

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



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

## Public Hearings

## Audience publique

**Commissioner**

L'Honorable juge /  
The Honourable Justice  
Bruce Cohen

**Commissaire**

**Held at:**

Room 801  
Federal Courthouse  
701 West Georgia Street  
Vancouver, B.C.

Monday, May 2, 2011

**Tenue à :**

Salle 801  
Cour fédérale  
701, rue West Georgia  
Vancouver (C.-B.)

le lundi 2 mai 2011

## **APPEARANCES / COMPARUTIONS**

Wendy Baker, Q.C. Maia Tsurumi	Associate Commission Counsel Junior Commission Counsel
Mitchell Taylor, Q.C. Charles Fugère	Government of Canada ("CAN")
Boris Tyzuk, Q.C.	Province of British Columbia ("BCPROV")
No appearance	Pacific Salmon Commission ("PSC")
No appearance	B.C. Public Service Alliance of Canada Union of Environment Workers B.C. ("BCPSAC")
No appearance	Rio Tinto Alcan Inc. ("RTAI")
Alan Blair Shane Hopkins-Utter	B.C. Salmon Farmers Association ("BCSFA")
No appearance	Seafood Producers Association of B.C. ("SPABC")
No appearance	Aquaculture Coalition: Alexandra Morton; Raincoast Research Society; Pacific Coast Wild Salmon Society ("AQUA")
Judah Harrison	Conservation Coalition: Coastal Alliance for Aquaculture Reform Fraser Riverkeeper Society; Georgia Strait Alliance; Raincoast Conservation Foundation; Watershed Watch Salmon Society; Mr. Otto Langer; David Suzuki Foundation ("CONSERV")
Don Rosenbloom	Area D Salmon Gillnet Association; Area B Harvest Committee (Seine) ("GILLFSC")

**APPEARANCES / COMPARUTIONS, cont'd.**

No appearance	Southern Area E Gillnetters Assn. B.C. Fisheries Survival Coalition ("SGAHC")
No appearance	West Coast Trollers Area G Association; United Fishermen and Allied Workers' Union ("TWCTUFA")
Keith Lowes	B.C. Wildlife Federation; B.C. Federation of Drift Fishers ("WFFDF")
No appearance	Maa-nulth Treaty Society; Tsawwassen First Nation; Musqueam First Nation ("MTM")
No appearance	Western Central Coast Salish First Nations: Cowichan Tribes and Chemainus First Nation Hwlitsum First Nation and Penelakut Tribe Te'mexw Treaty Association ("WCCSFN")
Brenda Gaertner Crystal Reeves	First Nations Coalition: First Nations Fisheries Council; Aboriginal Caucus of the Fraser River; Aboriginal Fisheries Secretariat; Fraser Valley Aboriginal Fisheries Society; Northern Shuswap Tribal Council; Chehalis Indian Band; Secwepemc Fisheries Commission of the Shuswap Nation Tribal Council; Upper Fraser Fisheries Conservation Alliance; Other Douglas Treaty First Nations who applied together (the Snuneymuxw, Tsartlip and Tsawout); Adams Lake Indian Band; Carrier Sekani Tribal Council; Council of Haida Nation ("FNC")
No appearance	Métis Nation British Columbia ("MNBC")

**APPEARANCES / COMPARUTIONS, cont'd.**

No appearance	Sto:lo Tribal Council Cheam Indian Band ("STCCIB")
No appearance	Laich-kwil-tach Treaty Society Chief Harold Sewid, Aboriginal Aquaculture Association ("LJHAH")
No appearance	Musgamagw Tsawataineuk Tribal Council ("MTTC")
Lisa Fong	Heiltsuk Tribal Council ("HTC")

**TABLE OF CONTENTS / TABLE DES MATIERES**

	PAGE
PANEL NO. 30	
RANDALL PETERMAN (Recalled)	
In chief by Ms. Baker	8/10
In chief on qualifications by Ms. Baker	10
Ruling on qualifications	11
Cross-exam by Mr. Taylor	25/30/31/33/37
Cross-exam by Mr. Blair	42/44/45/47/51/59/61
Cross-exam by Mr. Harrison	65
Questions by the Commissioner	68
Cross-exam by Mr. Rosenbloom	76/79/89
Cross exam by Ms. Gaertner	90/113
Cross-exam by Ms. Fong	116/123/124
CAROL CROSS (Affirmed)	
In chief by Ms. Baker	9/11/12/13/15
Cross-exam by Mr. Taylor	18/19/21/25/30/31/32/36
Questions by the Commissioner	40
Cross-exam by Mr. Blair	41/42/45/46/50/54/59/61
Cross-exam by Mr. Harrison	63
Cross-exam by Mr. Rosenbloom	69/74/87/89
Cross exam by Ms. Gaertner	101/109
Cross-exam by Ms. Fong	122/123/124/127
GREG SAVARD (Affirmed)	
In chief by Ms. Baker	10/11/12/13/14
Cross-exam by Mr. Taylor	18/19/28/36
Cross-exam by Mr. Blair	42/43/44/45/47/52/59
Cross-exam by Mr. Harrison	62/64
Cross-exam by Mr. Rosenbloom	72/89
Cross exam by Ms. Gaertner	103/113
Cross-exam by Ms. Fong	122/123/124/127

**EXHIBITS / PIECES**

<u>No.</u>	<u>Description</u>	<u>Page</u>
755	Area G/UFAWU written questions and answers asked of Paul Ryall, dated April 27, 2011	1
756	First Nations Coalition written questions and answers asked of Paul Ryall, dated April 21, 2011	2
PPR11	Overview of Habitat Enhancement and Restoration, April 1, 2011	2
757	Affidavit #1 of Carol Cross sworn April 26, 2011	10
758	Affidavit #1 of Greg Savard, sworn April 26, 2011	10
759	Affidavit #1 of Randall Peterman, Sworn May 2, 2011	10
760	Enhancement Guidelines for Salmon Enhancement Programs, 3/31/28, Draft	12
761	<i>Curriculum vitae</i> of Carol Cross	12
762	<i>Curriculum vitae</i> of Greg Savard	12
763	Hatchery Risk Assessment Tool (HRAT), User and Administrator Guide	13
764	SEP Revitalization An Update, May 18, 2010	13
765	Perry et al, Salmon Stock Restoration and Enhancement: Strategies and Experiences in British Columbia	14
766	Request for Science Information and/or Advice, Pacific Region	14
767	Salmonid Enhancement Program, A Presentation to the Cohen Commission, March 2011	19
768	Sandher, Cook and Irvine, Canadian Enhanced Salmonid Production During 1978-2009 (1977 - 2008 Brood Years), September 2010	25
769	Pacific Fisheries Resource Conservation Council, Perspectives on Salmon Enhancement and Hatcheries: What the Council Heard, May 2005	33
770	Fisheries Management Perspective article entitled "The Controversy about Salmon Hatcheries", 2004	36
771	Evaluation Directorate, Salmonid Enhancement Program, Final Evaluation Report September 22, 2009	36
772	National Conservation Strategy for Cultus Lake Sockeye Salmon ( <i>Oncorhynchus Nerka</i> ), Cultus Sockeye Recovery Team, DFO, 2009	37

**EXHIBITS / PIECES (cont'd)**

<u>No.</u>	<u>Description</u>	<u>Page</u>
773	General Press Release of Dr. Peterman, re Ruggerone et al, dated October 1, 2010	79
774	Draft 2 - WSP Enhancement Operational Guidelines, Confidential - For Discussion Purposes Only - Feb. 3	101
775	Salmonid Enhancement Program (SEP) Adjustments for Alignment with Budget	104
775-A	Attachment 1	104
775-B	Attachment 2	104
775-C	Attachment 3	104
776	Email chain between Greg Savard and Paul Sprout	108
777	Email chain between Adrian Wall and Jason Hwang	109
775D	DFO Routing Slip from Paul Sprout to David Bevan via Rebecca Reid, dated June 24, 2008, re: Salmonid Enhancement Program (SEP) Adjustments for Alignment with Budget	115
778	Advice Related to Five "Big Picture" Science Issues for BC Salmon, Report on 6-7 November 2004 Workshop, Prepared by Karl English et al	116

**EXHIBITS FOR IDENTIFICATION / PIECES POUR L'IDENTIFICATION**

<u>No.</u>	<u>Description</u>	<u>Page</u>
AA	A Scientific Literature Review to Inform the Investigation Into the Potential Effects of Salmonid Enhancement on Fraser River Sockeye Salmon	8

1 Vancouver, B.C. /Vancouver  
2 (C.-B.)  
3 May 2, 2011/le 2 mai 2011  
4

5 THE REGISTRAR: Order. The hearing is now resumed.

6 MS. BAKER: Good morning, Mr. Commissioner. It's Wendy  
7 Baker for the Commission, and with me is Maia  
8 Tsurumi. I have a number of housekeeping matters  
9 to take care of this morning.

10 The way we're proceeding this morning is by  
11 way of sworn evidence in chief that's been  
12 distributed to all parties last week. We'll be  
13 turning the witnesses over for cross-examination  
14 once their affidavits are in evidence and I have a  
15 couple of exhibits to take them to in relation to  
16 their affidavits, and then I'll be turning them  
17 over for cross-examination. But before we get  
18 there, I wanted to just go over a couple of  
19 things.

20 Timing, we're starting early this morning,  
21 and I would like to suggest that we take our  
22 morning break at about 10:45, ballpark that should  
23 take us about halfway through the morning,  
24 starting again around 11:00.

25 We have outstanding from the harvest  
26 management hearings questions and answers that  
27 were given to Paul Ryall, if you'll recall, on his  
28 last day of testimony we weren't able to complete.  
29 So questions were posed to him by Area G and by  
30 the First Nations Coalition, and those have now  
31 been answered by Mr. Ryall, and I'd like those  
32 marked. The first one is the Area G questions and  
33 answers, and those have been provided to all  
34 parties. They were provided on April 27, 2011,  
35 and I'd like those marked as the next exhibit.

36 THE REGISTRAR: Exhibit number 755.  
37

38 EXHIBIT 755: Area G/UFAWU written questions  
39 and answers asked of Paul Ryall, dated April  
40 27, 2011  
41

42 MS. BAKER: And the next questions and answers were  
43 circulated, or are dated - I can't remember,  
44 sorry, the date we circulated them - but they are  
45 dated April 21 on their face, and they are  
46 questions for Paul Ryall from the First Nations  
47 Coalition with answers. If those could be marked,



1 please, as the next exhibit.

2 THE REGISTRAR: Exhibit 756.

3

4 EXHIBIT 756: First Nations Coalition written  
5 questions and answers asked of Paul Ryall,  
6 dated April 21, 2011

7

8 MS. BAKER: Mr. Lunn, perhaps you can call 755 up just  
9 so people can see that document. Thank you.

10 All right. The next document to be marked  
11 this morning is the Policy and Practice Report for  
12 this section of the hearings, which is dealing  
13 with habitat enhancement and restoration. This is  
14 a Policy and Practice Report prepared by the  
15 Commission on April 1, 2011, and I'd like that  
16 marked as the next PPR in the proceedings.

17 THE REGISTRAR: That will be marked as PPR number 11.

18

19 PPR11: Overview of Habitat Enhancement and  
20 Restoration, April 1, 2011

21

22 MS. BAKER: Thank you. On April 18, 2011, the  
23 Commission circulated another Policy and Practice  
24 Report called A Scientific Literature Review to  
25 Inform the Investigation Into the Potential  
26 Effects of Salmonid Enhancement on the Fraser  
27 River of Fraser River Sockeye Salmon, and I'd like  
28 to have that marked as the next Policy and  
29 Practice Report.

30 MR. BLAIR: Mr. Commissioner, Alan Blair, appearing for  
31 the B.C. Salmon Farmers Association. On this  
32 question of whether we ought to be marking the  
33 scientific literature review, it appears in two  
34 places in the Commission counsel's review of  
35 documents for today. Firstly in Tab 10 of the  
36 book which was circulated to all of us, and  
37 there's also a reference to it at paragraph 165 of  
38 the PPR which has just been marked as an exhibit.

39

40 We are unaware of any other scientific  
41 literature reviews which have been tendered in the  
42 process so far. So I think I'm correct in saying  
43 that this is the first summary of scientific  
44 literature. I'm aware of at least one other  
45 scientific literature review which has been  
46 prepared and there may possibly be others that  
47 would seek to be tendered. We object to it being  
filed as an exhibit for the following fairly

1 simple reason. It's an authorless report. It  
2 goes on for several pages, and if you have it in  
3 front of you at Tab 10, I'll pull my...

4 We do know that it was prepared by staff at  
5 the Commission, but we don't know by whom. And in  
6 the preamble of this document at page 1, it  
7 describes it as a:

8  
9 Summary and compilation of findings and  
10 conclusions expressed by various authors in  
11 the community.  
12

13 And it says towards the end of that first  
14 paragraph:

15  
16 The purpose is to provide a bibliography of  
17 research that has been conducted.  
18

19 For that purpose we have no objection to it. If  
20 it's an aid to the court, or in this case an aid  
21 to the Commission, we would have no difficulty.  
22 It's a useful document.

23 But it purports to be entered as an exhibit  
24 and found as referenced in the PPR at paragraph  
25 165, it's incorporated in that reference at  
26 paragraph 165 of the PPR also to be effectively an  
27 exhibit. And we think it's a dangerous precedent  
28 to set in these hearings that an authorless  
29 summary of scientific research could be tendered  
30 as an exhibit. In that fashion, it's not just a  
31 bibliography of research, but is entered as an  
32 exhibit. It perhaps erroneously takes the  
33 participants and, Mr. Commissioner, yourself to a  
34 conclusion summarized in the paragraph of a  
35 document or documents which may be dozens or  
36 hundreds of pages long. And we think it's a  
37 dangerous precedent that someone who we don't know  
38 has summarized a 200-page technical report into a  
39 paragraph of what it says.

40 I was thinking of lawyers and how we use head  
41 notes in cases, and I want to draw this analogy  
42 and as a distinction. We know that if we go to a  
43 reporting series and read a Court of Appeal of  
44 British Columbia or Ontario head note, as counsel,  
45 we have some confidence that that head note was  
46 prepared by people who are skilled in doing such  
47 things. We know that it summarizes the law and

1 the Court of Appeal decision on that particular  
2 date, and we know there is only one Court of  
3 Appeal of Ontario or British Columbia at a given  
4 point in time.

5 This appears to do the same thing. It  
6 appears to summarize the case, or in this case the  
7 report or series of reports, to a point in time  
8 with a conclusion, but we have no knowledge of the  
9 accuracy of that summary, and given the vast  
10 amount of material that, Mr. Commissioner, you'll  
11 have to read in this process, we think it's a  
12 dangerous precedent to allow you to be drawn, as  
13 we might be in reading a head note to a case, to  
14 say this case, this report stands for this  
15 proposition.

16 More to the point, because in the Court of  
17 Appeal analogy, there is only one Court of Appeal  
18 in British Columbia or in Ontario at a given point  
19 in time, so on the narrow points found in the head  
20 note, we know that that was the position in law in  
21 that province at that date.

22 The dangerous thing about this is we don't  
23 know what reports weren't referred to. We have no  
24 idea whether the report referred to by this  
25 authorless person who summarized this, or people  
26 who summarized this, referred to the leading  
27 authority at that point in time, whether it's a  
28 dissenting opinion, whether it carries the weight  
29 of evidence in the scientific community, and since  
30 none of us really on this side of the bar are  
31 biologists, although we have access to them, and  
32 since, if I may, infer that, Mr. Commissioner,  
33 you're not a biologist, to my knowledge, I think  
34 it's dangerous that we be drawn to a paragraph of  
35 some authorless summary.

36 So an aid to the process, no objection. Mark  
37 it for identification, no problem. But to mark it  
38 as an exhibit so the Commission could rely upon it  
39 and the summary, by picking a paragraph and  
40 assuming that that paragraph accurately summarizes  
41 either the case of the report for the body of  
42 evidence on that point at that point in time is a  
43 dangerous precedent and we wouldn't want to see  
44 it in this part of the hearing, nor in others  
45 where I expect it's going to be tendered.

46 Thank you.

47 THE COMMISSIONER: Thank you.

1 MS. BAKER: Mr. Commissioner, this is intended as an  
2 aid. It is intended to summarize the literature,  
3 as you can see in the preamble to the review.  
4 It's identified that it is a non-critical review.  
5 It does not assess methods or assumptions behind  
6 the studies reported. So it is intended simply to  
7 summarize the papers that are set out. It doesn't  
8 assess them, and as with the PPRs, the parties are  
9 entitled to critique it in their final  
10 submissions, they're entitled to bring forward  
11 their evidence to rebut what's in these articles  
12 if they feel that it's necessary to do so. They  
13 -- it is intended as a review because there is a  
14 lot of literature that's of some relevance to this  
15 issue, which we don't have an ability to get into  
16 in the kind of depth suggested by the length of  
17 this bibliography.

18 However, the weight that this would be given,  
19 I submit, is simply that of a summary of articles,  
20 and it's useful for the participants to understand  
21 the issues that are before us. It's useful to the  
22 Commission to understand the breadth of issues.  
23 But the evidence on these issues will be dealt  
24 with through sworn evidence, and through testimony  
25 in the proceedings. So it is intended to be  
26 marked as a PPR, not as an exhibit, and to be  
27 relied on in that way at the Commission.

28 MR. BLAIR: If I may just a follow-up, Mr.  
29 Commissioner. I do note that recent Commission  
30 rules were amended, and Rule 27-1 says, and I am  
31 summarizing, that any document identified and  
32 referenced in a PPR, or in this, the PPR, which is  
33 how my friend wishes to have it marked, may be  
34 relied on by the Commissioner.

35 So that recent rule change suggests to me  
36 that perhaps the rules are contemplating that you  
37 could use it, rely on it as if it were evidence.  
38 And our point is simply that it can't be,  
39 shouldn't be, given that it is an authorless  
40 summary of somebody's opinion of some report,  
41 which may be right or wrong, but certainly doesn't  
42 canvass whether or not it's the only report on  
43 that subject that ought to have been referenced to  
44 the Commission. Thank you.

45 MR. TYZUK: Mr. Commissioner, Boris Tyzuk for the  
46 Province of British Columbia. We share some of  
47 Mr. Blair's concerns. We see what Ms. Baker is

1           trying to do with it. But given the way the rules  
2           have been structured, where any document  
3           referenced in a PPR can be used by you, that's  
4           where some of our concerns sort of are; we have  
5           them for some of the reasons that Mr. Blair has  
6           expressed.

7           MS. BAKER: Thank you. Again I -- oh, sorry, Mr.  
8           Taylor.

9           MR. TAYLOR: I understand what Mr. Blair is saying and  
10          share some of those concerns. We recognize that  
11          as a public inquiry some of the strictures of the  
12          rules of evidence that apply in litigation in the  
13          courts don't need to be fully adhered to here, but  
14          nonetheless it does seem to me that this shouldn't  
15          be something more than an aid to the Commissioner.  
16          It seems that that's what Ms. Baker is intending  
17          and it's more a question of how that is put in so  
18          that that understanding is clear. And I don't  
19          have anything more to say on that.

20          But I do add that two things, really. The  
21          Commission counsel, and I understand why they're  
22          doing this, time and moving forward is really the  
23          main reason. Commission counsel have in a number  
24          of respects put forward ways and means that  
25          expedite the evidence but overshoot to some extent  
26          any challenge to the evidence in many respects in  
27          doing so, and I'm thinking of the PPRs, but then  
28          the rule that now has anything that's referred to  
29          in a PPR can be referred to by the Commissioner in  
30          your report.

31          I understand that to a certain extent, but it  
32          puts a big onus on the participants to fathom  
33          through hundreds of footnotes in PPRs, and there's  
34          ten or 12 of them now, and figure out what to  
35          respond to. That's a lot of work. And now this,  
36          if you like, is one added thing that one would  
37          have to sift through if one really wanted to go at  
38          it and pick out what is wrong, and so forth.

39          At the same time, we, for the Government of  
40          Canada as a participant, have been in a dialogue  
41          with the Commission about getting some science  
42          evidence in, and without belabouring or going into  
43          the detail, where that's at is we may put forward  
44          draft affidavits that the Commission counsel will  
45          then consider whether they go in or not. And  
46          that's fine, but it's showing that if we want to  
47          put in evidentiary material of a science nature,

1 and opinions and so forth, we have to go through  
2 some hoops. And I certainly wouldn't want us  
3 having to do that, see that any of the scientific  
4 literature review and the commentary thereon is  
5 just going in as an exhibit. Fine, as Mr. Blair  
6 says, as an aid to the Commissioner, but shouldn't  
7 be beyond that. Thank you.

8 MS. BAKER: Mr. Commissioner, as stated earlier, this  
9 is intended as an aid. What we don't address, of  
10 course, is the weight to be given to anything in  
11 this document, and that is a question for the  
12 Commissioner. And that given that we are in a  
13 public inquiry, and we are able to receive  
14 evidence in a manner differently than in a court  
15 proceeding, I submit that this should be marked as  
16 a PPR as an aid to the Commission. As to the  
17 weight that's given to anything contained in it,  
18 that's for the Commissioner to determine and it  
19 should go in on that basis.

20 THE REGISTRAR: Thank you, Ms. Baker and counsel, for  
21 your submissions with respect to this particular  
22 PPR, which is at Tab 10 of the binder I'm looking  
23 at, and it is entitled "A Scientific Literature  
24 Review to Inform the Investigation Into the  
25 Potential Effects of Salmonid Enhancement on  
26 Fraser River Sockeye Salmon". After hearing  
27 submissions, my conclusion is that this particular  
28 document at Tab 10 should be marked for  
29 identification purposes, and that in due course  
30 when submissions are made with respect to the body  
31 of the evidence before the Commission, I could  
32 then hear further submissions from Commission  
33 counsel and participants' counsel with respect to  
34 the issue of the content of this particular  
35 document, and how much weight ought to be  
36 attached, not only to it, but to any reference to  
37 it in other documents.

38 I think that's the fair way to deal with the  
39 concerns that have been raised, and I say that,  
40 fully respecting the view that Ms. Baker has  
41 expressed with respect to its intended use, but  
42 also to try and balance the concerns that counsel  
43 have raised here this morning with respect to the  
44 weight that I ought to attach to it.

45 MS. BAKER: Thank you. I'll move now to swearing the  
46 witnesses. We --

47 MR. TAYLOR: That should be exhibit for ID then,

8  
PANEL NO. 30  
In chief by Ms. Baker

1           whatever letter that is.  
2   THE REGISTRAR: Yes, that will be marked for  
3           identification as letters double A, AA.

4  
5           MARKED AA FOR IDENTIFICATION: A Scientific  
6           Literature Review to Inform the Investigation  
7           Into the Potential Effects of Salmonid  
8           Enhancement on Fraser River Sockeye Salmon  
9

10   MS. BAKER: Thank you. We'll move to swearing the  
11           witness, then. Dr. Peterman was here on April 20  
12           and 21, so his oath remains in place, but the  
13           other witnesses can be sworn.

14  
15                           RANDALL PETERMAN, recalled.

16  
17                           CAROL CROSS, affirmed.

18  
19                           GREG SAVARD, affirmed.  
20

21   THE REGISTRAR: Will you state your name, please.

22   MS. CROSS: Carol Cross.

23   MR. SAVARD: Greg Savard.

24   THE COMMISSIONER: Thank you. Counsel.  
25

26   EXAMINATION IN CHIEF BY MS. BAKER:  
27

28   Q   Thank you. Before we tender the affidavits from  
29           these witnesses, I have one housekeeping matter to  
30           take care of with Dr. Peterman. Dr. Peterman,  
31           when you were here on April 21, you were asked  
32           some questions by Lisa Fong on behalf of the  
33           Heiltsuk Tribal Counsel. Do you remember that?

34   DR. PETERMAN: Yes.

35   Q   And you've had a look at the transcript of that  
36           proceeding and you are concerned that you misheard  
37           a question. And that if I could have that  
38           transcript pulled up on page 97 on April 21.

39           Should I just read out the lines? Are you  
40           close, or...

41   MR. LUNN: Here we are.

42   MS. BAKER: Okay, page 97.

43   Q   Now, Mr. Peterman, at the top of this page, line  
44           beginning at line 4, you were asked:

45  
46                           Now, do you know, looking at this map for  
47                           reference here, if there's Fraser River

May 2, 2011

1                    sockeye salmon migration through areas --  
2                    Management Areas 7 and 8, either migrating  
3                    out or returning to spawn?  
4

5                    And then your answers follow. Did you have  
6                    something you wanted to add there?

7                    DR. PETERMAN: Yes. I unfortunately at the end of the  
8                    second day of hearings kind of missed the key  
9                    phrase there, "Fraser River", and I thought Ms.  
10                   Fong was asking me whether Fraser River sockeye  
11                   migrate through the Areas 7 and 8, and I just  
12                   heard "sockeye" as opposed to "Fraser River  
13                   sockeye". So I would like to replace my answer  
14                   with the following:  
15

16                   I do not know any data on this, but I suspect  
17                   that Fraser sockeye juveniles pass through  
18                   there on their way northward. However, I  
19                   have no information or expectations on Fraser  
20                   River sockeye adult migration routes related  
21                   to that region.  
22

23                   Q     Okay, thank you. We'll put that transcript away.  
24                               Now, I'd like to move to the topic that we're  
25                   here to talk about today, Enhancement and  
26                   Restoration, and I have provided all parties with  
27                   the sworn affidavits of Mr. Greg Savard and Ms.  
28                   Carol Cross. And this morning I have provided all  
29                   parties on Friday with an unsworn copy of the  
30                   affidavit of Randall Peterman, which will be  
31                   circulated today, but I can advise that the  
32                   unsworn version that was sent out on Friday is the  
33                   version that was sworn this morning before we  
34                   began the hearings and that is now available by  
35                   PDF and we'll see it on the screen when it comes  
36                   up.

37                               So I would like to start with the affidavit  
38                   of Carole Cross. This was sworn on April 26th,  
39                   2011, if that could...

40                               Ms. Cross, this is your affidavit?

41                   MS. CROSS: Yes, it is.

42                   Q     And we can turn to the second page with your  
43                   signature on it.

44                   MS. CROSS: That is my signature.

45                   MS. BAKER: Okay, thank you. I'd like this marked,  
46                   please, as the next exhibit.

47                   THE REGISTRAR: Exhibit number 757.



10  
PANEL NO. 30  
In chief by Ms. Baker  
In chief on qualifications by Ms. Baker

1 EXHIBIT 757: Affidavit #1 of Carol Cross  
2 sworn April 26, 2011  
3

4 MS. BAKER: Thank you. And then Mr. Savard's  
5 affidavit, also sworn on April 26th, 2011.

6 Q Mr. Savard, you can review that affidavit, and  
7 turn to page 2 where your signature's showing.

8 MR. SAVARD: Yes, this is my affidavit and that's my  
9 signature, yes.

10 MS. BAKER: Okay, thank you. I'd like this marked as  
11 the exhibit.

12 THE REGISTRAR: Exhibit number 758.  
13

14 EXHIBIT 758: Affidavit #1 of Greg Savard,  
15 sworn April 26, 2011  
16

17 MS. BAKER: And finally, Dr. Peterman.

18 Q This is your affidavit sworn this morning. You  
19 can turn to page 3 to see your signature on it.

20 DR. PETERMAN: Yes, this is my affidavit and that's my  
21 signature.

22 MS. BAKER: Thank you. And I'd like this marked,  
23 please, as the next exhibit.

24 THE REGISTRAR: Exhibit 759.  
25

26 EXHIBIT 759: Affidavit #1 of Randall  
27 Peterman, Sworn May 2, 2011  
28

29 MS. BAKER: And. Mr. Commissioner, Dr. Peterman was  
30 sworn or was qualified as an expert on April 20,  
31 2011, and I would also like to have him qualified  
32 this morning as an expert in density dependent  
33 effects on wild and enhanced fish populations.  
34

35 EXAMINATION IN CHIEF ON QUALIFICATIONS BY MS. BAKER:  
36

37 Q In that respect, Dr. Peterman, in your affidavit,  
38 page 2 -- sorry, in Exhibit A to your affidavit on  
39 the first page - thank you - you've set out your  
40 background related to interactions between wild  
41 and enhanced fish, and if I can just clarify that  
42 you have done work in the area of density  
43 dependent effects in both wild and enhanced  
44 populations; is that right?

45 DR. PETERMAN: Yes, that's correct.

46 Q And this, and what was in -- what did you intend  
47 in setting out these articles numbered 1 to 11 on

May 2, 2011

11  
PANEL NO. 30  
In chief on qualifications by Ms. Baker  
Ruling on qualifications  
In chief by Ms. Baker

1 pages 1 and 2 of Exhibit A?

2 DR. PETERMAN: Well, these are just examples of  
3 research that my colleagues and I have done  
4 related to interactions between salmon populations  
5 and within populations on the high seas.

6 Q Right. And that is work done in the Pacific  
7 Northwest, writ large, and also in B.C. specific,  
8 is that right?

9 DR. PETERMAN: Yes, that's correct. Well, and the  
10 first paper is in the North Pacific, written even  
11 larger.

12 Q Okay, thank you. And that's work that you've  
13 continued with up until 2010, which is the first  
14 (indiscernible - overlapping speakers).

15 DR. PETERMAN: Yes, that's right.

16 MS. BAKER: Thank you. Mr. Commissioner, I would like  
17 Dr. Peterman to be further qualified as an expert  
18 in the area identified.

19 THE COMMISSIONER: Yes, thank you, Ms. Baker.

20 MS. BAKER: Thank you.

21  
22 EXAMINATION IN CHIEF BY MS. BAKER, continuing:  
23

24 Q Now, Mr. Savard and Ms. Cross, in your affidavits  
25 you've referred to some documents but they're not  
26 attached to your affidavit, so I'd just like to go  
27 through and clarify which documents you're  
28 referring to, and in doing that I'll refer to the  
29 Commission's list of potential exhibits which were  
30 circulated to all parties. I'd like to begin with  
31 Ms. Cross.

32 On page 1 of your Exhibit A, which is where  
33 the questions and answers are set out, which make  
34 up your evidence in direct in this proceeding.  
35 Thank you. Paragraph number 3, you identify the  
36 SEP Enhancement Guidelines, and I'd just like to  
37 confirm that those are the guidelines found in Tab  
38 3 of the Commission's list. It's on the screen  
39 before you. Is that the document that you're  
40 referring to?

41 MS. CROSS: Yes, that's correct.

42 Q All right. And, Mr. Savard, you also refer to the  
43 same document, I take it, at paragraph 19(6) of  
44 your affidavit?

45 MR. SAVARD: Yes, that's correct.

46 Q Sorry, sub (b), not sub (6), 19(b); is that right?

47 MR. SAVARD: Yes.

May 2, 2011

12  
PANEL NO. 30  
In chief by Ms. Baker

1 MS. BAKER: Thank you. I'd like this SEP Enhancement  
2 Guidelines please be marked as an exhibit.  
3 THE REGISTRAR: Exhibit number 760.

4  
5 EXHIBIT 760: Enhancement Guidelines for  
6 Salmon Enhancement Programs, 3/31/28, Draft  
7

8 MS. BAKER:

9 Q Ms. Cross, your c.v. is found at Tab 7 of the  
10 binder before you. It should be up on the screen.  
11 It's at Tab 7. This is your c.v.?

12 MS. CROSS: Yes, it is.

13 MS. BAKER: I'd like this marked, please, as the next  
14 exhibit.

15 THE REGISTRAR: Exhibit 761.

16  
17 EXHIBIT 761: *Curriculum vitae* of Carol Cross  
18

19 MS. BAKER:

20 Q And, Dr. Peterman's c.v. has already been marked  
21 in these proceedings as Exhibit 7419, so I'm not  
22 going to mark that, at Tab 9 of the binder is the  
23 *curriculum vitae* of Mr. Savard; is that right, Mr.  
24 Savard?

25 MR. SAVARD: Yes, that's correct.

26 MS. BAKER: Okay. I'd like that marked, please, as the  
27 next exhibit.

28 THE REGISTRAR: Exhibit 762.

29  
30 EXHIBIT 762: *Curriculum vitae* of Greg Savard  
31

32 MS. BAKER:

33 Q Tab 11 is the Hatchery Risk Assessment Tool  
34 prepared by DFO for DFO. Ms. Cross, you referred  
35 to this -- sorry, I forgot to mark the paragraph  
36 that you refer to this in. Maybe I have, I'll  
37 just get someone to find that for me while I go to  
38 Mr. Savard. You refer to this in paragraph  
39 5(c)(iv)?

40 MR. LUNN: That's of the affidavit?

41 MS. BAKER:

42 Q It's in the Appendix A to his affidavit.

43 MR. SAVARD: Yes, that's the -- that's the document.

44 Q The Biological Assessment Framework, that's what  
45 you referred to as the Biological Assessment  
46 Framework in your paragraph 5(c)(iv), which is on  
47 page 4?

May 2, 2011

1 MR. SAVARD: No, the Biological Assessment Framework is  
2 a different --

3 Q It's a different document?

4 MR. SAVARD: -- a different document than the one that  
5 you're referring to.

6 Q Okay, thank you. My misunderstanding then. If I  
7 can ask Ms. Cross if your paragraph 17 of your  
8 affidavit refers to a biological risk assessment  
9 framework. Is this the document that you're  
10 referring to, or am I mistaken on that, as well?

