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# 2004 Fraser River Sockeye Escapement Crisis

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## Review of Possible and Probable Causes in Aid of a Judicial Inquiry

“... 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.”

*Canadian Technical Report of Fisheries and Aquatic Sciences, No. 2326, 2000*

“Yet while this and other alarming memos warning of enforcement problems were being circulated within the bureaucracy, the DFO presented an “all is well” face to the public. The man who epitomized this approach is Pat Chamut, the assistant deputy minister who until a few weeks ago was Ottawa’s chief overseer of the Pacific salmon fishery. Last month, when word broke that 1.3 million sockeye had disappeared, Mr. Chamut flew in from Ottawa to blame technological snafus by the Pacific Salmon Commission and the unexpected high river temperatures. He ruled out illegal fishing as a major factor. He also played down any suggestion that enforcement had been lax. Soon, memos were dribbling out to contradict him. ...”

*Globe and Mail, October 8/94, Saturday, (p. A1)*

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## Executive Summary

**"We wonder is anybody is listening.**

Dr. Pearse noted that 'the summer of 1992 was not so much a crisis in resources management as a crisis of policy' and that 'failure to achieve escapement targets . . . was not a disaster but the program of rebuilding sockeye stocks – especially the Early Stuart - . . . suffered a setback. **It cannot be repeated without seriously threatening salmon resources.**' But the problems have not gone away, and fishery managers were unable to account for even more sockeye in 1994." (emphasis in original)

*Fraser River Sockeye: Problems and Discrepancies, Fraser River Sockeye Public Review Board, 1995, Public Works and Government Services 1995, (p. 38)*

In July and August of 2004, approximately 2 million sockeye disappeared from the Fraser River between Mission and the upriver spawning grounds. Preliminary escapement reports indicate that fewer fish are on the spawning grounds in 2004 than after the 1914 rockslide at Hells Gate.

Despite normal environmental conditions during their in-river migration, Early Stuart sockeye were the first victim in the 2004 tragedy. Of the 187,000 Early Stuart sockeye that passed under the bridge spanning the Fraser at Mission only 9,244 arrived at the spawning grounds.

The 2004 disaster means that in 2008 (sockeye are on a four year cycle) the Fraser sockeye fishery will be closed in its entirety. Depending on returns, this disaster will cost the BC economy between \$170 and \$500 million in 2008 with hopefully declining losses in 2012 and 2016. This does not include the spiritual, recreational and symbolic value of Fraser sockeye which is a defining feature of British Columbia.

Though DFO blames warm water for the missing fish, intense aboriginal fisheries in the Fraser Canyon area continued virtually non-stop throughout key sockeye migration periods. Between July 1 and August 15 migrating salmon experienced only three net free days upriver of Mission. On all other days, as many as 560 nets blocked the free passage of salmon intensifying the stressful conditions encountered by the fish as water temperatures increased throughout the summer.

Commercial fishing in the Fraser Canyon is a lethal and wasteful form of fishing and is the reason why all commercial fishing above Mission was banned in 1900. It is a practice that would not be tolerated if it was utilized in the public commercial fishery. Set-net fishing in the Fraser Canyon must be subject to an immediate moratorium.

Following on the heels of the loss of a half million sockeye in 1992 and again in 1994 this year's disaster, the loss of approximately 2 million fish, destroys any remaining claim that DFO has as a credible manager of the Fraser River salmon fishery. Sadly, it equally marks the apparent futility of the efforts of thousands of Canadians and Americans whose working lives were spent rebuilding Fraser sockeye following the initiation of joint efforts by Canada and the United States in 1938.

This report reviews substantive facts related to the mismanagement of the 2004 Fraser sockeye fishery and compares DFO's excuse for the 2004 disaster with their identical discredited attempts to blame the 1992 and 1994 disasters on the weather. It also makes clear the need for an independent judicial inquiry into the management of the Fraser River salmon fishery, immediate regulatory changes in the aboriginal fishery and the need for an immediate moratorium on set-net fishing in the Fraser Canyon.

## Scope of the 2004 Crisis

### 1. 1.8 to 2.0 Million Sockeye are Missing

The Pacific Salmon Commission estimates that 2.6 million sockeye swam under the bridge over the Fraser River at Mission. Aboriginal fishermen reported catching 427,528 sockeye while surveys of recreational fishermen indicate a harvest of 52,200. DFO has, so far, refused to release Interim escapement estimates, but industry advisors report preliminary spawning ground estimates of 200,000 to 300,000 sockeye. This means that 1.9 million sockeye disappeared between Mission and the spawning grounds.

#### 2004 Fraser River Sockeye Missing Fish Calculation

|  |                  |
|--|------------------|
| <b>Total Run</b>                             | <b>4,383,100</b> |
| <i>Less Catches Below the Mission Bridge</i> |                  |
| <i>All-Canadian Commercial Catch</i>         | 1,058,600        |
| <i>U.S. Catch</i>                            | 190,900          |
| <i>Coastal Aboriginal Catch</i>              | 256,200          |
| <i>Fraser Aboriginal Below Mission</i>       | 199,104          |
| <i>Test Fisheries</i>                        | 73,700           |
| <b>Total Catches Below Mission</b>           | <b>1,778,504</b> |
| <b>Total Escapement to Mission</b>           | <b>2,604,596</b> |
| <i>Less Catches Above the Mission Bridge</i> |                  |
| <i>Aboriginal Catch Above Mission</i>        | 427,528          |
| <i>Recreational Catch Above Mission</i>      | 52,200           |
| <b>Estimated Spawning Escapement</b>         | <b>250,000</b>   |
| <b>Total Missing Fish</b>                    | <b>1,874,686</b> |

### 2. 2004 Sockeye Escapement the Lowest on Record

The magnitude of this year's disaster is placed in clear perspective when one considers that more sockeye found their way to the spawning grounds in 1913 after the infamous Hells Gate rockslide than did in 2004.

- Escapement to the Chilco River system (the main producer on the 2004 cycle) is only 25% of the lowest escapement since 1940;
- Early Stuart escapement in 2004 is the lowest since 1972 on this cycle and has set rebuilding back several cycles – only 9,244 spawners survived this year – just 5 percent of the spawners in 1988;
- The Stellako area has an estimated 90,000 spawners this year compared to well over 325,000 in three of the last four cycles;

- Returns to Scotch Creek are the lowest since 1988.

Unfortunately, it is unlikely that season end adjustments will substantially increase these numbers.

| <b>Total Escapement and Escapement on Selected Rivers<sup>1</sup><br/>2004 Cycle (1940 to 2004)</b> |                         |                     |                     |                     |                       |
|---|-------------------------|---------------------|---------------------|---------------------|-----------------------|
| <b>Year</b>   | <b>Total Escapement</b> | <b>Early Stuart</b> | <b>Chilko River</b> | <b>Scotch Creek</b> | <b>Stellako River</b> |
| 1940  | 552,541                 | 331                 | 341,760             | -                   | 3,276                 |
| 1944  | 315,961                 | 717                 | 194,276             | not observed        | 5,768                 |
| 1948  | 1,015,790               | 20,960              | 671,025             | 50                  | 16,213                |
| 1952  | 846,435                 | 33,582              | 490,065             | 338                 | 40,466                |
| 1956  | 872,742                 | 25,157              | 647,476             | 155                 | 38,459                |
| 1960  | 628,025                 | 14,572              | 426,607             | -                   | 38,884                |
| 1964  | 426,459                 | 2,421               | 238,601             | -                   | 21,047                |
| 1968  | 626,706                 | 1,587               | 414,446             | 126                 | 30,420                |
| 1972  | 830,128                 | 5,086               | 562,333             | 47                  | 36,771                |
| 1976  | 823,453                 | 12,648              | 346,311             | 41                  | 150,741               |
| 1980  | 848,525                 | 17,026              | 468,658             | 205                 | 72,073                |
| 1984  | 923,477                 | 45,247              | 452,968             | 428                 | 60,973                |
| 1988  | 1,418,299               | 179,807             | 249,989             | 1,060               | 367,702               |
| 1992  | 1,120,173               | 65,617              | 504,236             | 2,156               | 97,979                |
| 1996  | 2,091,306               | 87,569              | 974,349             | 4,609               | 333,163               |
| 2000  | 2,354,109               | 89,747              | 758,941             | 3,765               | 371,564               |
| 2004  | 200,000-300,00          | 9,244               | 50,000              | 1,000               | 90,000                |

### **3. Economic Losses Attributable to the 2004 Disaster**

In 2004, all the missing fish belonged on the spawning grounds, so the real costs to BC will occur in 2008, the next year on this cycle, when the Fraser fishery will be closed. To determine the loss to the economy we must estimate the probable catch in 2008 and assign a value to each fish.

In current market conditions each sockeye can be said to generate \$30 in earnings to the BC fishing industry.

The next question is: If the 1.9 million fish made it to the spawning grounds this year, how many fish could be expected to return in 2008?

This question could be calculated by using the common spawner to return ratio for Fraser River sockeye of 1-4. That is, for every fish that reaches the spawning grounds in Year One, four adults return in Year Four. The spawner to return ratio for Fraser sockeye ranges from more than 1-20 to less than 1-1. In 1992, for example, 1,120,173 sockeye made it to the spawning grounds and produced a total run in 1996 of 4,519,000 sockeye - an almost perfect 1-4 ratio.

