

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.

Friday, December 3, 2010

**Tenue à :**

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

le vendredi 3 décembre 2010

## APPEARANCES / COMPARUTIONS

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No appearance	Seafood Producers Association of B.C. ("SPAB.C.")
No appearance	Aquaculture Coalition: Alexandra Morton; Raincoast Research Society; Pacific Coast Wild Salmon Society ("AQUA")
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Don Rosenbloom	Area D Salmon Gillnet Association; Area B Harvest Committee (Seine) ("GILLFSC")

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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")
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No appearance	Métis Nation British Columbia ("MNB.C.")
No appearance	Sto:lo Tribal Council Cheam Indian Band ("STCCIB")
No appearance	Laich-kwil-tach Treaty Society James Walkus and Chief Harold Sewid Aboriginal Aquaculture Association ("LJHAH")
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No appearance	Musgagmagw Tsawataineuk Tribal Counsel ("MTTC")

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PANEL NO. 7  
In chief by Mr. Wallace

Vancouver, B.C. /Vancouver (C.-B.)  
December 3, 2010/le 3 décembre 2010

1  
2  
3  
4 THE REGISTRAR: Order. The hearing is now resumed.  
5 MR. WALLACE: Good morning, Commissioner Cohen. For  
6 the record, Brian Wallace, Commission counsel, and  
7 with me is Lara Tessaro.

8 One housekeeping matter. There's Exhibit  
9 173, the e-mail from T. Robbins dated October 1st.  
10 I just note that the attachment that's included  
11 with that exhibit has already been filed as  
12 Exhibit 167. So is the attachment in both places,  
13 Mr. Lunn, or just in 167?

14 MR. LUNN: Just in 167.

15 MR. WALLACE: So the e-mail's at 173 and the attachment  
16 had been previously filed as 167.

17 Exhibit 174 includes four documents, and I'd  
18 ask that they be marked specifically as follows:  
19 174 is Ringtail CAN145287 and then 174A is the  
20 same first digits, ending in 88 in the Ringtail  
21 number, and that's attachment 1 to that e-mail  
22 that's Exhibit 174. 174B is the Ringtail number  
23 ending in 89, being attachment 2, and 174C, the  
24 Ringtail number ending in 90, which is  
25 attachment 3.

26 THE REGISTRAR: All those documents will be marked as  
27 called.

28  
29 EXHIBIT 174: Ringtail CAN145287

30  
31 EXHIBIT 174A: Ringtail CAN145288  
32 (attachment 1 to Exhibit 174)

33  
34 EXHIBIT 174B: Ringtail CAN145289  
35 (attachment 2 to Exhibit 174)

36  
37 EXHIBIT 174C: Ringtail CAN145290  
38 (attachment 3 to Exhibit 174)

39  
40 MR. WALLACE: Thank you, Mr. Giles.

41  
42 EXAMINATION IN CHIEF BY MR. WALLACE, continuing:

43  
44 MR. WALLACE: Good morning, panel. Thank you for  
45 joining us again. I've pretty much completed my  
46 questioning on Strategy 1. I have one additional  
47 question for Dr. Holt and then we'll be going on



1 with Strategy 2 and 3, Strategy 6, and then the  
2 last pieces will be the MSC certification  
3 implications of the engagement with the Province  
4 and other stakeholders and challenges to WSP  
5 implementation.

6 I'm hoping to do as much of this questioning  
7 this morning, if possible, without getting down  
8 into documents which are already before the  
9 Commission. So to the extent that you're able to  
10 answer questions without actually going to the  
11 document, that may speed things up.

12 Dr. Holt, yesterday we were talking about the  
13 implications of the precautionary principle and  
14 the use of benchmarks, and we also discussed at  
15 some length the paper that is currently under  
16 review. And I'm wondering whether you're aware if  
17 there has been any management action taken with  
18 respect to the seven CU's which are identified in  
19 that paper as being in the red zone.

20 DR. HOLT: So that's a draft paper, and the consensus  
21 of the subcommittee was that those assessments  
22 were not complete because the analysis wasn't  
23 complete. And so we did not decide that those  
24 seven CU's that you mentioned were in fact in the  
25 red zone. The result of our subcommittee meeting,  
26 the review, was that those assessments were not  
27 complete. And so there is no -- and I am not  
28 involved with the management, so even if there was  
29 management decisions around those, I would not be  
30 aware of them.

31 Q Okay, you're not aware of them and you're  
32 suggesting that a possible reason why that would  
33 be because these haven't been confirmed; is that  
34 correct?

35 DR. HOLT: Primarily I'm not involved with the  
36 management side so I wouldn't be aware. So that's  
37 the first reason. A subsequent -- in addition to  
38 that, the assessments weren't finalized because  
39 the analysis wasn't complete, and in fact it was  
40 partially biased because we didn't -- we didn't  
41 consider some assumptions. And so we're revising  
42 that manuscript over the next few months.

43 Q Dr. Holt, in your view, wouldn't it be more  
44 consistent with the precautionary approach, given  
45 what I understand you to say is uncertainty  
46 relating to those CU's, to take management action  
47 because of the uncertainty?

1 DR. HOLT: Well, I'd like to clarify two things.  
2 Uncertainty -- a general notion of uncertainty or  
3 stochastic variability or uncertainty, and bias.  
4 We can -- if there's uncertainty, the  
5 precautionary principle will apply, or a  
6 precautionary approach. We don't want to delay  
7 action in the face of that uncertainty. However,  
8 if there's a bias, a known bias in the analysis,  
9 then that is cause for a concern and we don't want  
10 to make a response that's due to known bias  
11 analysis.

12 Q Mr. Saunders.

13 MR. SAUNDERS: Mr. Commissioner, if I might add some  
14 clarification on the process around the question  
15 on this advice. Dr. Holt's correct. So there's  
16 a -- this paper is in part of a scientific review  
17 process right now that is peer reviewed, and as  
18 she's noted, there was direction to go back and  
19 revise the paper and not to consider the actual  
20 status that was presented in that initial draft.  
21 So in terms of advice going forward to senior  
22 management, that will wait until that peer review  
23 is completed. There are -- I believe it's 45 days  
24 to complete the paper, et cetera. So there's a  
25 process that's involved there. But she's  
26 absolutely correct that this is a science process.  
27 But the department will -- has a number of other  
28 management processes that will take into account  
29 sort of known condition or understanding related  
30 to a conservation unit or a population. So we're  
31 in a process that will start -- that is sort of  
32 beginning already in terms of another deliverable  
33 or a product that the department produces, which  
34 is the Salmon Outlook, which provides management  
35 and stakeholders with sort of advice -- or not  
36 advice, but sort of the best expert understanding  
37 of the current status of populations and the  
38 outlook for the upcoming fishing year regarding  
39 productivity.

40 So at the same time we're undergoing  
41 extensive pre-season planning to move forward into  
42 the next fishing season. So while I don't off the  
43 top of my head know what the outlook says about  
44 those particular CU's or populations, there is a  
45 separate management process that will be well  
46 aware of the condition of those conservation units  
47 and considering it in the development of an

1 integrated fisheries management plan this year.