11 MS. CROSS: Could I just see my affidavit?

12 Q yes. It refers to a hatchery risk analysis tool.

13 MS. CROSS: Yes. That is the document.

14 MS. BAKER: Okay, thank you. So I'd like this document  
15 marked then as the next exhibit.

16 THE REGISTRAR: Exhibit 763.

17

18 EXHIBIT 763: Hatchery Risk Assessment Tool  
19 (HRAT), User and Administrator Guide  
20

21

21 MS. BAKER:

22 Q Mr. Savard, if you turn to Tab 13 of the binder,  
23 there's a SEP Revitalization Strategy, and I just  
24 wanted to confirm, if you turn to page 2 of that  
25 document, if you can cross-reference that with  
26 paragraph 5(a) of your affidavit. Is this the --  
27 while Mr. Lunn's pulling it up, is this  
28 Revitalization Strategy document a document which  
29 is referred to in paragraph 5(a) of your  
30 affidavit?

31 MR. SAVARD: It appears to be. If I could see the  
32 affidavit. Yes, that's the same document.

33 MS. BAKER: All right. Have that marked, please.

34 THE REGISTRAR: Exhibit 764.

35

36 EXHIBIT 764: SEP Revitalization An Update,  
37 May 18, 2010  
38

39

39 MS. BAKER:

40 Q Ms. Cross, paragraph 13 of your affidavit refers  
41 to an experiment designed by Ted Perry of DFO.  
42 And I'd just like to take you to Tab 15 of the  
43 binder and ask if that's the -- that article  
44 relates to the experiment designed by Ted Perry?

45 MS. CROSS: Yes, that is the article. But just for  
46 clarification, that experiment was designed with a  
47 group of people, and Ted led the group.

14  
PANEL NO. 30  
In chief by Ms. Baker

1 MS. BAKER: Thank you. Okay, so I'll have that marked,  
2 please.

3 THE REGISTRAR: Exhibit 765.

4  
5 EXHIBIT 765: Perry et al, Salmon Stock  
6 Restoration and Enhancement: Strategies and  
7 Experiences in British Columbia  
8

9 MS. BAKER:

10 Q And the last document, 19 in the binder, Ms.  
11 Cross, in your affidavit at paragraph 10, you  
12 identify requests made by SEP to Science Branch  
13 for research described in earlier paragraphs in  
14 your affidavit. Is this Request for Science  
15 Advice that you see on the screen before you the  
16 request document prepared by SEP, or on behalf of  
17 SEP? Perhaps, Mr. Lunn, if you can move that  
18 over. Yes.

19 MS. CROSS: Yes, that is one of the requests that we  
20 had put forward.

21 MS. BAKER: Okay. I'll have that marked, please.

22 THE REGISTRAR: Exhibit 766.

23  
24 EXHIBIT 766: Request for Science Information  
25 and/or Advice, Pacific Region  
26

27 MS. BAKER: Thank you.

28 Q And the last piece of housekeeping is with respect  
29 to the PPR that's now been marked as number 11,  
30 there were some corrections that need to be made  
31 to this document. If I can take these through  
32 fairly quickly with either of the DFO witnesses,  
33 beginning with paragraph 24 on page 12. All  
34 right, paragraph 24 says that second line at the  
35 end:

36  
37 ...but many of these items are supposed to be  
38 encompassed by the biological risk  
39 assessment...

40  
41 You're referring to the guideline document.  
42 Should that read "some" or instead of "many"?

43 MR. SAVARD: Yes, that's correct.

44 Q Okay. And then paragraph 25, the Enhancement  
45 Guidelines again, it says:

46  
47 ...exist only in draft form, but they

1                   represent the practices...  
2  
3           Is what it says in the PPR. Should it say "they  
4           represent many of the practices"?  
5   MS. CROSS: That's correct.  
6   Q    Okay. Then paragraph 26 refers to the Excess  
7           Salmon to Spawning Requirements Initiative, and I  
8           think the date might be incorrect there. It says  
9           '93. It should say that it was implemented in the  
10          1980s and amended in 1993; is that right?  
11   MS. CROSS: That's correct.  
12   Q    Okay. Paragraph 29, "DFO's Regional guiding  
13          principles", we should have identified that they  
14          came from the Pacific Region Stewardship Strategy  
15          and are supposed to be consistent with those, et  
16          cetera. Is that right?  
17   MS. CROSS: That's correct.  
18   Q    On page 18, paragraph 40, the SEP Risk Assessment  
19          that's referred to in paragraph 40 should actually  
20          be a reference to a SEP Corporate Risk Profile; is  
21          that right?  
22   MS. CROSS: That's correct.  
23   Q    Okay. And I'll just leave it at that. Paragraph  
24          45 on page 20, 45(d), where it says "Biological  
25          risk assessment" it should be just "Biological  
26          assessment"; is that right?  
27   MS. CROSS: Yes.  
28   Q    Okay. And that's different, this is a biological  
29          assessment framework, which is different from the  
30          risk assessment; is that right?  
31   MS. CROSS: Yes, that's correct.  
32   Q    Okay. And then that correction should follow  
33          along to paragraph 48, where it also says  
34          "biological risk assessment", the word "risk"  
35          should be deleted?  
36   MR. LUNN: Did you say 48?  
37   MS. BAKER: 48.  
38   MS. CROSS: Yes.  
39   MS. BAKER:  
40   Q    Okay. Paragraph 54. You see spawning channels  
41          have been set out there:  
42  
43                  ...build fishways which included building  
44                  spawning channels in the 1960s at Weaver  
45                  Creek in the lower Harrison, Gates Creek...  
46  
47                  And the word "and" should go in between "Harrison"

1 and "Gates Creek", is that right, first of all?

2 MS. CROSS: Yes.

3 Q Okay, and:

4

5 ...in the upper Anderson-Seton system...

6

7 Then the Nadina River spawning channel was  
8 actually built in 1973; is that right?

9 MS. CROSS: Yes.

10 Q Okay. And we should probably have also referenced  
11 that Hell's Gate was built in this paragraph, as  
12 well -- sorry, the Hell's Gate, the fishways were  
13 built by the International Pacific Salmon  
14 Fisheries Commission, as well, right?

15 MS. CROSS: That's correct.

16 Q Okay. Paragraph 57 where you see in brackets,  
17 "(Upper Pitt River stock)" we should have written  
18 "(Upper Pitt River and Cultus Lake stocks)"; is  
19 that right?

20 MS. CROSS: Yes.

21 Q 68, we identified that:

22

23 The CEDP was reviewed in 1982 and 2005/06.

24

25 And that -- sorry? If you turn the page over,  
26 continuing on, it reads that:

27

28 The 2005/06 review identified a program  
29 funding shortfall and also found that DFO  
30 staff were unable to provide an adequate  
31 level of support and direction to CEDP  
32 contractors. DFO's response to the review  
33 recommendations was to develop...

34

35 An action plan to implement the recommendations;  
36 is that right?

37 MS. CROSS: Yes.

38 Q And was there also a four-year plan for CEDP  
39 renewal prepared?

40 MS. CROSS: Yes.

41 Q Okay. And paragraph 78 on page 31. The very last  
42 line of that paragraph says "\$27 million" and in  
43 fact it should be "26 million"; is that right?

44 MS. CROSS: Yes.

45 Q And then 97, paragraph 97, which is on page 38,  
46 there's a reference to program "HCSP". Do you see  
47 that reference? It should really be a reference

17  
PANEL NO. 30  
In chief by Ms. Baker  
Cross-exam by Mr. Taylor (CAN)

1 to the Strategic Stock and Enhancement Program?

2 MS. CROSS: Yes, that's correct.

3 Q And then finally on paragraph 137, which is on  
4 page 50, but the correction is on page 51, there's  
5 an agreement, the "Canada-BC Agreement on the  
6 Management of Pacific Salmon Fisheries Issues" is  
7 indicated as being in "1988", and that's a  
8 mistake, it should be "1998"; is that right?

9 MS. CROSS: Yes.

10 MS. BAKER: Thank you. Those were the questions I have  
11 for these witnesses. Their affidavits set out  
12 their direct evidence. We have a number of people  
13 who would like to examine these witnesses. We're  
14 a little bit behind schedule for where I wanted to  
15 be to start the cross-examination, so people are  
16 going to need to try and trim down their  
17 questions, if they can, by five to ten minutes,  
18 and the first questioner is Mr. Taylor on behalf  
19 of Canada. Thank you.

20 MR. TAYLOR: Mitchell Taylor, Mr. Commissioner, with me  
21 is Charles Fugère, and we represent the  
22 participant Government of Canada. My questions  
23 will be direct, that's my intent, of the DFO  
24 witnesses, and as we have a panel, interestingly  
25 technically I'm cross-examining Dr. Peterman, but  
26 I aim that my cross will be sufficiently soft that  
27 direct and cross will meld quite well together.  
28 But when Ms. Baker was saying that the direct of  
29 the witnesses would be by affidavit, that didn't  
30 include me.

31  
32 CROSS-EXAMINATION BY MR. TAYLOR:

33  
34 Q Now, I'd like to start, if I may -- oh, I have 55  
35 minutes allotted to me. I'd like to start, if I  
36 may --

37 MS. BAKER: Mr. Taylor, you're probably going to have  
38 to trim that back a little bit. I don't think  
39 you're going to have 55.

40 MR. TAYLOR: That's top of mind.

41 Q I'd like to start, if I may, with Mr. Savard, and  
42 Ms. Cross, and ask some questions of you, and my  
43 question to begin is what is SEP all about? What  
44 are the component parts of it? There is a focus,  
45 as I read your affidavits, and some of the other  
46 material on the hatcheries, and to some extent the  
47 spawning channels, but I understand there's more



1 to it than that. So could one of you start by  
2 taking a run at what is the SEP program, in a  
3 nutshell.

4 MR. SAVARD: I'll start and ask my colleague to  
5 respond, as well. So the Salmon Enhancement  
6 Program really has three different elements to it.  
7 One relates to fish culture, and this is largely  
8 the hatchery component of the program. And within  
9 the Pacific region there are about 23 hatcheries  
10 and spawning channels, and so this is a big part  
11 of the program.

12 The second element to the program is  
13 something called the Community Involvement  
14 Program, and this part of the program is focused  
15 in a few different areas. One is on building  
16 community stewardship arrangements. And nested  
17 within this Community Involvement Program is also  
18 a program called the Public Involvement Program,  
19 which in the Pacific region has about 265  
20 different projects. And these are largely  
21 community-based projects. Some of them deal with  
22 small-scale fish culture, but many of them are  
23 related to just working in communities and  
24 building stewardship and awareness around the  
25 salmon resource.

26 Also as another significant point of the  
27 Community Involvement Program is an Education and  
28 Awareness Program, and again within this program  
29 there's a few pieces to this. It's about working  
30 with communities around education and awareness  
31 with salmon, but there's also a formal program  
32 within the British Columbia school system that is  
33 called the Salmonids in the Classroom, our Stream  
34 to Sea Program, so a significant education  
35 component.

36 And I guess the third element to the Salmon  
37 Enhancement Program more broadly is a part of the  
38 program that is the Resource Restoration Program.  
39 And this part of that program deals with the  
40 restoration of salmon habitat in the Pacific  
41 region and the Yukon. So working with partners  
42 and communities and other proponents, this is work  
43 that restores habitat on an annual basis.

44 I might just stop there with my answer and  
45 then ask Ms. Cross to respond, as well.

46 Q Do you have things to add, Ms. Cross?

47 MS. CROSS: No, I don't.

1 Q Is it the case that the three components that you  
2 just spoke of are sometimes called pillars?

3 MR. SAVARD: They can be called pillars. We tend to  
4 refer to them as elements, the three elements of  
5 the Salmon Enhancement Program.

6 Q All right. Now, there is a document that is at  
7 Tab 12 of the Commission's binder of documents  
8 that is a deck or PowerPoint. Is that a document  
9 familiar to you, Mr. Savard, and Ms. Cross?

10 MS. CROSS: Yes, it is.

11 MR. SAVARD: Yes, it is.

12 Q And I understand this is what it says, that it's a  
13 document prepared by Fisheries in the Salmonid  
14 Enhancement Program as a presentation to the Cohen  
15 Commission. It was actually originally done for  
16 an interview, I understand. But being familiar  
17 with it, if you turn to -- the pages are not  
18 numbered, but if you turn to I think it's the  
19 third page. Yes, third page. Yes, and then  
20 following and you probably have a binder in front  
21 of you that will have this, as well, at Tab 12 of  
22 the Commission's documents.

23 The page you're on is the Salmonid  
24 Enhancement Program and then it flows over a  
25 number of pages, including some headings that are  
26 called "Community Involvement", "Resource  
27 Restoration" and "Salmon Production". And if you  
28 take a quick look at those pages, is that a  
29 further enunciation of what you were just going  
30 over in your evidence a moment ago?

31 MR. SAVARD: Yes, it is.

32 MR. TAYLOR: All right. I'd ask that this document be  
33 the next exhibit, please.

34 THE REGISTRAR: Exhibit number 767.

35

36 EXHIBIT 767: Salmonid Enhancement Program, A  
37 Presentation to the Cohen Commission, March  
38 2011  
39

40 MR. TAYLOR:

41 Q And if you look at the page following the one that  
42 we first went to, which is about three pages or  
43 four pages back from that one, thank you, you'll  
44 see a map there. What do those red dots -- do  
45 those red dots depict all of the SEP facilities,  
46 or some of them?

47 MR. SAVARD: The red dots are meant to depict the --

- 1 both the departmental facilities, the contract  
2 facilities and the public involvement facilities  
3 in the Province of B.C.
- 4 Q I think you mentioned this a few moments ago. Am  
5 I right that there's 23 DFO facilities?
- 6 MR. SAVARD: Twenty-three hatcheries and spawning  
7 channels.
- 8 Q All right. And do you know of the 23 how many are  
9 on the Fraser River system?
- 10 MR. SAVARD: There are approximately seven hatcheries  
11 and four spawning channels.
- 12 Q And of the seven hatcheries and four spawning  
13 channels, do you know how many deal with sockeye?
- 14 MR. SAVARD: All of the spawning channels deal with  
15 sockeye and the two of the hatcheries deal with  
16 sockeye.
- 17 Q All right. And I think we'll come back to that in  
18 a bit more detail in a few moments. In addition  
19 to the 23, then, there's some other facilities  
20 that are not DFO facilities; is that right?
- 21 MR. SAVARD: Yes, the community economic development  
22 and the public involvement facilities are not DFO  
23 -owned facilities.
- 24 Q Does DFO have any involvement with those?
- 25 MR. SAVARD: Yes. We work on an annual basis through  
26 contract, contract relationship with the community  
27 economic development facilities, and also through  
28 small contract arrangements with the public  
29 involvement facilities, to design and talk about  
30 annual production plans that the facilities will  
31 be implementing.
- 32 Q I understand that the facilities that are not DFO  
33 facilities encompass quite a range of type of  
34 facility; is that right?
- 35 MR. SAVARD: Yes, particularly in the Public  
36 Involvement Program, as I mentioned earlier, about  
37 265 projects within the Pacific region, about 178  
38 of those, I believe, are involved in fish culture  
39 activities. So of the 265, not all of them are  
40 doing fish culture activities. A lot of them are  
41 doing kind of stewardship, education work, habitat  
42 enhancement type work, as well, so...
- 43 Q And of the 161 that are doing fish culture, can  
44 you just clarify what you mean by fish culture?
- 45 MR. SAVARD: Yeah, this is a process where the  
46 facilities are taking -- taking eggs and  
47 incubating them in their facilities, salmon eggs

1           and incubating them in their facilities.  
2       Q     And would it be the case that some are very small  
3           and others would be of modest size, but not huge.  
4       MR. SAVARD: Yes, some of them will range in as low as  
5           5,000 to 10,000 eggs, others might be tens of  
6           thousands of eggs. But they range in size from  
7           very small fish culture facilities to kind of  
8           medium size.  
9       Q     I understand that SEP started in about 1977 and I  
10           think there's some evidence on that, and had  
11           objectives at that time and has objectives now.  
12           Are the objectives now the same as then, or have  
13           they changed over time?  
14       MR. SAVARD: At the start of the Salmon Enhancement  
15           Program in the late 1970s there were five key  
16           objectives, and currently through some of the work  
17           that we've been doing under SEP revitalization,  
18           there's three key objectives that the program has.  
19           One is working with vulnerable salmon populations,  
20           to try and recover them, a second objective is to  
21           the producing fish for harvest, and a third  
22           objective is to be working with communities,  
23           stakeholders, First Nations, groups around  
24           stewardship and community, community activities  
25           related to salmon.  
26       Q     All right. Now, there is a document that has been  
27           prepared by the Government of Canada. I believe  
28           there's a copy in front of you. It's dated  
29           September 2010, and I have passed to Mr. Registrar  
30           for the Commissioner a copy, as well. This is  
31           something that I gave to the participants this  
32           morning. It's something that's newly come to my  
33           attention. And I want to ask you some questions  
34           about this. Ms. Cross, I think I'll go to you  
35           first. Are you familiar with that document?  
36       MS. CROSS: Yes, I am.  
37       Q     You've got a copy, paper copy in front of you, do  
38           you?  
39       MS. CROSS: Yes, I do.  
40       Q     And is it possible, Mr. Lunn, to bring this up on  
41           the screen? It's the one I sent this morning.  
42       MR. LUNN: Canadian Enhanced...  
43       MR. TAYLOR: Canadian Enhanced Salmonid Production  
44           During 1978-2009.  
45       MR. LUNN: Thank you.  
46       MR. TAYLOR:  
47       Q     Now, this, firstly, Ms. Cross, what is this

1 document?

2 MS. CROSS: This is a document that summarizes the  
3 hatchery and spawning channel releases for British  
4 Columbia, and it's a document that's prepared  
5 annually and submitted to the North Pacific  
6 Anadromous Fish Commission, and it forms part of  
7 the dataset that they comprised on the North  
8 Pacific for hatchery releases.

9 Q All right. And I see from the cover that the  
10 people producing this are people within the  
11 Department of Fisheries and Oceans, are they?

12 MS. CROSS: Yeah, two of the people are in SEP and one  
13 of the individuals is in Science.

14 Q And that Science person would be -- it's either  
15 Mr. or Dr. Irvine?

16 MS. CROSS: Dr. Irvine.

17 Q Are they all scientists?

18 MS. CROSS: The other two individuals are biologists.

19 Q Okay. I think there's been some evidence on this  
20 next point so far, but can you just say briefly  
21 for the Commissioner what is the North Pacific  
22 Anadromous Fish Commission?

23 MS. CROSS: It's a body -- I'm not overly familiar with  
24 it, but it's a body that comprises all of the  
25 agencies that are involved in fisheries activities  
26 around the North Pacific, Asia and Alaska, Canada  
27 and the U.S., and we do have members from Science  
28 Branch as part of that group.

29 Q All right. If you turn to page 2 of this  
30 document, it speaks of the methodology for  
31 determining the amount of releases, and it says  
32 about between a half and two-thirds down the page,  
33 the paragraph:

34  
35 It is not possible to assess each enhancement  
36 project and release strategy.  
37

38 Do you see that sentence beginning a paragraph?

39 MS. CROSS: Yes, I do.

40 Q Can you say why that's so, that it's not possible  
41 to assess each project and release strategy?

42 MS. CROSS: The assessment that is referred to there is  
43 particular to post-release assessment, and so that  
44 would involve things like overall survival rates,  
45 fisheries distribution, exploitation rates. The  
46 reason that it's not possible to assess each  
47 project is that there are some statistical

1 requirements around the numbers of fish that have  
2 to be marked in order to actually have any  
3 statistical reliability. And some of the projects  
4 are just too small to do that, they release too  
5 few fish, and there are some sort of logistical  
6 reasons, as well, in terms of the way fish are  
7 released and the numbers that are released that  
8 can interfere with that kind of assessment.

9 We do have a methodology for applying  
10 assessment data from indicator stocks to those  
11 sites that aren't specifically released  
12 individually.

13 Q All right. Now, if you turn to page 3, you'll see  
14 a multicoloured bar chart there. I understand  
15 that is graphically depicting over quite a number  
16 of years the annual release from enhancement  
17 facilities; is that right?

18 MS. CROSS: Yes.

19 Q And when it says enhancement facilities, is that  
20 hatcheries and spawning channels, or just  
21 hatcheries?

22 MS. CROSS: It is hatcheries and managed spawning  
23 channels.

24 Q All right. And while we're on this, can you  
25 explain whether there's a difference between  
26 hatchery and spawning channel and, if so, what is  
27 the difference, both in terms of the facility  
28 itself, and in terms of the fish that come from  
29 each of those, and take the facilities first and  
30 compare them, and then the fish.

31 MS. CROSS: Okay. So hatcheries generally involve some  
32 kind of a more significant intervention in the  
33 life history that involves collecting adult brood  
34 stock, taking eggs, fertilizing them, incubating  
35 them for some period of time and rearing them for  
36 some period of time, and that time is dependent on  
37 the species. In some instances, fish can be  
38 released as unfed fry, in other instances they may  
39 be fed for up to a year using commercial feeds.

40 Spawning channels are considered to be one of  
41 the more least minimal intervention forms. They  
42 involve allowing animals to volitionally move into  
43 the spawning channel. A spawning channel is an  
44 area that has optimal gravel and flow conditions.  
45 So animals from the river move into the spawning  
46 channel. There is some minimal control over  
47 density and timing of moving into that channel.

1 They spawn naturally. They pair naturally. They  
2 incubate and rear naturally, or they incubate  
3 naturally, and then they migrate as juveniles  
4 volitionally out of the channel as fry. And so  
5 they'd be in the order of maybe half a gram,  
6 depending on the species. And then in the case of  
7 sockeye, those animals would move into lakes and  
8 they would rear naturally as together with the  
9 wild salmon and have similar survival rates as  
10 those wild salmon in terms of that rearing  
11 strategy.

12 Q All right. And in terms of the fish, can you  
13 compare and contrast the fish from a hatchery  
14 versus a spawning channel, and whether there's  
15 some difference between the two?

16 MS. CROSS: Well, there'd be a difference in terms of  
17 the fact that the spawning channel fish are going  
18 out as largely unfed fry. For sockeye salmon,  
19 that comprises about 97 percent of the sockeye  
20 that we release. They're just basically natural  
21 animals emerging from the channel and migrating  
22 when they're ready to migrate.

23 Fish from hatcheries would be reared for some  
24 period of time and generally they'd be bigger than  
25 a channel fry, but they are a different species,  
26 as well, so they would have a different life  
27 history.

28 For sockeye in particular when we're  
29 releasing sockeye from hatcheries, and that's a  
30 very small part of our program, but they would be  
31 released, some of them, as fed fry, and some of  
32 them as smolts. And they'd be probably in the  
33 order of ten grams versus a half a gram released.

34 Q As I listen to your evidence, I think I'm hearing  
35 that the hatchery fish are reared, initially at  
36 least, in an artificial environment by humans, and  
37 the spawning channel fish are in an enhanced  
38 natural habitat doing whatever they would normally  
39 do. Is that a fair assessment?

40 MS. CROSS: Yeah, that's correct.

41 Q And is the life cycle of a spawning channel fish  
42 different or the same as a wild stock fish?

43 MS. CROSS: I'd say it's the same. The only minor  
44 difference would be the fact that the -- the  
45 access to the spawning channel is somewhat  
46 controlled in terms of the time that they can  
47 enter the channel, and there is some control over

1 the density of fish in the spawning channel so  
2 that we don't have later arriving fish coming in  
3 and spawning over top of previously -- a previous  
4 spawn.

5 Q All right. Dr. Peterman, are there things that  
6 you want to say on this, or add, or comment on  
7 what Ms. Cross has just said?

8 DR. PETERMAN: No, I have nothing to add.

9 Q All right. So you accept what she says as  
10 accurate?

11 DR. PETERMAN: Yes. Yes, definitely.

12 MR. TAYLOR: Now, coming back to the document that I  
13 had before you, Ms. Cross, and maybe at this point  
14 I could ask that it be marked as an exhibit.

15 THE REGISTRAR: Exhibit 768.

16  
17 EXHIBIT 768: Sandher, Cook and Irvine,  
18 Canadian Enhanced Salmonid Production During  
19 1978-2009 (1977 - 2008 Brood Years),  
20 September 2010  
21

22 MR. TAYLOR:

23 Q If you turn to the very end of the document,  
24 you'll see Table 3, which is "Juvenile salmon  
25 releases by area in 2009". This is data that  
26 would come from the Department of Fisheries and  
27 Oceans, I gather, is it, Ms. Cross?

28 MS. CROSS: Yes, it would come from SEP databases, yes.

29 Q And for sockeye it appears that 151 million  
30 juvenile sockeye releases came from hatcheries and  
31 manned channels in 2009, of which approximately  
32 137,000 came from the Skeena. Do I have that  
33 right?

34 MS. CROSS: 137 million, yes.

35 Q I'm sorry, yes. If I said 100,000 in any case, I  
36 meant 100 million.

37 MS. CROSS: That's correct.

38 Q And it looks like approximately 20 million, I  
39 guess, came out of the Fraser system; is that  
40 right? I'm looking at the "Lower Fraser" and  
41 "Upper Fraser" numbers together. It seems to be a  
42 figure of 39, that is 3.9 million, and then a  
43 small number, then another 3.9 million, and so  
44 forth, in the lower part of the chart.

45 MS. CROSS: So the Lower Fraser total is four million,  
46 and, yes, that's correct.

47 Q Oh, I'm sorry. You're quite right. I was missing



1 that there's some totals there.

2 MS. CROSS: Yes.

3 Q So the Lower Fraser is 3.9 million total, and the  
4 Upper Fraser is 6.7 million?

5 MS. CROSS: Correct. Yes.

6 Q So it seems that for 2009 the number of sockeye  
7 released from hatcheries and manned channels is a  
8 very small percentage of the total that were  
9 released that year coast-wide.

10 MS. CROSS: Yeah, that's correct, and I should add that  
11 on the Fraser about 90 percent of those sockeye  
12 come out of spawning channels, and the Skeena  
13 release that you were referring to earlier is all  
14 from one spawning channel. So overall, 97 percent  
15 of our releases on average come from spawning  
16 channels for sockeye.

17 Q Is the number of releases -- sorry, let me  
18 rephrase that. Is the percentage of releases from  
19 the Fraser system, which in 2009 was a small  
20 percentage, historically roughly the same, and has  
21 consistently been a small percentage of the total?

22 MS. CROSS: Yes, that's correct.

23 Q And has it historically been the case that most of  
24 the sockeye being released, you said 97 percent in  
25 2009, are from spawning channels, as opposed to  
26 hatcheries?

27 MS. CROSS: Yeah, and that -- and in fact the hatchery  
28 releases have only become more prominent in the  
29 last ten years or so with the Cultus and Sakinaw.

30 Q If you turn back to page 5, there's a map there  
31 with a legend that shows what facility is being  
32 spoken of by reference to a number, and I  
33 understand this to be the hatcheries and spawning  
34 channels on the Fraser system; is that right?

35 MS. CROSS: Yes, that's correct.

36 Q And there's 13 listed there. I think as I heard  
37 Mr. Savard a few moments ago, he had 11, seven  
38 hatcheries and four spawning channels. I may have  
39 misheard, but the numbers sound close. If it is a  
40 spawning channel, does the word "spawning channel"  
41 appear in the name of the facility in that legend?  
42 In other words, are there any of these things that  
43 are spawning channels beyond what is called a  
44 spawning channel, which appear to be three of  
45 them?

46 MS. CROSS: Yes, that's correct. But I should point  
47 out that some of these facilities are not actually

- 1           on the Fraser. This was a depiction of the Lower  
2           Mainland, as well. So Tenderfoot Creek, Seymour  
3           River, those are not on the Fraser.
- 4        Q     Right. I have been around long enough that I  
5           notice with some intrigue that Capilano and  
6           Seymour were put on the Fraser.
- 7        MS. CROSS: And Capilano, as well, yes.
- 8        Q     And the others that are not labelled "spawning  
9           channels" are hatcheries, are they?
- 10       MS. CROSS: That's correct.
- 11       Q     Can you pick out from that list which are the  
12           sockeye ones?
- 13       MS. CROSS: Gates Creek, Horsefly Spawning Channel,  
14           Weaver Spawning Channel, and there are hatchery  
15           sockeye done at Inch Creek.
- 16       Q     Where is Gates on -- oh, there it is, number 4.  
17           So number 4, 5, 6 and 13 are sockeye-related, are  
18           they?
- 19       MS. CROSS: Yes, that's correct.
- 20       Q     Is there a particular reason why a facility is set  
21           up as being sockeye, or some other species, and  
22           the other species would be divided between the  
23           other four salmon species, I take it? Why are  
24           some sockeye and others different? How is it  
25           decided or chosen?
- 26       MS. CROSS: The particular species mix at any given  
27           facility has developed over time and production  
28           plans for facilities are developed in cooperation  
29           between Fisheries Management, Science and stock  
30           assessment in general. And enhancement does --  
31           needs to be integrated into the overall planning  
32           for that area. And so in the particular instances  
33           for the Gates and Weaver spawning channels, those  
34           were built by the International Pacific Salmon  
35           Fisheries Commission to address some concerns  
36           about habitat issues in terms of spawning habitat.  
37           And so that's typically the kind of  
38           enhancement response. An issue may be identified  
39           by another sector, by ourselves. There's  
40           cooperative work on determining what is the best  
41           way to address that. If enhancement is determined  
42           to be the best way to address that, and that's not  
43           always the case, then we would go forward with an  
44           enhancement program.
- 45       Q     All right. Mr. Savard, in your affidavit at page  
46           5, paragraph 6 in the exhibit to your affidavit,  
47           where you give the answers, there's a listing of

1 the annual budget for the SEP program over quite a  
2 number of years, and just as a flag I don't need  
3 to take anyone to this at the moment, but for a  
4 recent year in the PowerPoint that was marked as  
5 an exhibit, there's a division between the three  
6 pillars that Mr. Savard spoke of earlier. And so,  
7 for example, in recent years the 26 million is  
8 divided, according to that exhibit, between the  
9 facilities we've just been talking about and then  
10 the other two pillars.

11 Mr. Savard, in terms of the total amount of  
12 money, it appears that from about 1995 onwards the  
13 annual budget has been pretty stable at 27, 26  
14 million, in that range. Before that it was higher  
15 and this goes back to 1990. Were there even  
16 different amounts before 1990?

17 MR. SAVARD: I think the SEP program in the early days  
18 when it was first being started in the late 1970s,  
19 was close to -- it was around 38 or 39 million at  
20 its peak, so you'll note that in 1990 it's about  
21 \$38 million. Over the course of the years a  
22 number of things have occurred. As we've learned  
23 more about different enhancement programs, some of  
24 the facilities were actually discontinued because  
25 the benefits were not being appreciated that we  
26 had anticipated from those things. So some of the  
27 reduction in budgets will reflect that a smaller  
28 program since the late 1970s when the SEP program  
29 first started.

30 And over the course of the years, you know,  
31 with respect to the three pillars or three  
32 elements that you've talked about, you know, we've  
33 put different emphasis on and different focus on  
34 the money that we've put towards those three  
35 things. But by and large, the lion's share of the  
36 money does go towards the operation and  
37 maintenance of the facilities, around \$19 million  
38 or \$20 million. And --

39 Q And -- no, go on.

40 MR. SAVARD: -- that budget now has been stabilized of  
41 about \$26 million.

42 Q And in the what I'll call early years, before the  
43 early 1990s and back in the '80s, was there a  
44 component of the annual budget that was used or  
45 allocated for what I'll call starting up, getting  
46 going, construction, that sort of thing?

47 MR. SAVARD: Yes, there was.

1 Q And that need, I take it, dropped off as you went  
2 through the formative years where the start-up and  
3 construction was occurring and you hit your stride  
4 with the facilities now in place and it was a  
5 matter of carrying forward year-by-year?

6 MR. SAVARD: That's correct.

7 Q With the \$26 million that has been relatively that  
8 amount for quite a number of years now, can you  
9 say how your program manages in terms of doing  
10 what is useful to do with a stable amount of  
11 money, even though inflation would be eating into  
12 it from time -- as you go through the years?

13 MR. SAVARD: Yeah, I guess a couple of points on that  
14 topic. I mean, I guess I would characterize the  
15 Salmon Enhancement Program is really a kind of a  
16 tool that the Department of Fisheries has in the  
17 Pacific region, first for meeting a number of  
18 different objectives. So and by that I mean that  
19 a lot of the things that the Salmon Enhancement  
20 Program does is related to supporting Fisheries  
21 Management or Science programs.

22 So you know, the program is involved in -- in  
23 fish culture for sure, in terms of kind of  
24 producing fish, but a lot of the work that is done  
25 in producing those fish is marking them, which  
26 then creates information data in terms of kind of  
27 both -- that can be applied to both kind of wild  
28 and enhanced returns of fish. Through the Pacific  
29 Salmon Treaty we have obligations in terms of  
30 working with chinook stocks, largely the Salmon  
31 Enhancement Program is supporting the development  
32 of indicator stocks.

33 With respect to, Ms. Cross mentioned earlier,  
34 things like Cultus and Sakinaw sockeye, which are  
35 significantly depressed stocks. The Salmon  
36 Enhancement Program is working to do work with  
37 those stocks to try and recover them.

38 So with respect to kind of the annual  
39 business planning and production planning, the --  
40 you know, an overview of the process that the  
41 Salmon Enhancement Program uses is to define  
42 priorities, departmental and regional priorities  
43 for the coming year with respect to how the Salmon  
44 Enhancement Program may support a wide range of  
45 other departmental programs.

