

Affidavit #1 of Carol Cross
Sworn April 26, 2011

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

In the matter of Her Excellency the Governor General in Council, on the recommendation of the Prime Minister, directing that Commission do issue under Part 1 of the *Inquiries Act* and under the Great Seal of Canada appointing the Honourable Bruce Cohen as Commissioner to conduct an inquiry into the decline of the sockeye salmon in the Fraser River


AFFIDAVIT #1 OF CAROL CROSS

I, Carol Cross, of 401 Burrard Street, Vancouver, British Columbia, MAKE OATH AND SAY THAT:

1. I am employed by the Government of Canada as Manager, Salmonid Enhancement Program Strategic Initiatives, Department of Fisheries and Oceans. As such, I have personal knowledge of the matters hereinafter deposed to except where stated to be based on information and belief, and where so stated I believe them to be true.
2. On or about April 19, 2011, I was provided with a letter from commission counsel Wendy Baker, Q.C., enclosing a series of questions on the topic of Habitat Enhancement and Restoration with respect to which I was asked to provide written answers in preparation for the May 2, 2011 hearings on the abovementioned topic.
3. I have prepared a document which sets out the questions asked of me and my written responses. A true copy of this document is attached to my affidavit as Exhibit "A".

4. I adopt the responses set out in Exhibit "A" as true statements as if contained within my affidavit.

SWORN before me in the City of)
Vancouver, British Columbia, on)
April 26th, 2011)
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Commissioner for taking Affidavits
in the Province of British Columbia

FIONA MENDOZA
Barrister and Solicitor


CAROL CROSS

April 11, 2011

Carol Cross

Witness background

This is Exhibit "A" referred to in the
affidavit of CAROL CROSS
Sworn before me at VANCOUVER
in the Province of British Columbia this
26 day of APRIL, A.D. 20 11
[Signature]
A Commissioner for taking Affidavits
within British Columbia

1. Please describe what positions you have had within the Salmonid Enhancement Program ("SEP"), including the dates that you held those positions.

- *Manager, SEP Strategic Initiatives - September 2008 to Present*
- *OHEB Program Policy Coordination/Policy Advisor - May 2003 – August 2008*
- *Senior Assessment Biologist - SEP - August 2001 – April 2003*
- *Chief, Program Coordination and Assessment Division - SEP - January 1997 – June 2000*
- *SEP Assessment Biologist (Junior Assessment Biologist : 1980 – 1983) - Jan 1980 – December 1996*

2. Please describe your responsibilities as Manager, Strategic Initiatives of SEP, including who you report to and who reports to you.

I report to the Director of SEP. I have no direct reports but provide functional direction to some staff on specific initiatives.

- I am responsible for developing and coordinating operational approaches for new program initiatives, developing program business plans, providing program and branch level policy advice, developing program policy and interfacing with other programs on policy and cross cutting program delivery issues.

SEP Enhancement Guidelines (CAN051531)

3. Were you involved in drafting this document?

The document was developed under contract. I was involved in providing a number of the component pieces and reviewing drafts of the document as it developed.

4. Is this the latest version of the document that has been produced?

Yes

5. What was the purpose behind producing this document?

The introduction to the document describes the intent of the document. "The following describes the Salmon Enhancement Program, its objectives and risks, outlines considerations in planning enhancement programs and identifies the policies that govern such programs. It also provides guidelines for specific enhancement practices. It is not designed to fully detail every operating procedure carried out at each facility, as these are detailed elsewhere (e.g. site specific Fish Health Management Plans)"

6. To what extent does this document represent current guidelines in use by DFO?

The document substantially represents current guidelines and practices with respect to genetic management, captive breeding, assessment, marking and carcass placement. Other components such as release strategies, fish health management and biosecurity will be reviewed and further developed.

7. What is the timeline for completion of a final version of this document?

The timeline for completion timeline is dependent on internal capacity but work will be continuing in the upcoming fiscal year. Completion of the document would include updating those components where practices have changed and finalizing those components that are still draft.