- In 2008, using a conservative 1-2 spawner to return ratio, this year's 1.9 million missing sockeye would produce 3.8 million sockeye. Half that amount (1.9 million) would be set aside for the spawning grounds which leaves 1.9 million available for harvest. At \$30 per sockeye, this represents \$57 million in direct losses in 2008 as a result of the 2004 catastrophe;

<sup>1</sup> *Restoring, Fraser River Salmon*, John F. Roos, Pacific Salmon Commission (PSC), 1985; *Reports of the Fraser River Panel to the Pacific Salmon Commission on the . . . Salmon Fishing Season*, PSC, 1988, 1992, 1996, 2000; *News Release #9*, PSC, September 3, 2004

- Using a spawner to return ratio of 1-4, this year's missing 1.9 million sockeye would create 7.6 million sockeye in 2008. After setting aside 1.9 million sockeye for spawning purposes, there would still be 5.7 million sockeye available for harvest. At \$30 per sockeye, 5.7 million fish means \$171 million in direct earnings for the BC fishing industry – earnings that will not be realized in 2008 because of the missing fish in 2004;
- If spin-off economic benefits are included at a 3-1 ratio, the loss to BC in 2008 at 1-2 and 1-4 spawner to return ratio will be \$171 to \$513 million respectively, even after reserving 1.9 million sockeye for spawning purposes. This equals the payroll of 5 to 15 BC pulp mills.

This calculation does not consider additional economic losses resulting from lost fishing opportunities in the recreational fishery in 2004 and 2008.

## 4. Two Rivers: A Telling Comparison

The table on the next page further demonstrates the extent of the tragically low returns this year. Clearly, there will be no harvestable returns in 2008. There will be no native food/sale fishery, no recreational fishery and no public commercial fishery.

The Government of Canada has a constitutional obligation to BC to protect and encourage the fishery, not to destroy it. In 2008, the BC economy will lose hundreds of millions in economic activity because of DFO's negligence in 2004. Thousands of British Columbians who gave up fishing opportunities in the past to rebuild for the future, along with thousands of scientists, engineers, volunteers and others who spent decades rebuilding these runs, have witnessed the squandering of what for many was their life's work.

Canada will assume and defray the charges . . . for the Protection and Encouragement of Fisheries;

*British Columbia Terms of Union, May 16, 1871, Term 5(e)*

| <b>Daily Counts<sup>2</sup> of Sockeye Entering the Chilko<sup>3</sup> and Stellako Spawning Grounds (2004 Cycle)</b> |              |       |                |        |
|---|--------------|-------|----------------|--------|
| Date  | Chilko River |       | Stellako River |        |
|   | 2000         | 2004  | 2000           | 2004   |
| Aug 12  | 571          | 0     | 0              | 0      |
| Aug 13  | 672          | 0     | 0              | 0      |
| Aug 14  | 313          | 0     | 0              | 0      |
| Aug 15  | 1,277        | 0     | 0              | 0      |
| Aug 16  | 1,154        | 2     | 0              | 0      |
| Aug 17  | 1,274        | 13    | 0              | 0      |
| Aug 18  | 1,862        | 233   | 0              | 0      |
| Aug 19  | 2,835        | 217   | 0              | 0      |
| Aug 20  | 3,772        | 151   | 0              | 0      |
| Aug 21  | 4,492        | 155   | 0              | 0      |
| Aug 22  | 2,445        | 448   | 0              | 0      |
| Aug 23  | 5,238        | 223   | 0              | 885    |
| Aug 24  | 7,764        | 86    | 1,708          | 2,918  |
| Aug 25  | 10,109       | 35    | 4,287          | 3,803  |
| Aug 26  | 9,896        | 87    | 5,489          | 3,428  |
| Aug 27  | 12,052       | 634   | 16,174         | 1,660  |
| Aug 28  | 15,464       | 319   | 12,149         | 734    |
| Aug 29  | 13,323       | 47    | 20,408         | 1,797  |
| Aug 30  | 10,606       | 67    | 3,327          | 1,118  |
| Aug 31  | 10,242       | 81    | 11,969         | 464    |
| Sept 1  | 9,748        | 16    | 23,425         | 48     |
| Sept 2  | 7,223        | 28    | 25,332         | 1,170  |
| Sept 3  | 4,343        | 125   | 19,100         | 141    |
| Sept 4  | 3,278        | 173   | 22,889         | 621    |
| Sept 5  | 2,824        | 347   | 36,666         | 813    |
| Sept 6  | 1,588        | 803   | 11,850         | 1,744  |
| Sept 7  | 580          | 182   | 18,653         | 464    |
| Sept 8  | 640          | 96    | 11,391         | 1,113  |
| Sept 9  | 349          | 42    | 5,446          | 584    |
| Sept 10   | 251          | 19    | 14,328         | 295    |
| Sept 11   | 78           | 20    | 7,832          | 287    |
| Sept 12   | 171          | 8     | 10,048         | 51     |
| Sept 13   | 230          | 5     | 7,481          | 1,094  |
| Sept 14   | 401          | 3     | 6,057          | 2,009  |
| Sept 15   | 178          | 35    | 2,699          | 3,620  |
| Sept 16   | 92           | 245   | 2,508          | 5,754  |
| Sept 17   | 79           | 904   | 5,708          | 3,473  |
| Sept 18   | 102          | 154   | 2,836          | 3,296  |
| Sept 19   | 72           | 97    | 1,397          | 3,297  |
| Sept 20   | 38           | 39    | 1,616          | 3,663  |
| Sept 21   | 68           | 23    | 2,705          | 3,510  |
| Sept 22   | 48           | 25    | 2,927          | 3,588  |
| Sept 23   | 32           | 22    | 2,129          | 2,549  |
| Sept 24   | 40           | 39    | 1,801          | 3,245  |
| Sept 25   | 36           | 28    | 1,866          | 719    |
| Sept 26   | 23           | 14    | 1,255          | 3,132  |
| Sept 27   | 26           | 83    | 453            | 2,264  |
| Sept 28   | 30           | 45    | 770            | 3,493  |
| Total in Period   | 150,198      | 8,422 | 328,679        | 74,848 |

*“We draw this to your attention now because the Chilko-Chilcotin River salmon spawning runs are entering the salt water approach routes to the Lower Fraser River where they are vulnerable to over-fishing by native commercial fishermen...”*

Letter to Minister of Fisheries, Tsilhqot'in National Government, Williams Lake, BC, July 21/04

<sup>2</sup>This data on this table is courtesy of DFO Escapement Updates from the Fraser River website. Chilko counts shown in this table do not represent the total number of fish passing under Henry's Bridge each day – these daily counts taken for short periods 14 times per day form the basis for calculating the total escapement.

<sup>3</sup>DFO is expected to blame the Chilko disaster on a landslide that blocked the river for 10 hours on August 29/04. As noted in the table above, there were extremely serious escapement shortfalls on the Chilko run well before August 29/04.

**1. The Government Position**

The Government of Canada offers three possible explanations for the 2004 spawning tragedy:

1. Warm water in the Fraser River killed the sockeye by acute thermal shock or heat-induced disease;
2. Miscounting at the Mission sonar station over-estimated the number of sockeye passing up the Fraser River;
3. Over-fishing by the public commercial fishery;

This analysis reviews each of these possible explanations below.

**2. A Probable Cause of the 2004 Disaster**

When the 1992 and 1994 disasters were examined during the Pearse/Larkin and John Fraser investigations they rejected the government's warm water "Communications Plan" discussed below. Both investigations reported that unreported harvests and fishing-induced mortality caused by the excessive number of aboriginal set-nets in the fishery upriver from Mission was the primary cause of both disasters.

This year, in spite of the findings of the 1992 and 1994 investigations, the Government of Canada maintains that warm water and some technological glitch is responsible for this latest disaster.

Reviewing the events of 1992 and 1994 and the specific circumstances in 2004, makes it is easy to dismiss the Government of Canada's rhetoric and conclude that the probable cause of the disaster is the same as in 1992 and 1994: unreported aboriginal harvests and fishing-induced mortality.

**1. 1992: Investigators Reject Warm Water as the Primary Cause**

The Government of Canada contends that unusually high water temperatures in the Fraser River this summer killed the sockeye by acute thermal shock or heat-induced disease. This response is consistent with the “most likely” explanation offered by the government for the disappearance of fish in 1992 and 1994.

In contrast to the government position, the Pearse/Larkin<sup>4</sup> review of the 1992 disaster and the John Fraser<sup>5</sup> review of the 1994 tragedy rejected DFO’s claim that warm water was the principal reason why millions of Fraser sockeye never reached the spawning grounds.

Dr. Peter Larkin, in his *Analysis of Possible Causes of the Shortfall in Sockeye Spawners in the Fraser River*, estimated that warm water temperatures in the Fraser may have caused a 5 to 8 per cent in-river mortality<sup>6</sup>. He rejected outright DFO’s claim that warm water was the principal reason why 702,000<sup>7</sup> sockeye disappeared between Mission and the spawning grounds in 1992.