46 Through that process we identify, as I said,  
47 key priorities. We're working with fisheries

1 managers. We're working with Science staff and  
2 we're working with a range of other folks around  
3 identifying what those priorities are. And we're  
4 working with stakeholders and other interested  
5 parties with respect to what their interests are.  
6 And at the end of the day, all that kind of comes  
7 together in terms of kind of helping us to make  
8 decisions around where we allocate money across  
9 the three program elements.

10 Q Okay. In terms of the work you do in the SEP  
11 program, can you say how it relates to, or fits  
12 with the Wild Salmon Policy?

13 MR. SAVARD: The work with respect to the Wild Salmon  
14 Policy, we -- the Salmon Enhancement Guidelines  
15 that Ms. Cross spoke about earlier, are linked  
16 with the Wild Salmon Policy work and help us make  
17 decisions in terms of where we're enhancing, to  
18 what level we're enhancing and how that links with  
19 the Wild Salmon Policy, as one example. I  
20 might...

21 Q Do you have anything to add, Ms. Cross?

22 MS. CROSS: Perhaps I could add a few things. The  
23 policy explicitly recognizes enhancement, the role  
24 of enhancement potentially in meeting sort of  
25 local or watershed objectives for CUs. But the  
26 key to integrating enhancement within the Wild  
27 Salmon Policy is the planning process. And that's  
28 the process by which the CU status is considered,  
29 and what the objectives are for that CU, and how  
30 those might best be met.

31 Enhancement Program has considered how we  
32 specifically sort of fit into the CU concept, from  
33 the perspective of we have developed a sort of  
34 internal practice whereby we do not move fish  
35 across CUs. However, we would consider it on a  
36 case-by-case basis if there was a necessity to re-  
37 establish animals in a CU in which there were no  
38 longer any animals. And so we generally are  
39 beginning to work on biological risk assessment  
40 framework, as well.

41 Q All right. Dr. Peterman, I recognize you're not  
42 within DFO, but nonetheless you're in the  
43 fisheries biology business and science. Do you  
44 have anything that you want to add as to how SEP  
45 relates to the Wild Salmon Policy?

46 DR. PETERMAN: No, I think what I heard sounds quite  
47 sufficient.

1 Q All right. Now, in the operation of the  
2 facilities, Mr. Savard and Ms. Cross, I want to  
3 ask you, and then I'll come to Dr. Peterman in a  
4 moment, what do you do to make sure that things  
5 are operating fine and the fry or smolts that  
6 you're putting out are fine smolts to put out?

7 MS. CROSS: We referred earlier to a document,  
8 Operational Guidelines, so we have a series of  
9 practices and guidelines that have been developed  
10 since the inception of the program, specifically  
11 around things like brood stock collection,  
12 spawning, genetic management overall. We have  
13 fish health management plans for DFO facilities.  
14 We have a veterinarian, and technical support  
15 staff who work very actively with our hatcheries  
16 and to some degree with the community hatcheries,  
17 as well, in providing advice, review, supervision  
18 of aspects of the program, the sort of technical  
19 aspects of the program.

20 Generally there's fairly broad program  
21 oversight in terms of we have programs report  
22 annually on numbers of brood stock collection,  
23 juvenile inventories, number of fish released. So  
24 we maintain databases of information around each  
25 facility, and that actually allows us to review  
26 the performances of the facilities and identify  
27 where there may be issues arising that require  
28 additional technical support.

29 Q And is there a veterinarian assigned to the SEP  
30 program?

31 MS. CROSS: Yes, we have a veterinarian assigned who  
32 works within the Science program and works 80  
33 percent of her time on SEP issues.

34 Q There is a document -- actually, before I go to  
35 the document, Dr. Peterman, do you, in your work,  
36 are you familiar with the monitoring and the sorts  
37 of things that Ms. Cross has just outlined?

38 DR. PETERMAN: No, I'm not familiar with that level of  
39 detail at all. So I really can't comment on it.

40 Q Are you able to comment on the results, if I could  
41 put it that way, the output that comes from the  
42 facilities? Do you find them to be, if you have  
43 knowledge of this, fine and good, or otherwise, or  
44 what?

45 DR. PETERMAN: I guess it depends on how you define  
46 "fine and good".

47 Q All right.

1 DR. PETERMAN: And not being flippant, I think --  
2 Q (Indiscernible - overlapping speakers) reasonably  
3 healthy stock with reasonable size, and so forth.

4 DR. PETERMAN: Well, I think there's always been an  
5 assumption that seems to be well-supported that  
6 the spawning channel fish are as healthy as the  
7 wild fish in nearby streams. There always has  
8 been questions about whether the juveniles  
9 released from hatcheries are going to survive the  
10 same way that the wild populations would. And  
11 there are various marking programs that have been  
12 undertaken to try to compare those, and I can't  
13 really speak to the details because they seem to  
14 vary by location and by species across the West  
15 Coast, not speaking specifically about B.C.

16 Q All right. And in terms of spawning channel fish,  
17 which is the majority for the sockeye, as I  
18 understand it, and you're nodding, they're  
19 referred to as enhanced fish, but they're  
20 essentially wild fish that are in an enhanced  
21 habitat, aren't they?

22 DR. PETERMAN: Yes, that's right. Essentially, you're  
23 looking at a situation where they have increased  
24 the square metres of spawning habitat.

25 Q Right. Now, there's a document which is number 12  
26 in Canada's binder that was sent around to the  
27 participants on Thursday or Friday. It's called  
28 Pacific Fisheries Resource Conservation Council -  
29 yes, thank you - from May of 2005. Are you  
30 familiar with this, Ms. Cross?

31 MS. CROSS: Yes, I am.

32 Q What is this, and what does it say, if you are  
33 familiar with it?

34 MS. CROSS: There was a report, the Conservation  
35 Council was asked to review salmon enhancement in  
36 Pacific region. They issued initially a report, a  
37 literature review report. Then they undertook a  
38 consultation on -- on the program, and the report,  
39 and I believe this was the document that  
40 summarized the outcome of that consultation. My  
41 general recollection of this document was that  
42 they heard a variety of views, but that there was  
43 -- the program was popular, there was a general  
44 acceptance of the work that was done, and that  
45 there were just such a range of views that they  
46 didn't come to a conclusion at the end of this.

47 There was a third document as part of this

1 series which summarized this and their own  
2 findings, and in that document they described the  
3 very wide but positive in a range of views in  
4 terms of the consultation.

5 MR. TAYLOR: All right. I'm going to ask that this be  
6 marked as the next exhibit, if I may.

7 THE REGISTRAR: Exhibit 769.

8  
9 EXHIBIT 769: Pacific Fisheries Resource  
10 Conservation Council, Perspectives on Salmon  
11 Enhancement and Hatcheries: What the Council  
12 Heard, May 2005  
13

14 MR. TAYLOR: And I might just clarify a point. Ms.  
15 Gaertner just passed me a note asking a question,  
16 and I thought that the document submitted to the  
17 North Pacific Anadromous Fish Commission is  
18 Exhibit 768 now, but since there is a question by  
19 Ms. Gaertner, I want to just check. Is it an  
20 exhibit?

21 THE COMMISSIONER: That's correct.

22 THE REGISTRAR: Yes, that's correct.

23 MR. TAYLOR: I think Mr. Lunn is saying yes.

24 Q Ms. Cross and Mr. Savard, I want to quickly take  
25 you to a few documents, ask if you identify them,  
26 and then in the interests of time, if you can  
27 identify them, I think I'll just mark them as an  
28 exhibit for what you say they are., because I want  
29 to move to some other areas of questioning.

30 Tab 3 of the Canada list of documents is an  
31 article from 2004, Fisheries Management  
32 Perspective, The Controversy about Salmon  
33 Hatcheries. Is that a document you're familiar  
34 with, and if so, what is it?

35 MS. CROSS: Yes, this a document I'm familiar with, and  
36 so this was a Perspectives document in a magazine  
37 that described a number of the issues around  
38 hatchery fish that were in the -- that have  
39 occurred routinely in the literature, and just  
40 reviewed some of the discussion on that.

41 Q All right. Are you familiar with this document,  
42 Dr. Peterman?

43 DR. PETERMAN: Yes.

44 Q Do you accept it as authoritative?

45 DR. PETERMAN: It's one point of view, yes.

46 Q Okay. If you turn to page 26, Dr. Peterman, and I  
47 think you're going to have a paper copy there in



1 addition to it coming up on the screen, you'll see  
2 a heading the left column, "Benefits of Artificial  
3 Propagation" and in that first paragraph it says  
4 partway through:  
5

6 As mentioned above, artificial propagation is  
7 a tool to maintain population structure in  
8 the presence of potential negative  
9 environmental stochastic influences and the  
10 fishery.  
11

12 First can you tell me what "stochastic" is? I may  
13 be showing what I don't know, I suppose, but what  
14 is that?

15 DR. PETERMAN: Yes, it means "random".

16 Q All right, thank you. And do you agree with  
17 what's set out in that sentence?

18 DR. PETERMAN: It's a tool to maintain the population  
19 structure only if the artificial propagation is  
20 done in a way that's sensitive to things like  
21 which animals are chosen to provide the eggs and  
22 milt, and run timing, are they -- in other words,  
23 are the appropriate safeguards in place for  
24 randomly choosing the parent stock, as opposed to  
25 selectively removing the early run timing group or  
26 the largest fish, or something like that.

27 Q So in all aspects of hatchery operation and  
28 spawning channel operation, do you agree that if  
29 it's done right, they're good things to do?

30 DR. PETERMAN: Well, I hesitate to say they're good  
31 things to do, as a blanket, because obviously  
32 there are different sources, different ways of  
33 measuring the success of output from hatcheries.  
34 And I want to bring to your attention that this  
35 paper is part of a series of debates. The Myers  
36 et al, 2004 paper in *Science* is another part of  
37 this debate. And it would be worthwhile for the  
38 Commission to look at this, a range of a few  
39 points.

40 Q All right. If you say you're familiar with this  
41 article, I appreciate you may not have read it  
42 recently, but if you look at page 26 and 27 in the  
43 lower part of the left column and then over to the  
44 upper part of the right column, it appears to be  
45 saying, as I read this, that artificial  
46 propagation can serve a useful purpose in ensuring  
47 genetic diversity, and in particular where you

1           have stocks that are at the low end of what they  
2           might usefully be at. Do you -- do you read it  
3           that way?

4       DR. PETERMAN: Well, I can't say that I've read it  
5           recently enough to know the details. But I  
6           certainly agree with that sentiment, that in  
7           cases, for instance, as in Cultus example, we have  
8           population that's at very low abundance and a  
9           hatchery is a useful way to try to maintain that  
10          genetic group, where all other measures may have  
11          failed.

12       Q       All right. And there's another point that's made  
13           at the bottom of the right column, just above that  
14           heading "Hatchery Management Reform", that as I  
15           read it, it essentially says that hatchery fish  
16           and the production of hatchery fish can serve a  
17           useful purpose, that when they return, there's  
18           more biomass on the coming back, if you like, and  
19           that's good for nutrients, and that itself is a  
20           benefit. Do you see it there in that last  
21           paragraph that begins "Finally"?

22       DR. PETERMAN: No, I'm sorry, I don't see which  
23           paragraph you're talking about.

24       Q       It's in the right --

25       DR. PETERMAN: Oh, the one above the heading. I beg  
26           your pardon.

27       Q       -- column, just above "Hatchery Management  
28           Reform".

29       DR. PETERMAN: Well, that only applies if there are  
30           excess hatchery fish, or, pardon me, if there are  
31           excess fish to the needs of the hatchery that go  
32           into the spawning grounds --

33       Q       All right.

34       DR. PETERMAN: -- for the wild stock. But, of course,  
35           that's just one measure of their effect. As the  
36           article does discuss, there are other effects of  
37           those hatchery fish straying onto the wild  
38           spawning areas that would be negative in terms of  
39           the genetic -- the interbreeding of hatchery and  
40           wild fish. There's been well-documented examples  
41           where there's some deterioration in fitness of the  
42           wild populations as a result of that interbreeding  
43           between hatchery strays and wild fish.

44       MR. TAYLOR: All right. We'll come back to some of  
45           that perhaps. Could this document be marked as  
46           the next exhibit, please.

47       THE REGISTRAR: Exhibit number 770.

1 EXHIBIT 770: Fisheries Management  
2 Perspective article entitled "The Controversy  
3 about Salmon Hatcheries", 2004  
4

5 MS. BAKER: Mr. Commissioner, I just rise because we  
6 are -- I'm concerned about timing of course, this  
7 morning, and wondering how much longer Mr. Taylor  
8 will be.

9 MR. TAYLOR: Well, I'm not going to exceed my 55  
10 minutes. I think I started at ten to, and --

11 MS. BAKER: Right, and I --

12 MR. TAYLOR: -- (indiscernible - overlapping speakers)  
13 said I had 54 minutes.

14 MS. BAKER: Well, right, and I think I had said that  
15 you don't have 55, you have somewhat like ten  
16 minutes less than that. So are you going to be  
17 finished -- when will you be finished?

18 MR. TAYLOR: Seven minutes.

19 Q Tab 5 of Canada's documents. I'm just going to  
20 ask if either Mr. Savard or Ms. Cross can identify  
21 that document, and what it purports to be, and if  
22 so, we'll mark it as an exhibit. Do you recognize  
23 that document?

24 MR. SAVARD: Yes, I do. It's a document that  
25 summarizes an evaluation that was done on the  
26 Salmonid Enhancement Program in 2008 and 2009.

27 MR. TAYLOR: All right. And may that be marked as the  
28 next exhibit, please.

29 THE REGISTRAR: Exhibit 771.  
30

31 EXHIBIT 771: Evaluation Directorate,  
32 Salmonid Enhancement Program, Final  
33 Evaluation Report September 22, 2009  
34

35 MR. TAYLOR:

36 Q And then Tab 8, which is a document entitled  
37 "National Conservation Strategy for Cultus Lake  
38 Sockeye Salmon (*Oncorhynchus Nerka*)", it's a  
39 Fisheries document, technical report from 2009.  
40 Do you recognize, either Mr. Savard or Ms. Cross?

41 MS. CROSS: Yes, I do.

42 Q And I see the title, but what is it?

43 MS. CROSS: It's a strategy for developing a recovery  
44 strategy for Cultus Lake sockeye, which includes  
45 an enhancement component.

46 MR. TAYLOR: All right. May that be marked as the next  
47 exhibit, please.

1 THE REGISTRAR: Exhibit 772.

2  
3 EXHIBIT 772: National Conservation Strategy  
4 for Cultus Lake Sockeye Salmon (*Oncorhynchus*  
5 *Nerka*), Cultus Sockeye Recovery Team, DFO,  
6 2009  
7

8 MR. TAYLOR:

9 Q Dr. Peterman, I think we touched on this in some  
10 of my questions of you, but I want to just be sure  
11 I've got your evidence on this point. Do you  
12 agree that spawning channel fish are unlikely to  
13 have an impact on wild stocks?

14 DR. PETERMAN: Are you talking specifically about the  
15 spawning channels on the Fraser, or in general?

16 Q Well, let's bring it down to what this Commission  
17 is about and, yes, on the Fraser, then.

18 DR. PETERMAN: Well, I hesitate -- no, I won't say a  
19 blanket yes because having an effect can come at  
20 various life stages. So if you're talking about  
21 will the juveniles coming out of the Weaver Creek,  
22 for example, have an impact on other wild  
23 juveniles from the Fraser, I would say probably  
24 not, because the numbers are not huge coming out  
25 of the Weaver system. However, in terms of the  
26 mixed stock fishery that occurs on the adults  
27 coming back, there may be an effect on other less  
28 productive stocks. So as you've heard in other  
29 sessions in this Commission's hearings, I know the  
30 more productive enhanced fish can be harvested at  
31 a higher rate - can be, not will be - and if there  
32 are other less productive fish coming through the  
33 fishery at the same time, that will expose those  
34 less productive stocks to a higher harvest rate.

35 Q I think then I'm hearing your evidence on that as  
36 it's not so much that the enhanced fish are having  
37 an effect on the wild stock, but the presence of a  
38 large number of enhanced fish could encourage an  
39 amount of fishing that would have a detrimental  
40 effect on the endangered stock. Is that what  
41 you're saying?

42 DR. PETERMAN: Yes, that's a good way to phrase it.

43 Q So that's a matter of being alive to what the  
44 situation is and governing the fisheries  
45 management accordingly, is it?

46 DR. PETERMAN: Yes, that's right. And I'm certain that  
47 DFO people are well aware of this.

1 Q Now, you speak in your affidavit of predator-  
2 induced mortality, and as I read your affidavit,  
3 and it's at page 3 of your affidavit, you  
4 essentially say that enhanced fish can have a  
5 positive and negative effect on predator-induced  
6 mortality. On the one hand more fish might  
7 attract predators. On the other hand, there might  
8 be so many fish that the predators get full and go  
9 away.

10 DR. PETERMAN: That's right.

11 Q So it's a mixed blessing, then, you're saying, is  
12 it?

13 DR. PETERMAN: That's right.

14 Q Now, in the case of the Fraser sockeye enhanced  
15 fish, they're not a significant number in the  
16 scheme of things that would really have much  
17 impact on predator-induced mortality, are they?

18 DR. PETERMAN: For the -- well, actually, I can't say  
19 that. On a local level, it might be true. I'm  
20 not sure we have evidence for what happens to  
21 predator abundances, unfortunately, to be able to  
22 answer that question.

23 Q Okay. On food abundance, do you agree that the  
24 enhanced fish, the hatchery and the spawning  
25 channel sockeye are of a number that they really  
26 don't have an impact on -- a drain on food  
27 abundance?

28 DR. PETERMAN: On what spatial scale are we talking  
29 here?

30 Q Well, coast-wide, I suppose. But the enhanced  
31 Fraser sockeye come out and then move up the coast  
32 to the Gulf of Alaska, as I understand it.

33 DR. PETERMAN: Right.

34 Q And do you agree with me that their numbers are  
35 sufficiently modest that they really don't  
36 constitute a factor in the competition for food?

37 DR. PETERMAN: Well, again, I would be cautious to  
38 answer that, because first of all it is true that  
39 from this document you just handed us this  
40 morning, the maximum -- not the maximum, the  
41 release of all species of salmon in 2009 was about  
42 300 million from enhancement facilities,  
43 hatcheries plus spawning channels, and that  
44 constitutes about six percent of the total release  
45 from all facilities in the North Pacific of all  
46 species. So in that sense it's a small  
47 percentage. But on a more local scale, it could

1 be that there are particular runs of juveniles  
2 that coincide with wild populations on their  
3 northward migration as juveniles, where they --  
4 they could have a competitive influence.

5 Q But you're just postulating at that point.

6 DR. PETERMAN: Yes, absolutely. Yes, we have no data  
7 unfortunately on food supply at various locales as  
8 a function of the number of fish at those locales.

9 Q Are you aware of study or studies that at a broad  
10 level conclude that very small percentage of the  
11 plankton is eaten?

12 DR. PETERMAN: Well, yes, I'm aware of such studies,  
13 but you've got to categorize the plankton into  
14 available and not available. So back in the '70s  
15 there was this observation, and it's definitely  
16 the case that if you estimate abundance over the  
17 full depth of the water column, yes, the salmon  
18 are eating a very small percentage of what's  
19 there. But if you look at just what's available  
20 in the top 20 metres where the salmon are, that is  
21 not the case. There are certain areas where  
22 they're depleting food supply.

23 In fact, if you look at one of the papers  
24 that I submitted as part of the Commission's  
25 report from Ruggerone et al -- no, it was  
26 Ruggerone and Neilson, 2004, they document in  
27 there several cases where the food supply has been  
28 diminished in the North Pacific in the open ocean  
29 as a result of feeding by -- largely by pink  
30 salmon. It shows up as a depletion when you have  
31 these large runs every other year.

32 Q At the same time, though, and just going back to  
33 my question, is it your understanding that of the  
34 available plankton, only a small fraction is  
35 consumed or eaten?

36 DR. PETERMAN: I would say yes, the way you just  
37 stated, but I would say as a fraction of the total  
38 available plankton, no, I won't agree with that.

39 Q All right. At page 4 of your affidavit -- sorry,  
40 page 3 of your affidavit, in question 4, if that  
41 might be brought up -- and I'm almost finished in  
42 the sense my time is up. Oh, I'm sorry, in the  
43 exhibit to the affidavit, the actual answers.  
44 Just at the bottom there, I think.

45 In that last paragraph that begins:

46  
47 In the overall picture for B.C. enhancement

1 programs, such effects on body size and  
2 survival rate may be of relatively little  
3 consequence to fishable biomass, except in  
4 particular local situations...  
5

6 And you go on, explaining you don't have the data.

7 DR. PETERMAN: Right.

8 Q Would it be accurate to replace that word "may"  
9 with "is likely", so that it would read:

10  
11 ...such effects on body size and survival  
12 rate is likely of relatively little  
13 consequence to fishable biomass...  
14

15 DR. PETERMAN: No, I'd prefer to stick with my wording.

16 Q All right. So you're essentially saying it could  
17 be or it could not be.

18 DR. PETERMAN: Yes, right.

19 Q You just don't know.

20 DR. PETERMAN: Yes, right, because we don't really have  
21 enough data to say.

22 MR. TAYLOR: All right. I see my time is up, as was  
23 the case with another panel of witnesses, Mr.  
24 Commissioner. I do have some questions on the  
25 PPR. I do appreciate Ms. Baker having corrected  
26 some things, but I've got some more, and as with  
27 the first one that involved Mr. Martland, I still  
28 have to figure out a way to get some of our  
29 intended corrections before you. And I will add  
30 this PPR to my list and see what I can do through  
31 Ms. Baker. Thank you.

32 Thank you, witnesses.

33 MS. BAKER: Mr. Commissioner, perhaps this would be the  
34 time for the break.

35 THE COMMISSIONER: It is. I just want to take one  
36 quick moment to ask the panel this, and make sure  
37 I understand your answers in this context.  
38

39 QUESTIONS BY THE COMMISSIONER:  
40

41 Q With regard to the channel, the spawning channels,  
42 the fish that are released and go through their  
43 cycle, I presume return to the spawning channel  
44 once again to spawn in the same channel where they  
45 were born. With regard to hatchery fish, what  
46 happens to them when they return to the hatchery?  
47

MS. CROSS: Hatchery fish return to the hatchery, as

1 well. Many of the hatcheries actually have a  
2 fishway that the fish can swim right into the  
3 hatchery, and they do swim in, certainly a  
4 proportion of them will swim into the hatchery.

5 When the SEP program was designed, it was  
6 designed to actually produce fish that were as  
7 similar to the wild fish as possible, so that they  
8 would actually return to the spawning grounds as  
9 well and spawn there to rebuild the population.  
10 And so, yes, there are a component of the hatchery  
11 fish that spawn in the wild, with wild salmon, but  
12 they are native stocks. We have moved fish around  
13 in the past. It's a very small proportion of our  
14 program. So the fish that are spawning have  
15 originated from that stock and they may be  
16 spawning in the wild, they may be returning to the  
17 hatchery.

18 THE COMMISSIONER: Thank you. Yes, we'll take the  
19 break at this time.

20 THE REGISTRAR: The hearing will now recess for 15  
21 minutes.

22  
23 (PROCEEDINGS ADJOURNED FOR MORNING RECESS)  
24 (PROCEEDINGS RECONVENED)  
25

26 THE REGISTRAR: The hearing is now resumed.

27 MS. BAKER: Mr. Commissioner, we're going to start with  
28 Alan Blair now, and I'm hoping that Mr. Blair and  
29 also Mr. Harrison can complete by the lunch break.  
30 Thank you.

31 MR. BLAIR: Mr. Commissioner, for the record, Alan  
32 Blair. I appear on behalf of the B.C. Salmon  
33 Farmers Association.  
34

35 CROSS-EXAMINATION BY MR. BLAIR:  
36

37 Q Members of the panel, I just wanted to set my mind  
38 correct, I think, in terms of what is a policy and  
39 what might be merely a draft policy. And if I  
40 could direct my first question to you, Ms. Cross,  
41 in your affidavit, where you referenced, I think  
42 it's paragraph 3, to the SEP Enhancement  
43 Guidelines, marked now, I believe, as Exhibit 760,  
44 you were asked whether it's policy or draft, and  
45 am I correct that it's still a draft policy and  
46 not a completed document?  
47

MS. CROSS: It's a draft set of guidelines. Some of



1 the components within that document are complete  
2 and are either on the Internet or the intranet,  
3 other components are less well developed.  
4 Q And so just so we're referring to the right last  
5 draft, what date, what year, month are you  
6 referring to as the latest draft?  
7 MS. CROSS: 2008, I believe. I don't have it in front  
8 of me right now.  
9 Q And so your comments in your affidavit are related  
10 to that latest 2008 document, then?  
11 MS. CROSS: That's correct.  
12 Q All right. And just while we're on the question  
13 of identifying where we are with documents, the  
14 Hatchery Risk Assessment tool, I'm not sure how  
15 you say that acronym, but it's Exhibit 763, and  
16 the copy that I'm working from says, "Last updated  
17 January 30th, 2008." Is that also the latest of  
18 these documents?  
19 MS. CROSS: That's correct.  
20 Q All right. Now, I appreciate that the affidavits  
21 we have from the three of you are responding to  
22 specific questions framed by Commission counsel,  
23 and you operated on that basis, correct?  
24 MS. CROSS: Yes.  
25 Q I see three heads nodding. Everybody agrees with  
26 that proposition?  
27 DR. PETERMAN: Yes.  
28 MR. SAVARD: Yes.  
29 Q And I'm going to direct my first question or  
30 series of questions to you, if I may, Ms. Cross,  
31 and again, following on my reference to the  
32 Enhancement Guidelines, the 2008 document,  
33 Exhibit 760, you were asked to what extent the  
34 document represented current guidelines in use by  
35 DFO?  
36 MS. CROSS: Mm-hmm.  
37 Q And you indicated in your answer that the document  
38 substantially represents the current guidelines  
39 and practices with respect to, and you list  
40 several areas. Are you following along with me?  
41 you list genetic management, captive breeding,  
42 assessment, marking and carcass placement?  
43 MS. CROSS: Yes, I am.  
44 Q So that represents current guidelines. I wasn't  
45 quite sure what the rest of your answer was when  
46 you say other components such as release  
47 strategies, fish health management, bio-security

1 will be reviewed and further developed. I wasn't  
2 clear from that answer whether you could tell me  
3 whether this is new components being drafted, or  
4 there's an update of existing areas within those  
5 listed components?

6 MS. CROSS: This is an update of existing components.  
7 Some of those components are in the operational  
8 guidelines and we're in the process of updating  
9 some of that material now.

10 Q All right. When I look at the Hatchery Risk  
11 Assessment tool, Exhibit 363, and in particular,  
12 at pages 6 and 7 of that document --

13 MR. BLAIR: No, I'm sorry, the Hatchery is -- I think  
14 it's 763, Hatchery Risk Assessment Tool?

15 MR. LUNN: Oh, I'm sorry.

16 MR. BLAIR: Perhaps I've -- that's it, yes.

17 MR. LUNN: Thanks very much.

18 MR. BLAIR: Six and 7, please.

19 Q So we're looking there at the bottom, all of  
20 page 6, and if you could perhaps go over to the  
21 top of page 7, thank you, the two tables, would be  
22 excellent. Members of the panel, we have here  
23 Table 1 in this document, it says, "Some Risks and  
24 Benefit from Salmon Enhancement." You see it on  
25 the screen. I'm going to direct this question to  
26 each of you in turn and I'm going to make the  
27 suggestion -- which one is allowed to do in cross-  
28 examination, and you can agree or disagree, I'm  
29 sure you've been briefed on that -- to the Benefit  
30 section at the second part of that table, there  
31 are five areas listed, "Conservation of At-Risk  
32 Stocks," "Economic Benefits from Harvest  
33 Increases," "Stock Assessment," "Mitigation,"  
34 "Social, Cultural, First Nations and Partners," do  
35 you see that? You're all nodding. I'm going to  
36 suggest to you that when the Salmon Enhancement  
37 Program was first commenced in the late 1970s,  
38 these key benefits were largely known to the  
39 program then and have remained central key  
40 benefits to the program through the last two or  
41 three decades; is that correct? They haven't  
42 fundamentally changed? Maybe in order, Ms. Cross?

43 MS. CROSS: Yes.

44 Q Mr. Savard?

45 MR. SAVARD: I would say yes. Just with respect to  
46 conservation of at-risk stocks, with respect to  
47 the **Species at Risk Act**, which is a relatively new

1 act, I think I would say that this is a component  
2 that's probably -- we're much more focussed on  
3 than we were at the inception of the SEP program.  
4 Q Dr. Peterman?  
5 DR. PETERMAN: Well, not being within DFO, I can't say  
6 what their objectives were back then specifically  
7 so I'll defer to my DFO colleagues on the panel,  
8 here.  
9 Q Would you disagree that, with your knowledge of  
10 the fish professional, would you disagree that  
11 those were the benefits well espoused by DFO for  
12 the last 30 years?  
13 DR. PETERMAN: Well, as I just said, I'm not sure  
14 exactly what they espoused in 1976, but these seem  
15 like reasonable objectives. They certainly are  
16 the ones I've heard about recently.  
17 Q So they appear to be, in your perspective, at  
18 least current benefits to be derived from the  
19 Salmon Enhancement Program?  
20 DR. PETERMAN: Yes.  
21 Q Now, in the same order, if I may start with you,  
22 Ms. Cross, Table 1, commence with risks, and they  
23 refer to risks as being genetic, psychological,  
24 demographic, disease and facility operations. I  
25 notice the table looks to be cut off, or perhaps  
26 that's just the way we jump to benefits, because  
27 the very last word in "Facility Operations," is  
28 "releases or." If that "or" meant --  
29 DR. PETERMAN: That's on the next page.  
30 Q Is that just to the next page? All right. Ms.  
31 Cross, are those risks also things which were  
32 largely known at the commencement of the Salmon  
33 Enhancement Program in the late 1970s, or were  
34 they newer in terms of knowledge and operation of  
35 DFO?  
36 MS. CROSS: No, those risks were known at the onset of  
37 the program.  
38 Q Mr. Savard?  
39 MR. SAVARD: Yes, those are risks that were known and  
40 that we've been doing work on through the history  
41 of the program.  
42 Q Dr. Peterman?  
43 DR. PETERMAN: Yes, I would think they were known.  
44 Q Now, back to the affidavits that you were all  
45 asked to swear, and we have them by numbers,  
46 although I don't need to refer to them by number,  
47 I suppose. So Ms. Cross, and for the record, your

1 affidavit is Exhibit 757, and this question I will  
2 put to each of you, to your affidavits. But  
3 you're asked questions in Ms. Cross's affidavit,  
4 perhaps, and it's question number 8, Mr. Lunn, the  
5 reference there, the heading is "Wild Hatchery  
6 Fish Interactions." We have that on the screen.  
7 You were asked to comment on wild and hatchery  
8 fish interactions in, really, three distinct sub-  
9 questions. One is really quantifying the risk of  
10 over-exploitation through mixed-stock fisheries.  
11 And I think I take from your answer, Ms. Cross,  
12 that there's really not been perhaps a lot of  
13 research done in this area?

14 MS. CROSS: You're referring to 8(a)?

15 Q Well, I'm referring to your answer, which says:

16  
17 SEP has not done research on over-  
18 exploitation of wild sockeye due to the  
19 presence of enhanced populations.  
20

21 So if that's your answer, do you stand by it, that  
22 there hasn't really been much research done?

23 MS. CROSS: This is not a particular issue that SEP  
24 would do research on. The issue is around how  
25 mixed stock fisheries are managed and so  
26 regardless of whether the stock is of enhanced  
27 origin, or wild origin, stocks that are more  
28 productive, that are co-migrating with weaker  
29 stocks are managed accordingly by the Department  
30 so that's not a SEP research item.

31 Q Well, I'm going to your affidavit so do you say  
32 that the answer in your affidavit is not correct?

33 MS. CROSS: No, SEP has not done research on over-  
34 exploitation, that's correct.

35 Q And then the next two questions --

36 MR. TAYLOR: Well, in fairness to the witness, she  
37 basically said SEP doesn't do it. If you look at  
38 the next sentence, it talks about who does.

39 DR. PETERMAN: That's right. Yes.

40 MR. BLAIR: Yes, I understand that.

41 Q You understood my question was being confined to  
42 the Salmon Enhancement Program, of which you're a  
43 manager?

44 MS. CROSS: Yes. Yes, I do.

45 Q Thank you. 8(b) and (c), basically, are the same  
46 question, the first one 8(b) referring to  
47 freshwater rearing environment, and 8(c) being a

1 marine environment, but otherwise, they're  
2 identical questions, you all say that?

3 MS. CROSS: Yes.

4 Q I'll stick with you, Ms. Cross, if I may, your  
5 answer, in summary, to 8(b) is that there have  
6 been limited studies done on the effects of  
7 competition between wild and hatchery for food and  
8 space?

9 MS. CROSS: I'd say that there have been limited  
10 published studies. When SEP undertakes  
11 enhancement, there is some -- certainly, when the  
12 program began, there was extensive bio-  
13 recognizance and biological analysis done of the  
14 data before hatcheries were sited. And currently,  
15 where there is potential for juvenile  
16 interactions, there is an attempt made, certainly  
17 for DFO facilities, to do an analysis of  
18 freshwater interactions and carrying capacity and  
19 to adjust strategies accordingly. So the two  
20 studies that I cited here, even though there are  
21 actually only two systems, have provided  
22 information for us to utilize when we're setting  
23 release targets for other sites.

24 Q I'm going to suggest within the range of projects  
25 you've undertaken for many years, 30 years, that  
26 represents, really, a fairly limited body of  
27 knowledge in this area?