2 Q Ms. Stalberg, I'm just moving on now to  
3 Strategy 2. Originally, before the peer review of  
4 your habitat indicators paper, were marine  
5 indicators proposed by Dr. Irvine to be dealt with  
6 in Strategy 3? Sorry. What was the original  
7 reason for limiting the habitat indicators to  
8 fresh water and estuarine?

9 MS. STALBERG: Mr. Commissioner, there is four action  
10 steps pursuant to Strategy 2, and the second  
11 action step is determining indicators that can  
12 attract a quantity and quality of highly  
13 productive habitats that are identified under  
14 Action Step 2.1, and then benchmarks are defined  
15 as part of that second action step. It's simply a  
16 case of workload for the Habitat Working Group.  
17 There are stream indicators, lake indicators,  
18 estuarine indicators. There can be near-shore  
19 marine indicators of habitat and marine indicators  
20 of habitat. And the working group started  
21 tackling the stream, lake and estuarine, and that  
22 was a full workload. So the intention had been to  
23 move forward with the near-shore marine. It was  
24 simply a matter of timing.

25 Q Thank you. Ms. Stalberg, I wonder if briefly, and  
26 I hope without going to documents if you can,  
27 under Action Step 1, can you explain -- sorry,  
28 Action Step 2.1. Can you explain the habitat  
29 status reports required under that action step?  
30 What are the contents and how are they structured?

31 MS. STALBERG: Under Action Step -- so Strategy 2,  
32 under the Wild Salmon Policy, is the assessment of  
33 habitat status. So Strategy 1 is the assessment  
34 of the population status. Then Strategy 2 is  
35 assessment of the habitat. Strategy 3 is the  
36 assessment of ecosystem. And you pull all that  
37 information together for Strategy 4 into  
38 integrated planning. The first action step within  
39 Strategy 2 is 2.1, and that's characterizing the  
40 habitat. And the policy calls for providing an  
41 overview of the highly productive and limiting  
42 habitats that produce salmon where the major  
43 threats are, and the highly productive and  
44 limiting language, there's various ways that that  
45 is described within the policy. And we can  
46 certainly pull the policy up. They're called  
47 important or key or highly productive, limiting.

1           So we've used the terms highly productive and  
2           limiting habitats.

3           It would probably be useful to go to the  
4           policy.

5           Q     To the Wild Salmon Policy?

6           MS. STALBERG: Yes, Please.

7           Q     To Strategy 2?

8           MS. STALBERG: Yeah. If we pull up page 20.

9           Q     It was really the application of the strategy and  
10          how it works out in your reports that I was trying  
11          to -- but this is helpful. Thank you.

12          MS. STALBERG: So below the picture, on the left-hand  
13          column:

14  
15                 An overview of important habitat and habitat  
16                 issues within CU's will be developed and  
17                 habitat status will be assessed using  
18                 indicators that combine scientific and local  
19                 knowledge...

20  
21                 So moving to the right column, Action Step 2.1 is  
22                 that documentation of habitat characteristics  
23                 within CU's.

24                 The Habitat Working Group developed a two-  
25                 tier approach for delivering on Action Step 2.1,  
26                 two-tier meaning that it was proposed that for all  
27                 of the conservation units, of which there are four  
28                 hundred some odd, there would be an overview  
29                 report that would identify the species of salmon  
30                 and the watersheds that it was distributed in  
31                 within a conservation unit, because many times -  
32                 or in many of the CU's, there are multiple  
33                 watersheds - the accessible stream length for the  
34                 salmon population in that CU. And pulling -- the  
35                 initial thinking was that we could readily pull  
36                 from provincial data sources the typical land use  
37                 types, different industry types within the CU, to  
38                 give an overview of those threats.

39                 And then where there was a priority  
40                 conservation unit, and that might be one where  
41                 there is integrated planning or if, pursuant to  
42                 Action Step 2.3, where monitoring of indicators  
43                 across the landscape, such as pressure  
44                 indicators - and I can describe those in a  
45                 minute - where the benchmarks were reached, a flag  
46                 in a sense would be raised that there are issues  
47                 that needed further examination, habitat issues

1 needed further examination within the CU, a  
2 habitat status report could be generated.

3 So this two-tier approach was proposed so  
4 that the CU's were covered but the more detailed  
5 habitat status reports, which required greater  
6 effort and examination, would be done within  
7 priority CU's. Example, ones where integrated  
8 planning was proposed to be undertaken or where  
9 there was some kind of threat identified through  
10 monitoring of the landscape level indicators.

11 Q Thank you. If we could move, then, to Action Step  
12 2.2 on the next page.

13 MR. WALLACE: Just for the record, Mr. Commissioner,  
14 there's a template for a habitat status report at  
15 page 80 of Exhibit 175. I don't think it's  
16 necessary to take the witness there.

17 Q Going to Action Step 2.2, Ms. Stalberg, can you  
18 describe DFO's work under that action step and  
19 just briefly summarize the concepts of the habitat  
20 indicators and their metrics and benchmarks?

21 MS. STALBERG: There was quite a bit of work undertaken  
22 pursuant to Action Step 2.2. The Habitat Working  
23 Group conducted -- there were a number of steps in  
24 determining the suite of indicators, the proposed  
25 suite of indicators, their metrics and benchmarks.  
26 And Mr. Commissioner, the metric is a means of  
27 representing an indicator such as -- so an  
28 indicator might be temperature and the metric may  
29 be degrees Celsius and the benchmark may be 20  
30 degrees Celsius for some reason.

31 In '05, November '05, the Habitat Working  
32 Group was struck, or shortly thereafter, and Gary  
33 Taccogna was the coordinator at that time, and he  
34 pulled together a habitat working group. And I  
35 would like to, if we could, pull Canada's Policy  
36 for Conservation of Wild Pacific Salmon: Stream,  
37 Lake and Estuarine Habitat Indicators paper,  
38 please.

39 MR. WALLACE: That is Exhibit 175, Mr. Commissioner.

40 MS. STALBERG: I'm just going to pull -- Appendix 1 has  
41 the Habitat Working Group membership.

42 MR. WALLACE: Perhaps page 79?

43 MS. STALBERG: Thank you. So this slide depicts the  
44 Habitat Working Group membership, the predominant  
45 membership through the period of time of  
46 existence. And there were multiple levels of  
47 management represented on the team as well as

1 multiple disciplines within the department and  
2 OHEB. There was individuals with data management  
3 expertise: Where is the data held? What are the  
4 repositories? How good is that data? How do you  
5 put it into, say, GIS formats, global --  
6 geographic information systems. There's planning,  
7 people with planning expertise on the program as  
8 well as policy, policy development and  
9 implementation. Plus stewardship, those that  
10 worked with external groups to DFO and fostering a  
11 culture of habitat stewardship, working with these  
12 partners. And then as well there were folks on  
13 the regulatory side of the business, the habitat  
14 protection and sustainability -- sustainable  
15 development section.