Instead of warm water, Pearse/Larkin laid the blame squarely on DFO and its failure to protect the fish from a large-scale poaching effort:

“On the upper main stem of the river, especially in the canyon, fishing was extraordinarily intense. Not only were there more fishermen and nets, but fishing which had traditionally been limited to four days per week in previous years was almost continuous, unregulated and uncontrolled in 1992”<sup>8</sup>

Larkin noted that the most significant source of stress was the gauntlet of nets in the river.<sup>9</sup>

**2. 1994: Investigators Again Reject Warm Water as Primary Cause**

In 1994, John Fraser, former Minister of Fisheries and speaker of the House of Commons headed a group appointed by Brian Tobin, the-then Minister to review the 1994 disaster. As in 1992, Fraser’s group laid the blame squarely on DFO for its failure to protect the in-river fish from a partially sanctioned but out of control aboriginal fishery and a massive unauthorized fishery upriver of Mission. The report stated:

“Knowledge of the causes and magnitude of en-route mortality is important to proper

<sup>4</sup> Managing Salmon in the Fraser: Report to the Minister of Fisheries and Oceans on the Fraser River Salmon Investigation, Peter Larkin and Peter Pearse, 1992

<sup>5</sup> *Fraser River Sockeye: Problems and Discrepancies*, Fraser River Sockeye Public Review Board, 1995, Public Works and Government Services 1995

<sup>6</sup> Larkin at p. 24 states: “Mortality from the effects of temperature and flow are likely to have been more than the ‘normal’ of five per cent and perhaps as high as eight per cent.”

<sup>7</sup> *Report of the Fraser River Panel to the Pacific Salmon Commission on the 1992 Fraser River Sockeye Salmon Season*, Pacific Salmon Commission, May 1996, (p. 10)

<sup>8</sup> *ibid.* p. 25

management. Unfortunately, there is insufficient evidence to make reliable estimates of the numbers of fish that died in the Fraser River in 1994, or any other year. 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% [actually 5-8%]. 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." (p. 24) (emphasis added)

DFO's claim that warm water in 2004 is the primary cause of 1.9 million missing fish has little credibility.

### **3. 1994: Warm Water & DFO's Media Strategy**

In 1994, after a million sockeye failed to show up on the spawning grounds, DFO developed a *Communications Plan* which the office of John Cummins MP later obtained through the *Access to Information Act*. The *Communications Plan* was part of DFO's *Fraser River Media Package* of September 14, 1994. It had two central "messages":

- i. "The disparity between predicted spawning levels and spawning counts now underway appears to be caused by technical problems in counting systems and exacerbated by the peculiar climate conditions in the river this year."
- ii. "Under-reporting of native catch in the river is being discounted as a cause since fisheries in the last two years have been extremely well conducted and controlled . . . ."

According to the *Communications Plan* the media briefing would be aimed at convincing the media that the problem was a technical one made worse by unusually high water temperatures:

"The *approach* will be to lay out the four potential reasons for the discrepancy in the counts reaching the conclusion ... that what we have here is a technical problem, most probably exacerbated by unusual climatic conditions."

The script for the media briefing stated:

"At the end of the sockeye season, a very unusual condition of both high water temperatures and high water flows took place on the Fraser ...

... The result was a poor combination of high flows and high water temperatures that adversely affected fish migration. ... It is possible for in-river mortality to have occurred given these extreme passage conditions..."

In line with the *Communication Plan*, on September 15/94 the Minister claimed that it was high water temperatures rather than a free-for-all in the in-river aboriginal fishery:

"In addition to uncertainties about the accuracy of counting methods, high water temperatures coupled with high flows ... also may be implicated in higher than normal pre-spawning mortality and a reduction of spawners.

This season's stringent catch monitoring and reporting measures indicate that the in-river [aboriginal] sockeye harvest is not the source of discrepancies in sockeye counts."

Mr. Pat Chamut, the Assistant Deputy of Minister of Operations (ADM), briefed the media on the

15<sup>th</sup> of September and acted as DFO's spokesman in 1994 (in 1992, he was the senior DFO official responsible for managing the BC fishery, but was subsequently promoted to ADM shortly after the 1992 disaster. He recently returned to BC to end his career as a special advisor to the senior official in DFO). On *CBC TV* news he stated that the aboriginal fishery was not the problem:

"I will say with absolute confidence that the level of poaching or any unauthorized fishing was kept to an absolute minimum."

#### **4. The Media Response to DFO's 1994 Media Strategy**

The *CBC* news that day said it was warm water:

"The Department of Fisheries ... says this was a very tough year to be a spawning salmon. Such salmon don't like warm water and high river flows, and they got both this year."

*CTV* news on the 15<sup>th</sup> also picked up the warm water message as the department had intended:

"Officials say warm weather may have killed the fish or they may not have been accurately counted in the first place."

The following day, the print media began repeating DFO's "talking points."

On September 16<sup>th</sup> the *Toronto Star* stated:

Chamut offered two "most likely" factors for the latest shortfall: More fish died because of warmer river water or there were errors in statistically estimating the number of fish moving past sonar counters at Mission.

The *Vancouver Sun* coverage also reported DFO's scripted messages:

"But Chamut said this time around there is no indication the aboriginal fishery had any significant role in the disappearance of the fish.

But Chamut said the most likely answer is that most of the fish died in the river due to natural stresses, such as high water temperatures, or that the echo-sounder overestimated the run size."

On September 29<sup>th</sup> the *Globe & Mail* asked DFO for temperature information, "apparently planning a major salmon story." DFO manipulated the information to misinform the *Globe* by a selective release of information:

"Ten year average temperature information from the Pacific Salmon Commission tend to be a degree lower than DFO's. Plan to tell *Globe & Mail* that temperatures this year are approximately 2 to 3 degrees higher than usual."

#### **5. DFO's Media Plan Sunk by Leaked DFO Documents**

DFO's plan to blame warm water for the 1994 sockeye disaster would probably have succeeded if not for a principled DFO employee. Concerned about the department's failure to confront its management failures and the long term health of the fishery he provided John Cummins MP with internal documents that showed the true state of affairs in the department and on the river.

These documents became the basis of a front page story in the *Globe and Mail* less than a week after ADM Pat Chamut's September 15<sup>th</sup> assurances to the media "that the level of poaching or any unauthorized fishing was kept to an absolute minimum."

"The ability to properly manage the Fraser River Aboriginal Fishery has been seriously compromised ...

In fact, the Steveston Field Unit has only been able to provide partial coverage for 6 out of the 13 weekend days and statutory holidays in 1994. . .

The monitors at the landing sites are unable to properly count the fish [as a result this] creates inaccurate catch data.

The lateness in the signing of the 1994 Aboriginal Fishing Agreement has resulted in the breakdown of effective management of the native fishery on the Fraser River. . .

. . . in fact there was no catch monitoring or enforcement done on this fishery by DFO officers.

It is impossible to effectively control this fishery if resources can only provide regular daytime coverage, with some sporadic night patrols, of a fishery that works around the clock."

*Tobin brushed aside calls from within the industry for a judicial inquiry with tough powers to dig for evidence. But leaks of confidential DFO memos have already highlighted the management woes within the department.*  
*Globe and Mail,*  
Oct 8/94, (p. A1)

This initial release was followed by deluge of internal DFO documents. An August 22<sup>nd</sup> memorandum to the Chief of the Conservation and Protection Branch, entitled *Fraser River Aboriginal Fishery Catch Estimation*, left no doubt that the aboriginal catch numbers could not be relied upon to manage the fishery and were a likely explanation for the missing spawners. It notes that DFO overflights are "not counting" much of the aboriginal catch, so it is "not being factored into catch estimations." It warned that if the problems it identified were "extrapolated over the summer, fishing effort during the closed time could represent a significant unreported catch."

"Without sufficient resources, reliable estimates of catch and compliance with regulations will remain unknown.

The conclusions drawn above are not new or surprising, many of which were identified in conjunction with the Pearse and Larkin report in 1992. Reliable statistics are obtainable with proper resourcing directly by DFO . . ."

A September 2<sup>nd</sup> memo to the Acting Director Operations for Pacific Region from the Area Chief of Fisheries Management for the Fraser River Division continued to raise doubts about the management of the aboriginal fishery and the catch numbers it was generating to manage the fishery:

"Therefore, the lower river catch estimate is considered to be conservative and an underestimate.

In summary, Early Stuart catches for the upper-river are not collected in a consistent fashion due to conditions of Agreements or lack there of, and the catch estimate is considered to be an underestimate."

In 2004, Canadians should not be forced to rely upon principled DFO officials to make public internal documents in an effort to save the fishery. In 2004, there must be a judicial inquiry with unrestricted access to departmental officials and documentation.

## 6. Is 21 Centigrade “Lethal” to Sockeye?

DFO’s premise that warm water killed the sockeye in 2004 rests upon their oft-repeated claim that 21 centigrade is “lethal” to sockeye, yet a study *not* provided to the media by DFO contradicts that claim. The publication *Resistance of Adult Sockeye Salmon to Acute Thermal Shock*<sup>10</sup> describes tests in which sockeye captured in the Fraser River (capture is a high stressor for sockeye) were placed in holding tanks and subjected to carefully increased temperatures over varying periods of times. The study concluded that “The upper lethal temperature due to acute thermal shock was about 24C for adult sockeye,”<sup>11</sup> not the 21C cited by DFO.

The authors of the study discontinued the test at 21C because sockeye placed in tanks with 21C river water were still alive after 15 days.<sup>12</sup> At 22C, the sockeye in the tank lived between 4.8 and 9 days; hardly instant death.

Swimming in a current and fighting hundreds of nets puts far greater stress on sockeye than swimming in an unfamiliar and stressful environment such as a tank. This study indicates, however, that 21C is not automatically lethal to sockeye in the absence of additional stressors.

## 7. 2004 Early Stuart Sockeye Not Subjected to High Temperatures

In 2004, 187,000 Early Stuart sockeye passed the Mission Bridge,<sup>13</sup> but only 9,244 reached the spawning grounds<sup>14</sup>. Aboriginal fishermen along the Fraser reported harvests of about 75,000 sockeye<sup>15</sup> which means that 102,000 Early Stuarts passed Mission, but never made it to the spawning grounds. Government claims that warm water killed the 102,000, yet the peak of the run migrated through the Lower Fraser when temperatures were only “slightly above normal.”