28 MS. CROSS: It's a limited published body of knowledge,  
29 I'd say.

30 Q And in answer to question 8(c) is that you're just  
31 not aware of any specific studies done with  
32 respect to competition for food and space in the  
33 marine environment? That answers and properly  
34 reflects your knowledge?

35 MS. CROSS: Yeah, not that are specifically -- could  
36 you scroll up for me, please?

37 Q I'm sorry, I can't hear you.

38 MS. CROSS: I'm asking that the screen be scrolled up.  
39 Could you go to 8(c) for me, please?

40 MR. LUNN: Yes. Sorry.

41 MS. CROSS: Thank you. Yeah, I'm not aware of a  
42 specific study on competition between wild and  
43 hatchery salmon for food and space.

44 Q Now, under this heading, "Wild and Hatchery  
45 Fishing Directions," you were not, and, in fact,  
46 none of you were asked to comment in this  
47 affidavit with respect to the effects of fish

1 health effects between wild and hatchery, correct?  
2 MS. CROSS: That's correct.  
3 Q And Mr. Savard, I'll go to your affidavit now, as  
4 well, if I may, which is Exhibit 758, Mr. Lunn.  
5 And, again, taking you to -- in your case, it's  
6 number 19(a), (b) and (c). Those questions and  
7 answers at 19(a), (b) and (c) are the same  
8 questions, at least, that I referred Ms. Cross to  
9 in her section 8(a), (b) and (c)?  
10 MR. SAVARD: Yes, they appear to be. Yes.  
11 Q And your answers stand as you've written them? I  
12 just wanted to direct your attention to these  
13 three answers. You're not aware of any specific  
14 studies on risk of over-exploitation, correct?  
15 MR. SAVARD: That's correct, yes.  
16 Q You've given an answer about the various studies  
17 you've done, the Department has done with respect  
18 to freshwater, but you're not aware of any  
19 specific studies with respect to the competition  
20 for food and space in a marine environment?  
21 MR. SAVARD: That's correct, yes.  
22 Q Merging your 19(b) and (c) together in that  
23 question?  
24 MR. SAVARD: Yes.  
25 Q And again, you were not asked with respect to any  
26 disease question regarding wild and hatchery?  
27 MR. SAVARD: No, I was not.  
28 Q And Dr. Peterman --  
29 MR. BLAIR: Mr. Lunn, that's Exhibit 759, I think. I  
30 think that's correct. Just a second, I'll get the  
31 right version, or perhaps I can just read it off  
32 the screen.  
33 DR. PETERMAN: The questions are on the next page.  
34 MR. BLAIR: Thank you.  
35 DR. PETERMAN: There you go.  
36 MR. BLAIR: Thanks, Dr. Peterman, I'm working from a  
37 different copy.  
38 Q So in your case, Dr. Peterman, the questions are  
39 found as questions 2(a), (b) and (c) in your  
40 affidavit, and they're the same three questions  
41 I've been asking of the other two witnesses on the  
42 panel, correct?  
43 DR. PETERMAN: No, these are different questions.  
44 MR. BLAIR: I'm sorry. I need to get the right part,  
45 then. I'll do it a different way while my  
46 colleague looks for the documents.  
47 Q Actually, my question really relates to the last

1 question of my series, which is you were also not  
2 directed to answer any questions with respect to  
3 the wild hatchery fish interactions as it relates  
4 to disease or disease transfer, correct?

5 DR. PETERMAN: That's correct.

6 Q Okay. I care less about -- your answers to the  
7 questions you were put, rather than the ones which  
8 weren't put to you, which is why I wanted to make  
9 that point of all of you. Thank you.

10 DR. PETERMAN: Okay.

11 Q I'll go back to that last question that I just  
12 posed to Dr. Peterman and we'll go in the same  
13 order again, Cross, Savard, Peterman, if I may.  
14 Had you been asked about interactions of wild  
15 hatchery disease interactions, you would have had  
16 an opinion on that, Ms. Cross?

17 MS. BAKER: Sorry, if I could just interrupt, Mr.  
18 Commissioner, these witnesses are here today to  
19 talk about everything except disease because there  
20 is a disease component coming up, there's a  
21 technical report being prepared on disease,  
22 diseases in hatchery and wild affects, there'll be  
23 other hearings on disease so we actually  
24 deliberately limited their testimony to exclude  
25 disease issues because it is coming up later in  
26 the hearings. That may assist my friend, that  
27 there was a method to this, which was to leave  
28 that component of this topic for a later date in  
29 the hearings, given that we only have the one day  
30 today.

31 MR. BLAIR: Mr. Commissioner, I understand and I'm not  
32 surprised by my friend's objection. This hatchery  
33 issue is on the list because of my client's  
34 insistence, really, that we needed, all of the  
35 participants and the Commissioner, needed to have  
36 more information on the interaction between wild  
37 and hatchery, and it has been no surprise that our  
38 concern here is making sure that all of the  
39 various fish stocks which might be interacting  
40 with wild stocks have a fair hearing, and the  
41 issue of disease, as it relates to hatchery and  
42 wild, is very much the key focus of my client's  
43 interest in this area. So it's not a surprise to  
44 Commission counsel that we want to go into this  
45 area. They drafted their questions to their  
46 panel. They didn't talk about disease. It  
47 doesn't make the issue any less relevant for

1 ourselves.

2 Further, my friend, Mr. Taylor, raised the  
3 issue in his direct when I think he said, towards  
4 the end of his examination to Dr. Peterman,  
5 something to the effect of the effect of  
6 reasonably healthy fish, thereby invoking the  
7 issue of health and disease, which Dr. Peterman  
8 basically said, and I'm paraphrasing Dr. Peterman  
9 so forgive me if I get it a little bit wrong, that  
10 he was not aware of health or disease issues in  
11 spawning channel-enhanced fish, but I think he  
12 said there's always been a question about  
13 hatchery-raised fish, or words to that effect, and  
14 that is exactly the point of our cross-examination  
15 of this panel.

16 To suggest that we can wait until August,  
17 when this Commission has two days to discuss the  
18 very contentious issue of disease, when we have  
19 the experts on salmon enhancement here before us  
20 is to suggest we have to cram this information  
21 relative to the hatcheries into those two days,  
22 when we have a perfectly capable panel to discuss  
23 it. Just to finish, Mr. Commissioner, I don't  
24 intend to ask lots of detailed questions about  
25 types of diseases to these witnesses, but rather  
26 just explore the question around whether or not  
27 there's the capacity for disease to transfer from  
28 hatchery to wild.

29 THE COMMISSIONER: Mr. Blair, I'm going to start off  
30 this way and try this. I think it would be  
31 certainly within the realm of assistance for you  
32 to discover or explore what knowledge base they  
33 might have around the issue you're raising, but  
34 whether you go beyond that and then ask them to  
35 delve into the detail without them having prepared  
36 for that level of detail, or having Commission  
37 counsel prepare the documents to complement their  
38 answers would be problematic. So I certainly am  
39 comfortable, as Commissioner, with you exploring  
40 with them what kind of studies may have been  
41 conducted within the Department, or what level of  
42 understanding there might be within the  
43 Department. I think the discomfort will come when  
44 you go beyond that into the detail, if they're not  
45 prepared to delve into those areas, or they have  
46 not been prepared by Commission counsel or DFO  
47 counsel to delve into those areas.



1 MR. BLAIR: Thank you. I'll proceed on that basis.  
2 I'm directing the panel and Mr. Lunn, if I may, to  
3 Exhibit 763, which is the Hatchery Risk Assessment  
4 Tool, the same pages, 6 and 7, but Mr. Lunn, if  
5 you could highlight the passage just above the  
6 Table 1, middle of page 6, the two paragraphs.  
7 Yes, thank you.  
8 Q Firstly, again in order, Ms. Cross, you're  
9 familiar with this document?  
10 MS. CROSS: Yes, I am.  
11 Q And you'll note that in the paragraph that the  
12 Registrar has highlighted, commencing with the  
13 word, "Minimizing the risks," there are a number  
14 of risks that are being identified to be managed  
15 and they include, among other things, disease and  
16 disease transfer?  
17 MS. CROSS: I can't see the specific passage, but yes.  
18 Q All right. It's really in the start of the second  
19 paragraph that's been highlighted, "Several types  
20 of enhancement risks."  
21 MS. CROSS: Okay. Yes.  
22 Q So you see "genetic consequences," "ecological  
23 effects," "demographic disease transmission," do  
24 you see that list?  
25 MS. CROSS: Yes.  
26 Q So you're not surprised that the Department has  
27 looked at the risk of disease transmission from  
28 hatcheries to wild fish as part of the management  
29 of the SEP program?  
30 MS. CROSS: No, I am not surprised.  
31 Q And the reason you're not surprised is because  
32 there is such a risk, correct?  
33 MS. CROSS: We've identified it as a risk as part of  
34 this risk analysis tool and, similarly, we've  
35 identified the activities that we take to mitigate  
36 for that risk.  
37 Q And you would come to that decision to move in  
38 that manner because the evidence has suggested  
39 that there is a risk that needs to be managed and  
40 diseases that need to be managed as it relates to  
41 hatchery and wild?  
42 MS. CROSS: I'm just going to step back a little bit  
43 and describe that. So when the SEP program began,  
44 one of the things that was done was a broad survey  
45 of all of the facilities where enhancement -- or  
46 all the stocks where enhancement was going to be  
47 undertaken. And there was an analysis done on the

1 wild stocks to determine what the presence of  
2 disease was in those stocks. And certainly, there  
3 are diseases endemic in wild stocks, present  
4 naturally in wild stocks. So armed with that  
5 knowledge, we were able to go forward with our  
6 program, aware of the kinds of diseases that might  
7 be an issue for us, and to develop best management  
8 practices around them by which we could ensure  
9 that we were mitigating for that risk.

10 Q I think I understood that to say yes, you're aware  
11 that there's a disease risk and you're managing  
12 it?

13 MS. CROSS: Yes. Yes.

14 Q Now, Dr. Peterman, in response to Mr. Taylor's  
15 questions, was he distinguished in his answer  
16 about reasonably healthy fish, and again, I'll let  
17 Dr. Peterman jump in if I inadvertently misstate  
18 his conclusion, but I'm trying to speed that  
19 process up. I think I heard Dr. Peterman say,  
20 "We're not really worried about the fish in  
21 spawning channels due to our enhancement processes  
22 of spawning channels, but there's always been a  
23 question about hatchery-raised fish. Whether I've  
24 characterized that right or wrong, do you agree  
25 with that statement, Ms. Cross?

26 MS. CROSS: There has always been an understanding that  
27 diseases are potentially present in hatchery fish  
28 because we use wild salmon as part of our brood  
29 stock and diseases are present in wild fish. And  
30 the only diseases that are at issue for our  
31 hatcheries are those diseases that are currently  
32 present in wild salmon. We're not concerned about  
33 exotic pathogens because we're dealing with the  
34 fish and the diseases that are naturally present.

35 Q Does that mean you also don't test for exotic  
36 pathogens?

37 MS. CROSS: I don't know, I'm not aware of the testing  
38 protocols for exotic pathogens.

39 Q Dr. Peterman's raising his hand. That's so polite  
40 of you, amongst a roomful of lawyers. I haven't  
41 seen that happen in several months so please, you  
42 have the floor.

43 DR. PETERMAN: Well, am I supposed to stand up? Yeah,  
44 I just wanted to correct the implication of your  
45 question, though, for what I said.

46 Q Please.

47 DR. PETERMAN: And what you said, I think, basically

1 does characterize what I said, but what I was  
2 referring to in response to Mr. Taylor's question  
3 was whether there's any evidence of a change in  
4 survival rate of juveniles released from  
5 hatcheries, compared to spawning channels,  
6 compared again to the wild stock. So that's my  
7 only basis for saying what I said. It had nothing  
8 to do with my knowledge of diseases or any other  
9 particular mechanisms that might cause the  
10 survivor rates to change because I don't know  
11 about disease. So I was simply saying that from  
12 what I know, there's no difference in the survival  
13 rate of juveniles coming out of a spawning channel  
14 compared to the wild stocks that's adjacent, but  
15 there are questions that I've read about and heard  
16 about with respect to the hatchery-released fish,  
17 compared to wild stocks with respect to their  
18 survival, period.

19 Q Thank you.

20 DR. PETERMAN: No mechanism specified.

21 Q Thank you, Dr. Peterman, for that clarification.  
22 And now, Mr. Savard, we're going to give you the  
23 last answer in this area. I don't need to repeat  
24 the questions. Can you follow-up on what Ms.  
25 Cross is saying and indicate whether you agree or  
26 disagree?

27 MR. SAVARD: Yeah, I don't have a whole lot to add from  
28 what Ms. Cross has said. This isn't my area of  
29 expertise, but I would acknowledge Ms. Cross's  
30 answer about what we're working with is endemic  
31 diseases from wild fish and how you manage those  
32 in the hatchery situation.

33 Q Now, this question, then, is to all of you, and it  
34 relates to the whole question of genetic  
35 diversification and, really, the benefit risk  
36 around that question. Perhaps I'll start with  
37 you, Mr. Savard, since you've been going last and  
38 riding on the others' coattails. I'm going to  
39 suggest that, of course, the enhancement of  
40 weakened stocks, putting more fish down the river,  
41 of course, can be a positive benefit in terms of  
42 ensuring the stock survives as a species. More  
43 fish out to the ocean, a likelihood you get more  
44 fish returning, basic true principle, Mr. Savard?

45 MR. SAVARD: So if I understand your question, you're  
46 suggesting that the more fish you produce, the  
47 more fish that will return, is that the premise?

1 Q I'm suggesting that's the basis behind hatcheries.

2 MR. SAVARD: I guess I'm not sure I would agree with  
3 that. You know, I think what we do in the various  
4 different facilities is take a look at -- well,  
5 first of all, take a look at, you know, what our  
6 priorities are in terms of enhancement. You need  
7 to be kind of working within the system and the  
8 populations that you're dealing with so it doesn't  
9 necessarily follow that if you produce a whole  
10 bunch of fish, a whole bunch of fish come back.  
11 There are so many dynamics with respect to the  
12 freshwater environment and other things that you  
13 need to consider so as a blanket statement, I'm  
14 not sure I would agree with your comment.

15 MR. BLAIR: Mr. Lunn, if you could just roll down so we  
16 could get the bottom of the next table? Thank  
17 you.

18 Q Mr. Savard, just following up on your answer, it  
19 seems to me that at least three or four of those  
20 five benefits answer the very proposition that I  
21 put to you and that is, you know, more fish out of  
22 a hatchery, the less likelihood of extinction, or  
23 threatened or endangered stocks, the economic  
24 benefit to allow for increased harvest, you can  
25 get more information on a stock assessment, maybe  
26 less direct mitigation. You're preserving stocks  
27 which would otherwise be lost due to factors in  
28 the river system so surely you'll agree with the  
29 principle that we raise fish and release fish so  
30 we have lots of fish?

31 MR. SAVARD: Well, again, it depends on the system that  
32 you're talking about, the production targets that  
33 you've got and the dynamics of the population.  
34 Generally, in a hatchery system, what we're trying  
35 to do is improve the chance of survival of the  
36 fish that we're working with, but, you know, in  
37 some cases, it's not necessarily producing a whole  
38 bunch of fish, you know, to return and reap  
39 benefits from. You know, I guess I speak to the  
40 conservation of at-risk stocks, where we're  
41 specifically working with stocks that are  
42 vulnerable and the work that we're doing there  
43 doesn't necessarily produce large numbers of fish,  
44 but it's working with a population to ensure that  
45 that population continues. So again, I guess I'm  
46 just trying to differentiate between a blanket  
47 statement of producing a lot of fish and then lots

1           come back, versus what some of the other  
2           objectives might be.  
3       Q     But that's clearly one objective?  
4       MR. SAVARD: It is one objective, to produce fish for  
5           harvest, yes.  
6       Q     And the first risk listed in that table --  
7       MR. BLAIR: If you could roll it up, Mr. Lunn?  
8       Q     -- there's the genetic risk from hatcheries, and  
9           it's identified here in this table with a broad  
10          stroke, correct?  
11       MR. SAVARD: Sorry, it's identified in the table, yes.  
12       Q     I'm going to suggest that one of the genetic risks  
13           of mingling hatchery fish with wild stocks is that  
14           you sometimes have a loss of unique genetic  
15           material of individual stocks and that would have  
16           come about as a result of the transplanting of  
17           various species from river system to river system,  
18           which you'll agree has gone on in the past in the  
19           Salmon Enhancement Program?  
20       MR. SAVARD: Well, I think to clarify, you know,  
21           generally speaking, we're working within  
22           individual river systems and unless there's a kind  
23           of specific objective, we're not necessarily  
24           transferring between river systems.  
25       Q     I'm sorry to interrupt you, but is that the state  
26           of affairs now, in 2010/2011, and was that  
27           different in the early days of salmon enhancement?  
28       MR. SAVARD: You know, I might ask my colleague, Ms.  
29           Cross, to respond to that, she's more familiar  
30           with that piece, but the thing I would say about  
31           this particular one is that as we've identified,  
32           that genetic integrity is one of the things that  
33           we, as a program, have been focussed on since the  
34           beginning of the program, and one of the things  
35           that we've done in our SEP guidelines is to  
36           identify guidelines that help us work with fish in  
37           a way that helps to protect genetic integrity so  
38           while we recognize that this is a potential risk,  
39           we have mitigation measures in place.  
40       Q     I hate to come back to it, but would you agree  
41           that there was more movement of fish between river  
42           systems in the early days of SEP than perhaps  
43           occurs now?  
44       MR. SAVARD: I think I'd ask my colleague to speak to  
45           that.  
46       Q     Ms. Cross, could you pick that one up, please?  
47       MS. CROSS: Yes, I'd say that there was more movement

1 than occurs now, but I'd also add that all of the  
2 fish movements that we undertake have been  
3 reviewed by a committee, a provincial/federal  
4 committee that exists called the Introductions and  
5 Transfers Committee, and the role of that  
6 committee was to look at the ecological, genetic,  
7 and disease risks that might be associated with  
8 any movements. And if the movement was approved,  
9 a licence was issued for that movement so there  
10 has been review of any of the movements that were  
11 undertaken.

12 Q Thank you. Referring to the Fish Health Benefit  
13 Plan that Mr. Taylor took you to in a general way,  
14 I can't recall, but I think it may have been you,  
15 Ms. Cross, who suggested that there was a fish vet  
16 who was on staff, who was there to aid and provide  
17 that technical basis that a fish veterinarian  
18 could do with the SEP program? Was that you, Ms.  
19 Cross?

20 MS. CROSS: Yeah, that's correct.

21 Q And I think my note reflects that you had a fish  
22 vet assigned and about 80 percent of their time  
23 was to SEP issues and the rest was on other  
24 matters?

25 MS. CROSS: Yes, that's correct.

26 Q And does that fish veterinarian, would that 80  
27 percent of their time, look only at the big 23  
28 hatcheries that DFO manages, or is it all of the  
29 various enhancement projects that are undertaken  
30 generally?

31 MS. CROSS: She provides consultation services on any  
32 of our fish production facilities, including the  
33 community program ones, as well. So those  
34 facilities are supported by DFO technical staff,  
35 and when they see a fish health issue, they bring  
36 it to the attention of the vet.

37 Q And I think I saw a number of community-based  
38 programs, First Nations programs, fisheries  
39 programs. I can't recall whether my note was 200  
40 separate projects, or 400. I think it was 400.

41 MS. CROSS: There are over 300 community projects all  
42 together, but of those, as Mr. Savard referred to,  
43 it's a smaller number that actually do fish  
44 culture, and of those, they generally do pretty  
45 small numbers of fish. So of the number of  
46 facilities, maybe 87 percent of them might be in  
47 community programs, but our total release is about

1           11 percent of those actually come from community  
2           facilities so the impact is fairly small from  
3           those small releases.  
4        Q     Does that 11 percent refer to 11 percent of the  
5           total numbers of fish released a year?  
6        MS. CROSS:  Yeah, that's correct.  
7        Q     So you correct me if I get this wrong, is it  
8           roughly, a half a billion, 500,000 million fish a  
9           year released?  
10       MS. CROSS:  We're, I think, in the order of about 350  
11           million now.  
12       Q     350?  
13       MS. CROSS:  Yeah.  
14       Q     And the community-based programs only account for,  
15           perhaps, 40 million of the 350 million?  
16       MS. CROSS:  10, 11 percent of that, yeah.  
17       Q     And are those fish, do they get the benefit from  
18           the fish veterinarian's 80-percent time allotment?  
19       MS. CROSS:  When there is a disease issue raised, the  
20           fish veterinarian would be connecting with those  
21           facilities, yes.  
22       Q     But the issue would have to be raised by the  
23           individual facility?  
24       MS. CROSS:  By the facility or by the DFO community  
25           advisor that supports each one of those  
26           facilities.  
27       Q     Now, throughout some of the documents that counsel  
28           have been able to read as we prepare for today,  
29           there's been a common theme, common in all  
30           government departments, and not just in the  
31           Canadian Federal Government, about decreasing  
32           resources to do the work and so my question to  
33           you, with that backdrop, is: is it fair to say  
34           that it's getting more and more difficult for  
35           internal staff, DFO resources, to go out and be on  
36           the scene and manage those community-based  
37           resources?  
38       MS. CROSS:  Well, one of the ways we address that is by  
39           ensuring that we can support our community groups  
40           with standard operating practices and we encourage  
41           them to maintain inventory records that can be  
42           reviewed and give them clues as to when they need  
43           to involve -- not just clues, but give them an  
44           indication of when they need to involve more  
45           technical staff or the veterinarian.  
46       Q     So those of us who read the newspaper might be  
47           familiar with that as a government offloading from

- 1 a staff responsibility to a community-based  
2 responsibility to be that front line?
- 3 MS. CROSS: Those facilities are operated by  
4 volunteers. They're owned and operated by them  
5 and they've developed the programs on their own.  
6 They often pay for their facilities themselves so  
7 they're their facilities and we're supporting them  
8 so I wouldn't consider that offloading, I would  
9 just consider that support.
- 10 Q Would you say that those community-based  
11 facilities have the same vigour around fish health  
12 issues and disease management that one of the big  
13 DFO hatcheries would?
- 14 MS. CROSS: They don't have fish health management  
15 plans. I would say that their rigour is somewhat  
16 reduced.
- 17 Q Would you say significantly reduced in that they  
18 might, in fact, release diseased fish that they  
19 wouldn't even be aware were diseased because of a  
20 lack of skill and training?
- 21 MS. CROSS: I wouldn't say that they would be releasing  
22 diseased fish and unaware of it. Diseased fish,  
23 certainly, we would expect to see symptoms, we  
24 would expect to see changes in mortality, and  
25 these community members actually undertake  
26 training, fish health training. We offer courses,  
27 and they also have community workshops every two  
28 years and in each one of those, we offer training  
29 and our veterinarian comes along and provides some  
30 training, as well, so they're not naive  
31 individuals when it comes to the resource.
- 32 Q These projects receive funding, is that correct,  
33 to operate?
- 34 MS. CROSS: Some of them receive a little bit of seed  
35 funding, but by no means do they all receive  
36 funding. The CEDP facilities are contract  
37 facilities and they do receive funding.
- 38 Q And what percentage of the non-DFO hatcheries  
39 would that comprise?
- 40 MS. CROSS: That's 21 facilities, those CEDP  
41 facilities.
- 42 Q That would get funding?
- 43 MS. CROSS: That's right, that are contracted  
44 facilities, yeah. I can't tell you the percentage  
45 that receives seed funding, I don't know.
- 46 Q Is that funding based on a formula?
- 47 MS. CROSS: A formula?



1 Q Do they just ask every year for money and they get  
2 what they ask for?  
3 MS. CROSS: Are you referring to the contracts, or  
4 the --  
5 Q Yes. Yes.  
6 MS. CROSS: Well, the contract has a work plan  
7 identified and a set of common objectives that DFO  
8 and the contractor agree on and that's how the  
9 funding -- and their funding has not changed for a  
10 number of years.  
11 Q And is it related to the size of an operation?  
12 MS. CROSS: The size, and the nature, and the  
13 complexity of their operation.  
14 Q So if we're speaking of a hatchery which is  
15 raising hatchery fish, is there a connection  
16 between how much money they get and how many fish  
17 they release?  
18 MS. CROSS: That is not a direct connection. The  
19 funding is dependent on the scope of the  
20 activities that are undertaken. It's more complex  
21 to go out and collect brood stock from a distant  
22 river and then return the juveniles there to be  
23 released than it is to collect animals that swim  
24 into your hatchery. Those kinds of operations  
25 cost more money.  
26 Q But if you had apples and apples, rather than the  
27 apples and oranges that you've just described, if  
28 you had apples and apples, would you agree that a  
29 hatchery that releases 10 million fish is going to  
30 get more money than a hatchery that releases a  
31 tenth of that?  
32 MS. CROSS: No, I wouldn't agree.  
33 Q There's no correlation between fish released and  
34 funding?  
35 MS. CROSS: It's not a direct correlation, it's a  
36 component of the consideration with regard to the  
37 funding.  
38 MR. BLAIR: Just a moment, please.  
39 Q I'll put this question in a general way, but I am  
40 referring to a particular report. I don't want to  
41 be bogged down with the time it will take to pull  
42 that up, but I'm going to put this to you, Dr.  
43 Peterman, if I may, and I'm referring to what I  
44 believe to be a 1991 report, Oregon Fish and  
45 Health -- Fish and Wildlife. I think it was a  
46 Hilborn and Hare. I'm sure if you're remotely  
47 familiar with the report, that the proposition I

1 want to put that I understand comes from that is  
2 this quote:

3  
4 The disease resistance of wild fish has been  
5 eroded by crosses with hatchery fish.  
6

7 Now, there's a bold statement, and I've tried to  
8 give you the citation. Regardless of whether --  
9 firstly, do you know the citation, do you know the  
10 report?

11 DR. PETERMAN: I know of the report.

12 THE RECORDER: Microphone, please.

13 DR. PETERMAN: Oh, sorry. Yes, I know of the report,  
14 but I don't know its contents intimately.

15 MR. BLAIR:

16 Q All right. So I won't ask you to comment on what  
17 they were commenting on, but rather, the  
18 proposition generally, do you accept the  
19 proposition that disease resistance of wild fish  
20 has been eroded by crosses with hatchery fish?

21 DR. PETERMAN: No, I have no information on that.

22 Q You'd neither agree nor disagree?

23 DR. PETERMAN: That's correct.

24 Q Okay. Do you have any expertise or knowledge on  
25 hybridization between hatchery and wild fish?

26 DR. PETERMAN: No, I don't.

27 Q And I take it -- I'm sorry, Mr. Savard or Ms.  
28 Cross, do you have any information on that  
29 proposition?

30 MS. CROSS: I would take advice from our geneticist on  
31 that, from our geneticist.

32 Q Thank you.

33 MR. SAVARD: And I have no specific knowledge of that.

34 Q And Dr. Peterman, again, another question, do you  
35 accept the proposition that hatchery fish spawn  
36 naturally with wild fish and that as a result, the  
37 productivity and viability of the naturally-  
38 spawning population declines substantially? Do  
39 you accept that proposition or do you have  
40 knowledge of that?

41 DR. PETERMAN: No. No, I don't accept that  
42 proposition.

43 Q Do you disagree with it?

44 DR. PETERMAN: The word, "substantially," is well  
45 beyond what I understand to be the case, and I've  
46 only read about this process so I don't really  
47 have much detail on it, but I know that there is

1           some straying of hatchery fish in the wild  
2           streams. There have been experimental studies  
3           done in the lab showing that there is some reduced  
4           fitness from the offspring that arise from those  
5           straying hatchery fish, but other than that, I  
6           really don't know any details.

7           Q    You're not disagreeing with it, you're just saying  
8           you don't --

9           DR. PETERMAN: Well, yeah, I did disagree with the  
10           statement, literally.

11          Q    You disagree that wild and hatchery fish spawning  
12           can have a negative effect on the wild fish?

13          DR. PETERMAN: It can have, yes.

14          Q    You agree with that proposition?

15          DR. PETERMAN: Yes.

16          Q    And that it's been studied and some have found  
17           that it does have?

18          DR. PETERMAN: Yes.

19          Q    But you've not done those studies?

20          DR. PETERMAN: No.

21          Q    Thank you.

22          MR. BLAIR: Just a moment, please. We're just going to  
23           dig up a document to put up on the screen, but  
24           I'll quote it and I will have it up there for you  
25           to comment on, and it's a document done by Noakes  
26           and others in 2002, and the comment that I'm going  
27           to refer and ask for a comment is:

28  
29                    Straying hatchery fish and salmon egg  
30                    transfer from other rivers and other parts of  
31                    the Fraser, in the first half of the 20th  
32                    century, to rebuild runs after the Hell's  
33                    Gate slide, to increase abundance and  
34                    generally disperse genetically distinct  
35                    stocks widely have likely had unknown genetic  
36                    impacts on present-day Fraser River sockeye  
37                    salmon which may have impaired their ability  
38                    to adapt to climate change.

39

40                    There's a lot in that.

41          MS. BAKER: Could the article be put up for the witness  
42           to look at.

43          MR. BLAIR: Yes, we're looking for it. It's the B.C.

44           Salmon Farmer's documents at Tab 2, at page 11.

45          MS. BAKER: It's on the screen now.

46          MR. BLAIR: It's on page 13. It also would be page 373  
47           in the actual document, and it's near the top,

1 about 10 lines down. I'm sorry, Mr. Commissioner.  
2 Q All right. Now, members of the panel, I'm just  
3 referring you to the top of page 373, which Mr.  
4 Lunn has kindly put up. I'm looking for the word,  
5 "straying," which I don't find and we may have  
6 summarized that word so you can read the document  
7 for itself, by itself, rather. You can see the  
8 third line down, it says:

9  
10 It was also common practice to move eggs or  
11 fry among hatcheries to either address  
12 shortfalls and egg intake targets, or to  
13 simply disperse genetically-distinct stocks  
14 widely.

15  
16 Do you see that, all of you?

17 DR. PETERMAN: Mm-hmm.

18 MS. CROSS: Mm-hmm.

19 Q So the proposition that I'm suggesting that I'm  
20 suggesting this document puts forward is that you  
21 can have negative genetic effects from that  
22 practice. Dr. Peterman, do you accept that that  
23 statement is true, you can have negative genetic  
24 impacts from that practice?

25 DR. PETERMAN: They can be. The negative effects can  
26 exist, but I don't see evidence of it in this  
27 document you're showing us right here.

28 Q All right. Fine. Are you aware of other  
29 documents that would demonstrate that more  
30 clearly? I don't want to quibble over the words  
31 here. You're the doctor, does that happen, yes or  
32 no?

33 DR. PETERMAN: Does it happen now, I can't say. Did it  
34 happened in the past, yes. I think people have  
35 transferred stocks that were adapted to one area  
36 to another area. In fact, the classic example is  
37 there have been many introductions of Atlantic  
38 Salmon in B.C. over the last century and most of  
39 them have failed. Well, in fact, some would say  
40 all of them have failed.

41 Q You're an expert in that?

42 DR. PETERMAN: No.

43 Q I have to agree with you, but I wish you were.

44 MR. BLAIR: That's fine. Thank you, Mr. Commissioner,  
45 thank you, members of the panel, I have no other  
46 questions.

47 MR. HARRISON: Good morning, Mr. Commissioner, good

1 morning, panel, my name is Judah Harrison, and I'm  
2 representing the Conservation Coalition, which is  
3 a group of six non-governmental organizations and  
4 one individual interested in the conservation of  
5 wild salmon.  
6

7 CROSS-EXAMINATION BY MR. HARRISON:  
8

9 Q This morning, there was discussions, including  
10 from Mr. Taylor, you were discussing the  
11 difference between hatchery fish and fish that  
12 have enhanced habitat or changed habitat, such as  
13 spawning channels.

14 MR. HARRISON: And Mr. Registrar, could you please  
15 bring up Exhibit 8, which is the Wild Salmon  
16 Policy, and specifically, page 1 on the document,  
17 or page 8 of the pdf.

18 Q If you see, on the sidebar on the right, this is  
19 page 1 of the Wild Salmon Policy, there's a  
20 discussion between the differences between  
21 enhanced and wild salmon, and very near the  
22 bottom, the second-last paragraph, or I guess you  
23 have to read the third, it says that salmon from  
24 hatcheries are enhanced salmon, whereas salmon  
25 that benefit from enhanced activities to their  
26 habitat, such as spawning channels are still  
27 considered wild. My question is would the three  
28 of you agree with this proposition, that there's a  
29 large distinction between hatchery fish and those  
30 that have benefited from habitat modification,  
31 such as spawning channels, and that it's proper  
32 for hatchery fish to be designated as enhanced,  
33 whereas the other fish, it's proper for them to be  
34 designated as wild? I'll start with Mr. Savard,  
35 please.

36 MR. SAVARD: Well, I think very definitely there is a  
37 distinction between fish that are produced from  
38 spawning channels. It's more close to the wild  
39 situation than in a hatchery situation.

40 Q And the Wild Salmon Policy actually designates  
41 those that have benefited from habitat  
42 modification as wild and those that have not, or  
43 have come from hatchery as enhanced. There's a  
44 major difference and if you look, this will be in  
45 my next question, but I guess above, it says  
46 enhanced salmon will not count for various things  
47 for the first lifecycle.

1 MR. HARRISON: And we can scroll up, please, Mr.  
2 Registrar. You may have to go to the -- okay,  
3 right there. Sorry:

4  
5 Salmon that originate directly from  
6 hatcheries and managed spawning channels are  
7 not considered wild in this policy and are  
8 enhanced salmon.