16 Q Excuse me. Ms. Stalberg, my question was about  
17 the concepts that are of the habitat indicators  
18 and metrics and benchmarks as opposed to the  
19 makeup of the working group.

20 MS. STALBERG: Yes, I understand that. And why I'm  
21 referring to the working group is because the  
22 expertise represented on the working group  
23 informed the development of the indicators.

24 Q Well, if it's necessary. But for the lay people  
25 who need to understand this, I was hoping to get  
26 just a brief description of what the indicators  
27 were. I mean, you speak of pressure and state  
28 models and indicators, and this language is not  
29 something that we're familiar with and I was  
30 hoping that we could just have a description as to  
31 what it is you look for in monitoring habitat.

32 MS. STALBERG: I can -- certainly can provide that  
33 information. I think this is of value, though, as  
34 well, for the group to understand the broad range  
35 of experience that was brought to developing the  
36 indicators as well as the other action steps  
37 within Strategy 2.

38 Q Okay. Please carry on.

39 MS. STALBERG: Okay. There was also staff with OHEB  
40 that provided monitoring expertise and the salmon  
41 enhancement protection side of OHEB through the  
42 Habitat Restoration Group was represented, as well  
43 as we had science representation on the team. And  
44 there was also Neil Schubert on the team, science  
45 lead out of Simon Fraser for the first part of the  
46 habitat indicator development.

47 So this team -- thank you very much. This

1 team worked collaboratively to investigate --  
2 first information was collated -- pulled together  
3 on what kind of indicators are out there on  
4 streams, lakes and estuaries. And that  
5 information was collated from numerous sources.  
6 The Pacific Fisheries Resource Conservation  
7 Council had generated a report, the Packman and  
8 Winsby report that came out in February. There  
9 was another one that came out in October '05.  
10 There was works undertaken in the Pacific  
11 Northwest by the National Marine Fisheries  
12 Service, the U.S. The National Oceanographic and  
13 Atmospheric Agency undertook works. There were  
14 other sources of information.

15 And I would flip to the appendix in this  
16 report, Appendix 6, please. If we can go to  
17 Appendix 5, sorry. That's good. Any one of those  
18 pages. Thank you.

19 On the bottom of the screen there's a list,  
20 1 to 7. Those were but some initial sources of  
21 potential indicators that the group collated,  
22 referenced, to look at monitoring programs in  
23 other areas. So information was pulled together  
24 and through that -- through that process it was --  
25 it was learned that there was a particular  
26 framework, different frameworks for monitoring,  
27 one being that pressure state that I mentioned.  
28 And pressure indicators are those that force  
29 change on the environment, and that might be  
30 something like water extraction. And then a state  
31 indicator is what's the result of that force on  
32 the environment. So the resulting state indicator  
33 in that example might be stream discharge. What's  
34 left in the stream?

35 And through evaluating the different  
36 indicators early on in the program, that was  
37 determined to be an approach to indicators that  
38 was adopted by the Habitat Working Group, so this  
39 pressure state model.

40 Indicators continued to be collated.  
41 Additional research was also undertaken by the  
42 team, and that included looking into different  
43 habitat productivity models. That contract was  
44 let, as well as contracting out a summary of what  
45 the different life history attribute -- what the  
46 different life histories of the various salmon  
47 require, because that could help you then



1 determine, well, if a certain species of fish  
2 needs a certain temperature of water, maybe a  
3 useful indicator is stream temperature. So that  
4 type of work was undertaken.

5 And then as well there was additional  
6 expertise consulted. The working -- some of the  
7 members of the working group met with DFO Science.  
8 There was a meeting convened in July '06, and many  
9 representatives from the different doctrines  
10 within DFO, we met with them to gain information  
11 on potential indicators and strengths and  
12 weaknesses. As well, Dr. Hyatt had organized a  
13 session in Washington with experts -- ecological  
14 experts on monitoring programs as well, and  
15 through that session, that also informed the  
16 development of the habitat indicators program.

17 And then if we flip down to Appendix 6,  
18 please, of the same report. That's good. Yeah, a  
19 little bit further, please. There we go.

20 The Habitat Working Group evaluated the  
21 strength of the linkage between this suite of  
22 indicators to salmon habitat attributes, and this  
23 evaluation was done to different -- well, how  
24 important is this indicator in supporting the  
25 different species of salmon? So the indicators  
26 were evaluated, and those that we had at that  
27 time, they were ranked.

28 And then the outcomes of this process and the  
29 preceding ones were evaluated and assessed. I had  
30 let a contract to ESSA Consulting and they -- it  
31 was a two-part contract. The first part was a  
32 practical assessment and that was to look at,  
33 well, what's the cost of these indicators? What's  
34 their applicability across the landscape? How  
35 insightful are they in salmon habitat attributes,  
36 so using this piece of work? What's the data  
37 availability? -- tucking into some of these  
38 questions in more detail than previous works had  
39 done. And throughout this process, I do note that  
40 we were consulting, so with experts externally  
41 through fall consultations, the fall '06  
42 consultations, and I can provide more detail on  
43 that if you'd like.

44 So with the ESSA, the first stage of their  
45 report was this practical assessment, and then  
46 they generated -- what we had requested was what's  
47 the base suite and what would ideally be done?



1 And the Habitat Working Group took that outcome  
2 and we reviewed it all, and then as well, ESSA had  
3 been contracted to develop those metrics and  
4 benchmarks piece. And that is, what would the  
5 metrics and benchmarks be associated with the  
6 different indicators? And some are better than  
7 others in terms of cost, data availability again,  
8 and strength of relationship to fish production or  
9 habitat productivity.

10 The Habitat Working Group then evaluated the  
11 outcomes of those processes, the feedback that we  
12 had gained through consultations throughout. And  
13 we had consulted internally on some of these  
14 indicators, further such as water -- gaining water  
15 quality expertise indicators, and we developed the  
16 recommendations on the suite of indicators or the  
17 indicators, the metrics, and the associated  
18 benchmarks.

19 Q And those were adopted by DFO?

20 MS. STALBERG: That then went through a peer review  
21 process and there was some changes to the  
22 recommendations. So there was -- at the  
23 presentation, Dr. Irvine had suggested that the  
24 biotic indicators, such as invertebrates or --  
25 would be better placed under Strategy 3, the  
26 ecosystem indicators. So the report was modified  
27 to reflect that. And the report was adopted by  
28 the -- with those recommendations in mind at the  
29 peer review process, the peer reviewers accepted  
30 the indicators at the session. And the metrics  
31 and benchmarks, it was recommended that they be  
32 further tested through the development of a  
33 monitoring framework.

34 Q Okay, thank you. Moving then on to the monitoring  
35 step, Step 2.3, I have a quote from you that  
36 "collection and monitoring of environmental  
37 habitat status indicator information is not a  
38 mandate of the National Fish Habitat Management  
39 program." Can you explain that to me, please, to  
40 the Commissioner?