Early Stuarts were first observed on the spawning grounds on July 21st, 28 days after they began migrating through the Lower Fraser. Working backwards 28 days from their peak spawning period of August 5-9, places the highest proportion of the run in the Lower Fraser between July 10-17 when temperatures ranged from 16.5C to 18.6C. During the entire Early Stuart migration through the Lower Fraser, the temperature never exceeded 20C (see graph below).

In an unintended challenge to the DFO excuse, the Pacific Salmon Commission reported at the beginning of the peak migration period for Early Stuart sockeye that, “The Fraser River water temperature at Hells Gate on July 11 was about 16.2C, which is *slightly above normal* for this date.”<sup>16</sup> (emphasis added)

“Slightly above normal” is *not* “lethal.”

Aiding Early Stuart migration in 2004 was low water velocities which were more than 30% below average. In the absence of physical obstructions exposed by low water, such as rockslides that are passable in deeper water, low water velocity can be an aid to migration. There were no reports of physical obstructions in the Fraser River this year other than a wall of aboriginal set nets.

<sup>10</sup> *Resistance of Adult Sockeye Salmon to Acute Thermal Shock*, J. Servizi & J. Jensen, International Pacific Salmon Fisheries Commission, Progress Report No. 34, 1977

<sup>11</sup> *ibid*, p. 10

<sup>12</sup> *ibid*, p. 5

<sup>13</sup> *News Release #9*, Pacific Salmon Commission, September 3, 2004 (p. 4)

<sup>14</sup> *2004 Early Stuart Sockeye Salmon: Preliminary Escapement Estimates*, DFO, October 2004

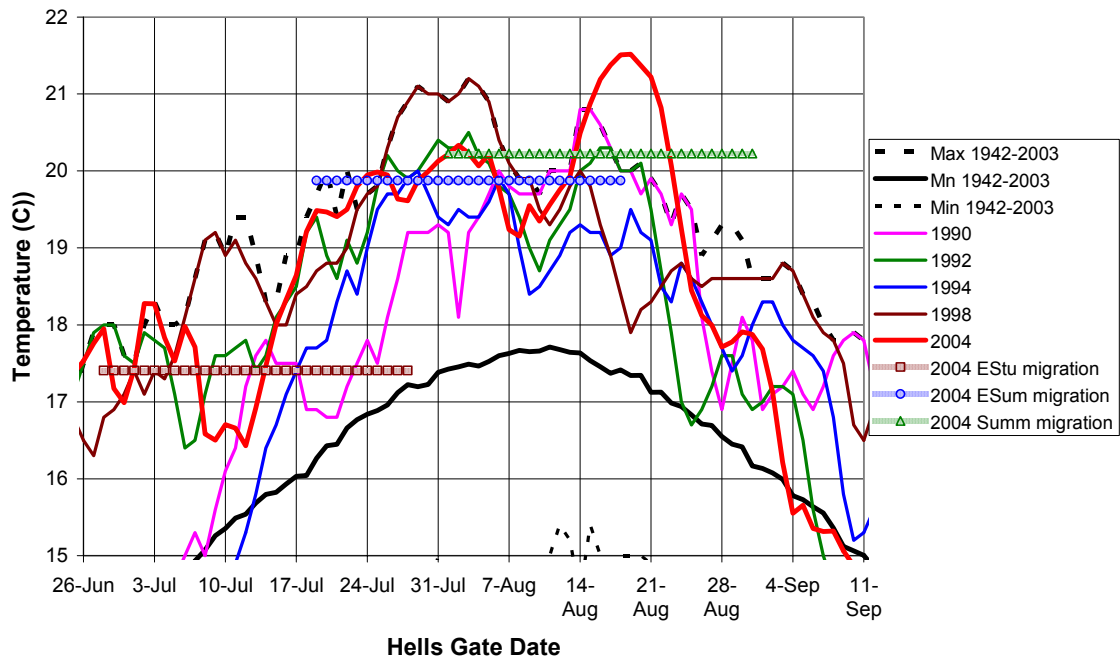
<sup>15</sup> *Lower Fraser River First Nation Salmon Fisheries Report for Week Ending Aug 22/04*, DFO, August 27, 2004; *Mid and Upper Fraser River First Nations Salmon Harvest for Week Ending Sept. 26, 2004*, DFO, Sept 28/04

<sup>16</sup> July 13/04 *News Release* of the Pacific Salmon Commission’s Fraser Panel

DFO's allegation that warm water decimated the Early Stuart run is clearly a fabrication. Nevertheless, the department has adopted the same "Communications Plan" that it used to mislead the media in 1992 and 1994, *i.e.* the problem is environmental.

| Migration Conditions in the Lower Fraser<br>July 2004 |   |                                     |
|---|---|-------------------------------------|
| Date  | Temperature<br>(Qualark Creek/Hells Gate) | Water Velocity<br>(% below average) |
| June 30   | 17.3                                      | -20%                                |
| July 8  | 16.9                                      | -28%                                |
| July 11   | 16.2                                      | -30%                                |
| July 16   | 18.2                                      | -37%                                |
| July 19   | 19.4                                      | -35%                                |
| July 23   | 19.8                                      | -29%                                |
| July 27   | 19.7                                      | -27%                                |
| July 30   | 19.9                                      | -30%                                |

**Historical Means & Select Observed Qualark Temperatures,  
& 2004 Migration Timing**



## 8. Lessons Learned from DFO's Discredited "Communications Plan"

DFO's discredited attempts to blame warm water for the 92/94 disasters makes their identical claim in 2004 highly suspect. Given the facts about temperature impacts on sockeye, the conclusion of the 92/94 inquiries and this year's missing Early Stuart sockeye despite reasonable water conditions, are ample reasons to dismiss the government's claim that warm water is the sole or primary cause for 1.9 million missing sockeye in 2004. In these circumstances, one must look beyond warm water as a primary cause.

# Chapter IV

## Government Explanation No. 2: Miscounting at Mission

### 1. Alleged Miscounting at the Mission Sonar Station

The principal method of gathering data to make escapement estimates of Fraser sockeye is a sonar-equipped vessel that transverses the Fraser River just upstream from the bridge crossing the Fraser at Mission. The sonar records fish passing under the vessel which is then used to calculate the total numbers of fish passing under the bridge.

Next to warm water, blaming the Mission sonar station for the shortfalls of Fraser sockeye on the spawning grounds was DFO's most popular excuse for the 1992 and 1994 spawning shortfalls. In essence, DFO's argument was that the missing fish were never there, the sonar station simply over-estimated the number of fish migrating upstream from Mission:

"The disparity between predicted spawning levels and spawning counts now underway appears to be caused by technical problems in counting systems and exacerbated by the peculiar climate conditions in the river this year."

The sonar vessel is operated by the Pacific Salmon Commission (PSC). In the no-fault world of DFO, the department couldn't be held responsible for the PSC's miscalculation.

### 2. The 1992 Investigation Endorses the Mission Sonar Station

In 1992, John Crosbie, the-then Minister of Fisheries, pointed to the sonar counter as a primary reason for the shortfall of some 500,000 to 800,000 sockeye on the spawning grounds. According to Crosbie, the sonar counter may have been wrong, so the sockeye didn't go missing between Mission and the spawning grounds; the sockeye never made it to Mission.

In contrast to Crosbie's attempt to blame the Pacific Salmon Commission, the Pearse Larkin investigation 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 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)

### **3. The 1994 Investigation Re-Endorses the Mission Sonar Station**

The group headed by John Fraser to investigate the 1994 disaster did a thorough scrutiny of the sonar station 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)

### **4. Conclusions about the Mission Sonar Station**

Only since the 1992 introduction of large-scale aggressive native commercial fisheries above Mission has the sonar station become an issue of debate. In 1992 and 1994, teams of scientists thoroughly scrutinized the Mission station and in both cases they concluded that although the system has potential sources of bias, the bias would not lead to serious errors and that the station provided a reliable source of data for more than 15 years. There is no reason to suspect that the Mission counter failed to provide accurate counts of fish in 2004 any more than it did in 1992 or 1994.

## Chapter V

# Government Explanation No. 3: Over-fishing in the Ocean

Investigating the ocean fishery and the fishery down-river from Mission to determine the fate of sockeye that disappeared between Mission and the spawning grounds is ludicrous. The missing sockeye did not go missing until they were counted at Mission. If the fish did not make it to Mission, they were never counted, so they could not “disappear.”

For the uninitiated, the millions of sockeye that swim from the middle of the Pacific Ocean to Mission on their journey to the spawning grounds did not suddenly turn around after passing Mission and swim back to the Pacific Ocean to be harvested by the public commercial fishing fleet. If the seine, troll and gillnet fleet from the public commercial fishery could miraculously transport itself to the Fraser Canyon and steal 2 million sockeye without anyone knowing, an argument could be made that the public commercial fleet is responsible. Although such technology is a common sight on Star Trek, we know of no earthlings who possess these powers in 2004. It is also probable that somebody somewhere would have noticed if a fleet of 65' seine boats suddenly appeared in the Fraser Canyon.

Nevertheless, proponents of race-based commercial fisheries were quick to blame the public commercial fishery for the missing fish in 1992 and 1994. Even this year, a DFO official in Kamloops suggested that over-fishing by the public commercial fleet is responsible for shortfalls in spawners on the Upper Adams River.