9  
10  
11 Q So I guess I'll ask the question again. Is there  
12 a major distinction between hatchery fish and  
13 those benefiting from habitat modification? And  
14 does the Policy consider one wild and one  
15 enhanced?

16 MR. SAVARD: I think I'd defer to my colleague. I'm  
17 not as familiar with the Wild Salmon Policy as she  
18 is.

19 Q Okay. Ms. Cross?

20 MS. CROSS: So this was a distinction that was  
21 explicitly made as the Policy was being developed.  
22 Because fish that emerge from restored habitat or  
23 lake enrichment undergo a completely normal -- you  
24 know, a completely -- a lifecycle that has no  
25 active human intervention so --

26 Q And I guess, scientifically, that makes sense to  
27 you, that this distinction has been made?

28 MS. CROSS: Yes, we made this distinction in the  
29 Policy, yes.

30 Q Okay. And then the paragraph that I just read  
31 from here, it said:

32  
33 Salmon that originate directly from  
34 hatcheries and managed spawning channels are  
35 not considered wild in this policy ...

36  
37 I take that to mean that enhanced salmon, DFO  
38 should not make their decisions based on counting  
39 enhanced salmon, including, let's say, the status  
40 of a conservation unit or setting harvest rates.  
41 Do you believe that this paragraph supports that,  
42 namely, that enhanced salmon will not dictate or  
43 have an influence on management decisions from DFO  
44 personnel?

45 MS. CROSS: I think there are other parts of the  
46 policy, however, that refer to the fact that  
47 enhancement is part of the suite of activities

- 1           that the Department utilizes to meet objectives,  
2           and that there will be considerations on how  
3           enhanced salmon interact with wild salmon, but I  
4           would not interpret this paragraph as you have.  
5           The enhanced salmon are part of the planning  
6           process, and they were identified explicitly as an  
7           acceptable way of meeting local objectives. Yeah.
- 8           Q     So then, I guess, in your view, the status of a  
9           conservation unit would properly include the  
10          amount of enhanced salmon within that conservation  
11          unit?
- 12         MS. CROSS: That work is still underway and I'm not  
13          engaged in it specifically.
- 14         Q     Okay. I'm going to move on. And this morning,  
15          there was also talk of the three pillars of the  
16          Salmonoid Enhancement Program. To reiterate, they  
17          were fish culture, hatcheries, community  
18          enhancement and resource restoration. Mr. Savard,  
19          my question is for you. Of the three pillars, can  
20          you give us a sense of what percentage of  
21          resources or focus within the SEP program each  
22          gets? You know, are they equal, is it a third, a  
23          third, a third, or of the resources, do fish  
24          culture get the vast majority of those resources?
- 25         MR. SAVARD: The major enhancement facilities that the  
26          Department operates comprise about \$19 million of  
27          the \$26 million budget. The other two, resource  
28          restoration and the community involvement program,  
29          are about \$3 million each.
- 30         Q     Thank you. And earlier at this Commission, we  
31          heard evidence of the no net loss occurring in the  
32          Fraser basin, that there was general agreement,  
33          from some witnesses at least, that we are  
34          incurring what has been dubbed a slow net loss.  
35          Can you give us a sense of the habitat restoration  
36          that you do, how adequate that is for the type of  
37          -- for countering the habitat destruction that's  
38          going on in other areas, or from other sources?
- 39         MR. SAVARD: Well, I can't speak to the context that  
40          you're referring to because I'm not familiar with  
41          that, but I would say about our Resource  
42          Restoration Unit, is that we work on -- on an  
43          annual basis, we undertake about 50 or possibly,  
44          as many as 70 different restoration projects in a  
45          particular year, and these will range from trying  
46          to restore habitat that's been damaged by whatever  
47          means, or working with developers or proponents in

1 and around fish habitat that want to create or  
2 restore or establish new habitat. So as I say,  
3 I'm not sure that I can comment on, you know, the  
4 question that you've asked, but the Resource  
5 Restoration Unit does, you know, work on some 50  
6 to 70 new projects a year, which are designed to  
7 either restore, create new or improve --  
8 Q Okay. So you said that -- sorry to cut you off.  
9 You said there was about 50 to 70 restoration  
10 projects. Do you have any sense of, let's say,  
11 the amount of kilometres that is being restored,  
12 or acres, or area-wise? Do you have any sense of  
13 that?  
14 MR. SAVARD: On an annual basis, that will vary,  
15 depending on the projects, the size of the  
16 projects and the number of the projects so, I  
17 mean, it's hard to say, to give you a kind of a  
18 concrete answer in terms of kind of what it is on  
19 an annual basis. It depends on the size, and the  
20 nature and scope of the project.  
21 Q Okay.  
22 MR. HARRISON: Mr. Registrar, can you bring up the  
23 affidavit of Dr. Peterman, which I believe is  
24 Exhibit 770, specifically, the Appendix, or  
25 Exhibit A, which is the answers. Thank you.  
26 Q Dr. Peterman, this morning, I heard you say that  
27 artificial propagation is useful. I believe it  
28 was in the context of maintaining the status of  
29 salmon, but I may have got that wrong. But you  
30 did say artificial propagation is useful and I'll  
31 put words in your mouth, but where all other  
32 measures may have failed. I'd like you to expand  
33 upon that, if you --  
34 DR. PETERMAN: I was referring specifically to the case  
35 where there is a population that's at extremely  
36 low abundance and other measures to try to rebuild  
37 the stock have failed, then these so-called  
38 conversation hatcheries, or an attempt to keep the  
39 genetic stock going. Cultus Hatchery is an  
40 example of that, and that, to me, seems an  
41 appropriate step to take.  
42 Q And I'll focus on the fact that you said where all  
43 other measures have failed. I guess I'll ask you  
44 why you believe that should be the last resort?  
45 DR. PETERMAN: Well, because of the detrimental effects  
46 of hatcheries on stocks that are out there in the  
47 literature, and the knowledge of people who've



1 done it in the past.

2 Q And when you say the detrimental effects, are you  
3 thinking mostly of genetic detrimental effects, or  
4 are you thinking of all different ones?

5 DR. PETERMAN: No. No, I think that -- well, there are  
6 three issues, but the biggest one is the mixed  
7 stock fishery issue and so that's the one that I  
8 think is most of concern. If you have -- but that  
9 really only applies to large-scale hatcheries,  
10 where you're putting out enough fish to really  
11 make a difference to what the management strategy  
12 might be.

13 Q Okay. Thank you.

14 MR. HARRISON: Mr. Registrar, can you scroll down,  
15 please, to 3(c)? Right here.

16 Q I mean, this is what you're talking about, and  
17 this is your -- the exhibit to your affidavit, Dr.  
18 Peterman. I'm looking specifically at 3(c), where  
19 it says:

20  
21 In places where adults of wild and enhanced  
22 salmon co-migrate through fishing areas,  
23 fishing is intense on managers to allow high  
24 harvest rates.

25  
26 I'd like you to please expand upon that concern  
27 and, you know, I guess best would be to identify  
28 to the Commissioner what he could do to counter  
29 that concern, if you are aware of something he can  
30 do.

31 DR. PETERMAN: Well, I'm not sure that the Commissioner  
32 can do anything beyond raising the profile that  
33 already exists. DFO managers, to my knowledge,  
34 are well aware of this problem, and they've been  
35 aware of it since 1976. That was one of the three  
36 criteria, I remember, that was put out when the  
37 SEP program was first announced, is that they  
38 would avoid creating mixed stock fisheries  
39 problems to the extent possible. So I believe  
40 that one of the reasons why we've had low harvest  
41 rates allowed on the Late Run Fraser sockeye in  
42 the past many years is because of this exact  
43 concern, that the Cultus Lake sockeye, which are  
44 part of that group, the Late group, have been at  
45 such low abundance, they cannot withstand even a  
46 moderate harvest rate. So the managers recognize  
47 that and they have reduced the harvest rates

1           considerably.

2           Q       Okay. And then the next paragraph 3(d) says:

3  
4                     After adults leave the ocean, large numbers  
5                     of hatchery fish straying into spawning areas  
6                     for wild fish can decrease biological  
7                     diversity and fitness of the wild stocks.

8

9           DR. PETERMAN: Mm-hmm.

10          Q       I'd like it if you could comment and expand upon  
11                     that, please.

12          DR. PETERMAN: Okay. Well, as I was mentioning in  
13                     response to the previous questions from Mr. Blair,  
14                     there is evidence in the literature about this  
15                     interaction between hatchery strays and wild  
16                     populations based on some of the studies they've  
17                     actually had in their own documents there. Ian  
18                     Fleming's work, in particular, started that off in  
19                     the 1980s and so the key word in my statement  
20                     there is "can," not "will." It's the second line.  
21                     There is a potential for a decrease in biological  
22                     diversity and fitness of wild stocks from straying  
23                     hatchery-reared fish.

24          Q       Okay. And then besides those two, are there other  
25                     potential issues of concern relating to hatcheries  
26                     that you feel this Commission should be aware of?

27          DR. PETERMAN: Well, the item (a), above there. If you  
28                     just scroll up. Yeah. It's competition for food,  
29                     particularly in the marine environment. So as I  
30                     mentioned in a few of the documents that I  
31                     referred to here in my affidavit, there is  
32                     evidence on a large scale in the North Pacific  
33                     scale of competition between the large numbers of  
34                     hatchery fish in Asia, for example, and some North  
35                     American fish, both in terms of growth and, for  
36                     some of them, survival rate.

37          MR. HARRISON: Okay. Those are my questions. Thank  
38                     you very much.

39          MS. BAKER: Mr. Rosenbloom will be the next questioner.

40

41          QUESTIONS BY THE COMMISSIONER:

42

43          THE COMMISSIONER: Dr. Peterman, I wonder if I could  
44                     just ask you, if you could go back to that last  
45                     document, Mr. Lunn, please, just the last one.  
46                     Mr. Harrison started off his cross-examination  
47                     referring to the Wild Salmon Policy, and the

1 definition of wild salmon versus enhanced salmon.  
2 In item 3, "possible mechanisms for interacting  
3 the wild and enhanced salmon," I think some of  
4 your answers have referred to hatchery fish, but  
5 when you say enhanced salmon, are you describing  
6 just hatchery fish, or are you talking about what  
7 we've been talking about here this morning, which  
8 are spawning channels, as well?

9 DR. PETERMAN: Right. Okay. That's a good question.  
10 So I guess in item 3(a):

11  
12 Competition for food can occur between wild  
13 and enhanced salmon.  
14

15 That is definitely an intention there. So  
16 enhanced would refer to both hatchery and spawning  
17 channel fish, just more of them means you've got  
18 more competitors.

19 For item 3(b), that's also true. Large  
20 numbers of enhanced fish can alter the predation-  
21 induced mortality on juveniles independent of  
22 where those juveniles came from, a hatchery or  
23 enhanced -- spawning channels, pardon me.

24 And in 3(c), that's also correct, that in  
25 places where adults of wild and enhanced salmon  
26 co-migrate through the fishing areas, you can have  
27 this problem, mixed-stock fisheries. So it  
28 doesn't matter whether the enhanced fish are from  
29 hatcheries or spawning channels, it will have the  
30 same net effect on that mechanism, as well.

31 And in the 3(d), I specifically say large  
32 numbers of hatchery fish straying onto spawning  
33 areas for wild fish can decrease biological  
34 diversity. That is specifically referring to the  
35 hatchery fish and not the spawning channel fish.

36 THE COMMISSIONER: Thank you very much.

37 DR. PETERMAN: Yes.

38 MR. ROSENBLOOM: Thank you very much. My name is Don  
39 Rosenbloom, and I appear on behalf of Area D  
40 Gillnet and Area B Seiner.  
41

42 CROSS-EXAMINATION BY MR. ROSENBLOOM:  
43

44 Q I have a series of questions in two or three main  
45 areas. One of my focuses throughout this inquiry  
46 relates to budgetary challenges that DFO faces in  
47 respect to various areas of their enterprise. I'd

1           like to speak directly and ask questions to you  
2           regarding the budget situation.

3           You have already testified, and I'll speak,  
4           firstly, to Ms. Cross in respect to funding, that  
5           the SEP, or SEP program used to be up in the \$38  
6           million range, in the 1990s, and we've heard  
7           evidence today of its approximate figure of 23  
8           million, at this point in time, 26 million. First  
9           question I have for you is did I understand from  
10          your testimony this morning that you are  
11          suggesting that that reduction in budget is easily  
12          explainable in that there were front-end expenses  
13          with the hatchery program in the early stages that  
14          is no longer the case? Does that explain away the  
15          reductions, or is there a serious problem  
16          irrespective of the fact there was a start-up  
17          cost? Ms. Cross?

18       MS. CROSS: There were start-up costs at the beginning  
19          of the program. We did have a larger budget, but  
20          as a result of program review in the mid-90s, our  
21          budgets were reduced, and in response to that, we  
22          closed a number of facilities, changed the  
23          configuration of some of our staff programs, as  
24          well.

25       Q       Yes. And what I'm trying to establish here as you  
26          present yourself and your evidence before this  
27          Commission, are you suggesting that the current  
28          budget for SEP is appropriate?

29       MS. CROSS: The budget allows us to focus on the  
30          priorities that we have. Annually, we have some  
31          budget pressures, but we are generally able to  
32          manage within those or to obtain a small amount of  
33          additional regional funding to support those.

34       Q       So are you suggesting that the current budget  
35          satisfies not only the enhancement program and  
36          your responsibilities for the enhancement program,  
37          but also the restoration program? Am I right --  
38          well, let me just first ask that question.

39       MS. CROSS: It covers the three aspects of the program  
40          that were described, yes, including the  
41          restoration program.

42       Q       That doesn't quite answer my question. Yes, I  
43          know your budget covers the three aspects, my  
44          question is: is the current funding that your  
45          department receives to carry out your duties under  
46          SEP, in your opinion, satisfactory to fulfill what  
47          you see as your mandate?

- 1 MS. CROSS: Well, everybody can always use more money,  
2 but in my opinion, the budget is adequate to  
3 address the priorities that we have put in front  
4 of us, yes.
- 5 Q But your priorities are, of course, established in  
6 the context of budget. You have to obviously  
7 prioritize, and once you have done so, you pick the  
8 top programs that finance permits, that the fiscal  
9 situation permits. My question is are the  
10 programs that you believe should be carried out by  
11 your department being carried out because you have  
12 ample money?
- 13 MS. CROSS: I'd say, in my opinion, we are  
14 substantially addressing the programs that need to  
15 be carried out. We would benefit from some  
16 additional assessment funding. I could see some  
17 additional components, in my own opinion, that  
18 would benefit from some additional funding.
- 19 Q And you have said so to your superiors?
- 20 MS. CROSS: Yes.
- 21 Q And you have prioritized to your superiors the  
22 projects that are not being carried out because of  
23 a restriction in funding that you believe should  
24 be carried out?
- 25 MS. CROSS: I have identified a list of the projects  
26 that are of highest priority for funding, yes.
- 27 Q Yes, that aren't receiving funding, you mean?  
28 That's my question.
- 29 MS. CROSS: I've identified projects that would be of  
30 benefit that we could do with additional funding.
- 31 Q Are those projects exclusively in the enhancement  
32 area, or are they in the enhancement and  
33 restoration area? Can you describe generally what  
34 area you focus on in respect to projects that  
35 aren't being funded that you would feel more  
36 comfortable if they were being funded?
- 37 MS. CROSS: They are over the entire scope of the  
38 program.
- 39 Q Okay. And that, of course, includes restoration.  
40 Did I understand testimony just earlier this  
41 morning that of the 26 million, three million is  
42 designated for restoration; am I correct?
- 43 MS. CROSS: That's correct.
- 44 Q Pardon me?
- 45 MS. CROSS: That's correct, yes.
- 46 Q And I understand this three million for  
47 restoration is in respect to the Fraser watershed,

1 or the entire province?

2 MS. CROSS: The entire province.

3 Q Well, I'm obviously far less knowledgeable than  
4 anyone on this panel about this, but it sounds to  
5 me like \$3 million for restoration for the entire  
6 province is a very, very small sum of money. Am I  
7 thinking in a wrong direction about this? Is \$3  
8 million, in your opinion, ample for restoration  
9 throughout the province on an annual basis?

10 MS. CROSS: So the restoration program is actually a  
11 program that uses a lot of leveraged funding from  
12 external partners.

13 Q A lot of what, I'm sorry?

14 MS. CROSS: Leveraged funding. And so we engage in  
15 projects cooperatively with a number of either  
16 external stakeholders, other funding sources.  
17 There have, over the course of the history of the  
18 restoration program, been a number of various  
19 kinds of funding sources are available and so by  
20 using, by providing our expertise and some seed  
21 money, we're able to take advantage of those kinds  
22 of projects, or those kinds of funding sources and  
23 work with external partners. So in fact, even  
24 though there are only \$3 million of DFO funding  
25 that goes into this, I don't know the most recent  
26 figures, but I think in the order of every dollar  
27 we invest, leverage is seven, or eight, or nine  
28 dollars, externally. And so the impact of this  
29 kind of work is far greater than the money that we  
30 invest directly.

31 Q So you're comfortable with \$3 million in your  
32 budget for province-wide restoration work?

33 MS. CROSS: Yes.

34 Q That \$3 million has to be spent throughout the  
35 province. What percentage of the 3 million is for  
36 restoration work in the last few years in the  
37 Fraser watershed?

38 MS. CROSS: I can't speak to that. I don't know.

39 Q Without giving a precise figure, are you able to  
40 tell the Commission whether approximately half of  
41 the 3 million is being spent within the Fraser  
42 watershed?

43 MS. CROSS: I couldn't even make a guess. We could  
44 find out that information for you, though.

45 Q I wondered if through your counsel, Mr. Taylor,  
46 that you could provide that information to the  
47 Commission and let's, to be specific about it, for

1 the years 2007 through to the current 2011.

2 MR. TAYLOR: I don't know what's available, but we can  
3 look at it and just for Mr. Rosenbloom's benefit,  
4 and the Commissioner's, and others, one of the  
5 pages in Exhibit 767, which is the PowerPoint I  
6 put in as an exhibit, deals with some of this  
7 number and division of budget that Mr. Rosenbloom  
8 is speaking about.

9 MR. ROSENBLROOM: Thank you.

10 Q Still speaking to the budgetary issues, as the PPR  
11 informs us and we have heard previously in  
12 evidence from, in fact, your deputy minister, Ms.  
13 Dansereau, there is currently a five-percent  
14 reduction in budget, and the PPR, if Mr. Lunn can  
15 go to it for a moment, paragraph 176, found at  
16 page 163, says, and I quote:

17  
18 Currently, DFO is in the first year of a  
19 Treasury Board strategic review that requires  
20 all governmental departments to reduce their  
21 budgets by five percent over three years.

22  
23 Is it your understanding that the five-percent  
24 reduction is cumulative over the three-year  
25 period, in other words, less than five percent the  
26 first year, and a portion of five percent the  
27 second and the third, or is it your understanding  
28 that five-percent reduction is applied each year  
29 to your budget over the three years?

30 MS. CROSS: I'm going to defer to Mr. Savard.

31 Q Yeah, any of you answer it. Yes, thank you. Mr.  
32 Savard?

33 MR. SAVARD: I'd like to kind of touch on that, but I  
34 think it would be helpful maybe just to kind of  
35 spend a few minutes on some of your earlier  
36 questions to Ms. Cross with respect to budgets and  
37 allocations across the different elements.

38 Q Fair enough, and then we'll come back to this  
39 question.

40 MR. SAVARD: So I guess just to set a bit of context in  
41 terms of the budget within the Salmon Enhancement  
42 Program, and I've testified earlier that about 19  
43 or \$20 million of that goes to our Hatchery  
44 Program, and about three million each to the other  
45 two elements. I just did want to draw the  
46 distinction, though, that, you know, the largest  
47 share of our budget, the 19 to \$20 million is

1 targeted at operation and maintenance of our major  
2 hatchery facilities, the 23 of them.

3 With respect to the Community Involvement  
4 Program and the Resource Restoration Program, a  
5 funding approach and the allocation of monies is  
6 quite different than the Hatchery Program. As Ms.  
7 Cross has identified, in the Resource Restoration  
8 Program, that whole program was always premised on  
9 leveraging funding from partners. So in a sense,  
10 the \$3 million that is assigned to that part of  
11 the program, very deliberately, the intent was  
12 that it's kind of seed money, it provides staff  
13 and expertise to be working with partners to do  
14 restoration projects. And that is by design. You  
15 know, that is kind of the approach to it.

16 And similarly, with the Community Involvement  
17 Program, we have about \$3 million for that program  
18 and by design, that program is set up where we are  
19 working with partners that, in many cases, they're  
20 volunteers, in many cases, there's leverage  
21 fundings from other sources, but that is, again,  
22 like I say, by design. In the Community  
23 Involvement Program, we offer seed money, small  
24 amounts of seed money to proponents to do work and  
25 we work with them. And the expectation is a lot  
26 of the work that gets done is through volunteers  
27 and through leveraging of funds. So I just wanted  
28 to make that distinction that there's, you know,  
29 quite a difference between the three elements and  
30 how we kind of approach the funding arrangements.

31 With respect to your question on strategic  
32 review, my understanding is the budget reduction  
33 of five percent is for the entire department  
34 across the country, and those reductions are to be  
35 realized over a three-year period.

36 Q Meaning cumulatively over the three years? For  
37 example, this year, it might only be a 1.5-percent  
38 reduction?

39 MR. SAVARD: That's my understanding.

40 Q That's your understanding. When one reads the  
41 PPR, one sees documented a number of programs  
42 under the Enhancement department or division of  
43 DFO, where shortcomings in funding have limited  
44 programs. And I want to focus on one particular  
45 one in the context of you, Ms. Cross, saying  
46 you're satisfied generally with the budget  
47 provided to you, and I would like to refer you to



1 paragraph 104 of the PPR, page 40, and it relates  
2 to the lake in Richmond program. And what we  
3 learn, and because we all are short of time here,  
4 I don't want to read the paragraph to you, but  
5 what I learn in reading that paragraph is, in the  
6 last sentence:

7  
8 As of April of 2011, LEP --  
9

10 Which is the lake in Richmond program:

11  
12 -- is almost completely defunct and Great  
13 Central Lake on Vancouver Island is the only  
14 lake being enriched.  
15

16 Firstly, do you agree that the LEP program has  
17 been rendered defunct because of a shortage of  
18 money?

19 MS. CROSS: I wouldn't say that I would agree that it  
20 was primarily because of a shortage of funding. I  
21 alluded to earlier the fact that enhancement  
22 programs and projects have to be undertaken in the  
23 larger context of fishery requirements and  
24 assessment requirements and an understanding of  
25 what the natural situation is. So I wasn't part  
26 of the sort of decision-making process around the  
27 earlier decisions not to fund additional lake  
28 enrichment programs, but I do think that we need  
29 to think about this in the context of are they  
30 needed, is it the right technology, or, sorry, is  
31 it the right tool for the right job. So I expect  
32 funding entered into this, but I'm also not aware  
33 of what the larger production planning context was  
34 for the decision making.

35 Q Ms. Cross, are you suggesting within DFO there is  
36 controversy whether or not that program was a  
37 positive direction for DFO?

38 MS. CROSS: No, I'm not suggesting that.

39 Q So you're agreeing with me that the program within  
40 DFO was considered to be beneficial?

41 MS. CROSS: I'm agreeing that the program is beneficial  
42 in the particular instances where it is the right  
43 technology for the situation.

44 Q All right. Well, in this very paragraph that I  
45 cited from the PPR, the previous sentence,  
46 preceding sentence of that paragraph:  
47

1 To this end, a list of potential priority  
2 projects was developed by the HEB,  
3 Science, LEP team to guide the program, but  
4 due to funding shortfalls in other areas of  
5 HEB from '99 to 2001, LEP postponed  
6 implementing most of the major projects  
7 during this time.  
8

9 Do you agree that paragraph is accurate as to what  
10 happened to the LEP program?

11 MS. CROSS: I wasn't involved in the decision making at  
12 that time in terms of the program so I can't agree  
13 or disagree.

14 Q How has this five-percent reduction over three  
15 years, how do you believe it will affect your  
16 services in the Pacific Region with SEP in those  
17 three years?

18 MS. CROSS: Are you referring to me?

19 Q Ms. Cross?

20 MS. CROSS: Yes. I don't know. There have been a  
21 number of scenarios, I understand, under  
22 discussion in terms of how this five percent will  
23 be applied, but I don't know how it will affect  
24 us.

25 Q When you say you don't know how it will affect  
26 you, and, please, I'm not wanting to be seen to be  
27 critical with you, aren't you the person in the  
28 position of authority that has to be worried about  
29 these issues, and has to grapple with these  
30 issues, or do I have that wrong?

31 MS. CROSS: I'm a manager within the program and when  
32 we have an understanding of what that five percent  
33 looks like then we'll have to develop a strategy  
34 for how we will deal with it.

35 Q I had gathered from Ms. Dansereau during her  
36 testimony, I believe, last November, that the  
37 five-percent budget reduction was to be applied to  
38 the current fiscal year, in other words, 2011 to  
39 2012. One would have assumed, would one not, that  
40 you have already budgeted for that reduction in  
41 what is now the current fiscal year?

42 MS. CROSS: So we had a little previous discussion  
43 there. Mr. Savard alluded to the fact that this  
44 would be over the three years and so we wouldn't  
45 understand exactly which portion of that might be  
46 applied in the first year, or in subsequent years.

47 Q So you can't bring to the Commission today

1 information about what programs may be prejudiced  
2 as a result of the Treasury Board budgetary  
3 directive?

4 MS. CROSS: No.

5 Q I'd like to direct a few questions to Dr.  
6 Peterman, and I focus these questions, Dr.  
7 Peterman, in an area that I believe is of special  
8 interest to you relating to marine environment,  
9 capacity, and the interplay of habitat enhancement  
10 to the whole marine environment situation and  
11 whether it's detrimental to the wild stock.

12 There is a document that was drawn to our  
13 attention by the Commission, but it's not as yet  
14 in evidence by the Commission.

15 MR. ROSENBLOOM: And it's Tab 16, Mr. Lunn, of the  
16 Commission's book of documents.

17 Q And it appears to be -- it will be put on the  
18 screen in a moment, Dr. Peterman. It appears to  
19 be a letter, and yet, it isn't addressed to  
20 anybody, at least the copy I have isn't address to  
21 anybody. Can you first give context to this  
22 particular document?

23 DR. PETERMAN: Oh, yes, sure. This is a document that  
24 I put together with my co-authors on the Ruggerone  
25 et al 2010 paper that was published in Marine,  
26 Science and Fisheries. And this is basically a  
27 document that went out as kind of a media release  
28 so our media people at Simon Fraser University  
29 said, "Here's how you put this sort of thing  
30 together," and I've done many of these in past  
31 years and so we just highlighted some of the key  
32 findings and tried to relate them to issues that  
33 the general public would be interested in.

34 Q And in this document, please, these are my words,  
35 not yours, alarm bells go off.

36 DR. PETERMAN: Mm-hmm.

37 Q Would you agree with me that you are alerting the  
38 scientific community to some very, very serious  
39 issues that have to be investigated?

40 DR. PETERMAN: Yes. Well, how serious they are depends  
41 on the listener, I guess, because these are ideas  
42 that are well known among the salmon biologists'  
43 community, and the managers are not as aware of  
44 it.

45 Q And assuming we are all here committed to the  
46 sustainability of the wild salmon and, in  
47 particular, of the Fraser River, you are calling

1 out here for some critical research to be done in  
2 the context of enhancement programs, are you not?

3 DR. PETERMAN: Well, enhancement programs across the  
4 Pacific Rim, yes.

5 Q Yes.

6 DR. PETERMAN: But we weren't specifically talking  
7 about B.C.'s programs at all.

8 Q No, but Dr. Peterman, it would apply to the Fraser  
9 watershed as much as anywhere else, would it not,  
10 what you had to say in this document?

11 DR. PETERMAN: Yes. And in one of the other documents  
12 that I provided, that Greg Ruggerone was an author  
13 of, he was trying to relate some of these issues  
14 about abundance on the high seas of pink salmon  
15 from Russia and Alaska to Fraser sockeye  
16 productivity and body size.

17 Q Indeed, and that led you to another of your  
18 favourite topics relating to international  
19 cooperation on some of these issues --

20 DR. PETERMAN: Yes.

21 Q -- is it not?

22 DR. PETERMAN: Yes.

23 Q Now, sir -- Dr. Peterman, at page 1 of this  
24 document, under the third bullet, the last  
25 sentence, you say, and because we're so short of  
26 time, I'm having to deal with this in a context  
27 I'd rather not, you say:

28  
29 The net result --

30  
31 Maybe I should go up on the bullet:

32  
33 Evidence indicates that the ocean is getting  
34 overcrowded with salmon, raising the question  
35 of how many more fish the ocean can sustain.

36  
37 DR. PETERMAN: Right.

38 Q

39 The ocean is always changing and current  
40 favourable ecological conditions for salmon  
41 will not last indefinitely. Unless  
42 international agreements are developed to  
43 manage production levels, hatchery fish may  
44 dominate in the ocean as soon as ocean  
45 conditions deteriorate. The net result could  
46 be a perfect storm for wild salmon  
47 precipitated by the following events.

1  
2 I want to give you the opportunity, sir, to just  
3 then go over these events and why you speak in  
4 such blunt and strong terms about your concern for  
5 the future.

6 DR. PETERMAN: All right. Okay. Well, first of all, I  
7 guess, this is an attempt to bring to the  
8 forefront here the idea that the ocean conditions  
9 are not stable and as we said there in the second  
10 sentence, it's likely that at some future point,  
11 the North Pacific will become less productive, as  
12 it was prior to the mid-1970s. And in that  
13 scenario, it's unlikely that the people around the  
14 Pacific Rim who are releasing fish from  
15 hatcheries, in particular, will turn down the taps  
16 in recognizing that, "Well, maybe the ocean  
17 carrying capacity has gone down so we'll turn down  
18 the taps." In fact, they'll probably be more  
19 likely to raise the release numbers from their  
20 facilities because they're under their control,  
21 whereas the wild populations might not be coming  
22 back in very large numbers. And so the issues  
23 that we're trying to raise here is that we're  
24 going to have a situation where it's  
25 disadvantageous to the wild stocks when there are  
26 fewer resources out there for them to feed upon in  
27 the North Pacific, if the ocean conditions become  
28 less favourable. There will be just as many  
29 hatchery fish, if not more hatchery fish as there  
30 are now, and likely fewer wild fish. So the body  
31 size at age when they return to the coast here,  
32 and subject to fisheries, will be smaller, which  
33 will decrease economic value of the fish, and also  
34 may influence their fecundity, the number of eggs  
35 produced per female.

36 Q Thank you.

37 DR. PETERMAN: Yes, go ahead.

38 Q No, it's at the lunch hour, but when we return  
39 after lunch, I want to ask you what response  
40 should DFO make to this prognosis, this worrisome  
41 prognosis that you give us. So I will be asking  
42 you that question on our return.

43 DR. PETERMAN: Okay. Thank you.

44 Q Thank you.

45 THE REGISTRAR: The hearing is now adjourned until  
46 2:00 p.m.

47

1 (PROCEEDINGS ADJOURNED FOR NOON RECESS)  
2 (PROCEEDINGS RECONVENED)  
3

4 THE REGISTRAR: Order. The hearing is now resumed.  
5 MR. ROSENBLOOM: Thank you very much. Don Rosenbloom  
6 continuing with my cross-examination. Just before  
7 carrying on with you, Dr. Peterman, in respect to  
8 the gathering storm, as you described it, we were  
9 referring to the document that you authored dated  
10 October the 1st, 2010. This was a document that  
11 is currently found as Tab 16 of the Commission's  
12 book of documents. I think that should be marked  
13 as an exhibit.

14 THE REGISTRAR: Exhibit Number 773.  
15 MR. ROSENBLOOM: Thank you very much.  
16

17 EXHIBIT 773: General Press Release of Dr.  
18 Peterman, re Ruggerone et al, dated October  
19 1, 2010  
20

21 CROSS-EXAMINATION BY MR. ROSENBLOOM, continuing:  
22

23 Q Now, Dr. Peterman, in respect to that perfect  
24 storm, the storm clouds have actually been around  
25 for the extended past. It's not a recent  
26 scientific proposition that there are issues here  
27 that have to be explored regarding the interaction  
28 of enhanced fish with the wild stock?

29 DR. PETERMAN: That's right.

30 Q And in fact, just for the record and for the  
31 Commissioner's benefit, we learn that indeed there  
32 have been forewarnings in respect to the  
33 possibility of a dangerous environment from the  
34 auditor general going back to a report in 1986.  
35 Are you familiar with the fact the auditor general  
36 spoke to this issue?

37 DR. PETERMAN: No, I'm not.

38 Q Well, I lead you to the PPR, page 56, up at the  
39 top paragraph 153. Mr. Lunn may be able to put  
40 that up. Not that I'm here to certainly educate  
41 you about anything to do with this subject, but in  
42 the PPR, it speaks, as I think if you just scan it  
43 very quickly, to an auditor general's report of  
44 1986. You see that?