41 MS. STALBERG: I'm wondering if there is a reference  
42 that we can pull for that one?

43 MR. WALLACE: Mr. Lunn, that's page 3 of Ms. Stalberg's  
44 summary.

45 MS. STALBERG: Because I can certainly speak to it here  
46 through the will-say. I also presented -- well,  
47 in the September 23rd, 2006 -- 2008 deck, it's

11  
PANEL NO. 7  
In chief by Mr. Wallace

1           mentioned in the ops deck and then in a --  
2       Q     Page 4, I think, of that summary.  
3       MS. STALBERG: And then in a presentation to Ian  
4           Matheson, the --  
5       MR. WALLACE: The bullet the third up from Action Step  
6           2.4. Yes. Can you bring that bullet up a little  
7           bit?  
8       MR. LUNN: Sure.  
9       MR. WALLACE: She may be asked about -- this is halfway  
10           through the bullet that's the third one from the  
11           bottom there saying that Ms. Stalberg:  
12  
13                    may be asked about the statement that  
14                    "collection and monitoring of environmental  
15                    habitat status indicator information is not a  
16                    mandate of the National Fish Habitat  
17                    Management program."  
18  
19       MS. STALBERG: That's correct.  
20       Q     And can you explain that? What is the  
21           significance of that?  
22       MS. STALBERG: The significance is that the National  
23           Habitat Management program, the mandate  
24           encompasses monitoring. It encompasses some  
25           compliance, are proponents doing what we told them  
26           to do, and some efficacy monitoring such as did we  
27           tell them the right thing to do? But it doesn't  
28           include environmental monitoring, which is really  
29           the result of those two things.  
30       Q     So it's basically a compliance program as opposed  
31           to an environmental, scientific program or --  
32       MS. STALBERG: I'm going to refer to that September  
33           23rd, 2008, deck, please, and there is an appended  
34           slide at the end of that.  
35       MR. TIMBERG: Mr. Commissioner, I think that's the  
36           Operations Committee deck she's referring to,  
37           CAN018434.  
38       MR. LUNN: I have that as Exhibit 148.  
39       MS. STALBERG: Thank you. That's it, yes. Thank you.  
40           If we could slide down to the appendices. There  
41           we go. So Appendix 1 is the Policy Framework for  
42           Fish Habitat Management, and there were lines that  
43           connected these. I understand there will be  
44           another panel as part of this inquiry that will be  
45           discussing habitat management; is that correct?  
46       Q     That's correct. This is --  
47       MS. STALBERG: Okay.

12  
PANEL NO. 7  
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1 Q We don't want to get into detail here.

2 MS. STALBERG: Right. Right.

3 Q Simply I really just wanted an explanation. Is it  
4 slide 17?

5 MS. STALBERG: No. I'll stick to this one but we can  
6 certainly go to 17 as it repeats that quote.

7 Q Okay.

8 MS. STALBERG: But why I brought this one up is that  
9 this shows the scope of the activities within the  
10 Fish Habitat Management program and this is part  
11 of the Fish Habitat Management Policy. Often  
12 people refer to it as the no-net loss policy. But  
13 within the implementation strategies, that long  
14 box there --

15 Q So --

16 MS. STALBERG: -- it's not just a compliance program.  
17 There are a number of strategies that the  
18 department delivers. But number 8, that  
19 monitoring, doesn't encompass environmental  
20 monitoring.

21 Q Thank you. If we can move on, then, to Action  
22 step 2.4. One of the issues that arises, I  
23 understand, under the linkages on integrating data  
24 systems for watershed management is the WSP web  
25 mapping application. Can you explain that just  
26 briefly to us?

27 MS. STALBERG: Can you repeat the question, please.

28 Q Can you describe briefly the Wild Salmon Policy  
29 web mapping application?

30 MS. STALBERG: Sure. So Strategy 2.4 established  
31 linkages to develop an integrated data system for  
32 watershed management. This action step calls for  
33 DFO to work with partners to promote integration,  
34 a shared system for data related to fish habitat,  
35 promote and help implement. And there were a  
36 couple of main initiatives that the Habitat  
37 Working Group worked on through Action Step 2.4.  
38 One was a harmonized monitoring program, which I  
39 can speak to at a different time.

40 But there was also in DFO -- in the Habitat  
41 Working Group we developed what was called a web  
42 mapping application. So this started under Gary's  
43 lead, Gary Taccogna's lead, and then I took over.  
44 And basically a web mapping application is an  
45 electronic -- an electronic -- well, it's a box of  
46 information that individuals can access, and it  
47 can be a portal for gaining information or

1 submitting information into, and the web mapping  
2 application, it geographically represents  
3 information. So for example, all of the  
4 conservation units that were discussed under  
5 Strategy 1, those were generated through contract  
6 under -- through the Habitat Working Group, and  
7 maps were made and those were depicted throughout  
8 the region. And reports such as the habitat  
9 status reports, overview reports, it could be  
10 integrated plans -- those can be -- those are  
11 appended to the web mapping application. So it  
12 was designed to be a system where it would be  
13 ready access of WSP products and people could see  
14 it on a spatial scale so they would understand  
15 what a CU is and the information associated to it.  
16 So it helped with transparency of the system, and  
17 plus it's also easier to update -- as we talked  
18 about the CU's change boundaries, it's easier to  
19 change the boundaries or update reports on  
20 electronic versions versus paper copies of  
21 reports, so it saves cost. And so there's  
22 efficiency provided as well.

23 And then as well, the web mapping  
24 application, it can link into other organizations'  
25 data, and that's what it was working to do with  
26 this, establish linkages. So for example, in the  
27 beginning of the development of it or as it went  
28 on, we were able to link in with Environment  
29 Canada's water quality monitoring sites, so that  
30 in a particular conservation unit, if Environment  
31 Canada happened to have a monitoring site there,  
32 you can click on that and the data comes up, and  
33 one can tuck into as much of the data as they  
34 want. But then through our works in Action Step  
35 2.1 that characterize the habitat, if there were  
36 threats identified in the EC, with say the water  
37 quality information, that could be captured in the  
38 overview reports.

39 Q Am I correct that that -- you sought funding for  
40 that web mapping application, I think, from the  
41 Regional Management Committee; is that correct, in  
42 2008?