Despite the bizarre nature of these claims, it is important to dismiss any suggestion that the public commercial fleet over-fished Fraser sockeye in 2004. To this end, it would be helpful to examine “Gross Escapement” at Mission<sup>17</sup>; compare the fishing effort of the fleet in 2004 to the effort on a previous cycle year of similar size and compare the percentage of the run harvested by the commercial fleet in 2004 to previous years.

## 1. Test No. 1: Gross Escapement at Mission in 2004

Though the public commercial fleet can never be responsible for fish that disappeared between Mission and the spawning grounds, they would be guilty of over-fishing if insufficient numbers of fish made it to Mission.

Until the 1992 introduction of race-based commercial fisheries, there had not been a legal commercial fishery up-river from Mission since 1900 (moving the up-river boundary down to Mission was one of the earliest conservation measures in the BC fishery). In the days before commercial gain was the driving factor in the aboriginal fishery, minimal requirements to satisfy legitimate food needs of above-Mission aboriginal groups meant that the vast majority of the fish would not be hindered by human intervention once past Mission. In other words, if the fish made it to Mission they were relatively safe from harvest during the remainder of their journey to the spawning grounds.

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<sup>17</sup>Gross Escapement is the total escapement at Mission less in-river aboriginal catches and recreational catches above Mission.

The question is: In 2004, did the public commercial fleet deliver enough fish to Mission to satisfy legitimate up-river aboriginal food fisheries, race-based commercial fishery allocations, recreational harvests and spawning ground escapements?

In 2004, the fleets operating below the Mission Bridge left more than 2.6 million sockeye to migrate to the spawning grounds. The table below shows how escapement to Mission compares to previous years on this cycle.

| <b>Gross Escapement at Mission<sup>18</sup></b> |           |
|---|-----------|
| 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  | 2,604,000 |

In 1988, the cycle year prior to race-based commercial fisheries, 1.8 million in gross escapement at Mission resulted in 1.4 million sockeye on the spawning grounds and a run four years later of 6.5 million sockeye (a 1 to 4.6 spawner to return ratio).<sup>19</sup>

In 2004, in staggering contrast, 2.6 million in gross escapement resulted in only 200,000 to 300,000 sockeye on the spawning grounds and the expected closure of the Fraser River in 2008.

## **2. Test No. 2: Fishing Effort in 2004**

A second way to determine whether the public commercial fleet over-fished in 2004 is to compare its fishing effort with a year of similar run size prior to the introduction of race-based commercial fisheries.

The graphs below compare fishing effort in net days<sup>20</sup> on Fraser sockeye in the public commercial fishery in 1988 with fishing effort in 2004 during the peak months of July and August.

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, a decrease in effort 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, a decrease in effort of 92%;
- In the seine fleet, during July and August 1988, seiners<sup>21</sup> 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%.

<sup>18</sup> 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)

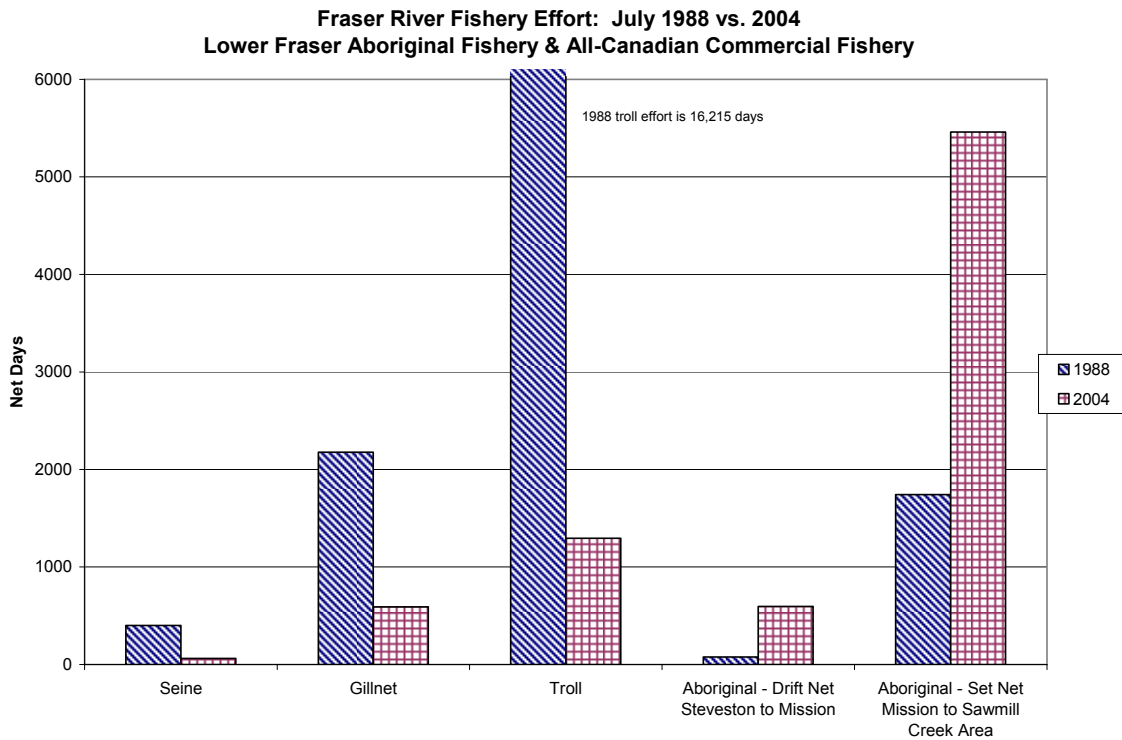
<sup>19</sup> Report of the Fraser River Panel to the Pacific Salmon Commission on the 1988 Fraser River Sockeye Salmon Fishing Season, Pacific Salmon Commission, 1989, (p. 15)

<sup>20</sup> One "net day" equals one net fishing for 24 hours; in the case of trollers which fish with hooks, effort is measured in boat days which means one boat fishing for 24 hours.

In striking contrast to the dramatic cuts in fishing effort in the public commercial fishery, the effort in the Fraser River aboriginal fishery *increased* dramatically:

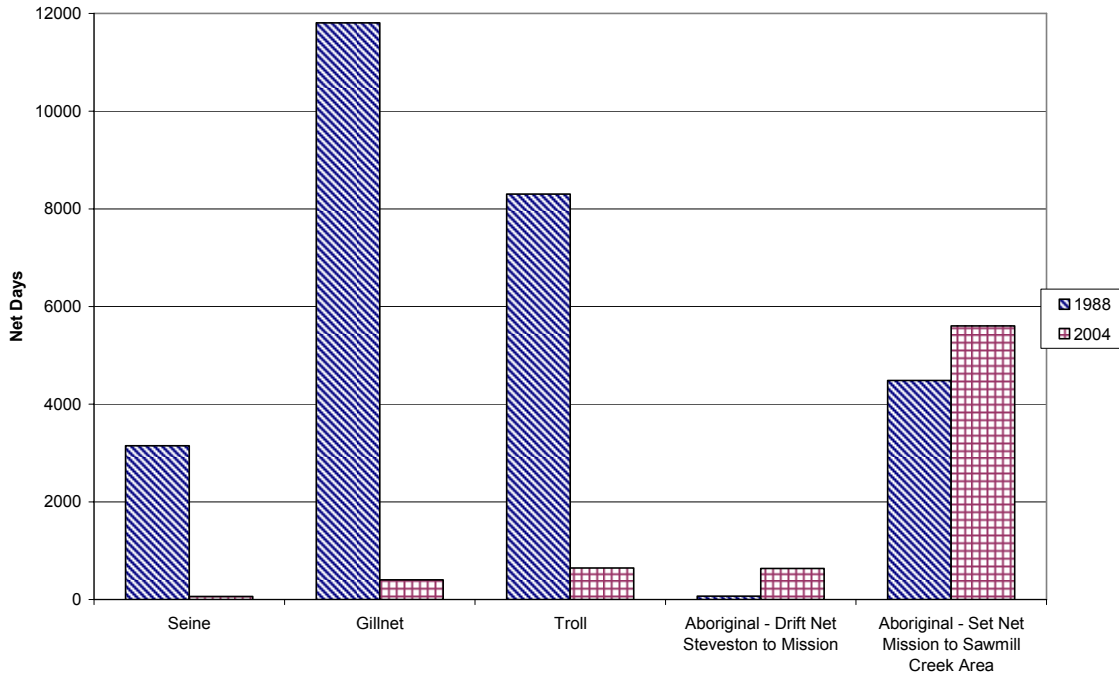
- In July and August 1988, aboriginal fishermen below the Mission Bridge using drift gillnets fished for 147 net days, but in the same two months in 2004, they fished 1,230 net days; an 840 percent increase in effort in 2004 over 1988;
- In July and August 1988, above the Mission Bridge in the set net fishery, the aboriginal effort was 6,229 days. This effort increased by 78 percent to 11,064 net days in 2004.

In summary, a 92% decline in effort in the public commercial fishery was offset by stunning increases in legal and illegal fishing in the aboriginal in-river fishery. It cannot be said that the public commercial fleet over-fished the 2004 sockeye run<sup>22</sup>.



<sup>22</sup> This reduction in fishing days does not consider reductions in the efficiency of the public commercial fleet. The seine fleet, for example, is required to brail all harvest onto the vessel using a type of dip net which further reduced fishing efficiency by at least 50 percent.