45 DR. PETERMAN: Yes.

46 Q Yes, and then we have Dr. Pearse in 1994 in the  
47 following paragraph, 154. That paragraph

- 1 documents Dr. Pearse ringing certain alarm bells  
2 about this issue, does he not, or did he not?  
3 DR. PETERMAN: Yes, it looks like it from this  
4 description.  
5 Q Yes. And then we have a contribution by you and a  
6 number of other extremely respected scientists in  
7 2004 in a workshop. And you see that documented  
8 in paragraph 155?  
9 DR. PETERMAN: I see it but I'm not sure which workshop  
10 that refers to.  
11 Q Well, let me try to refresh your memory. It was,  
12 I'm going to suggest to you, sir, a workshop that  
13 took place on November 6th and 7th, 2004. I have  
14 a document which I'm about to tender once you  
15 identify it, called "Advice Related to Five Big  
16 Picture Science Issues for B.C. Salmon". It was  
17 authored or prepared by none other than Karl  
18 English --  
19 DR. PETERMAN: Okay, yes.  
20 Q -- Brian Riddell, Randall Peterman, yourself --  
21 DR. PETERMAN: Yeah.  
22 Q -- and a number of others. Now, you're familiar  
23 with it?  
24 DR. PETERMAN: Yes.  
25 Q And would you agree with me -- again, time is so  
26 short here, would you agree with me this paper  
27 that you and the collective group of scientists  
28 participated and prepared this report really were  
29 in part was ringing an alarm bell of the issues of  
30 salmon enhancement proceeding and continuing in  
31 the absence of DFO paying any attention to the  
32 sequelae of those programs without investigating  
33 the interaction with the wild stock particularly  
34 in the marine environment?  
35 DR. PETERMAN: No, I'm sorry I can't agree with that  
36 because I remember the main thrust of that  
37 document as being that the decrease in funding  
38 available for monitoring escapements was what was  
39 most alarming. That is, we were observing that  
40 there had been a tremendous cutback in the amount  
41 of work being done to actually estimate the  
42 abundances for most of the salmon stocks in the  
43 north coast. Is this the one that is titled  
44 "North Coast"?  
45 Q No, it is not.  
46 DR. PETERMAN: Okay.  
47 Q In fact, I'll just get it put right on the screen

1           because it is --  
2       DR. PETERMAN: Yeah, okay. I must have confused it  
3           with another one then.  
4       Q     Yes, I'm sorry. It is Ringtail document Canada  
5           267755. And I am referring to it --  
6       DR. PETERMAN: Okay. I see it.  
7       Q     Excuse me.  
8       DR. PETERMAN: I see it.  
9       Q     I'm referring to, from the PPR, that paragraph 155  
10           where it speaks of academics, consultants and DFO  
11           scientists. And there is a footnote, excuse me --  
12           yes, there is a footnote, 289, and that's where I  
13           found the document. It is now in front of you,  
14           right?  
15       DR. PETERMAN: Yes.  
16       Q     Yes, it is.  
17       DR. PETERMAN: I see it, thank you.  
18       Q     Are you familiar with it?  
19       MR. TAYLOR: Is this something in the list for this  
20           hearing?  
21       MR. ROSENBLOOM: Pardon me?  
22       MR. TAYLOR: is this something in the list for this  
23           hearing?  
24       MR. ROSENBLOOM: No, it is not in the list but it is  
25           footnoted in the PPR. Is that not appropriate to  
26           make reference to documents that are referred to  
27           in the PPR?  
28       MR. TAYLOR: I don't think I'm going to stand on it for  
29           this one but I don't think it's appropriate that  
30           you can drag up anything from a --  
31       MS. BAKER: It's in the salmon farmers' list for this  
32           hearing.  
33       MR. ROSENBLOOM: Okay, thank you.  
34       THE REGISTRAR: Tab 5.  
35       MR. ROSENBLOOM: Thank you very much. Carrying on.  
36           Occasionally you get bailed out in this business.  
37       DR. PETERMAN: Yeah, right.  
38       Q     You're familiar with this document?  
39       DR. PETERMAN: Vaguely. To be honest with you, I think  
40           this is one of those workshops where, yes, I was  
41           there and took part in the discussions and then  
42           the draft was passed by me and it could be that I  
43           didn't have a close look at it so that I remember  
44           everything because I remember my journal papers  
45           very well.  
46       Q     Yes.  
47       DR. PETERMAN: But I don't remember this one.



1 Q Well, Dr. Peterman, if you look at this document,  
2 which I'm about to have marked as an exhibit, and  
3 you go to page Roman numeral II, so the third page  
4 in the document, cover and then two pages in, and  
5 to the bullet at the bottom, as an executive  
6 summary, it says:

7  
8 There is a pressing need for research into  
9 the early marine survival of Pacific  
10 salmonids and the role of hatchery production  
11 in these processes. The biological effects  
12 of hatchery production in B.C. has not been  
13 adequately assessed and may have long-term  
14 economic and biological consequences,  
15 particularly in the Strait of Georgia. This  
16 study could also be a major contributor to  
17 assess the impacts of climate change in the  
18 Pacific region.

19  
20 You would adopt that now, wouldn't you?

21 DR. PETERMAN: Yes, yes, that's right.

22 Q Yes. And knowing, as we do, as I've just gone  
23 through it, the chronology of the alarms that have  
24 been going off to DFO in respect to the auditor  
25 general's report in respect to Dr. Pearse's  
26 report, in respect to your work and your  
27 collective initiative with the scientists in 2004,  
28 from your perspective, why is no work being done  
29 by DFO in respect to this critical area?

30 DR. PETERMAN: Well, I'm not sure what you mean by "no  
31 work". And "this critical area", I assume, is you  
32 mean the effects of hatchery fish on wild fish?

33 Q Correct.

34 DR. PETERMAN: Or is it in the marine environment only?

35 Q No, let's take the former of those two questions  
36 first.

37 DR. PETERMAN: Okay.

38 Q In other words, generally, not just in the marine  
39 environment.

40 DR. PETERMAN: Well, I think, as you heard from Ms.  
41 Cross and Mr. Savard this morning, there is  
42 recognition that there are these interactions  
43 going on. DFO is well aware of them. They have  
44 been for a long time. And how much research goes  
45 on in the Science Branch on these, I guess, is  
46 separate from them. I'm certainly aware of some  
47 people having worked on this mixed stock fishery

1 issue in the past.

2 Q But in respect to the marine environment coming to  
3 the latter of the two-fold --

4 DR. PETERMAN: Okay. Yes?

5 Q -- what I read, and correct me if I'm wrong, what  
6 I read in the materials supplied to us, there's no  
7 work being done by DFO, is there?

8 DR. PETERMAN: No, that's not correct. There is a  
9 little work going on. So Dick Beamish is one of  
10 them who's working on the Strait of Georgia on the  
11 early survival of salmon. Mark Trudell is another  
12 research scientist at Nanaimo who is leading an  
13 annual survey or several surveys, I'm not sure how  
14 many, off the north tip of Vancouver Island, Queen  
15 Charlotte Sound and Queen Charlotte Strait.

16 Q But are these projects specific to the issue of  
17 the interrelationship of the enhanced fishery with  
18 the wild stock?

19 DR. PETERMAN: I don't think they're specific to it but  
20 I think that they can -- where they can identify  
21 hatchery-reared fish, it's possible to estimate  
22 survival rates of the wild and the hatchery fish,  
23 for example.

24 Q All right. So let's get to the nub of this about  
25 the gathering storm. And I asked you just before  
26 the break --

27 DR. PETERMAN: Sure.

28 Q -- to reflect on this. What, in your opinion, are  
29 the remedial steps that are necessary to be  
30 conducted by DFO to ensure that that storm doesn't  
31 actually come to the coast? In other words, that  
32 that storm doesn't become the reality?

33 DR. PETERMAN: Okay. So now there are two issues here  
34 and they have to be resolved by talking about  
35 which scale you're asking the question at. Are  
36 you talking about the north Pacific scale or the  
37 coastal B.C. scale?

38 Q I guess I have to speak of the coastal B.C. scale.

39 DR. PETERMAN: Okay. Let's start there.

40 Q Right.

41 DR. PETERMAN: Okay. So as I think I said when I was  
42 here on the 20th and 21st, there is relatively  
43 little work being done by Canada in the marine  
44 environment on salmon survival rate, growth rates,  
45 migration rates. In particular, compared to what  
46 the U.S. researchers put in, it's somewhat  
47 shameful, to be honest, and I think it's a

1 budgetary issue. It's not the lack of interest.  
2 I know several scientists who are very interested  
3 in these questions but simply the resources aren't  
4 available to mount the kind of projects we see  
5 mounted by our American colleagues who have much  
6 larger budgets at their disposal. So I think the  
7 kinds of projects that Mark Trudell and Dick  
8 Beamish are doing are important because what  
9 they're trying to do is look at the field data on  
10 survival rates, migration rates, timing, movement,  
11 mix of stocks through these areas but these are  
12 relatively small efforts compared to what could be  
13 done in a more coordinated fashion. And I think I  
14 mentioned this in the context last week or two  
15 weeks ago in terms of, if we're trying to  
16 understand the causal mechanisms behind the  
17 decline in Fraser River sockeye stocks, those  
18 kinds of initiatives that Drs. Beamish and Trudell  
19 are doing right now, should be complimented by  
20 other researchers going out at the same time  
21 working in the same places but measuring other  
22 variables that could potentially reflect other  
23 mortality mechanisms.

24 Q All right. So if Commissioner Cohen concludes  
25 that the warnings that were given in the past, as  
26 I've just documented them with you, continue to be  
27 relevant to today's fishery, have you concluded  
28 your response as to the recommendations you'd give  
29 to the Commissioner as to the remedial steps that  
30 should be taken?

31 DR. PETERMAN: No, I've not quite concluded my response  
32 because --

33 Q Fair enough.

34 DR. PETERMAN: -- there's the bigger scale question.  
35 And I think this is an extremely point, Mr.  
36 Commissioner, and I'm glad that you brought this  
37 up, Mr. Rosenbloom.

38 Q Thank you.

39 DR. PETERMAN: I appreciate this. Some of the  
40 documents that I presented through the Commission  
41 lawyers in my affidavit deal with the fact that  
42 apparently our fish are influenced by interactions  
43 with fish from other countries. So it's hard  
44 enough to try to understand the dynamics of our  
45 fish populations and to manage them. But when we  
46 have a common pool resource like we have for the  
47 food for salmon out there in the north Pacific, we

1 have to be cognizant of the fact that there are  
2 other resource-grabbers, if you will, other fish  
3 from other nations and I'd just like to point out,  
4 for example, that in 1984, I documented that there  
5 was a decrease of up to 22 percent in the body  
6 weight of Chilko adult sockeye salmon when they  
7 were present in the ocean two years before with  
8 large numbers of Bristol Bay sockeye salmon. Both  
9 of these are wild stocks. But stick with me for a  
10 minute here --

11 Q Yes.

12 DR. PETERMAN: -- because it will come to the hatchery  
13 issue. So there was documentation back then of  
14 this potential interaction. And several other  
15 researchers have found the same sort of thing  
16 subsequently and the analogy is like a  
17 pastureland. If you're a rancher and you don't  
18 have any fences around you but you just send your  
19 cattle out to this pasture and every year they  
20 come back fat and happy and you do what you do  
21 with them, and then other people who live adjacent  
22 to that pasture started putting out cattle on that  
23 pastureland, too, well, at some point if they get  
24 enough competitors your cattle are probably going  
25 to come back a little thinner, a little scrawnier  
26 than they would otherwise. Well, we're in exactly  
27 that situation now in the sense that we send our  
28 fish out there, "send" in a loose sense of the  
29 word, to grab the food resources that are in the  
30 north Pacific but the Japanese are doing the same  
31 thing, the Russians are doing the same thing and  
32 so are the Alaskans.

33 Q And there is a higher abundance of these what  
34 we'll call "foreign fish", Japanese, Russian,  
35 whatever, coming into that common area --

36 DR. PETERMAN: That's right.

37 Q -- (indiscernible - overlapping speakers) past, is  
38 that correct, sir?

39 DR. PETERMAN: That's correct. Yeah.

40 Q And why is that?

41 DR. PETERMAN: Well, there are just more abundant  
42 populations in several areas, Alaska in  
43 particular. Depends on the species you're talking  
44 about. In Alaska, they have quite a few  
45 hatcheries for pink salmon and in Japan they have  
46 quite a few hatcheries for chum salmon.

47 Q That increased abundance by these foreign

1 countries is, in part, an increase in enhancement  
2 programs in those jurisdictions, is it not, sir?

3 DR. PETERMAN: It's part. Yes, I think in our paper,  
4 the Ruggerone *et al* 2010 paper, we document that  
5 22 percent of the adult salmon coming out of the  
6 north Pacific every year are hatchery-derived.

7 Q Right.

8 DR. PETERMAN: Hatchery-derived. We're not talking  
9 about spawning channels there; it was hatchery-  
10 derived. But still there are wild populations  
11 that have gone up tremendously in abundance over  
12 the last few decades compared to the 1950s and  
13 1960s. So in combination, what these fish are  
14 doing is they're competing for an apparently  
15 limited food resource and Greg Ruggerone and  
16 Jennifer Nielsen published a paper in 2004, which  
17 is one of the documents that I presented, showing  
18 that indeed there is an effect, a clear-cut effect  
19 of Asian pink salmon on a decrease in body size  
20 per adult for Bristol Bay sockeye salmon and also  
21 a decrease in the survival rate of those Bristol  
22 Bay sockeye salmon. So here you have an  
23 interaction between species because there is an  
24 overlap in their diet. And that kind of worked.

25 They reviewed extensively in that paper and  
26 they attributed a loss of about three million  
27 Bristol Bay sockeye per year to that interaction  
28 with pink salmon from Asia. And then there's one  
29 final step in the logic here, which is bring it  
30 back down the Fraser River scale. Greg Ruggerone  
31 produced a document for our PSC workshop in June  
32 last year that is an exhibit in this hearing where  
33 he showed that there is an inverse relationship  
34 between the abundance of pink salmon in the north  
35 Pacific as a whole, Alaska, Russia and Canada, and  
36 the productivity of Fraser sockeye. Productivity  
37 being adult recruits produced per spawner. So  
38 this is a very significant observation. It's a  
39 correlation. It's not a causal mechanism but at  
40 least raises a flag that, again coming back to my  
41 initial point, there is evidence that our fish are  
42 being affected by fish from other nations.

43 Q Right. And because my time is so short and I have  
44 other questions I have to ask --

45 DR. PETERMAN: Sure.

46 Q -- or I want to ask, you then call for some  
47 remedial steps. And to speed this up, in the

- 1 material I've read that you have filed, you want  
2 certain international --
- 3 DR. PETERMAN: Establishments.
- 4 Q -- establishments of international bodies to start  
5 governing or monitoring this international  
6 situation, is that fair to say in a very short --
- 7 DR. PETERMAN: Almost, yes. I'd say an international  
8 discussion should happen. So I'd say it's  
9 incumbent upon DFO and Foreign Affairs or whoever  
10 it is in Canada to start serious discussions with  
11 these other salmon-producing nations who occupy  
12 these areas in the north Pacific where B.C.  
13 sockeye and other salmon species also go and  
14 starting a discussion to say how can we share the  
15 limited resources out there?
- 16 Q And it hasn't been happening up until now --
- 17 DR. PETERMAN: No.
- 18 Q -- to the best of your knowledge?
- 19 DR. PETERMAN: No, not to my knowledge. The North  
20 Pacific Anadromous Fish Commission is the most  
21 logical place for it to happen. There might have  
22 been some cursory discussions of this in  
23 conferences but I don't know of any serious  
24 negotiations.
- 25 Q And it concerns you, doesn't it?
- 26 DR. PETERMAN: Yes, definitely.
- 27 Q Thank you. Now, very, very briefly to any of the  
28 panel, is the Cultus Lake and Sakinaw enhancement  
29 programs, are they considered successful? Maybe  
30 to you, Ms. -- excuse me, I apologize -- Ms.  
31 Cross, I'm sorry. Thank you.
- 32 MS. CROSS: The Cultus enhancement program has recently  
33 undergone a scientific assessment through our  
34 formal advice review process. And certainly it  
35 appears that there is potential for the stock to  
36 recover. We are redesigning that program now  
37 because it appears that the one component of it is  
38 contributing a significant portion of the fish.  
39 So yes, considered successful.
- 40 Q It's considered successful up to this point in  
41 time?
- 42 MS. CROSS: That's correct.
- 43 Q Thank you. Unless any panel member disagrees with  
44 that. What about Sakinaw?
- 45 MS. CROSS: Still in review. We don't have enough  
46 returns yet to do a full assessment.
- 47 Q The jury's still out on that one?

1 MS. CROSS: That's correct.

2 Q Thank you. In the PPR, and I appreciate that none  
3 of you -- I assume none of you authored the PPR --  
4 page 63, there is a curious statement that I  
5 wondered if any of you can interpret it for me.  
6 Paragraph 173, which starts at page 62. I'll,  
7 just to put it in context, read a sentence or two  
8 before the sentence where I want interpretation.  
9 I'm three lines from the bottom of page 62.

10  
11 SEP's original goal of doubling the  
12 commercial catch has failed, although Upper  
13 Adams sockeye are cited as an example of a  
14 SEP enhancement success and some might argue  
15 that enhancement may be the only thing  
16 keeping the Cultus stock from extinction.  
17

18 Then it says, and I quote:

19  
20 In any event, DFO acknowledges that fish  
21 culture is not sustainable over the long-run.  
22 Fraser River sockeye enhancement funding  
23 issues. If this is the case, then it  
24 supports a reconsideration of the funding  
25 model.  
26

27 I am intrigued by that comment. Is it the  
28 position of DFO that fish culture is not  
29 sustainable over the long run? Ms. Cross, you  
30 look a little curious at this statement. Does it  
31 run contrary to your understanding of your  
32 department's position?

33 MS. CROSS: I was just curious what document 324, what  
34 the footnote referred to.

35 MR. ROSENBLOOM: Okay. I'm sorry. I don't have that  
36 in front of me and maybe Commission counsel can  
37 assist us? Is it possible for you, Mr. Lunn, to  
38 bring forward that document 324? It is 324, CAN  
39 document 023193 at page 2, I think. It's actually  
40 324, yes, CAN 023193.

41 MR. LUNN: It'll take me a few moments to bring it up.

42 MR. ROSENBLOOM: Yes, it'll take a moment.

43 Q As we await this document, you're surprised to see  
44 that in the PPR?

45 MS. CROSS: No, I have seen the PPR before. Could you  
46 scroll back to that, please, while --

47 MR. LUNN: Certainly.

1 MS. CROSS: Thank you.

2 MR. ROSENBLOOM:

3 Q Okay. I now have, through the assistance of  
4 Commission counsel, Ms. Baker, she informs me the  
5 document is "Re The Role of Public Groups in  
6 Protecting and Restoring Freshwater Habitats in  
7 British Columbia with a Special Emphasis on Urban  
8 Streams - A Background Report Prepared for  
9 Consideration by the Pacific Fisheries Resource  
10 Conservation Council".

11 MS. CROSS: My recollection is that that remark was --  
12 or that was taken out of context from that  
13 document and that we had actually provided some  
14 clarification in our comments on the PPR.

15 Q Okay. So again, because time is so precious, to  
16 the best of your knowledge, what I read out there  
17 is not the policy of DFO. DFO does not have an  
18 expectation that the cultured program is not  
19 sustainable in the long term?

20 MS. CROSS: Well, as I say, I think there was quite a  
21 bit more to that statement so I think it's taken  
22 right out of context.

23 Q All right. Well, we'll have to investigate it but  
24 obviously not now. Mr. Savard, do you have  
25 anything to say on this regard?

26 MR. SAVARD: No.

27 Q No. Thank you. And I assume Dr. Peterman  
28 doesn't.

29 DR. PETERMAN: No.

30 Q Very, very briefly, lastly, I was discussing this  
31 morning the budgetary issues. And in the PPR, and  
32 Mr. Harrison also made reference to this, there  
33 are directives about the WSP, the Wild Salmon  
34 Policy, and responsibilities for enhancement under  
35 that program. I've got to be very general in my  
36 question in light of the timing. And you're  
37 obviously aware of those responsibilities under  
38 WSP. Are you of the opinion that your current  
39 budget permits you to carry out the  
40 responsibilities, as dictated in the WSP when it  
41 comes to enhancement and restoration? Ms. Cross?

42 MS. CROSS: So our specific responsibilities under the  
43 WSP refer to factors such as using enhancement as  
44 to meet conservation unit objectives, providing  
45 information through the IFMP process on production  
46 levels and a biological risk assessment framework.  
47 With respect to the first two, we don't have broad



1 scale conservation unit objectives yet that  
2 involve enhancement. But for those where we do,  
3 we are contributing to those. That's Cultus and  
4 Sakinaw. The risk assessment framework, that  
5 piece of work is just beginning. There will be a  
6 considerable cooperative piece of work required  
7 with Science Branch. I don't know what that study  
8 will look like ultimately and I don't know what the  
9 funding requirements would be for that.

10 Q Holding the position you do at the DFO, are you of  
11 the belief that the current funding provided to  
12 you under your budget will permit your carrying  
13 out your responsibilities under WSP?

14 MS. CROSS: If there is a requirement for us to  
15 contribute to the rebuilding of additional stocks  
16 that are at risk, those are extensive programs.  
17 Under our current budget, that would require us to  
18 realign some of the current projects to meet  
19 those.

20 Q And realign would mean taking from one project to  
21 fund another project?

22 MS. CROSS: Would mean to fund those, that's correct.

23 Q And that could be to the loss of instead of maybe  
24 Fraser River sockeye, it could be the loss of  
25 another specie of salmon in the Fraser watershed  
26 or indeed anywhere in the province, correct?

27 MS. CROSS: It would be a realignment of projects, yes.

28 MR. ROSENBLOOM: Thank you. I have no further  
29 questions.

30 MS. GAERTNER: Good afternoon, Mr. Commissioner.  
31 Brenda Gaertner for the First Nation Coalition and  
32 with me Crystal Reeves.  
33

34 CROSS-EXAMINATION BY MS. GAERTNER:  
35

36 Q Good afternoon, panel. I think for some reason,  
37 I'm not quite sure why, but I'm going to start  
38 with Dr. Peterman and then return to the other  
39 panel members. Dr. Peterman, I think the reason  
40 why I'm doing that is that at the end of your  
41 short affidavit you give us some recommendations  
42 that I think inform the managers a bit so I think  
43 I'll take you through your affidavit, ask the  
44 questions I have and then end with your  
45 recommendations.

46 DR. PETERMAN: Okay.

47 Q And then we'll turn to some of the questions of

1 the managers. I'm going to go to the exhibit  
2 that's attached to Exhibit 759, which is Dr.  
3 Peterman's affidavit, and I'm going to start at  
4 page 2 and just briefly go through some of the  
5 points that you've raised and ask a couple  
6 questions of you, Dr. Peterman. Particularly,  
7 let's start at the interactions between wild and  
8 enhanced fish that's at paragraph 2. You start  
9 with some of the overlaps related between wild and  
10 enhanced salmon in space and time.

11 It's my understanding from my clients that  
12 most of that which is local environments can be --  
13 those issues can be dealt with, with the sighting  
14 of the hatchery and then the timing of the release  
15 of the fish and that that's what they work with  
16 DFO on in the situations where they're working  
17 directly with them.

18 Is that the kind of thing you're talking  
19 about there where you had to minimize where -- you  
20 know, take good care at a local level as to where  
21 you sight the hatchery and then take good care at  
22 when you're going to release the fish out?

23 DR. PETERMAN: Certainly. At the local scale, it can  
24 be dealt with fairly easily, yes.

25 Q Much easier than at that grander scale that we're  
26 talking about.

27 DR. PETERMAN: Yes.

28 Q And then on the next one and on a local scale,  
29 there are places where hatchery-produced salmon  
30 outnumber wild salmon. Again, my understanding,  
31 and I tried to get through some of the articles  
32 that got listed all over the place last week  
33 coming into this, that my understanding with  
34 respect to Fraser River sockeye hatchery, there's  
35 relatively few Fraser River sockeye hatcheries in  
36 relation to the wild stocks that are out there.  
37 We're not putting out that much relative to what  
38 other countries are doing; is that correct?

39 DR. PETERMAN: That's right. Well, in fact, I think  
40 even within the Fraser, the number of hatchery-  
41 reared Fraser sockeye is very small compared to  
42 the wild --

43 Q Very small.

44 DR. PETERMAN: -- Fraser sockeye.

45 Q Thank you. So then if I'm reading the concerns  
46 that you raise in your affidavit correctly, as it  
47 relates to Fraser River sockeye stocks, your

1 concern would primarily be about the concern that  
2 Mr. Rosenbloom took you to, which is the  
3 interaction with pinks. Am I correct on that?

4 DR. PETERMAN: At a minimum, yes, that's right.

5 Q At a minimum?

6 DR. PETERMAN: Well, that's all --

7 Q Please don't let me --

8 DR. PETERMAN: The strongest data evidence that we have  
9 comes from the interaction between pink salmon and  
10 the sockeye. But that hasn't really been  
11 investigated very thoroughly for other sorts of  
12 interactions.

13 Q Okay. And then so on page -- sorry, mine don't  
14 have page -- I guess it's the third page. It's  
15 the last paragraph. It's 3(d) of your affidavit.  
16 You go:

17  
18 After adults leave the ocean, large numbers  
19 of hatchery fish straying into spawning areas  
20 for wild fish --

21  
22 - and you emphasized this morning -

23  
24 -- can decrease biological diversity and  
25 fitness of the wild stocks.

26  
27 That's not a local situation on the Fraser that  
28 you're raising there?

29 DR. PETERMAN: Probably not. Except for, well, I'm  
30 thinking of Cultus. I couldn't tell you and maybe  
31 my colleagues on the panel here could tell you the  
32 number of hatchery-reared Cultus sockeye there are  
33 compared to the wild.

34 Q So with the exception of Cultus, which is a very  
35 at-risk species in which we're doing conservation  
36 responses, that this concern would not be a  
37 concern you have on the Fraser; is that correct?

38 DR. PETERMAN: I think that's right.

39 Q All right. I mean these are good things. I like  
40 it when we can check off things that aren't  
41 concerns. Now, with respect to 3(c), I'm going to  
42 summarize that concern as being mixed stock  
43 fishery concerns, i.e., when you've got a very  
44 successful enhancement hatchery or an enhancement  
45 program and they mix with the wild stocks. Those  
46 are definitely concerns that my clients share.  
47 Would you agree with me that if managers are

1 looking at terminal or near terminal fisheries  
2 that that's one of the ways that we can solve that  
3 type of concern so that the mixed stocks are no  
4 longer mixed and we're harvesting those that are  
5 in abundance and leaving those that are weak to  
6 return to their spawning grounds?

7 DR. PETERMAN: Well, yes, if indeed you can get  
8 terminal fisheries but let's define terminal.  
9 Terminal is often just identified as, well, it's  
10 in an inlet. But in fact --

11 Q No, I think in the Fraser, my clients are very  
12 clear that terminal in some circumstances is once  
13 the stocks have been separated out and they're  
14 closer to their spawning channels so they can be  
15 identified specific. Would you agree with me that  
16 that would address the concern that you've raised  
17 in 3(c)?

18 DR. PETERMAN: That's right. If you're harvesting fish  
19 right near the spawning grounds, then obviously  
20 they're going to be differentiated from other  
21 stocks nearby at other spawning grounds.

22 Q And in fact, when it comes to excess fish that  
23 have been created through hatcheries or something,  
24 DFO has the ESSR programs where they're actually  
25 caught very close to the hatcheries. And you're  
26 aware of that, aren't you?

27 DR. PETERMAN: Yes, I am.

28 Q Yes. Okay. So then I want to get to the concern  
29 that you have raised, which is very important to  
30 us all, on page 5. So that's the interaction so  
31 far as best we can see the potential interaction  
32 with the increase in pinks. And you raise a  
33 concern at 4(c) on page 5 of your affidavit:

34  
35 The concern about competing for limited  
36 resources --

37  
38 And here you're talking about limited food  
39 resources in the marine --

40 DR. PETERMAN: Yes.

41 Q  
42 -- may become considerably more acute if the  
43 north Pacific becomes less productive again.

44  
45 This is precisely why you're asking for  
46 international cooperation, isn't it?

47 DR. PETERMAN: It's one reason for it, yes, definitely.

- 1 Q And in fact, it only can be addressed with  
2 international cooperation when it comes to the  
3 Fraser River stocks?  
4 DR. PETERMAN: Yes, well, from our perspective --  
5 Q Yes.  
6 DR. PETERMAN: -- being worried about Fraser River  
7 socks, yes, that's right.  
8 Q Yes, this is --  
9 DR. PETERMAN: The international concern is the main  
10 one.  
11 Q All right. And that's why you go into 6(a) in  
12 your recommendations, if I read them right.  
13 You've suggested the north Pacific Anadromous Fish  
14 Commission but any other treaty -- but that's the  
15 one you're aware of that could actually take this  
16 task on?  
17 DR. PETERMAN: Well, it's a logical one. Right now, it  
18 doesn't have that under its mandate.  
19 Q What's Canada's participation in that Commission?  
20 DR. PETERMAN: Well, I don't know exactly how it's  
21 formally structured but there are delegates to the  
22 North Pacific Anadromous Fish Commission from DFO.  
23 Q Do you sit on that Commission?  
24 DR. PETERMAN: No, I don't.  
25 Q So if the Commissioner were to do any  
26 recommendations, it would be recommendations as to  
27 how to -- for DFO's delegates for this Commission?  
28 DR. PETERMAN: Well, that's certainly one avenue but  
29 from what I've heard from people who have been to  
30 those meetings, and Dr. Beamish in the audience  
31 here could perhaps tell us otherwise, this topic  
32 of international regulation of releases of fish is  
33 not one that goes over very well because it's  
34 basically saying something about sovereignty and  
35 I'm not sure that going through the NPAFC is  
36 necessarily the right avenue. It's worth trying  
37 but it could be some other forum might be  
38 appropriate just bilateral or multilateral  
39 direction negotiations.  
40 Q And have I got the problem somewhat correct by  
41 saying that in some of these other countries  
42 they're quite dependent on their hatchery  
43 fisheries, as distinct from wild stocks, so they  
44 may not have an interest in protecting wild  
45 stocks; is that correct?  
46 DR. PETERMAN: That's right.  
47 Q Now, the next one you've recommended is something

1 we could do something about, which is all  
2 hatchery-released juvenile salmon should be marked  
3 in some way so that resulting adults can be  
4 estimated separately from wild fish. And that's  
5 for data collection but also -- not only for  
6 survival but for fecundity and other things that  
7 you've been mentioning; is that true?

8 DR. PETERMAN: Well, the main thing is to identify what  
9 proportion of the fish caught are from hatchery-  
10 reared as opposed to wild populations and also to  
11 get the survival rates from wild fish compared to  
12 hatchery-reared fish. And I only mention this as  
13 an example of something. And again, my colleagues  
14 on the panel here could speak to it more directly  
15 but I learned over the last few years that there  
16 are some hatchery programs, I think, mainly in  
17 Washington State where they're not marking all  
18 hatchery-released fish. And I know that's the  
19 case because I was at a conference a few weeks ago  
20 where someone was going through great machinations  
21 statistically to try to separate out what -- or  
22 try to estimate what proportion of the catch  
23 actually was hatchery-released catch because they  
24 didn't have all the fish marked.

25 Q So it's clearly important from your perspective  
26 that we make sure all the hatchery-released fish  
27 are marked?

28 DR. PETERMAN: Yes.

29 Q All right. And then you say something very broad  
30 here that I needed examples of and I'm wondering  
31 if the Commissioner might also. 6(c):

32  
33 Managers should carefully examine assumptions  
34 behind program objectives.  
35

36 That's got to be one of the more general comments  
37 that I've heard from you, Mr. Peterman, so I  
38 wondered if you could help us by providing some  
39 examples of the kind of the concerns you were  
40 concerned about with respect to program objectives  
41 and assumptions.

42 DR. PETERMAN: Right. Well, I guess the first example  
43 of that would be back when the Salmonid  
44 Enhancement Program was started and other  
45 enhancement programs in the U.S. In particular, I  
46 was aware that what they were often basing their  
47 goals on was what the catches used to be. And I

1 can't say for sure the DFO quoted it, but they  
2 were pointing to this objective of doubling the  
3 number of salmon in 1976, as a goal of the  
4 Salmonid Enhancement Program. And you can't  
5 assume that the ocean is going to be the same in  
6 the future as it was in the past. And we now know  
7 that's definitely not the case so it's a dynamic  
8 system out there. So that's one basic assumption  
9 that has to be carefully examined when undergoing  
10 any kind of program to increase the abundance.

11 Q So let me see if I've got that. The dynamic  
12 marine environment needs to be carefully  
13 considered when making assumptions around hatchery  
14 and enhancement program objectives?

15 DR. PETERMAN: That's right.

16 Q And finally, you suggest that:

17  
18 Salmon management agencies around the north  
19 Pacific should develop plans for regulations  
20 and activities.

21  
22 Could you give me an example of what you're  
23 talking about in this paragraph?

24 DR. PETERMAN: Okay. Well, this relates to the point I  
25 was making in response to Mr. Rosenbloom's  
26 question, that is, I think there should be some  
27 kind of discussion internationally about  
28 regulating the number of hatcheries that are built  
29 and the number of hatchery fish that are released  
30 in the various countries. Alaska has huge pink  
31 salmon hatcheries and Japan has huge numbers of  
32 pink salmon released from hatcheries and same with  
33 Japan for their chums. And these fish overlap to  
34 some extent with B.C. salmon. So to the extent  
35 that we can talk about some kind of regulations  
36 that will be in everyone's interest because body  
37 size is affected in all of these stocks from all  
38 places where they overlap, I think everyone would  
39 be better off. And I'd just like to point out one  
40 important example of where this sort of thing  
41 might work. So it might seem intractable based on  
42 what you just said earlier about some countries  
43 not being interested in maintaining their wild  
44 populations whereas we are.