Wild-hatchery fish interactions

8. Has SEP or any organisational unit within DFO done any research on:

- a. Quantifying the risk (or occurrence) of over-exploitation of wild Fraser River sockeye populations in mixed stock fisheries where there are more productive enhanced populations of Fraser River sockeye or other stocks or species?**

SEP has not done research on over – exploitation of wild sockeye due to the presence of enhanced populations. Fisheries Management analyzes exploitation rates as part of the harvest management process and if there were instances of over-exploitation, they would emerge through these analyses and be addressed as part of the integrated planning process.

- b. Effects of competition between wild salmon and hatchery salmon for food and space in the freshwater rearing environment?**

SEP marks juvenile salmon released from a number of enhancement facilities for subsequent recovery in the fisheries and the escapement. In the freshwater environment, escapement and mark returns to these systems are assessed as part of the DFO's stock assessment process and the number of hatchery salmon on the spawning grounds is quantified. With respect to juveniles, one example of a study involved the analysis of coho fry release data for Eagle River and Coldwater River. It was determined that coho fry releases to the Eagle River were overseeding the available capacity given the presence of wild rearing fry. Releases numbers were adjusted accordingly. Coldwater release numbers were appropriate for the available habitat. The study is described in the article "Salmon Stock Restoration and Enhancement: Strategies and Experiences in British Columbia", authored by E.A. Perry and published in American Fisheries Society Symposium 15:152-160, 1995.

c. Effects of competition between wild salmon and hatchery salmon for food and space in the marine environment?

I am not aware of a specific study to address this question

9. Why or why not?

Studies to determine competition for food and space, particularly in the marine environment are complex and large and require significant resources to undertake. There is limited capacity to undertake such large studies.

10. Has SEP ever requested Science Branch to do any of the research described in Question 8.a-c?

SEP has requested advice on Georgia Strait coho carrying capacity and on coho stock status in Georgia Strait

11. Why or why not?

This specific advice was requested to inform planning on appropriate release numbers and how these might fit with harvest objectives.

12. Does SEP need to understand the interactions described in Question 8.a.-c?

Enhancement is a tool that DFO uses to meet objectives and as such, DFO can better manage how and where to use enhancement by understanding interactions between enhanced and wild salmon.

13. In the mid-1990s was there an experiment designed by ~~Ian~~ Ted Perry of DFO to look at Georgia Basin carrying-capacity and density-dependent effects on wild coho and chinook due to competition with hatchery coho and chinook releases?

An experiment was designed cooperatively with UBC as part of a contract with the UBC Fisheries Centre. The DFO lead on the project was Ted Perry and there was involvement by SEP and Science staff as well as Carl Walters from UBC. The intent of the experiment was to determine if Strait of Georgia chinook or coho salmon production was limited by density dependent interactions at sea but not specifically to assess carrying capacity

14. Why was this experiment never carried out?

I was not involved in the decision making on whether to carry out the experiment. I was aware of the considerations in decision making which included whether to do the experiment on coho or chinook, the necessary duration of the experiment and the need for cooperation and support of stakeholders. Preliminary experimental design indicated that a conclusive experiment for chinook could require 20-30 years and for coho 5 – 10 years. There was consensus that the experiment should be done for only one species at a time. Such a study would require a long term commitment and would have an effect on harvest opportunities

15. Who within DFO made the decision not to do this work?

I do not know who made the decision but it would have been made at a senior management level

16. What reasons were given for not doing this work?

I do not know what reasons were given for not doing this work

A biological risk assessment framework for fish production

17. Please describe the development of the biological risk assessment framework referred to in the *Wild Salmon Policy* (Cohen Commission Exhibit 8) at 36.

Initial work on a biological assessment framework to assess hatchery impacts on wild salmon has begun with the development of a Hatchery Risk Analysis Tool. This work began in 2005 and active development continued through to 2008. The tool enabled the identification and description of possible risks associated with hatchery production and focused on risks to local wild salmon stocks in freshwater. Possible biological risks were identified as genetic consequences, ecological effects, demographic effects, disease effects and operational effect. Risks were described using a set of criteria and assessed using a common rating scale

SEP has also recently submitted a request for Science support in the development of the biological risk assessment framework and preliminary discussions on how to move forward on this have begun.

18. What has your involvement in this process been?

I led the team that developed the Risk Analysis Tool. I submitted a request to Science Branch regarding the risk analysis framework and have discussed approaches for moving forward on the framework with some Science staff.