-net fisheries in the Fraser Canyon and in other fast flowing waters upriver from Hope must be prohibited. Dip net fisheries should be encouraged and accommodated.

3. All net fisheries upriver from the Mission Bridge to Sawmill Creek must be prohibited during night time hours.

4. All commercial fishing must be prohibited above the Mission Bridge.

5. All drift-net fishing must be prohibited above the Mission Bridge.

Structure of the Conservation and Protection Branch

6. The Conservation and Protection Branch of the department should be a standalone agency within the Department of Fisheries and Oceans separate from Fisheries Management. The national head of Conservation and Protection should report directly to the Deputy Minister.

7. The Conservation and Protection Branch of the Department of Fisheries and Oceans should receive Police Agency Designation.

Resources and Funding for the Conservation and Protection Branch

8. A permanent staff of 75 full-time Fishery Officers must be dedicated to protecting the salmon fishery on the Lower Fraser River.

9. The Lower Fraser Conservation and Protection effort must be adequately funded to regain control of the fishery. An additional $2.5 million dollars per annum must be provided to fund Fishery Officer overtime, vessel and automobile expenses, helicopter patrols and other directly related costs.

10. The Department of Fisheries and Oceans must report to the Standing Committee on Fisheries and Oceans on an annual basis on the progress made in dealing with the issues and problems raised concerning the Fraser River salmon fishery and that report should also be tabled in Parliament. The report should pay particular attention to the work undertaken by the Conservation and Protection Branch in protecting migrating Fraser River salmon stocks and ensuring the *Fisheries Act* and its regulations are enforced.

Regulatory Support for the Enforcement Function

11. Regulations under the *Fisheries Act* should be enacted prior to the start of the 2005 salmon fishery to ensure that:

    a. All salmon harvested under a Food, Social and Ceremonial license be clearly identified upon capture. This could be accomplished by the previous practice of cutting off the nose and dorsal fin of the fish immediately upon capture;

    b. All salmon harvested under a Food, Social and Ceremonial license be clearly identified as such throughout any processing or packaging operation and separated from fish caught under a commercial license;

    c. Commercial cold storage or processing facilities notify the Conservation and Protection Branch of any entry or exit of commercial quantities of fish;

    d. Inter-provincial and international transport of fish caught under a Food, Social and Ceremonial license is prohibited;

    e. Non-native possession of fish caught under a Food, Social and Ceremonial license is prohibited;

    f. Fishery Officers have the authority to search for fish in transit.

MINUTES OF PROCEEDINGS

March 10, 2005
(*Meeting No. 27*)

The Standing Committee on Fisheries and Oceans met *in camera* at 9:41 a.m. this day, in Room 701 La Promenade Building, the Chair, Tom Wappel, presiding.

Members of the Committee present: Raynald Blais, Rodger Cuzner, Loyola Hearn, Randy Kamp, Gerald Keddy, Bill Matthews, Shawn Murphy, Jean-Yves Roy, Scott Simms and Tom Wappel.

John Cummins participated by conference call.

In attendance: Library of Parliament: François Côté, Analyst.

Pursuant to Standing Order 108(2), the Committee resumed its study of the 2004 Fraser River sockeye salmon harvest.

The Committee resumed consideration of a draft report.

It was agreed, — That the draft report, as amended, be adopted.

It was agreed, — That, pursuant to Standing Order 108(1)(a), the Committee authorize the printing of the supplementary concurring opinion of John Cummins, MP, as an appendix to this report immediately after the signature of the Chair; that the supplementary opinion be limited to not more than 40 pages (font and line spacing consistent with the draft report); and that the supplementary opinion be delivered in electronic format in both official languages to the Clerk of the Committee not later than 5:00 p.m. on Tuesday, March 15, 2005.

It was agreed, — That the Chair present the report to the House.

It was agreed, — That, pursuant to Standing Order 109, the Committee request that the Government table a comprehensive response to the report and notwithstanding the deadline of 120 days stipulated in Standing Order 109, the Committee request that the comprehensive response to this report be tabled within 60 days of the presentation of the report to the House.

It was agreed, — That the Chair, Clerk and researchers be authorized to make such grammatical and editorial changes as may be necessary without changing the substance of the report.

It was agreed, — That the Committee print 550 copies of its report in a bilingual format.

It was agreed, — That the Clerk of the Committee make the necessary arrangements for a press conference to be held after the tabling of the Committee's report to the House.

At 10:44 a.m., the Committee adjourned to the call of the Chair.

James M. Latimer
Clerk of the Committee