43 MS. STALBERG: Sought funding from the different  
44 sectors or branches, which they provided, Policy,  
45 FAM, and Science, to help the continued  
46 development and launch of the web mapping  
47 application. And then as well, in the -- I think

1           it was October 14th, '08 -- now, I can't remember,  
2           steering committee or ops committee --  
3       Q     The exhibit -- I don't think we need to go there.  
4           Exhibit 151 will demonstrate it was the Regional  
5           Management Committee.  
6       MS. STALBERG: Thank you. Yes. The implementation  
7           team agreed to advance a proposal to senior  
8           management to gain longer-term support funding  
9           from the branch regional directors to sustain the  
10          web mapping application.  
11       Q     And what was the result?  
12       MS. STALBERG: I think we should pull up the briefing  
13          note or the record of decision, please.  
14       MR. WALLACE: Exhibit 151, Mr. Lunn.  
15       Q     Wasn't the long and the short of it that the  
16          funding was not provided?  
17       MS. STALBERG: Yes. So the RMC felt that -- this was a  
18          request that hey wanted to put into context with  
19          what other kinds of support requests were going to  
20          be made through the WSP. So they wanted a broader  
21          picture of what would be coming their way to  
22          review and possibly approve. So the decision was  
23          made to -- well, at this session it was a request  
24          to get further information on what all of the  
25          initiatives for funding would be. And then I  
26          can't remember if it was a subsequent January one  
27          or if it was revisited in January, but the  
28          decision was made not to provide that additional  
29          funding. So Rebecca Reid after this session,  
30          after the October session, she did commit to  
31          maintaining the web mapping application and that  
32          necessitates GIS support, which is housed in OHEB.  
33          So maintaining the web application.  
34       Q     Were you surprised that funding was not approved  
35          by the Regional Management Committee for that  
36          application?  
37       MS. STALBERG: I'm not sure I was surprised. This was  
38          the first RMC meeting I had attended so I wasn't  
39          sure how --  
40       Q     Had no expectations?  
41       MS. STALBERG: -- they operated. Some of the questions  
42          that arose, I thought there would be more  
43          familiarity with the web mapping application given  
44          the regular briefings that Mark Saunders would  
45          make to the different senior committees.  
46       Q     Do you know if the application is -- I gather it  
47          is operating. But is it available to the public?

1 MS. STALBERG: As far as I know, it was launched in  
2 April '09, accessible to the public and  
3 internally. There are others that -- within OHEB  
4 that could provide information as to if it's  
5 working still. That might be Lisa Wilson in  
6 Policy.

7 Q Does anyone know the availability of this -- any  
8 of the other panellists know about the  
9 availability of the web mapping application?

10 MR. SAUNDERS: My understanding is it's available to  
11 the public, yes.

12 Q One last question, Ms. Stalberg. You've spoken in  
13 some of what you said - not today - but about  
14 satellite imagery and the application and use of  
15 that in habitat monitoring. Can you explain the  
16 value of that? I gather it's not available but  
17 would be useful?

18 MS. STALBERG: When Gary Taccogna started work looking  
19 at indicator programs in other areas, he was able  
20 to look at -- what we were trying to start off  
21 with was lessons learned from other areas that  
22 were doing indicator monitoring programs. So were  
23 there lessons learned in Washington State, for  
24 example? So he got a hold of individuals in -- I  
25 think it was U.S. Fish and Wildlife Service, and  
26 talked to them about what kind of indicators are  
27 they using and what's the cost and what kind of  
28 systems are they using. And those state  
29 indicators that I described earlier, those are the  
30 ones -- many of them require field work and it's  
31 really expensive to do field work and get out.  
32 And then a number of these state indicators are  
33 fairly unresponsive. You can monitor them for  
34 many years and there may be little change, and to  
35 make a statistical decision on them, it requires a  
36 fair amount of data.

37 The pressure indicators, again, those are the  
38 ones that put pressure on the landscape that force  
39 change. And we had gained feedback from -- I  
40 think it was the Marine Conservation Commission,  
41 that they wanted a system of indicators monitoring  
42 where we were able to pick up changes prior to the  
43 habitat moving into a negative state where there  
44 would be the ability to intervene. So when we  
45 looked to other jurisdictions and the lessons  
46 learned, the pressure indicators were starting to  
47 be favoured by groups like the Washington State

1 Conservation Commission, the U.S. Fish and  
2 Wildlife and -- U.S. Fish and Wildlife Service,  
3 and I think it was Washington State Forestry,  
4 because you can get a better snapshot of large  
5 tracts of land with satellite imagery and get a  
6 sense of those pressure indicators. What's -- is  
7 the land being converted from forest to urban or  
8 to other -- to agriculture? What's the road  
9 density in different watersheds? So this was a  
10 direction that other groups with experience in  
11 monitoring was going to, and we thought that,  
12 looking at their lessons learned and the desire to  
13 be precautionary with the indicators and allow for  
14 either further monitoring or intervention, to  
15 utilize these pressure indicators. And satellite  
16 imagery was a good means to deliver on this.

17 So there is satellite imagery available, but  
18 you need to pay for it, as far as I know, and our  
19 investigations. And we did pilot works with the  
20 Province to test out this satellite imagery on the  
21 pressure indicators through a pilot. That's  
22 reflected in Strategy 2.2 and 2.3. And this was  
23 what was called the watershed statistics program  
24 that the Integrated Land Management Bureau  
25 delivers upon.

26 So a memorandum of understanding was  
27 generated with the Province and it was to generate  
28 watershed statistics. And those are -- they  
29 reflect some of our desired pressure indicators.  
30 We didn't have our indicators determined at that  
31 time. I think it was late December '06 or early  
32 '07 that the MOU was finalized, so we had not gone  
33 through the whole review process for the  
34 indicators. But one of our feedbacks, again, say  
35 from the PFRCC, was do some pilots. Pilot the  
36 data availability indicators. Test these systems.  
37 So that was also one of the objectives of this  
38 MOU. Okay, there's satellite imagery out there.  
39 What's the cost? Is it going to give us the  
40 resolution that we need? It also tests the  
41 relationships with the Province.

42 So we ran it in -- we picked the Interior  
43 Fraser Coho conservation unit because that was  
44 possibly going to be a site where there was an  
45 integrated planning process under Strategy 4, so  
46 trying to look at building information to  
47 substantiate further pilots in other strategies.



1           So we ran that and processed the information.  
2           And if we actually flip to that ops deck  
3           again, please, there is a graphic in there that  
4           shows one of the outcomes.

5       MR. WALLACE: Sorry --

6       MS. STALBERG: Sorry. That's -- I can't remember.

7       MR. WALLACE: I think that's 148. Yes. What slide?

8       MS. STALBERG: If you could just flip down quickly -  
9           sorry - then I'll -- that's the one. Thank you.

10           Now again, we had not completed our  
11           indicators at this time. So I'm going to confuse  
12           things a little bit -- no, hopefully not. If we  
13           could split the screen and bring up Canada's  
14           Policy for Conservation of Wild Pacific Salmon:  
15           Stream, Lake and Estuarine Habitat Indicators,  
16           then we could bring up what --

17       Q       Ms. Stalberg --

18       MS. STALBERG: -- the final list is.

19       Q       -- this is perhaps more information than we need.  
20           The question really is, I wanted to have an  
21           explanation of what this was. I understand that  
22           there was a pilot but there was a funding issue.  
23           I'm looking to you to suggest what would be  
24           beneficial by way of this technology. Would it be  
25           useful -- is this something which should be  
26           funded, is essentially my question.