**Fraser River Fishery Effort: August 1988 vs. 2004**  
**Lower Fraser Aboriginal Fishery & All-Canadian Commercial Fishery**



**3. Test No. 3: Harvest Rate in 2004**

A third way to determine whether over-fishing occurred in the public commercial fishery is to examine the percentage of the total run caught by the public commercial fleet in 2004. The table below provides a conclusive analysis:

| <b>Fraser River Sockeye All-Canadian Commercial Harvests (2004 cycle)</b> |           |  |   |
|---|-----------|--|---|
| 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%   |

Rather than limiting the in-river aboriginal fishery, which was found to be at fault for the 1992 and 1994 disasters, DFO decimated the public commercial fishery. 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.

#### **4. Conclusion about Effort in the Public Commercial Fishery**

The facts cannot support any claim of over-harvesting in the public commercial fishery below the Mission Bridge. Not only did the fleet endure dramatic reductions in fishing time and drastic reductions in the harvest percentage, but it delivered reasonable levels of sockeye to the Mission Bridge above which there has not been a public commercial fishery since 1900. The public commercial fleet was twice as large in 1988 and fished far harder during the entire the Fraser sockeye rebuilding effort begun in the mid-sixties. Nevertheless, almost without exception, each year saw more sockeye put on the spawning grounds than in the previous cycle. In 1988, for example, more sockeye made it to the spawning grounds than in any previous year on this cycle, even prior to the 1913 Hells Gate slide.<sup>23</sup>

1985

With great catch increases [in the Indian fishery], difficulties were encountered. This was particularly so on highly desirable races that are the first to migrate upriver, such as the early Stuart race. For example, in 1981 the Fraser River Indian fishery catch of the early Stuart race was 32 percent of the total catch of all summer-run races, whereas the early Stuart fish comprised only 16 percent of the total escapement of those races.

In spite of the fact that the early Stuart gross escapement passing Mission, B.C. in 1981 was estimated by echo sounding to be 335,000 fish, only 125,000 arrived at the spawning grounds.

Because of the great increase in fishing effort by various Indian bands in recent years, timely and accurate catch data from each major fishing area was very important but adequate information was not always available. Management actions to protect certain races in commercial fisheries below Mission were, in some instances, nullified by the exploitation of these races in upriver Indian fisheries.

*Restoring Fraser River Salmon; A History of the Pacific Salmon Commission 1937-1985,*  
John F. Roos, Pacific Salmon Commission, 1985

## **1. Why the Aboriginal Fishery is a Probable Key Factor**

The circumstances in 2004 mirror those of 1992 and 1994 when investigations concluded that in-river aboriginal fisheries were the primary cause of the “missing fish” tragedies. Unreported aboriginal fishing and fishing-induced mortality is, yet again, a key factor in the 2004 crisis. This conclusion is based upon the following:

1. The highly aggressive aboriginal fishery up-river from Mission;
2. Previous successful efforts of aboriginal fishermen to move vast quantities of fish without reporting the harvest to DFO;
3. The extreme blockage effect of the set-net fishery in the Fraser Canyon.

## **2. Reason No. 1: Increase in Aboriginal Fishing Effort**

The two graphs below highlight the deadly increase in effort in the in-river aboriginal fishery by comparing the 1988<sup>24</sup> and 2004 fisheries. In the July 1988 aboriginal fishery between Mission and

<sup>24</sup> In 1992, race-based commercial fisheries were forced upon BC, so 1988 is the last year in which fishing activity on the Lower Fraser was driven by legitimate food needs and illegal sales, rather than a legal full-scale commercial fishery.

North Bend, the set-net effort totaled 1,744 set-net days. In 2004, effort increased to 5,461 net days; more than a 300 percent increase in effort.

*“Post-Sparrow/AFS, some First Nation Bands on the lower Fraser River have undergone a dramatic transformation. For example, 1993, between the Port Mann Bridge and Mission City, the Kwantlen and Katzie bands fished approximately 12 to 14 set nets. With this type of subsistence fishery, catches of sockeye salmon were typically under 10,000 fish per year. In 2000 there were up to 100 commercial gill net vessels in the area fished by the Kwantlen and Katzie bands during peak sockeye fishing periods. This commercial-style fleet has proven capable of catching upwards of 200,000 sockeye in a year.”*

*Unsanctioned, Partially Monitored First Nation Fisheries on the Lower Fraser: A Conservation Risk, prepared for DFO by ESSA Technologies Ltd., 2000*

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 North Bend.<sup>25</sup> In 1988, the Early Stuart run was 195,000 sockeye - statistically identical in size to the 2004 run of 191,000 fish.

Nevertheless, despite a far less aggressive aboriginal fishery in 1988, with the exception of one day, DFO closed the fishery from July 6<sup>th</sup> to July 29 to protect the Early Stuart 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.

In 2004, DFO did almost the exact opposite; they opened an aboriginal fishery above Mission every day throughout July. In previous years, aboriginal fishermen in this area protested closures and threatened to fish with or without DFO permission. In 2004, instead of defending conservation requirements, DFO chose to avoid a protest by leaving the fishery open through the entire migration period.

The number of nets fishing during a legal aboriginal opening is only one factor in the increased fishing effort in 2004 over 1998. Illegal or unreported fishing, both of which are known to be substantial, was continuous in 2004. As well, more efficient fishing gear and practices put greater pressure on the resource. New activities, such as the aboriginal gillnet fishery on the Shuswap Lake using a commercial fishing vessel and gear are an additional confounding factor.

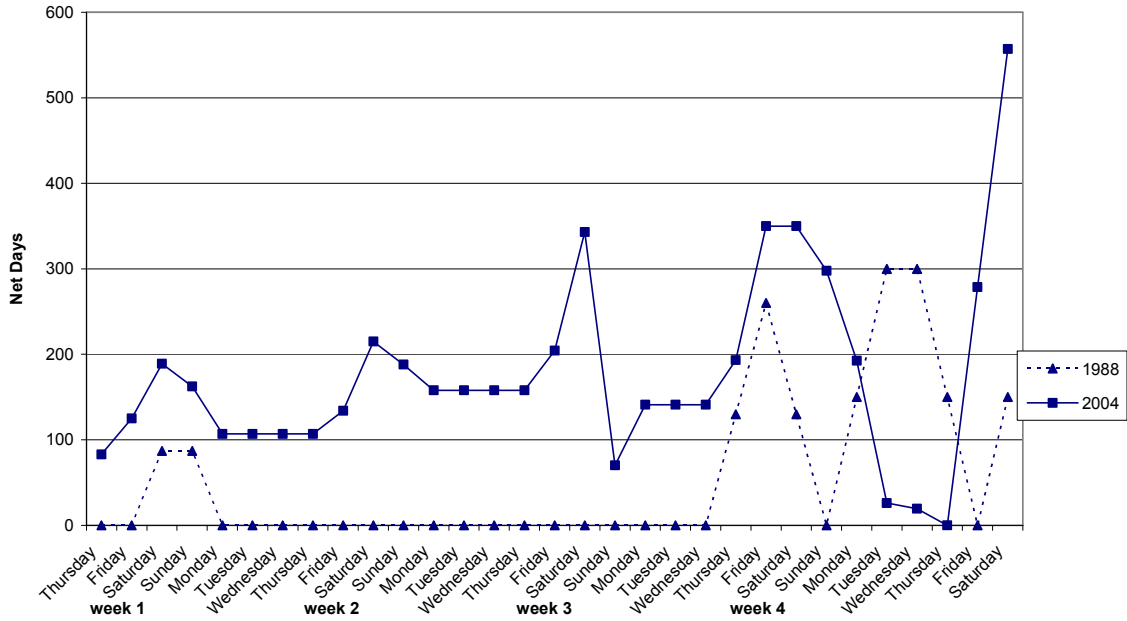
In their 1992 report, Pearse/Larkin noted the change in fishing practices after legal commercial sale was introduced:

“In 1992, however, “hot-picking” – removing the fish periodically through the day or night to improve the efficiency of the nets and reduce the risk of the fish being stolen – became common practice. This meant that fewer fish appeared in nets during the fishery officer’s morning patrols – often only a fraction of the assumed overnight catch – leading to underestimates.” (p. 26)

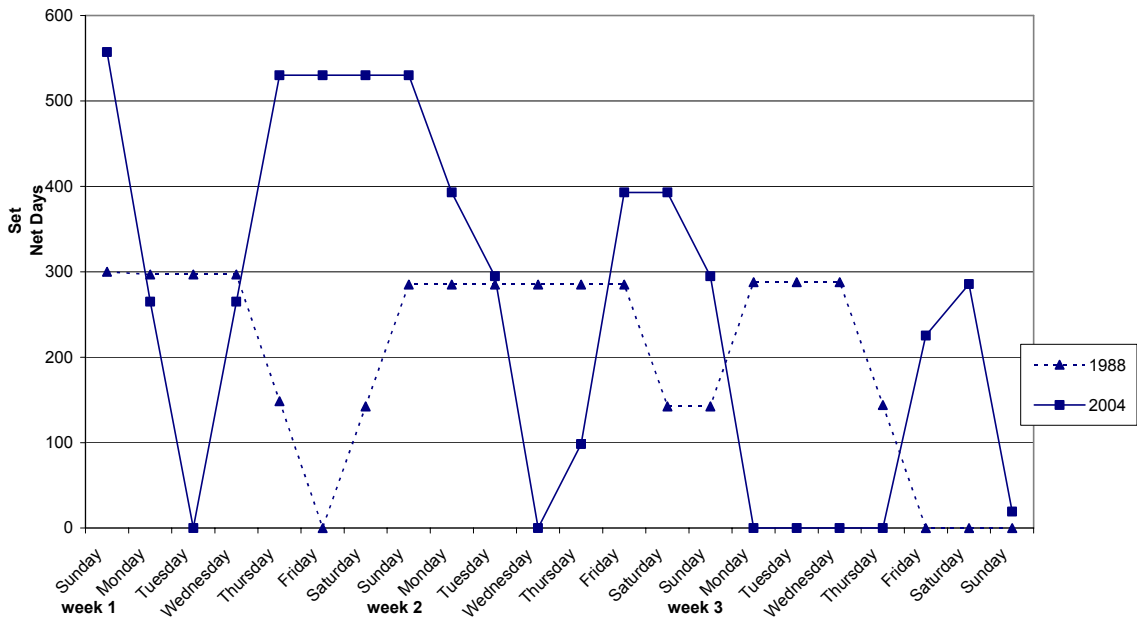
The use of monofilament nets in much of the aboriginal fishery has had a major impact. These nets are illegal in the public commercial fishery on the Fraser because their transparency in the water makes them particularly lethal. The 1994 Fraser Report recommended that monofilament nets be banned in all fisheries. The Minister of Fisheries, Brian Tobin, promised to adopt *all* recommendations of the report, but after paying lip service for a year or two DFO ignored the recommendations. They did not ban monofilament nets and they remain in common use today in the aboriginal fishery.