45 There's an example of the North Pacific fur  
46 seal or northern fur seal, pardon me. In the  
47 early 1900s, I don't know the exact layout and

1 I'll make it quick here but Japan, Russia, the  
2 U.S. and Canada were all involved in harvesting  
3 northern fur seal. And the American's pointed out  
4 that, well, we've got all the rookeries here, the  
5 rearing grounds essentially, and we want to  
6 maintain these because there's a serious problem  
7 with the depletion of those populations. And so  
8 they went through the same kind of discussion that  
9 I'm saying we need to go through here for salmon  
10 and it was clearly the harvesters from Japan and  
11 Russia, I believe, were the main ones, maybe  
12 Canada, too, were going to be at a disadvantage if  
13 the Americans said no more harvesting of fur  
14 seals. But what they did was they had some sort  
15 of side payment arrangement. So they couldn't  
16 come to an agreement on trading rights to fur  
17 seal, if you will, but rather they made some other  
18 side payment of those institutions in the  
19 countries that were harvesting them to cut back on  
20 the harvest. And that might be what we need to do  
21 for the salmon.

22 Q That's innovative. All right. I just had one  
23 final question on your recommendations and it  
24 actually is -- for some reason I'm working  
25 backwards today but let's go to the research  
26 priorities. You're suggesting under (a):

27  
28 Enhancement of salmon of any species should  
29 be planned as large scale experiments.  
30

31 That got me worried. I wasn't quite sure what you  
32 meant there.  
33

34 And evaluations of such plans should take  
35 into account density dependent processes and  
36 the benefit cost analysis.  
37

38 It's my understanding those are usually quite  
39 long-term projects that could do those types of  
40 things. And then I wasn't quite sure what -- to  
41 understand the density dependence issues of the  
42 marine that would take sometime, if I'm correct.

43 DR. PETERMAN: Yes.

44 Q Like decades; is that correct?

45 DR. PETERMAN: Not necessarily decades but maybe a  
46 decade.

47 Q A decade?



1 DR. PETERMAN: It depends on what measures you're  
2 looking at.

3 Q So we're looking for longer-term commitments for  
4 research into these areas; is that what you're  
5 suggesting?

6 DR. PETERMAN: Yeah, well, it's not research. This is  
7 really part of management. So obviously we're in  
8 a realm here where there are uncertainties about  
9 what's going to happen with any kind of management  
10 regulation. And so the basic notion described in  
11 5(a) here is a longstanding idea from Carl Walters  
12 back in 1976 that there should be some  
13 consideration to the value of the information  
14 you're going to get out of your management  
15 actions, as well as the economic and social  
16 values.

17 Q Right.

18 DR. PETERMAN: The value of information comes from  
19 creating contrasting treatments so that you have a  
20 before-and-after or a spatial comparison. So this  
21 is part of what was suggested, I think, by Walters  
22 and I'm not sure who else about the Strait of  
23 Georgia coho hatcheries was, well, if we want to  
24 test whether there's some strong negative density-  
25 dependent effects, just shut down those hatcheries  
26 for a few years and see what happens. And that's  
27 the only way you're going to be able to tease  
28 apart whether the changes observed in the wild  
29 stocks are due to natural processed or hatchery or  
30 both together.

31 Q Gotcha, okay. Just finally, the last question I  
32 have for you on your affidavit is, as I understand  
33 it, and correct me if I'm wrong, it's clear that  
34 the interaction between hatchery and wild stocks  
35 in the marine did not, from your perspective,  
36 you're not suggesting it caused the 2009  
37 catastrophic return but could it be possibly  
38 affecting some of the long-term trends that you  
39 came to give evidence about last week?

40 DR. PETERMAN: Yes, it very well could be. And I just  
41 draw your attention to the second figure in the  
42 Ruggerone 2010 document. I don't know if you want  
43 to take the time to look at that?

44 Q I think it's important, if it influences that  
45 trend.

46 DR. PETERMAN: Okay, yes. So could we have a look at -  
47 - it's the document that is Ruggerone 2010; he's

1 the sole author and it was -- which document was  
2 it on my submission? It was --

3 Q He's the sole author?

4 DR. PETERMAN: He is the sole author. So it was  
5 Appendix 2, Part 2.

6 MS. BAKER: It's 573.

7 MR. LUNN: Thank you.

8 DR. PETERMAN: Thank you.

9 MS. GAERTNER: Thank you, Ms. Baker.

10 DR. PETERMAN: So if you go to his second figure, yeah,  
11 that's the one, yeah, so it's about page 88 or 89  
12 of that document. Keep going. There we go.  
13 Okay, right there. So what you see is this is, on  
14 the left-hand axis, just look at the top graph  
15 only.

16 Q Yeah?

17 DR. PETERMAN: This is the average productivity for 16  
18 Fraser sockeye salmon stocks and it's the "Natural  
19 Log of Recruits-Per-Spawner". So it's just  
20 basically how productive each spawner is in terms  
21 of producing adults. And as you'll see, that  
22 productivity is negatively correlated with an  
23 abundance of pink salmon for three different areas  
24 summed, Fraser River, southeast Alaska and Prince  
25 William Sound. So we got up to two million pink  
26 salmon and you see the productivity has gone down  
27 compared to what it is, that very low number of  
28 pink salmon.

29 The bottom graph is the same as the top  
30 except now the author added in the Russian pink  
31 salmon. So in answer to your question then, I  
32 said, yes, there is some evidence that this  
33 interaction on the high seas could be affecting  
34 Fraser sockeye. And the fact that he's got this  
35 time series of productivity indices that we were  
36 all provided with from 1961 to 2005, that does  
37 include the period when the Fraser sockeye  
38 productivity has decreased. But again, this is  
39 just a correlative graph. It doesn't say anything  
40 about causation.

41 You could plot the price of oil on the "X"  
42 axis. That has also been increasing. And it  
43 could be that there's an association with this as  
44 well. I don't know. I haven't done it. But  
45 that's the problem with any correlation analysis;  
46 you need to get down to the mechanisms.

47 Q From your vantage point, Dr. Peterman, is that

1 correlation strong enough that there should be a  
2 recommendation from this Commission that has us  
3 specifically looking at this matter?

4 DR. PETERMAN: Yes, I would think so because there are  
5 enough other pieces of evidence suggesting that  
6 this pink salmon abundance is important and  
7 particularly in the previous graph of this paper.  
8 If you want to go up one, please, Mr. Lunn? So  
9 here, the author is showing the even/odd year  
10 difference. And I won't go into it but the pink  
11 salmon abundances are much higher on the odd years  
12 than they are on the even years because they're a  
13 fixed two-year life cycle.

14 Q Yes?

15 DR. PETERMAN: And it just turns out that the signal  
16 shows up very strongly on a stock-by-stock basis  
17 in this regard as well.

18 MS. GAERTNER: Thank you very much, Dr. Peterman. This  
19 might be an appropriate time, Mr. Commissioner, to  
20 just say this. I'm loathe to complain about  
21 process issues, as you know, and we're all  
22 struggling with this but I have to say that much  
23 of this evidence came in very late in the day last  
24 week. I'm happy to bring it forward but I have  
25 not been able to get client instructions on this  
26 matter at all.

27 If there is further information that we would  
28 like to bring forward either through Dr. Peterman  
29 or otherwise, I would like the opportunity to.  
30 Obviously, over the weekend when I reviewed this  
31 material, I feared some of the answers or were  
32 interested in some of the answers. I was bold  
33 enough to ask them today but I do believe this  
34 matter requires some further consideration and I  
35 am concerned sometimes by the lateness in which we  
36 get the material.

37 Q Thank you, Dr. Peterman, very much. That was very  
38 helpful. And Ms. Cross and Mr. Savard, my rest of  
39 my time I'm going to ask some questions of you. I  
40 didn't get an opportunity to speak to you. I just  
41 wanted you to know that my clients' participation  
42 in this Commission have been most particularly  
43 interested in seeing how the information that gets  
44 brought forward could be brought into useful  
45 recommendations going forward. So while there is  
46 some factual foundations that I need to take you  
47 through on some of these questions, I'll be most

1 interested in seeing if you can help frame some  
2 recommendations, particularly as it relates to  
3 working with First Nations around SEP and other  
4 parts of your terms of reference or your working  
5 environment. So first of all, I'd like you to go  
6 to Tab 2 of the Commission's documents, which is a  
7 -- and when we were brought to this document, we  
8 see it's Draft 2. And at the bottom of it, it  
9 tells me that it was created perhaps by the policy  
10 branch Alison Webb of PR headquarters. Are you  
11 guys familiar with this document, either one of  
12 you?

13 MS. CROSS: I'm familiar with it. I actually developed  
14 it.

15 Q Oh, great.

16 MS. CROSS: Yeah.

17 MS. GAERTNER: That's good news for me. I would like  
18 this document marked as the next exhibit.

19 THE REGISTRAR: Exhibit 774.

20 MS. GAERTNER: 774.

21  
22 EXHIBIT 774: Draft 2 - WSP Enhancement  
23 Operational Guidelines, Confidential - For  
24 Discussion Purposes Only - Feb. 3  
25

26 MS. GAERTNER:

27 Q And okay, then I think my questions around this,  
28 I'll direct to you, Ms. Cross, and we'll see where  
29 we go. I'm going to, first of all, take you to  
30 page 3 of 25. And it's just that that's where you  
31 do some of the history of the SEP, and just have  
32 you confirm that one of the five accounts of the  
33 initial program was to benefit Native people; is  
34 that correct?

35 MS. CROSS: Yes, that's correct.

36 Q That's the SEP program. And in fact, as it  
37 initially was developed, it had, as its goal, to  
38 work closely with Native people, as it relates to  
39 both spawning channels and hatchery developments;  
40 is that correct?

41 MS. CROSS: Yes, that's correct.

42 Q And would you say that it's fair to say that right  
43 now in the present situation, in particular, in  
44 the loss of funding and other things, that First  
45 Nations' involvement in SEP is not one of the key  
46 priorities or the key risk assessments or any of  
47 those things that are used to determine

1 priorities?

2 MS. CROSS: I wouldn't quite say it that way. I'd say  
3 that the First Nations' component of the program  
4 has been fairly static for the last few years. We  
5 do have a set of performance measures. And one of  
6 the performance measures is specific to benefits  
7 for First Nations, both from the perspective of  
8 employment contracts and some of the ESSR  
9 benefits. And in the most recent lodging model,  
10 we have identified partnerships with First Nations  
11 and other parties as part of our ongoing program.

12 Q Perhaps we could just take a moment and help me  
13 make sure that I've got my information correct.  
14 The First Nations' involvement in the SEP program  
15 is through the CIP's component of it; is that  
16 generally true?

17 MS. CROSS: Yeah, there is a component there. There is  
18 also employment at some of our facilities of First  
19 Nations' people.

20 Q And is it true that some of that employment or  
21 contracting at facilities is done through the CEDP  
22 part of the SEP program?

23 MS. CROSS: There are contracts with the CEDP part of  
24 the program with First Nations but there are also  
25 First Nations' employees at DFO facilities.

26 Q As DFO employees?

27 MS. CROSS: Yes, that's correct.

28 Q Okay. Now, one of my clients, which is the  
29 Chehalis First Nations, is working with the  
30 Department as it relates to the Weaver Creek  
31 hatchery. And it's my information that things  
32 like the marking programs and other on-the-ground  
33 programs are somewhat languishing because the CEDP  
34 program is being cut. Is that a concern that  
35 you're aware of?

36 MS. CROSS: So the Chehalis First Nation at the Weaver  
37 Creek spawning channel, that's a DFO program, it's  
38 not a CEDP program.

39 Q Okay.

40 MS. CROSS: There has been some reduced marking in  
41 recent years at some facilities.

42 Q And so when you heard Dr. Peterman's concerns  
43 about trying to make sure that all juveniles are  
44 marked coming out of the programs. Would you  
45 agree with me that it might be useful to get a  
46 recommendation that ensures funding for marking at  
47 all of the hatchery programs?

1 MS. CROSS: I think it's important, just to provide a  
2 little clarification and background on the  
3 objective of the marking programs that DFO  
4 currently undertakes, we do not mark all of our  
5 salmon. And that is because the salmon that we do  
6 mark, we have a marking framework that has been  
7 developed cooperatively with the Science Branch  
8 and it addresses the international marking  
9 requirements that we have for Pacific Salmon  
10 Treaty stocks and as such it meets those  
11 statistical requirements. And the way those  
12 programs work is that we mark a statistically  
13 significant portion of specific releases and those  
14 marks represent the unmarked fish in those groups.  
15 And we use those results to manage surrogates for  
16 wild salmon, to manage wild salmon populations.  
17 So the kind of marking that Dr. Peterman is  
18 mentioning is for a different objective and that  
19 is to identify all hatchery fish that are being  
20 seen in the catch or the escapement.

21 Q So that's an improvement that could be done?

22 MS. CROSS: It's a different objective and I think we  
23 need to be clear on the reason for that, yeah.

24 Q And so would additional funding need to be found  
25 to do those types of markings or are those  
26 markings that could be done at the same time as  
27 everything else?

28 MS. CROSS: There would be additional funding required  
29 to do that kind of marking and additional funding  
30 required in the fishery sampling and in the  
31 escapement sampling programs. There are also some  
32 logistical constraints around this as well because  
33 in order to do something like marking our 40  
34 million chinook salmon, they all have to be marked  
35 over quite a short time period, over the course of  
36 three weeks to a month. And you know, these  
37 things could potentially be done in the future but  
38 there would be a development phase in order for us  
39 to actually be able to do that logistically.

40 Q All right. I want to go to Tab 17 of our  
41 documents next. And that's a memo for the  
42 assistant deputy minister on the Salmonid  
43 Enhancement Program. It's like a briefing memo.  
44 Are either, Mr. Savard or Ms. Cross, are you aware  
45 of this briefing memo?

46 MR. SAVARD: Yes, I am.

47 Q Great. And actually if I could, 18, 19, 20 and

1           21, of our list are all the exhibits of that memo,  
2           if you could just piece through them and I can  
3           have them marked as one exhibit if you can confirm  
4           that. You can confirm that those remaining  
5           exhibits are the appendices to that memo?

6   MR. SAVARD: Yes, they are.

7   MS. GAERTNER: I wonder if I could have this marked as  
8           the next exhibit? And with 19, 20 and 21 marked  
9           as A, B and C, if you'd like.

10   THE REGISTRAR: Be Exhibit Number 775. And we've got  
11           775-A, will be attachment 1; 775-B, be attachment  
12           2; and attachment 3 will be 775-C.

13  
14           EXHIBIT 775: Salmonid Enhancement Program  
15           (SEP) Adjustments for Alignment with Budget

16  
17           EXHIBIT 775-A: Attachment 1

18  
19           EXHIBIT 775-B: Attachment 2

20  
21           EXHIBIT 775-C: Attachment 3

22  
23   MS. GAERTNER:

24   Q   Now, if I was to summarize what I took from this  
25           memo and its attachments is that we're continuing  
26           to face cutbacks, including in the CEDP budgets,  
27           and suggest that there will also be cuts across  
28           some of the facilities, I'm going to now ask you  
29           both a more general question and see if you can  
30           help me out. It's not clear in any of the  
31           documentary material or in the PPR what engagement  
32           with First Nations there is at all when  
33           determining priorities for cutbacks or priorities  
34           for programs that are going to continue. And so  
35           I'd like to know what steps you take or your  
36           department takes when making determinations about  
37           priorities in cutbacks in relation to First  
38           Nations, particularly those that have been working  
39           closely with DFO in these programs.

40   MR. SAVARD: Okay. So there's a few different  
41           processes that we utilize in terms of developing  
42           annual spending plans in the Salmonid Enhancement  
43           Program. The one that we spend a lot of time on,  
44           but not exclusively, is talking with people about  
45           the production plans and including First Nations.  
46           So where we have First Nations involved in  
47           operating a community economic development

1 facility there is direct engagement with the  
2 community advisors that we have in the areas  
3 working with those facilities, talking to them  
4 about production opportunities and plans and  
5 interest for the coming year. In addition to  
6 that, a broader process, the process that we use  
7 to develop the Integrated Fisheries Management  
8 Plans on an annual basis, all of the production  
9 plans that are developed on an annual basis are  
10 talked about and reviewed in that process as well.  
11 Q So are you talking about the IHPC process at that  
12 point in time?  
13 MR. SAVARD: That's correct, yes.  
14 Q So do you participate in the IHPC program or do  
15 you leave it in the hands of the managers to do  
16 that?  
17 MR. SAVARD: I personally don't but there are salmon  
18 enhancement managers that do.  
19 Q And so the Commission has heard a fair bit of  
20 information about the IHPC and, in particular, the  
21 challenges associated with having First Nations  
22 participate in that program at all. So are you  
23 saying that you're actually relying on the IHPC to  
24 do most of the discussions with First Nations  
25 around priorities and planning?  
26 MR. SAVARD: In part. That is one place. But we do  
27 bilateral discussions with our fisheries managers,  
28 as I understand, on an annual basis in developing  
29 Aboriginal fisheries' strategy agreements. As I  
30 mentioned, the community advisors are talking with  
31 First Nations on a bilateral basis around salmon  
32 enhancement activities so the development of the  
33 IFMPs is one place where there's an opportunity.  
34 But there is also more detailed bilateral  
35 opportunities through a number of different  
36 processes as well.  
37 Q Actually, it's hard, I suppose, to figure out how  
38 my clients are experiencing it and how you're  
39 describing it because they've informed me that  
40 what they experience is a budget that starts with  
41 something gets cut one year, then the next thing  
42 gets cut the next year, then the next thing gets  
43 cut the third year and by the fourth year we're  
44 pretty well not doing the program anymore. So  
45 that's an experience that you're aware of with  
46 First Nations, I'm sure, on the Fraser River, as  
47 it relates to some of these enhancement programs,



1 correct?

2 MR. SAVARD: Yeah, with respect to the community  
3 economic development program, and I think that's  
4 what you're referring to, is how those discussions  
5 are approached each year is a discussion about  
6 production planning opportunities and within a  
7 financial framework as well. And at the end of  
8 the -- before the plan is finalized, you know,  
9 there are ongoing discussions about, in the case  
10 of CEDP facilities, escapement of work, what the  
11 particular facility is -- what work they're going  
12 to do. And in the case of community economic  
13 development facilities that are producing fish in  
14 the statement of work, there would be some  
15 information. And there are identified what the  
16 commitments are around fish culture, for example.  
17 But there might be other activities as well. And  
18 you know, in some years, we will agree to fund  
19 certain things and other things we might not fund  
20 those and it's all kind of depending on what all  
21 kind of the regional interests and pressures and  
22 priorities are for the program.

23 Q So it's really decisions that are made not in  
24 consultation with First Nations. You find out,  
25 you talk to them about what some of their  
26 priorities are, those are put into a mix by DFO  
27 and decisions around priorities are made by DFO?

28 MR. SAVARD: Well, with input from the various First  
29 Nations communities, yes.

30 Q I wonder if I could take you now to document 34 on  
31 our list. And Mr. Savard, if I've got this right,  
32 this is an email chain between you and Paul  
33 Sprout. And I'm going to take you to page 2 of  
34 that in which you're talking about the SEP program  
35 and the second-last bullet.

36  
37 If there is continued interest in facility  
38 closures, my initial thinking is that we  
39 would fallow (no fall egg takes) --  
40

41 And then you continue to:

42  
43 -- the sites noted in the 5% option in the  
44 DMC BASR2 document.  
45

46 What's the DMC BASR2 document?

47 MR. SAVARD: So "DMC" stands for Departmental

1 Management Commission and the "BASR2" is Budget  
2 Alignment Strategic Review and there was two  
3 phases to that initiative.

4 Q And that was done by Department officials?

5 MR. SAVARD: That's right, yes.

6 Q Are you aware of any consultation that occurred  
7 with First Nations around the 5 percent option in  
8 the DMC BASR2 document?

9 MR. SAVARD: I guess a couple of comments on this  
10 particular one. This particular note was a  
11 discussion that was, you know, a snapshot of time  
12 about discussions that were ongoing around a  
13 potential 5 percent option. In the final  
14 analysis, this 5 percent option that's described  
15 here was not pursued. But with respect to  
16 consultation with First Nations around this kind  
17 of activity, I would kind of go back to my earlier  
18 comments about whenever we make decisions in the  
19 program around what the expenditures will look  
20 like on an annual basis, there is consultation  
21 with First Nations' communities as part of the  
22 overall kind of work that goes into making final  
23 decisions around financial allocations.

24 Q Sorry. I need to unlock that a little bit, Mr.  
25 Savard. As I understood your evidence earlier,  
26 you speak to the First Nations who were involved  
27 in development production plans and you get -- you  
28 know, if they're directly involved in either the  
29 spawning channel or the hatchery, you'll talk to  
30 them about what the foreseeable, maybe the one-  
31 year, two-year or three-year production plans are  
32 and you get a sense of what's possible at the  
33 facilities. Then I heard you say is that you then  
34 take those into consideration in regional planning  
35 or priority issues. Did I hear your evidence  
36 correctly?

37 MR. SAVARD: I think you did. What I'm saying is that  
38 we do consult at various different scales and  
39 through various different processes. At the end  
40 of the day, we have to roll up an entire plan for  
41 the region that talks about where we're going to  
42 spend money.

43 Q All right. And that's a decision that's made by  
44 the Department. And there isn't a consultative  
45 process on those priorities on a general basis  
46 with First Nations. The Department is doing that;  
47 is that correct?

1 MR. SAVARD: Well, when we talk about production  
2 planning things, we are also talking to First  
3 Nations and others about the departmental  
4 priorities that we're looking at in terms of  
5 trying to support, as we develop.

6 Q Okay. Then I need to make sure that you do that  
7 through the IHPC --

8 MR. SAVARD: We do it through the IHPC process. We do  
9 it through bilateral consultations with our  
10 community advisors. We do it with our fisheries  
11 managers. And there's a number of different  
12 forums where we're talking to a whole range of  
13 people, including First Nations.

14 MS. GAERTNER: I wonder if I could have that marked as  
15 the next exhibit?

16 THE REGISTRAR: 776.

17 MS. GAERTNER: 776?

18 THE REGISTRAR: That's correct.

19 MS. GAERTNER: Thank you.

20

21 EXHIBIT 776: Email chain between Greg Savard  
22 and Paul Sprout  
23

24 MS. GAERTNER:

25 Q And then I need to take you to document 27. Now,  
26 this may not be something you're familiar with but  
27 it's a question that came out of around -- well,  
28 I'll take you to it first and see if you do know  
29 it. It's an email exchange between Adrian Wall  
30 and Jason Hwang. And this takes us to the next  
31 issue, which is the SEP Logic Planning Model. As  
32 I understand the PPR, that's a performance measure  
33 and assessment priority model the Department is  
34 now working with; is that correct? Have I got  
35 that right?

36 MR. SAVARD: Yeah, it's a model that describes outcomes  
37 for the program but is supported by -- it talks  
38 about a number of different activities and inputs  
39 and outputs but ultimately leads to supporting  
40 outcomes.

41 Q So there's a question that's being exchanged here  
42 between, as I understand it, if I've read this  
43 email correctly, for two DFO people. And they're  
44 asking whether there's any plan to consult on  
45 outcomes of the SEP Logic Planning Model. My  
46 understanding from my clients is there hasn't been  
47 consultation on the SEP Logic Planning Model. Do

1           you know if you intend to or if you plan to and  
2           who would be responsible for that and how it would  
3           happen?

4       MR. SAVARD: I'm not aware of what consultation might  
5           have been done with this particular First Nations  
6           community around the model. There has been some  
7           level of consultation and discussion with  
8           different folks on the model but I'm not certain  
9           about what level would have taken place with this  
10          (indiscernible - overlapping speakers).

11       Q     Ms. Cross, do you know of anything to add to this?

12       MS. CROSS: I'll add a couple of comments. So this  
13           logic model is part of an overall performance  
14           measurement framework that's required under the  
15           Treasury Board policy for all programs. And so  
16           the logic model was developed with input from the  
17           folks who are experts at this, some consultants.  
18           And the approach they had proposed to us was that  
19           we get this logic model developed, freeze it and  
20           then begin consultation on it. We have done some  
21           of that to date. We have a new Integrated Harvest  
22           Planning Committee work group that's focused just  
23           on SEP issues so that's a SEP working group and it  
24           includes some First Nations participants. We did  
25           present that model to them probably nearly a year  
26           ago now and an expectation that we will continue  
27           to provide that to people for consultation.

28       Q     So if I've understood that right, you developed  
29           the model internally on your own, you've locked it  
30           in place and now you're going to talk about it?

31       MS. CROSS: Yes.

32       MS. GAERTNER: Okay. Can I mark that as the next  
33           exhibit, please?

34       THE REGISTRAR: 777.

35  
36                   EXHIBIT 777: Email chain between Adrian Wall  
37                   and Jason Hwang

38  
39       MS. GAERTNER:

40       Q     I've just got one more factual area, one or two,  
41           and then I'm going to go to those recommendations  
42           we talked about. I got a little confused. As you  
43           can see, that's sometimes not that hard for me to  
44           do. But I was reading the Policy and Practice  
45           Report and, in particular, at pages 11 and 12.  
46           And if we start at paragraph 23, we've got the  
47           Enhancement Guidelines. Again, these are

1 guidelines that were developed by the Department.  
2 Is that right, Ms. Cross?

3 MS. CROSS: Yes.

4 Q And they contain specific directions as to what  
5 managers should consider when assessing management  
6 strategies and weighing associated risks, benefits  
7 and costs of enhancement. And there's quite an  
8 extensive list there. And then at paragraph 24  
9 and 25, this is where I got confused, even with  
10 the corrections that happened earlier today. You  
11 haven't worked through this list to determine how  
12 to incorporate these considerations into your  
13 practices. Some of these items are supposed to be  
14 encompassed by the biological risk assessment  
15 framework currently under development. And then  
16 we have that the Enhancement Guidelines exist only  
17 in draft form but they represent the practices  
18 that the Salmonid Enhancement Program currently  
19 has in place. So I have to say I got a little  
20 confused. What's in place, what isn't in place,  
21 what are you working on and how are you going to  
22 work with First Nations to do this?

23 MS. CROSS: So in my affidavit, I think I noted in  
24 there the pieces of the Enhancement Guidelines  
25 that are pretty much completed and in usage and  
26 that there are other components on the Enhancement  
27 Guidelines that are still under development and  
28 actively being worked on. So that fairly  
29 exhaustive list that you had earlier there, that  
30 represents some fairly early thinking on all of  
31 the things that we need to consider in the course  
32 of our work and that's a piece of work that will  
33 undergo some further development. Many components  
34 of the Guidelines are specific to how we need to  
35 do our job.

36 So for example, the Spawning Guidelines are  
37 specific to how we need to collect brood stock and  
38 how that spawning needs to take place. And those  
39 are technical guidelines for information purposes  
40 and we will work with First Nations and with  
41 communities on those in terms of how can we help  
42 you and how can you incorporate this into your  
43 operation? So those are really the kind of thing  
44 that we would consult on. They're pieces of  
45 science translated into operational aspects of our  
46 work that we would provide to support people in  
47 doing their work as contractors or volunteers.

1 I'll stop there.

2 Q I guess I'm still not clear what part of the  
3 Enhancement Guidelines are in place.

4 MS. CROSS: So if you look at my affidavit, I don't  
5 have it in front of me, but I referred to the  
6 Spawning Guidelines, the assessment, marking and  
7 one other component as being in practice and in  
8 place. And that there were aspects of the fish  
9 health management plans and bio security that were  
10 under development.

11 Q All right. And then if I now take you back to  
12 Exhibit 774, maybe that's where they come together  
13 for me because in Exhibit 774, specifically at  
14 pages 6 of 25, and maybe I've mixed these up and  
15 are the wrong way, 7 and 8, you've got very  
16 specific descriptions of what you're going to do  
17 about some of the risk mitigation issues, partly,  
18 as I read them, to address some of the issues that  
19 generally were raised by Dr. Peterman. Have I  
20 understood that correct, Ms. Cross?

21 MS. CROSS: Yeah, and perhaps I can provide some  
22 context of these Operational Guidelines, which are  
23 different than the other guidelines that we were  
24 looking at earlier. These specific Operational  
25 Guidelines, as you'll note, these are called the  
26 WSP Enhancement Operational Guidelines at the top?

27 Q Yes, I see that.

28 MS. CROSS: So these Guidelines were developed to  
29 support an earlier draft and approach to the Wild  
30 Salmon Policy that was developed in 2000. So  
31 prior to the current Wild Salmon Policy that we  
32 have in place right now, there was an approach  
33 that was being developed for Wild Salmon Policy  
34 that was far less fulsome than the current  
35 approach. And the intent was to provide a fairly  
36 high level policy document that would be supported  
37 by a series of detailed Operational Guidelines  
38 from the various component programs. So this was  
39 our set of Enhancement Operational Guidelines done  
40 to support a very early draft of the Wild Salmon  
41 Policy. So there's components of this material,  
42 you'll see has worked its way into other documents  
43 and some of which are the newer version of the  
44 Operational Guidelines that we talked about  
45 earlier.

46 Q Actually, it might help me. It might help all of  
47 us. I note that I don't have the date. Like I

1 notice that this is a Wild Salmon Policy  
2 Enhancement Operational Guidelines February 3rd.  
3 What year?  
4 MS. CROSS: 2003.  
5 Q Thank you. And so these operating strategies for  
6 enhancement that are set out in section 5, as it  
7 relates to this Wild Salmon Policy are not  
8 necessarily the ones you're going to currently  
9 work -- are they going to be the base on which  
10 you're going to work from, as it relates to the  
11 Wild Salmon Policy that's in place now, or where  
12 are you going with these, Ms. Cross?  
13 MS. CROSS: Could you go to section 5 for me, please?  
14 Q So it starts at page -- well, this is really  
15 confusing. Well, actually, no, I'll start at 3.  
16 Go to the top of page 3 or section 3.  
17 MS. CROSS: Okay. So for example, we've identified as  
18 part of this a series of risks and some of those  
19 were around genetic risks and some practices that  
20 can be undertaken to mitigate for those risks.  
21 And so we build this kind of risk mitigation  
22 practice into our Spawning Guidelines, for  
23 example, and our Brood Stock Collection  
24 Guidelines.  
25 Q Okay.  
26 MS. CROSS: And I referred earlier to the biological  
27 risk analysis tool for hatcheries. And that tool  
28 also includes the identification of a number of  
29 these risks and mitigators that can be put in  
30 place to address them.  
31 Q All right. So these are not in the Enhancement  
32 Guidelines. These are different. And these are a  
33 work-in-progress as it relates to the Wild Salmon  
34 Policy?  
35 MS. CROSS: There is no more work done on these. This  
36 would be the end, the last draft of these, and  
37 these were done to support a previous version of  
38 the Wild Salmon Policy, an approach that was not  
39 continued.  
40 Q Do you have a similar type of document, as it  
41 relates to the present Wild Salmon Policy?  
42 MS. CROSS: No, because the present Wild Salmon Policy  
43 was developed to be far more specific in terms of  
44 the kinds of things -- some of these things are  
45 actually included in the current Wild Salmon  
46 Policy but there was not an intention to develop a  
47 set of specific operational guidelines to support

1 the new Wild Salmon Policy.

2 Q So then if I've got it right, the Enhancement  
3 Guidelines and the SEP Logic Model are the two  
4 models you're most actively using internal  
5 assessment; is that right?

6 MS. CROSS: The logic model is the component that we  
7 are using as part of our performance measurement  
8 framework. And the Operational Guidelines are the  
9 guidelines that we are using to provide for our  
10 facilities to use to mitigate risks using the  
11 technical guidelines that they contain.

12 Q Dr. Peterman, have you ever taken a look at those  
13 Enhancement Guidelines, those Operational  
14 Guidelines?

15 DR. PETERMAN: No, I haven't.

16 Q Now, I just have a couple more questions of Ms.  
17 Cross and Mr. Savard. You can hear from the  
18 questions that I've asked that many of my clients  
19 have raised concerns around what engagement  
20 processes DFO are using to consult around your  
21 priorities around funding and changes in funding,  
22 as it relates to the SEP program, and in  
23 particular the CEDP program and others that are  
24 affecting them. If you're relying on the IHPC,  
25 would you agree that recommendations from this  
26 Commission need to be very clear that if DFO is  
27 going to rely on the IHPC process for  
28 consultations with First Nations, that (a) we need  
29 to make sure First Nations are involved in that  
30 process, and (b) you need to have the right people  
31 at the table and the right mandates at the table?

32 MR. SAVARD: I guess I would just like to step back a  
33 bit. And I think that with respect to -- and I'm  
34 not sure which clients you're representing but  
35 with respect to consultation with First Nations  
36 communities around the Salmonid Enhancement  
37 Program, we have five different areas within the  
38 Pacific region. And within those areas, we have  
39 an area chief of the Oceans, Habitat and  
40 Enhancement Branch that has responsibility for the  
41 Salmonid Enhancement Program in a particular area.  
42 And it's my understanding, and I'm not sure what  
43 your clients are experiencing, but it's my  
44 understanding that there will be a regular  
45 consultation process on an annual basis with First  
46 Nations and others around the SEP program and  
47 production planning.



1           And so that for me is what I think about as  
2 would be kind of the key First Nations  
3 consultation forum, those interactions in the  
4 local areas and with the various different local  
5 groups. There is an element of consultation at  
6 the IHPC process in terms of developing the  
7 Integrated Fisheries Management Plan. That  
8 includes production planning. But with respect to  
9 kind of specific interests, comments and of -- in  
10 local areas, there are other processes that happen  
11 in those areas that will -- all of that  
12 information, the results from those consultations  
13 come together to make final decisions around the  
14 Salmonid Enhancement Program on an annual basis.