27       MS. STALBERG: We can come back to the suite of  
28           indicators at another time if that is preferable.

29       DR. HYATT: If I might comment just as a --

30       MR. WALLACE: I was asking about -- Ms. Stalberg, would  
31           this be useful technology?

32       MS. STALBERG: What I'd like to do is move through this  
33           slide and provide some substantiating information.  
34           So yes, the satellite imagery is very useful, and  
35           through processing of the information and testing  
36           a number of indicators, it can provide outcomes  
37           such as this where you can look at which  
38           watersheds are most impacted or least impacted.  
39           And this includes other information such as the  
40           stream discharge indicator, which is depicted on  
41           here, described as low flow watersheds. And on  
42           top of this was -- in other slides were  
43           superimposed the fish distribution.

44           So the outcomes of this were presented to the  
45           SEP group, Salmon Enhancement Group, Resource  
46           Restoration, as, well, seeing the outcomes of  
47           this, where would you prioritize your work -- and



1 the Habitat Management Group. Well, if you saw  
2 the outcomes of this, where would you prioritize  
3 your work? So through this kind of satellite  
4 imagery, it helped, plus other indicators that  
5 were overlain on here. It got to the vent inputs  
6 to management and where they can make their  
7 decisions. So it was a pilot that tested a number  
8 of -- a number of sort of requests, investigate  
9 data availability, do a pilot, test the cost. I  
10 think the cost of this was \$55,000 for the  
11 satellite imagery and the processing. And then we  
12 needed to contract a GIS expert to help sort all  
13 this information and categorize it, because it  
14 doesn't come this way, so it takes time as well.  
15 So it was a useful pilot in that regard.

16 Q And it wasn't an expensive project?

17 MS. STALBERG: Pardon me?

18 Q And it's not an expensive project?

19 MS. STALBERG: I would say \$55,000 to do this plus the  
20 processing, that is expensive, and especially when  
21 you think that this is but one conservation unit.  
22 Now, the information can be applied to other  
23 species within that geographic area, but if you  
24 had to distribute this across the entire province  
25 of B.C. and the territory of the Yukon, that's an  
26 expensive undertaking.

27 MR. WALLACE: Mr. Commissioner, it's 11:15. Would this  
28 be a convenient time to break? Oh, sorry, it's  
29 11:05.

30 THE REGISTRAR: The hearing will now recess for 15  
31 minutes.

32  
33 (PROCEEDINGS ADJOURNED FOR MORNING RECESS)

34 (PROCEEDINGS RECONVENED)

35  
36 THE COMMISSIONER: Order. The hearing is now resumed.

37 MR. WALLACE: Thank you, Mr. Commissioner. I'd like to  
38 move onto Strategy 3 implementation and address  
39 these questions principally to Dr. Hyatt and Dr.  
40 Irvine.

41 I wonder if we can bring up, Mr. Lunn, Dr.  
42 Hyatt's presentation to the Operations Committee  
43 in September of 2009 -- October 8th, 2009.

44  
45 EXAMINATION IN CHIEF BY MR. WALLACE, continuing:

46  
47 Q Dr. Hyatt, do you recall making this presentation

1 to the Operations Committee?

2 DR. HYATT: I do.

3 Q You, I take it, still agree with what's in that  
4 presentation?

5 DR. HYATT: Yes, I do.

6 MR. WALLACE: Could this be marked, then, as the next  
7 exhibit?

8 THE REGISTRAR: Number 186.

9

10 EXHIBIT 186: Wild Salmon Policy Strategy 3  
11 Implementation Approach, Operations  
12 Committee, by K. Hyatt, dated October 8, 2009  
13

14 MR. WALLACE: Thank you.

15 Q Now, you say in your Summary of Evidence, Mr.  
16 Hyatt, that you emphasized to the Operations  
17 Committee, at that time, that the reasons why the  
18 Strategy 3 -- the reasons why Strategy 3 was  
19 taking so long, when you were asked by the  
20 Operations Committee why that -- so the Operations  
21 Committee asked you why, I take it, asked you why  
22 this present -- why this implementation was taking  
23 so long, and you emphasized why, there. Do you  
24 recall who, in the Operations Committee, was  
25 concerned about length of time that it was taking  
26 to implement Strategy 3?

27 DR. HYATT: I can't say I recall a specific individual.  
28 I think, as a general background, there were a  
29 number of individuals on the Operations Committee  
30 who had relatively little. In fact, the  
31 Operations Committee, itself, had heard relatively  
32 little about Strategy 3 up to this point. This  
33 was the first presentation on Strategy 3 that was  
34 being made to the Operations Committee, in spite  
35 of the fact that a number of -- a considerable  
36 passage of time had occurred, at least the first  
37 presentation made by me in the first kind of  
38 exposition of what the content of Strategy 3  
39 really implied.

40 Q And at that meeting, am I correct that the  
41 committee approved your proceeding as you proposed  
42 in your framework?

43 DR. HYATT: The committee listened to the conceptual  
44 construct that I had put together that's  
45 exemplified by this deck. It provided the  
46 necessary concepts to go ahead with Strategy 3.  
47 Strategy 3, under the Wild Salmon Policy, as

1 currently expressed in the document itself, it's a  
2 bit like smoke, it's everywhere. You know, you  
3 can see ecosystem elements, you can smell them and  
4 taste them, but if you try and actually get a hold  
5 of them and do something with them, you find that  
6 there's not enough substance to do that, so one of  
7 the major tasks was to actually provide a  
8 conceptual construct that would solidify this  
9 smoke into some actual building blocks that could  
10 be pursued in an operational sense, and that was  
11 the essence of the deck provided to the Operations  
12 Committee for their information so that we could  
13 identify what it was that we were actually  
14 proposing to go ahead with. and, yes, the  
15 Operations Committee, once this presentation was  
16 completed, were satisfied that concepts had been  
17 clarified, that a practical means of going forward  
18 had been identified, and so they said to move on  
19 with the actual implementation.

20 Q And you've been doing that for the past year?

21 DR. HYATT: I have been doing that for the past year,  
22 certainly within a kind of multiple-step process  
23 that includes both participation on the  
24 implementation team and looking at opportunities  
25 from a regional perspective, but also in more  
26 applied terms. One of the things the operations  
27 team had asked me to do, which perhaps will make  
28 little sense unless we elaborate a bit, was to  
29 bring back a worked example, an actual example of  
30 how Strategy 3 would be developed, such that it  
31 would be both informative and affordable.

32 And so what I proposed was that we had  
33 identified that the Barkley Sound Wild Salmon  
34 Policy Implementation Pilot within the region  
35 would be a program of work that would pursue  
36 implementation and testing and refinement of all  
37 of the strategies, starting with 1, proceeding to  
38 2, then to 3, and finally through 4 and 5. And so  
39 the Operations Committee, with respect to the  
40 Strategy 3 presentation, said, "Well, in order to  
41 -- we understand the concepts, now. We approve of  
42 this construct and think that it's executable,  
43 and," Mr. Commissioner, "in due course we would  
44 like to see the result of the actual on the ground  
45 implementation and what that creates and whether  
46 it truly is informative and affordable."

47 Q So your proposal, which was accepted, was to

1 proceed looking at the ecosystem-based  
2 implementation of the Wild Salmon Policy, Strategy  
3 3 in the Barkley Sound project, and is that what  
4 you've been doing, then, for the last year? Has  
5 that been the concentration of your efforts?