<sup>25</sup> North Bend is slightly upriver from Yale. This upriver boundary in the Sto:lo fishery is approximately the same as Sawmill Creek which became the new Sto:lo boundary in 1993.

**Fraser River Aboriginal Fishing Effort**  
**Set Net Days: Mission to North Bend/Sawmill Creek**  
**July 1988 vs. 2004**



**Fraser River Aboriginal Fishing Effort**  
**Set Net Days: Mission to North Bend/Sawmill Creek**  
**August 1988 vs. 2004**



### 3. Reason No. 2: Unreported Harvests in the Aboriginal Fishery

"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.

*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)*

Proponents of race-based commercial fisheries scoff at the claim that the fishery could harvest and sell 1-1/2 million sockeye, but as noted by Pearse/Larkin above, the aboriginal fishery caught and sold illegally some 890,000 sockeye in 1990. To assume that the aboriginal community is incapable of catching, transporting and selling at least double their 1990 harvest of 890,000 sockeye is to ignore the reality of the 2004 aboriginal fishery.

This year, the fishing effort in the lower Fraser aboriginal community was more than double the 1990 effort. In 2004, aboriginal fishermen enjoyed legal access to fish processing plants (including two new plants on Lower Fraser aboriginal reserves) and access to commercial freezing operations. Aboriginal fishermen also had legal 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.

Given the enhanced aboriginal ability to catch, transport, process and sell fish and the huge increase in the number of days fished it is beyond belief that this year's reported catch for the entire Fraser River aboriginal fishery is only 626,632 sockeye or some 22% lower than the 1990 harvest noted above by Pearse/Larkin.

Pearse/Larkin concluded that "There are several reasons to expect that catches were significantly higher than the Department's estimates indicate" including a reliance on hails, a bias from "the common practice of fishing with multiple nets, unauthorized nets used at night or nets pulled set before openings or after closures (p. 26).

In 1994, the 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)

Hailing is one critical problem that comes up again and again and results in DFO continuously under-estimating the aboriginal catch.<sup>26</sup> 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)

<sup>26</sup> 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.

DFO did not change their reliance on hails and in 1999, Fishery Officer Station Chief Herb Redekopp conducted an audit of the Musqueam fishery and wrote<sup>27</sup>:

“Two fishers reported a total catch of 27 chinook salmon to AFO staff. The official Musqueam report sent to DFO confirms this hail, however, DFO Fishery Officers visually counted 88 chinook which were harvested by these two fishers (a 325% misreporting).

Two other fishers hailed a catch of 56 chinook salmon to the AFO staff collecting catch data. These figures were officially reported to DFO in the Musqueam catch report, however, DFO Fishery Officers visually counted 147 chinook salmon harvested by these two fishers (a 262% misreporting).

DFO Fishery Officers checked the catch of 8 fishers and counted 423 chinook salmon. The remaining 13 fishers were not checked, but it is not logical to assume that the remaining 13 fishers (62% of the fishing fleet) would only harvest an additional 9 chinook salmon (2% of total reported catch) given that all these fishers fished in close proximity.

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.”

ESSA Technologies<sup>28</sup> stated in an analysis of illegal fishing on the Fraser prepared for DFO:

“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.”

*At the time of our audit the Science Branch had received catch data for 1997 from fewer than 15 percent of the bands that were required to collect it.*

1999 Report of the Auditor General of Canada, (para. 20.60)

#### **4. Reason No. 3 : The Blockage Effect of the Aboriginal Fishery**

Salmon migrating through the Fraser Canyon with its swiftly flowing water 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 who choose to ignore the back-eddy and fight the current are often caught in the surging water and swept back downstream.

Set-nets positioned in the fast flowing waters of the Fraser Canyon are often left untended for long periods as the canyon offers little in the way of refuge for the fishermen. Fish stiffen after death and drop from untended nets to become another missing in transit statistic. Although it was recommended the drop-out problem be studied following the 1992 disaster, DFO has yet to conduct any research on the issue, nor has it made any effort to correct the problem.

The aboriginal set-net fishery in the Fraser Canyon is the most lethal and wasteful salmon fishery in BC. Such a method would not be tolerated if it was utilized by the public commercial fishery.

<sup>27</sup> Memo from Herb Redekopp to Paul Ryall, Bert Ionson and others dated June 30, 1999, Subject: Audit of Area 1 Native Catch Data

<sup>28</sup>

The added stress to the fish trying to avoid the nets and the ongoing loss of fish from untended nets are reasons why an immediate moratorium must be placed on set-net fishing in the Fraser Canyon.

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.<sup>29</sup> During his testimony in the Provincial Court of BC trial in *Regina v. Sonnenberg*<sup>30</sup>, Mr. Todd advised the Court:

Todd: In 1992, our observers at that location saw very few fish from the beginning of observations in early July through to into - - into August. And this - - there was a consistency here of low - - of low observations.

Question: At - -

Todd: That alerted us. Or low numbers of fish being observed passing through the fishway.

Question: At Hells Gate?

Todd: Yeah, at Hells Gate. And that raised some concerns . . . There were also indications upriver, some early information provided by Fisheries and Oceans in - - arrivals of Early Stuart, which is the first run, and once they started appearing at the spawning grounds in late July, early August, they were not appearing in the numbers expected. Another - - another area near Lilloett, again there were indications that something was not right.

Question: But what about Mission? . . .

Todd: Mission was showing large - - much larger numbers of fish going - - going through

Question: But something was not right because - -

Todd: Between Mission and the upriver area.

Question: Yes. So, what was done?

Todd: In - - around the middle of August, when we put some data together, I had a meeting with Pat Chamut who was, at the time, our Regional Director of Fisheries and Oceans in Vancouver and pointed out that there appeared to be a problem between the numbers that we thought were going by Mission and those that were proceeding upstream of Hells Gate and requested that that be - - matter looked into.

Question: And there was, I think, a report eventually - - an investigation as to what happened in 92?

Todd: Yeah. Very shortly after that, a matter of a couple days, on August 17<sup>th</sup>, the - - the river was closed to the native fishery that had been going on earlier that season and on or about the - - about a day later, I think, 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.

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<sup>29</sup> 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.

<sup>30</sup> Proceedings at Trial in the Provincial Court of BC, *Regina v. Sonnenberg*, April 5, 2001

Question: Yes.

Todd: And we'd had a long period of very, very low counts.

Question: And do you account for that because the fishery was closed?

Todd: Yeah. 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<sup>31</sup> 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 16<sup>th</sup> 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)."

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

". . . 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."<sup>32</sup>

Given the obvious problems highlighted by the minimal research already completed it is astounding that further research in the set-net fishery in the Fraser Canyon has not been undertaken and corrective action implemented a long time ago.

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<sup>31</sup> *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)

<sup>32</sup> *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).

“DFO must formulate a strategy and plan that will marshal the personnel, facilities, equipment and communications systems needed to re-establish a credible enforcement deterrent. The first step in the process must be a proper assessment of what is required, at a minimum, to ensure adequate enforcement. This cannot be achieved in the context of a budget exercise. Once the essential elements of an effective enforcement system have been specified, then and only then can the authorities look to see if the available funding is sufficient. If at that time it is perceived that the existing budget cannot support adequate enforcement capacity, DFO should be prepared to reallocate priorities within the department.”

*Fraser River Sockeye 1994, Problems and Discrepancies, Report of the Fraser River Sockeye Public Review Board, (p. 60)*

In 1994, the Fraser investigation concluded that DFO was “dysfunctional” and in “chaos.” Nowhere was this more evident than in the low priority given to its Conservation and Protection branch (C&P) which is responsible for enforcing the *Fisheries Act* and catching poachers. In 2004, C&P is still near the bottom of DFO’s priorities, but it is about the only branch at DFO that enjoys the respect of the fishing community and wide-spread support for increased funding. DFO’s lack of enforcement capability is a concern in all fisheries, but the problem in the aboriginal fishery is especially serious. Under-funding, a lack of support by senior DFO officials for enforcement and a lack of regulatory controls in the aboriginal fishery have created havoc on the Fraser River.