15           So I guess I'm not suggesting that the one  
16 and only place to consult with First Nations is  
17 the IHPC process but to the extent that your  
18 clients are concerned about their involvement or  
19 how they might engage at that table with respect  
20 to the Salmonid Enhancement Program, if there's  
21 suggestions about improvements to that then I  
22 think any recommendations that they might make  
23 would be helpful.

24 Q       Well, how could consultation with First Nations on  
25 SEP priorities, on SEP assessments, all of those,  
26 be improved?

27 MR. SAVARD: Well, I think what I'm hearing from you  
28 and the clients that you represent is that perhaps  
29 we might need to think about what the nature of  
30 the consultations are in the local area and if  
31 there's places that we can improve those  
32 consultations and seek advice and recommendations  
33 from First Nations in local areas, I think that's  
34 one of the key areas I would focus on.

35 Q       And would you also agree that when DFO is  
36 conducting and completing things like their SEP  
37 Logics and their Guidelines, that those are going  
38 to affect First Nations and their local  
39 environments?

40 MR. SAVARD: Yes, I would agree.

41 Q       And so that consultation with respect to that  
42 could be improved?

43 MR. SAVARD: Yes, and again I would look at those local  
44 consultations in the local areas and those would  
45 be places where I think that the most detailed  
46 discussions might be had rather than trying to  
47 kind of include it all in the IHPC process.

1 MS. GAERTNER: Those are my questions, Mr.  
2 Commissioner.

3 THE COMMISSIONER: Thank you very much.

4 MS. BAKER: Mr. Commissioner, the next questioner is  
5 Lisa Fong and I'm wondering if, given that we have  
6 40 minutes left today, Ms. Fong has estimated 30  
7 minutes and I'm hoping that we might have a few  
8 minutes for DFO to put those last PPR corrections  
9 to the witnesses, I wonder if we could not have a  
10 break this afternoon? Is that possible, or could  
11 we have a very short one?

12 THE COMMISSIONER: No, I would like a short break,  
13 thank you.

14 MS. BAKER: Okay.

15 THE REGISTRAR: The hearing will now recess for ten  
16 minutes.

17

18 (PROCEEDINGS ADJOURNED FOR AFTERNOON RECESS)  
19 (PROCEEDINGS RECONVENED)

20

21 THE REGISTRAR: Order. The hearing is now resumed.

22 MS. GAERTNER: Sorry, Mr. Commissioner, just a  
23 housekeeping matter. Exhibit 775 that was marked  
24 as the memo, all of the appendices were marked as  
25 A, B and C. Could I also ask that the routing  
26 slip, which is Tab 18 of my documents, be marked  
27 as D to that exhibit?

28 THE REGISTRAR: That will be so marked, 775D.

29

30 EXHIBIT 775D: DFO Routing Slip from Paul  
31 Sprout to David Bevan via Rebecca Reid, dated  
32 June 24, 2008, re: Salmonid Enhancement  
33 Program (SEP) Adjustments for Alignment with  
34 Budget

35

36 MS. GAERTNER: Thank you.

37 THE COMMISSIONER: Thank you.

38 MR. ROSENBLUM: Mr. Commissioner, also in the course  
39 of my cross-examination I neglected to tender as a  
40 document the document related to the Advice  
41 Related to Five "Big Picture" Science Issues for  
42 BC Salmon, and it was a workshop of which Dr.  
43 Peterman and others participated, dated January  
44 the 11th, 2004. This is ringtail document  
45 CAN267755. It was up on the screen, and is up on  
46 the screen, and I would ask that that document be  
47 marked as an exhibit, as it has been identified by

1 Dr. Peterman. Thank you.

2 THE REGISTRAR: That will be marked as Exhibit 778.

3

4 EXHIBIT 778: Advice Related to Five "Big  
5 Picture" Science Issues for BC Salmon, Report  
6 on 6-7 November 2004 Workshop, Prepared by  
7 Karl English et al

8

9 MR. ROSENBLOOM: Thank you.

10 MS. FONG: Mr. Commissioner and panel members, Lisa  
11 Fong for Heiltsuk Tribal Council, and with me is  
12 Ben Ralston, Articled Student. My first questions  
13 are about conservation hatcheries and will be for  
14 Dr. Peterman.

15

16 CROSS-EXAMINATION BY MS. FONG:

17

18 Q Dr. Peterman, I'm going to ask you about  
19 conservation hatcheries in an effort to unpack  
20 what they are, and then I'm going to ask -- I'm  
21 going to describe a hatchery which my clients  
22 operate now and see if it fits within that  
23 definition, so that we have an example of what one  
24 is.

25

26 Now, in your affidavit, you state that there  
27 are conservation-oriented supplementation  
28 hatcheries that exist with the aim to rebuild  
29 extremely small wild populations. So unpacking  
30 that, the conservation aspect, and I'll call this,  
31 in shorthand, conservation hatcheries, the  
32 conservation aspect is it's restoration of a wild  
33 population that's at risk of extirpation; is that  
34 correct?

34

35 DR. PETERMAN: Well, it certainly is a conservation  
36 concern. I don't know if it's at risk of  
37 extirpation.

37

38 Q I see. Would you agree, then, that it could be  
39 extended as far as the conservation aspect being  
40 that the wild population has fallen below the  
41 carrying capacity of that habitat system, so it  
42 doesn't have to be at risk of extirpation?

42

43 DR. PETERMAN: Well, almost any population is below its  
44 carrying capacity, so I would say, instead --

44

45 Q Mm-hmm?

45

46 DR. PETERMAN: -- I think what you're driving at is  
47 that the population has fallen low enough in  
48 abundance to be of concern from a conservation

1 perspective.

2 Q Been a concern, thank you. And the rebuilding  
3 aspect, so the restoration aspect, means to  
4 restore to a self-sustaining population in these  
5 conservation hatcheries?

6 DR. PETERMAN: Well, I don't know if that's -- I can't  
7 speak for the government and what their objectives  
8 are in those hatcheries, but it's certainly the  
9 case that you want to rebuild the abundance to the  
10 point where they're no longer a concern. Whether  
11 they're self-sustaining, I don't know.

12 Q Okay. But in your definition, the goal of a  
13 conservation hatchery, would that be one of the  
14 goals, then, a self-sustaining population, so that  
15 you wouldn't have to continue to hatch?

16 DR. PETERMAN: Well, that's certainly a desirable goal,  
17 yes. Whether it is the goal for the conservation-  
18 oriented hatcheries in the province, I can't say.  
19 Again, it's up to DFO.

20 Q Okay. But in your own definition of what a  
21 conservation hatchery is, and I'll just keep  
22 proceeding with that, so on this notion of self-  
23 sustaining, which I understand your evidence to be  
24 is a good thing, self-sustaining means, then, that  
25 the conservation hatcheries are not a permanent  
26 fixture but exist only until the population is  
27 self-sustaining, so there's that sunset concept.  
28 Would that be something you would agree is a  
29 feature of a conservation hatcheries?

30 DR. PETERMAN: That could be, yes, but again, you could  
31 find reasons to keep it going because you've got  
32 such a highly variable environment that the fish  
33 are in that you want to make sure you've got  
34 insurance, to speak, an insurance policy, by  
35 having the hatchery going along further in time  
36 than you might have originally planned.

37 Q Okay. And once a fish population -- so let's go  
38 with the self-sustaining feature, but once a fish  
39 population is self-sustaining, and I'm just  
40 getting back to Mr. Harrison's question, you  
41 wouldn't refer to that fish as a hatchery fish or  
42 an enhanced fish, but then you'd be referring to  
43 them as a wild fish, like when they're no longer  
44 hatched; is that correct?

45 DR. PETERMAN: No, I'm afraid I can't say that, because  
46 there are various definitions of wild fish around,  
47 and I haven't really kept track of them, myself,

1 and believe it or not, there's debate among  
2 biologists what you should label as a wild. So is  
3 it wild if it's been in the reproductive cycle  
4 one, two, or three generations, is that wild? Or  
5 is it just one as to hatchery stray that's gotten  
6 in to spawn and in the spring come back, is that  
7 now wild? All bets are off when it comes to  
8 getting my opinion because I just don't know where  
9 you draw the line.

10 Q Okay.

11 DR. PETERMAN: And I think it's a fine point that's  
12 only relevant if you're worried about the really  
13 technical definition of "wild" and that may be a  
14 completely legitimate concern for certain purposes  
15 here, but I'm afraid I just haven't bothered to  
16 get the detailed, technical things down.

17 Q Okay. So for the purposes of your affidavit,  
18 then, when you use the phrase "enhanced fish" or  
19 the "hatchery fish", are you referring to -- I'm  
20 trying to understand, are you referring -- you're  
21 referring to fish that have been hatched as  
22 opposed to --

23 DR. PETERMAN: Yes.

24 Q -- fish whose parents were hatched?

25 DR. PETERMAN: That's right.

26 Q Okay. Thank you. Now, in terms of the relevance  
27 to Fraser River sockeye salmon, would you agree  
28 that successful conservation hatcheries increase  
29 the portfolio of harvest choices?

30 DR. PETERMAN: If you mean by "portfolio harvest  
31 choices" you mean the stock composition available  
32 to be harvested?

33 Q Yes.

34 DR. PETERMAN: Yes. Well, no, wait a minute, I would  
35 only say yes if there has been sufficiently large  
36 increase in the supplemented population to get it  
37 up to where it can be harvested.

38 Q Right. Right. But assuming that it's at a point  
39 where it could be harvested, and that's what I  
40 meant by "successful" conservation hatchery --

41 DR. PETERMAN: Right.

42 Q -- a successful conservation hatchery would  
43 increase a portfolio of those harvest choices,  
44 correct?

45 DR. PETERMAN: Yes, assuming, again, the hatchery had  
46 used the genetic stock that was from that adjacent  
47 wild population.

1 Q Right. And being able to choose to fish one stock  
2 over another, in other words, having a portfolio  
3 of stocks, is useful if you want to conserve a  
4 particular stock, because then you can fish some  
5 other stock, right; would you agree with that?

6 DR. PETERMAN: No. That's one of the problems with  
7 mixed stock fisheries is you often do not have the  
8 luxury, as a harvester, to choose exactly which  
9 stock you fish, because they're going through a  
10 fishing area simultaneously with other stocks.  
11 And so, for instance, the example we talked about  
12 a few times today is the late-run sockeye salmon  
13 are composed of several different stocks or  
14 populations. And one of those, the Cultus, might  
15 be in really dire straits and you would not, as a  
16 manager, want to expose those fish to a high  
17 harvest rate. But there's no way to tag -- pardon  
18 me, to identify when someone's on the fishing  
19 grounds, "Oh, at this minute and at this location  
20 these are non-Cultus, so I can go fish."  
21 Unfortunately, that's not the case.

22 Q Okay. I'll address that later in relation to  
23 conservation hatcheries, but let me pose to you  
24 another scenario, because conservation hatcheries  
25 and their fish don't only exist in the scenario  
26 which you point out. Conservation hatcheries can,  
27 for example, occur within inland rivers and inland  
28 streams, which are then rebuilt, so they have a  
29 salmon stock in them, and the salmon stock, for  
30 example, can be fished at where the entrance to  
31 those rivers are, or close to the shallows, so  
32 that there isn't the problem, the mixed stock  
33 problem.

34 So in that scenario, where you may have  
35 multiple conservation hatcheries, restoring wild  
36 stocks in some of these, you know, destroyed  
37 habitats or habitats in danger, would that be a  
38 circumstance where you could create this portfolio  
39 of fish, where you have a portfolio of fish and  
40 then, therefore, people can rely on -- communities  
41 can rely on those in-rivers and in-stream-bred  
42 fish so that they don't have to be out there  
43 fishing the Fraser River sockeye salmon when it's  
44 time to conserve that particular run?

45 DR. PETERMAN: Yes, again, your key point there being  
46 -- or key assumption being you can identify places  
47 where those rebuilt stocks can be harvested

1 separately from any other stock.

2 Q Okay. Now, let me ask you whether this is a  
3 conservation hatchery. So my clients will be  
4 giving testimony on this later on, in July, when  
5 the Aboriginal fishing hearing comes, but I'm  
6 being told that they operate a hatchery and they  
7 operate at a place called Emily Lake, and Emily  
8 Lake but for the purposes of restoring a sockeye  
9 population in what's called the Tankeeah River  
10 system. Now, I'm going to describe to you what  
11 they've told me.

12 What they do is they take wild brood stock  
13 from the Tankeeah system to the hatchery in Emily  
14 Lake. Emily Lake is a closed system. They engage  
15 in matrix breeding, 48 females to 48 males, the  
16 eggs are hatched at the hatchery and then reared  
17 until they're fry, and then the fry are  
18 transported back to Tankeeah and then released  
19 alongside the Tankeeah wild fry.

20 Now, they started this hatchery in 1997, and  
21 at that time they had 800 to 1,200 sockeye per  
22 cycle, and some years as low as 100. Currently,  
23 in 2010, there's a release of 100,000 fry back  
24 into the Tankeeah system, and a return of 6,500  
25 sockeye. The Heiltsuk fish, of those 6,500, 2,000  
26 of the sockeye and let the rest go back to spawn.  
27 The plan is that in three years Heiltsuk will stop  
28 using the hatchery at Emily Lake to feed Tankeeah,  
29 because it will be a self-sustaining system.

30 Now, does the hatchery which I've described  
31 to you fall within your definition of a  
32 conservation hatchery?

33 DR. PETERMAN: Sounds like it, yes.

34 Q Now, in your affidavit, you raise potential  
35 negative effects of large numbers of hatchery fish  
36 competing of the same food as wild fish. Now, in  
37 the case of conservation hatcheries, do you still  
38 have those same concerns?

39 DR. PETERMAN: Well, again, it may be a matter of  
40 geography, because it could be that there's some  
41 other wild population that's very low in abundance  
42 adjacent to one that is being treated with this  
43 hatchery, in which case that untreated wild stock  
44 might still be armed by the additional hatchery  
45 fish you can put out adjacent to it. I can't  
46 speak to any specific case until I know the exact  
47 geography of it, but in general, I think your

1 intent is in saying if these hatchery fish can be  
2 separate in their migration route then they  
3 wouldn't affect the wild stocks.  
4 Q And would you have the same comment if I asked you  
5 about another potential negative effect you raise,  
6 which is about the mixed stock fishing concern?  
7 DR. PETERMAN: I'm sorry, what was the question again?  
8 Q Sorry. Do conservation hatcheries dodge the mixed  
9 stock fishing concern that you have?  
10 DR. PETERMAN: Well, no, not necessarily. Again, if  
11 it's in -- if a conservation hatchery is a form  
12 that you described the Heiltsuk is doing in Emily  
13 Lake, then I don't know whether those fish come  
14 back as adults through a fishing zone at times  
15 that other fish stocks do. So I didn't hear any  
16 information about that, so I can't say. But if  
17 you can identify a conservation hatchery on a  
18 stock where the adults come back and can be  
19 harvested separately from any other stock, then,  
20 no, by definition there won't be a mixed stock  
21 hatchery -- or a mixed stock fishery problem.  
22 Q Okay. Well, I understand from my clients they  
23 don't run at the same time, so it isn't a mixed  
24 stock --  
25 DR. PETERMAN: I see.  
26 Q -- hatchery problem. But, you know, I think it  
27 would be useful for us to understand, in your  
28 view, assuming there is a mixed stock hatchery  
29 problem, or a mixed stock fishing problem, given  
30 the benefits and disadvantages, like given the  
31 negative impact of mixed stock fishing and the  
32 conservation hatchery addressing a species or a  
33 stock that's in danger or low, would you have a  
34 view as to whether there should be a conservation  
35 hatchery in those circumstances?  
36 DR. PETERMAN: I'm not a manager, so I don't know,  
37 because it depends on the management objective.  
38 If the management objective says, "Thou shalt not  
39 put at risk any other fish population by putting a  
40 hatchery in on a given fish population," then the  
41 mixed stock fishery might still be an issue.  
42 Q Okay. And a third issue which you raised in your  
43 affidavit is the potential negative effects of  
44 hatchery fish decreasing the biological diversity  
45 and fitness of wild stocks.  
46 DR. PETERMAN: Mm-hmm.  
47 Q Now, again, I'm going to ask you, is that still a



1 concern that you would still have in relation to  
2 conservation hatcheries?

3 DR. PETERMAN: Well, again, it depends on the nature of  
4 the selection pressures in the hatchery, so the  
5 process of collecting the adults, rearing them,  
6 and then releasing them into the wild.

7 Q Thank you. Now, Dr. Peterman, you've read the SEP  
8 Enhancement Guidelines, yes?

9 DR. PETERMAN: No.

10 Q Okay. Then I'm going to tell you that one of the  
11 goals of the SEP is the restoration of a depleted  
12 stock. So you'll agree with me that the  
13 conservation hatcheries are consistent with that  
14 goal?

15 DR. PETERMAN: Yes.

16 Q Okay. And another goal of the SEP is the  
17 alleviation of major habitat loss, and you'd agree  
18 that conservation hatcheries are consistent with  
19 that goal in that habitat restoration is sometimes  
20 an aspect of rebuilding a stock?

21 DR. PETERMAN: Yes, as one aspect of it, sure.

22 Q Okay. And another goal of the SEP is the  
23 provision of harvest opportunities, so you'd agree  
24 that conservation hatcheries are also consistent  
25 with that goal?

26 DR. PETERMAN: Only to the extent that they're  
27 successful enough to allow fishery harvest rates  
28 to increase.

29 Q Okay. And another goal of the SEP is the  
30 reestablishment of extirpated stocks, and so,  
31 again, conservation hatcheries are consistent with  
32 that goal?

33 DR. PETERMAN: Depends on where they draw the brood  
34 stock from, but that is certainly their intent in  
35 cases where there is extirpation, by definition,  
36 you'd have to go somewhere else to get the brood  
37 stock. So they won't be the same fish,  
38 genetically, as the ones that have been  
39 extirpated.

40 Q Yes. And Ms. Cross and Mr. Savard, do you  
41 disagree with any of Dr. Peterman's answers?

42 MS. CROSS: No.

43 Q Mr. Savard?

44 MR. SAVARD: No, I think his answers were good.

45 Q Okay. And a question for all three of you.  
46 You'll agree that these conservation hatcheries  
47 are consistent with the Wild Salmon Policy as

1 well? And anyone can answer first.  
2 MS. CROSS: Yes, I'd agree.  
3 Q Mr. Savard?  
4 MR. SAVARD: Yes, I'd agree.  
5 Q Dr. Peterman?  
6 DR. PETERMAN: Yes.  
7 Q Thank you. Okay, now, I'd like to -- I believe  
8 it's Ms. Cross who would have the most facility  
9 with this question. And Mr. Lunn, could you  
10 please assist us by pulling up, it was document  
11 number 2 on our list, which is Exhibit 349. It's  
12 the IFMP 2010/2011, page 40.  
13 I'll ask the question, and I believe it's Ms.  
14 Cross who could answer the question, but Mr.  
15 Savard, if it's appropriate for you, please go  
16 ahead and answer the question. Both of you are  
17 familiar with the IFMP, yes?  
18 MS. CROSS: Yes.  
19 Q Okay. And specifically these sections regarding  
20 the SEP. Now, this page is the section of the  
21 IFMP which deals with the SEP program as it  
22 relates to sockeye salmon, and there's a chart,  
23 and on that chart there's a column, the very first  
24 column under Project, and if you go down seven  
25 rows it says, Emily Cr, and, in fact, that's Emily  
26 Creek or Emily Lake, and that's the Heiltsuk  
27 hatchery. And then if we move all the way over  
28 to, let's see, the column that says 2009 Brood  
29 Release Target, you'll see that the brood release  
30 target was 90,000; is that correct, Ms. Cross?  
31 MS. CROSS: I'm not familiar with the specific  
32 production plan for this facility, so...  
33 Q Okay, but in reading this chart, am I reading this  
34 correctly, like what it means is this is a brood  
35 release target?  
36 MS. CROSS: Yeah, that's correct.  
37 Q Okay. And so it's not the actual release target,  
38 it's -- or, sorry, it's not the actual release;  
39 it's a target for that year?  
40 MS. CROSS: That's right.  
41 Q Okay. And then moving over, over to 2010, that's  
42 the target for 2010. And then moving further  
43 right, under the column where it says, 2010 Brood  
44 Exp Adults, I understand that column to mean brood  
45 expected adults, so those would be expected  
46 returns; is that correct? Is that what that  
47 column is intended to mean?

1 MS. CROSS: Yeah, that's intended to be the expected  
2 number of adults that would result from a release  
3 of 90,000 fish.  
4 Q Okay. And I notice the number's 900, so that's  
5 one percent of the 90,000. Is that meaningful  
6 somehow? Like is that sort of the baseline for  
7 minimum success, or what does that -- is there  
8 meaning to that number?  
9 MS. CROSS: That number would be established based on  
10 what we would consider to be kind of average  
11 survival rates for sockeye hatchery releases.  
12 Q Okay. And so the one percent number, do you know  
13 how that relates to wild fish?  
14 MS. CROSS: No, I don't.  
15 Q Okay. Mr. Savard, are you aware of that?  
16 MR. SAVARD: (No audible response).  
17 Q And Dr. Peterman, I don't suppose you're aware of  
18 that, are you?  
19 DR. PETERMAN: No.  
20 Q Okay.  
21 DR. PETERMAN: Sorry.  
22 Q Okay. Thank you. And Okay, so now I'd like to go  
23 to the next document, which is document number 1  
24 on our list, which was a draft IFMP north for  
25 2011/2012. So this is this year, and it's in  
26 draft form still, because they haven't finalized  
27 the IFMP. And if we can go, then, to page 107,  
28 Mr. Lunn. It should be an IFMP. It's number 1 on  
29 our list. That's it. No, that's not it. IFMP  
30 North 2011/2012.  
31 MR. LUNN: I'm sorry, there just seems to be something  
32 with the tab numbering I have.  
33 MS. FONG: Okay, if you could, Mr. Lunn, if you could  
34 look for that, I'll just finish that line of  
35 questioning and I'll just ask something else.  
36 Q Ms. Cross and Mr. Savard, you've talked about the  
37 numbers of large and community economic  
38 development hatcheries, and you've heard Dr.  
39 Peterman's description of a conservation hatchery.  
40 Are you able to tell me, just in terms of numbers,  
41 how many of the hatcheries are conservation  
42 hatcheries by Dr. Peterman's definition?  
43 MS. CROSS: I think it's important to understand that,  
44 in fact, hatcheries do a variety of things. Some  
45 of them do a component of conservation, but at the  
46 same time they'll be producing fish for harvest,  
47 and so we don't typically describe hatcheries as

1 conservation hatcheries. There's a component of  
2 the production that's described as conservation  
3 for -- production for a conservation objective.  
4 Q I see. Are there hatcheries - maybe the other way  
5 I can speak about it is - are there hatcheries  
6 whose goal is to add to the natural carrying  
7 capacity of a habitat system? So they're fish on  
8 top of fish that the natural habitat system can  
9 carry, as opposed to these other hatcheries where  
10 you're trying to restore or rebuild the stock? Is  
11 that a way of being able to differentiate between  
12 types of hatcheries?  
13 MS. CROSS: Yeah, again, I think the issue is around  
14 the production lines within a hatchery, so there  
15 are, within given hatcheries, production lines  
16 that are intended to support harvest, as well as  
17 production lines that are intended to support  
18 conservation.  
19 Q Okay. Do you know the ones that are -- are there  
20 ones that are purely supposed to support  
21 conservation so its pure restoration?  
22 MS. CROSS: You know, again, it is a mix of objectives,  
23 yeah.  
24 Q Okay.  
25 MS. CROSS: Yeah.  
26 Q We'll leave it at that. Okay, so now we've got  
27 the document, and could we please go to page 107.  
28 Okay, thank you. So Ms. Cross, this is the chart  
29 that's in the IFMP draft, the draft this year, and  
30 it looks a little different, it's got some more  
31 categories in it, but again, if you run down the  
32 Project row you'll see Heiltsuk under Community  
33 Economic Development, and that's the Emily  
34 Lake/Tankeeah hatchery, and if you run across the  
35 row to the, let's see, the column under Release  
36 Target, you'll see that 90,000 number which we saw  
37 -- which is consistent with the number we saw on  
38 the previous chart, correct?  
39 MS. CROSS: Yes.  
40 Q Okay. And then we get to a new column where it  
41 says, Actual Release 104,737. So as I understand  
42 it, what this means is that there were more fry  
43 released than the target; is that correct?  
44 MS. CROSS: Yes.  
45 Q Okay. And then if we go down to the bullets and  
46 the one, two, three, fourth bullet where it says:  
47

1 Heiltsuk (Emily Lake Hatchery: is a sockeye  
2 facility run by the Heiltsuk First Nation.  
3 Returns were good in 2009.  
4

5 You've already said you're not aware as to the  
6 production of this particular hatchery, so if I  
7 told you that my clients report that their return  
8 was 6,500, not 900, but 6,500, would that surprise  
9 you? So not that one percent, but they're more  
10 at, what, five or six percent return.

11 MS. CROSS: Well, that return, I'd want to understand  
12 what the components of that return were, but an  
13 analysis, a run reconstruction analysis to look at  
14 the survival rate would be a useful piece of  
15 information to understand that return, yes.

16 Q Okay. And that return, as I understand it, is  
17 fish coming back?

18 MS. CROSS: That return is --

19 Q To spawn.

20 MS. CROSS: Not necessarily. That return is the  
21 expected production from that release group.

22 Q Oh, sorry, the 900 was the expected production  
23 from this release group --

24 MS. CROSS: That's right.

25 Q -- right, in the previous chart.

26 MS. CROSS: Okay.

27 Q What I'm telling you is that the actual return, my  
28 clients tell me, that this hatchery has  
29 experienced for the 2009 -- no, this year, not the  
30 2009 release, was 6,500 sockeye.

31 MS. CROSS: And I guess I just want to understand what  
32 the wild production might have been that was  
33 contributing to that as well.

34 Q Okay. Thank you. Okay, and are you aware that  
35 this is a hatchery which is slotted to cease in  
36 three years because it will become self-  
37 sustaining?

38 MS. CROSS: No, I wasn't aware of that.

39 Q Okay. So assuming, for now, the numbers of brood  
40 release, which you've seen in this chart,  
41 believing me that my clients have told me that  
42 6,500 return and that in three years this is going  
43 to be a self-sustaining system -- oh, sorry, I  
44 missed the point, too, because I know you don't  
45 know anything about this particular hatchery, my  
46 clients tell me it's -- this costs \$45,000 a year  
47 of funding from SEP/DFO. Would you agree that

1           this is an example of a successful hatchery?

2 MS. CROSS: So just --

3 Q With all those assumptions.

4 MS. CROSS: So just a point of clarification on the  
5 funding source. I'm not clear that that funding

6 comes from SEP or whether it comes from the  
7 Aboriginal Fisheries Strategy funding source.

8 Q Right.

9 MS. CROSS: Yeah.

10 Q And that was something I was unclear about as  
11 well.

12 MS. CROSS: Yeah.

13 Q But you're familiar with funding for hatcheries  
14 and, you know, good money spent and money not  
15 spent particularly well, this is a \$45,000  
16 hatchery, from what my clients tell me. So my  
17 question to you was, you know, with the  
18 information on this chart and the assumptions that  
19 I asked you to make, you know, would you agree,  
20 like given your experience with these hatcheries,  
21 that this is a good hatchery?

22 MS. CROSS: It sounds like the returns have been good,  
23 but as I commented, I would like to understand  
24 what the wild component of that return was as  
25 well.

26 Q Okay. Thank you. Now, one of the major goals of  
27 SEP is the alleviation of major habitat loss.  
28 You'd agree with me that major habitat loss means  
29 a loss of spawning environment due to human  
30 impacts, is that correct? Sorry, Ms. Cross or Mr.  
31 Savard?

32 MR. SAVARD: So loss of habitat from, sorry, from human  
33 impact?

34 Q Sorry, due to human impacts. And that's not a  
35 trick question, I took that right from the  
36 enhancement guidelines.

37 MR. SAVARD: Yes.

38 Q Okay. And the budget, then -- I'm just mindful of  
39 the time we're at right now. Okay, let's just go  
40 right to the document. Mr. Lunn, could you go  
41 please go to the document number 9 on my list.  
42 And the page I'm looking for is - they're sort of  
43 oddly numbered - past the first page, past all the  
44 handwritten pages, just keep going, and then  
45 you'll hit a page called the Executive Summary,  
46 and then the page after that, where it has the  
47 Introduction.

1           Okay, Mr. Savard and Ms. Cross, this was an  
2 application that was made by Heiltsuk in January  
3 of 2001, for funding for habitat restoration. If  
4 you could just take a look at the introduction and  
5 the project description, and I can summarize it  
6 very quickly while you're trying to read as well,  
7 that what's being asked here is for funding for  
8 restoration due to DFO having done some stream  
9 cleaning in 1985, which ended up damaging some of  
10 the habitat for fish, and so Heiltsuk, here, are  
11 asking for funding to do field work to assess the  
12 fish habitat and remove some of the obstructions  
13 which were created by the DFO stream cleaning.

14           Are either of you aware of this application?

15 MR. SAVARD: I'm not aware of it. I do note, though,  
16 it's 2001 vintage, and I'm just wondering about  
17 the -- whether the information that's in the  
18 application, how it might relate to 2011. And for  
19 example, the things I think about is that it seems  
20 to be describing a situation in 2001 which, 10  
21 years later, that system might be quite different  
22 now than what was described here in this  
23 particular document.

24 Q Right. So my understanding is that you're not  
25 aware of this application, and are you aware of  
26 any further applications that have been made?  
27 Because I'm advised by my clients that they  
28 continue to ask for money to remediate the stream  
29 cleaning that was done in 1985 by DFO, and they  
30 ask for it in relation to this program here, the  
31 Habitat Restoration Program.

32 MR. SAVARD: I'm personally not aware of this  
33 application, no.

34 Q Thank you. Ms. Cross, do you have anything to add  
35 to that?

36 MS. CROSS: No, I don't. I'm not aware of it, either.

37 Q Okay. And if we look -- if we just flip onto the  
38 next -- sorry?

39 THE COMMISSIONER: Ms. Fong, I'm sorry to interrupt,  
40 but we are going to have to adjourn. How much  
41 longer do you need?

42 MS. FONG: I'm going to need another 10 or 15 minutes.

43 THE COMMISSIONER: We're going to have to adjourn, Ms.  
44 Baker, I'm sorry.

45 MS. BAKER: Thank you, I'll --

46 THE COMMISSIONER: It sounds like we need another half  
47 an hour; is that correct?

1 MS. BAKER: That's fine, I'll talk to the counsel about  
2 how we can accommodate additional time with these  
3 witnesses.

4 THE COMMISSIONER: All right, thank you very much.

5 THE REGISTRAR: Ms. Fong, would you like to mark that  
6 document?

7 MS. FONG: Yes, thank you.

8 MR. TAYLOR: Well, I don't think anyone's identified  
9 anything about it. It could be marked as an  
10 exhibit for ID, I suppose.

11 MS. FONG: You know, I don't think we want to have that  
12 dispute here, now. I don't have any problems with  
13 that, because I can mark it during aboriginal  
14 fishing, as well, so why don't we just leave it  
15 for now, and then I can use it in the aboriginal  
16 fishing and mark it then? Thank you.

17 MS. BAKER: Excuse me, before we complete, would you  
18 require all three witnesses to come back, or are  
19 your questions now focused on the two DFO  
20 witnesses?

21 MS. FONG: I will be asking about recommendations at  
22 the end, for the Commissioner, at which point  
23 three, or at least Ms. Cross and Dr. Peterman.  
24 Thank you.

25 THE COMMISSIONER: Thank you.

26 THE REGISTRAR: The hearing is now adjourned for the  
27 day and will resume on Wednesday morning at 10:00  
28 a.m.

29  
30  
31  
32  
33  
34  
35  
36  
37  
38  
39  
40  
41  
42  
43  
44  
45  
46  
47

(PROCEEDINGS ADJOURNED TO WEDNESDAY, MAY 4,  
2011, AT 10:00 A.M.)



1 I HEREBY CERTIFY the foregoing to be a  
2 true and accurate transcript of the  
3 evidence recorded on a sound recording  
4 apparatus, transcribed to the best of my  
5 skill and ability, and in accordance  
6 with applicable standards.  
7  
8  
9

10 \_\_\_\_\_  
11 Pat Neumann  
12

13 I HEREBY CERTIFY the foregoing to be a  
14 true and accurate transcript of the  
15 evidence recorded on a sound recording  
16 apparatus, transcribed to the best of my  
17 skill and ability, and in accordance  
18 with applicable standards.  
19  
20  
21

22 \_\_\_\_\_  
23 Irene Lim  
24

25 I HEREBY CERTIFY the foregoing to be a  
26 true and accurate transcript of the  
27 evidence recorded on a sound recording  
28 apparatus, transcribed to the best of my  
29 skill and ability, and in accordance  
30 with applicable standards.  
31  
32  
33

34 \_\_\_\_\_  
35 Karen Acaster  
36

37 I HEREBY CERTIFY the foregoing to be a  
38 true and accurate transcript of the  
39 evidence recorded on a sound recording  
40 apparatus, transcribed to the best of my  
41 skill and ability, and in accordance  
42 with applicable standards.  
43  
44  
45

46 \_\_\_\_\_  
47 Karen Hefferland