6 DR. HYATT: That's certainly been one of the focal  
7 points for my efforts. I work on several projects  
8 simultaneously, all of which have ecosystem-based  
9 management underpinnings. The Barkley Sound Wild  
10 Salmon Policy Pilot currently takes approximately  
11 30 percent of my time, which is a fairly generous,  
12 you know, investment of time relative to the range  
13 of other projects that I work on. So yes, it's  
14 one of the key items that I am currently working  
15 on.

16 Q Now, are there lessons from that project in  
17 Barkley Sound for this commission on the Fraser  
18 River sockeye?

19 DR. HYATT: There are many lessons in this project for  
20 both the policy for development and application of  
21 Strategy 3, and there are certainly lessons within  
22 that that are germane to this commission. If you  
23 would like me to expand on what some of those are,  
24 I'd be happy to.

25 Q if you can do that briefly, that would be helpful.

26 DR. HYATT: Well, let me start with the notion of why  
27 Strategy 3 may be germane to this inquiry. The  
28 inquiry was stimulated, in part, by a dramatic  
29 event that occurred for one conservation unit of  
30 sockeye on the Fraser River; principally, the run  
31 of Chilko sockeye, which in the 2009 return year  
32 showed a dramatic deviation from expected return.  
33 and so that was certainly, in my understanding,  
34 one of the events that served as a stimulate to  
35 launce the inquiry. Much of the research that is  
36 being conducted by the inquiry, the kind of  
37 seeking of facts, seeks to understand the basis  
38 for that dramatic departure from expected returns  
39 and to explain the kind of cause and effect  
40 mechanisms.

41 Now, what this really involves is an  
42 analogous task, an analogous challenge that we  
43 face with respect to implementation of Strategy 3  
44 under the Wild Salmon Policy, because what you're  
45 really looking for with respect to explaining that  
46 particular event, as well as the following events  
47 in 2010, when the world filled up with sockeye, is

1 nothing less than to explain the ecosystem of  
2 origin and the causal mechanisms, and whether  
3 these are naturally-induced disturbances or human-  
4 induced disturbances that explain a dramatic  
5 fluctuation in the productivity of a single CU.

6 And the Wild Salmon Policy requires, under  
7 Strategy 3, that we broadly establish the capacity  
8 to do this, to understand the ecosystems of  
9 origin, what their space time boundaries are,  
10 which life history stages they influence, and what  
11 the causal mechanisms might be, in order to  
12 determine whether naturally-induced variations in  
13 production are at hand, in which case there's  
14 often little that we can do it, or whether these  
15 are human-induced variations where some mitigative  
16 steps are possible.

17 Q So would you say, Dr. Hyatt, that had Strategy 3  
18 been implemented, this commission might well have  
19 a lot more to go on with respect to Fraser River  
20 sockeye?

21 DR. HYATT: That's an interesting statement, but I  
22 really can't agree entirely with it.

23 Q It was supposed to be a question.

24 DR. HOLT: This is -- in order to implement Strategy 3,  
25 one has to identify, first, translate what the  
26 general objective of Strategy 3 is, which is to  
27 maintain ecosystem integrity. Now, interestingly  
28 enough, the strategy does not define what  
29 ecosystem integrity is, so until one defines  
30 exactly what ecosystem integrity is and what  
31 values are at issue, it's not possible to proceed.

32 The second step, once you've defined what  
33 that is, becomes one of identifying the objectives  
34 and indicators.

35 MR. WALLACE: Perhaps, if I may just a moment, perhaps,  
36 Mr. Lunn, it would be helpful to have the strategy  
37 on the screen. That's page 23 of Exhibit 8.  
38 Sorry. Thank you.

39 DR. HYATT: So once you've identified what those --  
40 what the subset of objectives that underlay this  
41 general objective of maintaining ecosystem  
42 integrity is, it's necessary, then, to begin to  
43 identify what the effective indicators that would  
44 allow you to track success in maintaining or  
45 pursuing those objectives would be.

46 Now, this leads you into a wide-ranging  
47 requirement for extensive and intensive

1 information at multiple geographic scales  
2 associated with the life history of each  
3 conservation unit that might be of concern. and  
4 so the implementation of Strategy 3 raises an  
5 expectation that we will generate information and  
6 techniques for using that information in the  
7 fullness of time, in the future - "progressively"  
8 is the word the Wild Salmon Policy uses - in order  
9 to allow us to implement Strategy 3.

10 So Strategy 3 will be a long time in  
11 development, in testing, and in refinement,  
12 because it challenges the department to do things  
13 that historically it has not seen as its mandate.

14 Q How long do you think this is going to take?

15 DR. HYATT: Well, it's not -- your question appears  
16 misleadingly simple. There isn't a single point  
17 at which you implement Strategy 3. There is a  
18 point at which you could regard you've done a  
19 cycle of implementation that leads you through the  
20 various steps that Strategy 3 requires to be  
21 informative, but then that process will be ongoing  
22 for as long as the policy is in place.

23 Q Well, then let us take a more modest goal. What  
24 do you foresee as the timeline for Strategy 3 to  
25 be useful in preserving --

26 DR. HYATT: The work that we've done to date is  
27 generating useful and useable results at the  
28 present time. So the first iteration of this will  
29 be useful, will add to knowledge, will add to the  
30 informed management and responsible management of  
31 conservation units. And the question of how  
32 useful and how effective will come back to issues  
33 of time, expertise, capacity within the  
34 department, which certainly will need to be build  
35 beyond where it currently stands.

36 Now, let me add to this as well, the other  
37 thing that the policy stresses, and this is a very  
38 important point about Strategy 3. The policy  
39 stresses that we can't do this alone, and there's  
40 a general underlying issue here that this raises,  
41 and that is, as you move from Strategy 1  
42 consecutively through 2, 3, 4 and 5, the  
43 complexity of implementation increases, but the  
44 responsibility and authority to implement  
45 decreases. At Strategy 1, the Department of  
46 Fisheries and Oceans is the executor. It has full  
47 authority over anadromous fish, it creates and

1 manages the databases, the data system, which are  
2 of longstanding nature that are used to inform  
3 Strategy 1.

4 By the time you get to Strategy 2, the vast  
5 majority of data sources are not solely the  
6 department's mandate to generate or to maintain.  
7 and at Strategy 3, the required data sources and  
8 expertise are really only beginning to be  
9 specified by the activities of a relatively small  
10 group of individuals working on that strategy.

11 MR. WALLACE: Action Step 3.1, can you just enlarge  
12 that a little, Mr. Lunn?

13 Q It actually puts a timeline here for the  
14 development:

15  
16 ...an ecosystem monitoring and assessment  
17 approach will be developed and integrated  
18 with ongoing assessments and reporting of the  
19 status of wild salmon.

20  
21 The timeline is within two years of 2005. I take  
22 it that did not happen?