## **1. The 1992 Enforcement Crisis**

In the years leading up to the 1992 disaster the fishing industry warned DFO about increasing problems in the aboriginal fishery. These concerns were ignored by the department, but were confirmed by Pearse/Larkin:

“Up-river, beyond the Agreement area, surveillance and enforcement effort 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. . .”(p. 18)

The conflicting testimony between Peter Pearse and the department was a critical issue during the January 1993 hearings before the *Parliamentary Standing Committee on Forestry and Fisheries*.<sup>33</sup> Pearse contended that Fishery Officers were told not to lay charges against aboriginals while Pat Chamut, the head of DFO in BC and Deputy Minister Bruce Rawson denied ever giving such instructions:

Mr. Rawson: “I have to say that no such directive was issued, straight like that.”

In the absence of power to take sworn testimony, the Committee was unable to resolve the conflict between Pearse and the Fishery Officers on one side and Chamut and Rawson on the other.

Within days after the hearing, however, the BC Fisheries Survival Coalition obtained a “Protected”

<sup>33</sup> Minutes of Proceedings and Evidence of the Standing Committee on Forestry and Fisheries, January 24, 1993, pp. 16-24 to 16-26

DFO document titled "Policy with Respect to Sale of Food Fish" written by Pat Chamut on August 28, 1991 stating:

"I spoke with Bruce Rawson today regarding the enforcement policy to be adopted with respect to sale of food fish . . . Sale of small amounts of personally caught food fish (i.e. less than 25 fish) should not be prosecuted, unless sale is flagrant. . . Enforcement actions should be reviewed by DOJ [Department of Justice] before formal charges are laid."

A second document obtained through the *Access to Information Act* detailed an October 14, 1992 meeting (3 months before his appearance before the Standing Committee) between Rawson, other senior DFO officials and leaders of Lower Fraser aboriginal bands. At the meeting, Rawson agreed that DFO would approach the Department of Justice to withdraw fishing charges against Lower Fraser natives.

Not only did Rawson and Chamut give instructions not to lay charges, at least in certain circumstances, but when charges were laid, Rawson apparently attempted to get them withdrawn.

## 2. The 1994 Enforcement Crisis

In 1994, the Fraser inquiry came to the same conclusion as Peter Pearse about the crisis in DFO's enforcement capabilities:

"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 and those who have no regard for fish habitat."(p. 58)

Regulatory changes that made enforcement of aboriginal fisheries extremely difficult were also noted by Fraser's group which stated "DFO's ability to deal with the illegal sale of salmon was seriously compromised by the repeal of a prohibition on the possession of native food fish by non-Natives." (p. 59)

This regulation and a regulation requiring the identification of food fish must be reinstated. Punishment for violation of these regulations must be severe enough to be an effective deterrent.

## 3. The Ongoing Crisis in DFO Enforcement

Although there was an improvement in DFO's enforcement capacity in 1995, the budget and commitment to enforcement at senior levels in DFO quickly deteriorated to 1992 levels. The situation in 2002 was well described by Fishery Officer Supervisor Herb Redekopp who testified for the Crown in the Provincial Court of BC prosecution *Regina v. Kapp*. During the cross-examination of Redekopp<sup>34</sup>, counsel for the defense read excerpts of the Pearse/Larkin report and asked the witness to compare the state of DFO's enforcement in 1992 with 2002:

Q And:

As violations became conspicuous in certain areas, local fishery officers were flooded with complaints and accusations of having failed to do their job. As their hands were tied, this criticism took a heavy toll on morale and pride.

Does that accord with your experience?

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<sup>34</sup> Proceedings at Trial, *Regina v. Kapp*, October 16, 2002, (p. 19)

- A Yes, it does, and it's -- it's striking to me how relevant this report is 10 years later. It kind of hits you between the eyes.
- Q Yes, because it does describe in 1982 [sic] essentially the situation in 2002; is that right?
- A Very much so.
- Q And one of the heavy, heavy prices of this -- of this strategy, I suggest to you, Mr. Redekopp, has been the morale and pride of you and your fisheries officers?
- A I would say it's at an all-time low.
- Q Continuing on:

Enforcement arrangements under the new agreements were unclear until the local fisheries officers took the initiative and negotiated with the LFFA of protocol on enforcement to supplement the agreement. But that was not until much of the season was past.

I take it that what Dr. Pearce is referring to there is that some of the on the ground, if I can put it that way, local officers had to make their own arrangement with the -- with the Indians?

- A Yeah, it was at the field level that we, through discussions with the native bands, we thought it would be prudent to try to come to some agreement ourselves in terms of how we would enforce the fishery, and what we could, I guess, mediate and develop a common understanding so that there wouldn't be any surprises between the fishery officers and the fishers in terms of consequences of if you're fishing a long net, this is what you can expect in terms of what we will do. We will likely seize your net and charge you for this, and these types of things. We talked with them so that we had a clear understanding in the absence of any other information.
- Q Kind of like a hockey referee telling the players how he's going to enforce the rules?
- A We felt it was, at our level, anyway, that it was in the spirit of comanagement, and that is one principle we felt was what the Government of Canada wanted in this Aboriginal Fisheries Strategy and we did what we could to make it work.
- Q Because if you didn't it wasn't working?
- A It wasn't working well at all.
- Q Continuing in the third column:

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

Again, is that in accordance with --

- A Yes.
- Q -- your experience?
- A Yes, it is.
- Q And if you would go over to page 16, Dr. Pearce continues with his litany on the left column, left side column:

Field officers were expected to train Indian guardians and conduct joint patrols, even though in some areas needed equipment was not available until fishing had ended.

- A And is that in accordance with your experience?
- A Yes.

*In 1992, we witnessed mismanagement of an extremely valuable fishery because politics and politicians played a key role in the day to day planning of field activities. If it is, we are in for a long season with an investigation to follow as it did in 1992.  
Fishery Officer  
Wayne Furness  
to District  
Supervisor,  
May 4/93*

## Chapter VIII

# The Critical Need for a Judicial Inquiry

1992

“We cannot say who took the unrecorded catch, whether they were Indians or not, what portion was taken in the Agreement area, how they were disposed of, or where they went. Nor can we say whether they were caught illegally.”

*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. 28)*

1994

“In many respects the frustration of 1994 lies in the fact that no one, including the authorities, the experts, and this Board, knows precisely or exactly what happened or exactly how it happened.”

*Fraser River Sockeye: Problems and Discrepancies, Fraser River Sockeye Public Review Board 1995, Public Works and Government Services 1995, (p. 38)*

In 2004, DFO mismanaged the fishery resulting in the disappearance of some 2 million sockeye between Mission and the spawning grounds. This sets a record of sorts – the fewest fish on the spawning grounds since detailed records have been kept. DFO cannot be relied upon to investigate itself or be allowed to shield itself from a judicial inquiry.

Only a judicial inquiry can get to the truth. In the interim, a moratorium on set-nets in the Fraser Canyon is an essential precautionary measure to protect a fishery that is in great jeopardy. In addition regulations prohibiting possession of food fish by non-natives and requiring the identification of food fish are critical to return the aboriginal food fishery to a fishery based on food rather than illegal sales.

DFO allowed almost continuous aboriginal fishing in the critically important section of the Fraser between Mission and the spawning grounds, yet it would unashamedly have us believe that 1.9 million sockeye died from warm water temperatures even though some runs experienced only minor warm water impacts.

In previous years when the department faced public criticism over the disappearance of large numbers of sockeye between the Mission counter and the spawning grounds it consistently sought to deflect the criticism. It brazenly claimed that the aboriginal fishery was effectively managed and that it in no way contributed to the problem. In both 1992 and 1994 reviews, Peter Pearse and John Fraser rejected the department’s claim that water temperature was the primary source of the problem and pointed the finger directly at DFO’s mismanagement of the aboriginal fishery.

There was public support for a judicial inquiry in 1994 that would have called DFO staff to account

for their actions under oath. The government conveniently rejected a judicial inquiry as too expensive and too time-consuming. It coyly claimed that they must find the problem before the next fishing season so that the disastrous disappearance of fish was not repeated. It was not repeated. Understandably the department preferred a review that would allow it to review its own management practices. It established working groups of scientists associated with the department to undertake an examination of the effect of water temperature. The department sought a review that would have been little more than a public consultation with what it likes to call its "stakeholders."

We might never have got more than that if DFO staff who worked on the River and who saw the disaster unfold did not release internal reports to prove that the problem was not warm water but a total breakdown of order in the aboriginal fishery. As a result, the Minister added John Fraser to the anemic panel he had already established to review the events surrounding the missing fish. John Fraser's reputation and the esteem in which he was held added to the credibility and sense of independence that had been absent from the inquiry. Lacking the necessary powers, authority and independence of a judicial inquiry Fraser was forced to rely on his powers of persuasion to conduct a credible review.

The Fraser review was well received and laudable. Nevertheless, both the Fraser and Pearce reviews were incomplete and inconclusive because they lacked the power and authority to subpoena witnesses and take testimony under oath. The only DFO officials who testified at the hearings were those prepared to spout the party line. The officials in the field who wrote the memos describing the chaos in the fishery knew that truthful testimony in a public forum would have been career-ending. As a result, no one in the department was ever held accountable for the disasters. We now have another disaster worse than had befallen the Fraser River in 1992 and 1994.

What we do not need and must avoid is a toothless and face-saving review beholden to the Minister for its authority and very existence. This time if we are to discover the root causes of the 2004 disaster, the department's fisheries management practices must be exposed to a judicial inquiry, one with the powers and independence to address the very sort of problem we now face.