23 DR. HYATT: That certainly did not happen.

24 Q Do we have that now?

25 DR. HYATT: We have the rudiments of that, now. Let me  
26 point out that Action Step 3.1 also qualifies this  
27 by pointing out that:

28  
29 Implementation of this approach will be  
30 coordinated with the monitoring of CU status,  
31 their habitats, and marine conditions.

32  
33 So this brings up the issue that when you're  
34 dealing with ecosystem-based management of any  
35 species, but particularly with anadromous salmon,  
36 and the way the policy was put together, there are  
37 critical interdependencies among the strategies,  
38 and the formulators of the policy, the writers of  
39 this document, appreciated some of those  
40 interdependencies. In fact, in at least a couple  
41 of places in the document it specifically  
42 identifies that strategies under the Wild Salmon  
43 Policy are highly interdependent. Now, what the  
44 framers of the policy perhaps didn't envisage at  
45 the time that they put together -- put the policy  
46 together, was just how interdependent these  
47 strategies would be.



1                   So Strategy 3 required that the conservation  
2                   unit methodology and the actual identification of  
3                   conservation units be specified before the  
4                   boundaries of the freshwater and marine ecosystem  
5                   units that those conservation units rely on could  
6                   be identified.

7                   Q     Sorry, I take your answer to be it's -- that  
8                   expression "ecosystem based management" relative  
9                   to salmon, has not yet been implemented, and  
10                  you're giving us the reason why, I think, it's the  
11                  integration of the various steps; is that correct?

12                 DR. HYATT: It's not something that's either  
13                  implemented or not implemented. There are many,  
14                  many aspects of ecosystem-based management that  
15                  are already entrain in the management of wild  
16                  salmon, and some of those elements were initiated  
17                  well before the policy. So this isn't an all or  
18                  nothing proposition. It's something that's  
19                  incremental, it becomes increasingly complex and  
20                  increasingly informative as you go forward.

21                 Q     Dr. Irvine, you've been involved, I think,  
22                  principally with Action Step 3.2; is that correct,  
23                  as the co-chair of the Fisheries and Oceanography  
24                  Working Group?

25                 DR. IRVINE: That's true, from an implementation  
26                  perspective, that's correct.

27                 Q     Can you explain the relationship, then, briefly,  
28                  between that working group and your -- the  
29                  implementation of 3.2?

30                 DR. IRVINE: Certainly. Is this loud enough? Is this  
31                  working? Yeah. So I co-chair the Fisheries and  
32                  Oceanography Working Group and this is a multi-  
33                  disciplinary group primarily within the Department  
34                  of Fisheries and Oceans, but also includes  
35                  scientists from various universities and other  
36                  government departments, and some from the US  
37                  Pacific Northwest, and it is not specifically  
38                  focused on salmon. It's basically fisheries  
39                  oceanography. So it comprises biologists and  
40                  oceanographers, and so we get together once a year  
41                  to basically talk about how our research is  
42                  interrelated.

43                         And, of course, salmon is a big issue in the  
44                         Pacific region. So with respect to Action Step  
45                         3.2, what we're really trying to do is do a better  
46                         job of linking changes in the marine environment  
47                         to changes in the survival and production of



- 1 Pacific salmon. So it's a real opportunity to  
2 kind of interact with the oceanographers.  
3 and so we publish, annually, what we call a  
4 *State of the Oceans*, and so the *State of the*  
5 *Oceans* document, which is highly used certainly  
6 within Canada, provides an annual snapshot of  
7 conditions in the Pacific Northwest, primarily off  
8 the coast of B.C., but into the Gulf of Alaska.  
9 So it has -- it's published annually and it just  
10 provides -- in some cases they're just sort of  
11 updates of time series, but we really try to link  
12 what's going on in the ocean from the  
13 physical/chemical/biological perspective, with  
14 changes in the ecology of the fish community,  
15 which includes shellfish and marine mammals.
- 16 Q Is that activity, the development of the *Save the*  
17 *Oceans* report, sufficient, in your view, to  
18 implement Action Step 3.2?
- 19 DR. IRVINE: No, and I don't think it was ever claimed  
20 to be, but it's an important step in the process.  
21 I mean, I think Mark mentioned the Integrated  
22 Salmon Harvest Committee, which provides this  
23 annual outlook on the status of salmon. So we  
24 regularly interact with that group. As recently  
25 as two weeks -- last week, I believe I gave a  
26 presentation to this group. So we are  
27 progressively trying to integrate information on  
28 climate and the ocean into the salmon management  
29 and assessment process. And so the Fisheries and  
30 Oceanography Working Group and DFO *State of the*  
31 *Ocean* reports, are a significant part of that, but  
32 it's certainly not the entire -- it's not all of  
33 what we do.
- 34 Q and what, further, needs to be done to implement  
35 3.2?
- 36 DR. IRVINE: Well, as Dr. Hyatt was saying, this isn't  
37 an -- you know, this is probably a process that  
38 will go on for certainly as long as we're managing  
39 salmon. So it's -- you know, science doesn't sort  
40 of get to a point and stop, right?
- 41 Q No, I appreciate that.
- 42 DR. IRVINE: Science is kind of incremental.
- 43 Q But the words "implementation" appear, and I don't  
44 think they mean that you're -- you've done all you  
45 can do.
- 46 DR. IRVINE: Yeah.
- 47 Q I think it means it gets to the point --

1 DR. IRVINE: But in the policy, it doesn't state, as  
2 far as I know, anywhere that the WSP will be  
3 implemented with a certain time. What the policy  
4 states is that after five years there will be an  
5 independent review, and the purpose of that was to  
6 evaluate where we are in terms of implementation.

7 MR. SAUNDERS: Could I add to that?

8 Q Yes, thank you.

9 MR. SAUNDERS: Yes, just to add a little bit to what  
10 Dr. Irvine has said, I think, Mr. Commissioner,  
11 when we were in the previous panel, talking about  
12 development, I think we made it -- we raised,  
13 there, the fact that Action Step 3.2 was not a  
14 particularly strong step in that there was still a  
15 lot of uncertainty and understanding linking high  
16 seas and open ocean conditions to productivity of  
17 salmon was still an area very much under  
18 development.

19 But I think in the last number of years  
20 there's a tremendous amount of -- our ability to  
21 move forward in this area is rapidly advancing.  
22 and you spoke, earlier, to the use of satellite  
23 imagery and a number of technologies, and these  
24 are advancing so rapidly, as well as a number of  
25 other oceanographic technologies, such as the  
26 Argo's drifters that are providing real time  
27 information. You know, hundreds of drifting  
28 sensors in the North Pacific that provide real-  
29 time information about the changing conditions out  
30 there, as well as the ability, with the satellite  
31 imagery, to start to understand it, and we're now  
32 in the process of understanding how those new  
33 informations can be brought to bear on salmon  
34 productivity.

35 And the Wild Salmon Policy, the Strategy 1,  
36 where we're rapidly getting to the point where we  
37 will have a much more structured and synoptic view  
38 of the status of each of these conservation units  
39 and understanding how productivity is varying and  
40 being able to relate where those signals are  
41 marine in nature, and Dr. Hyatt and others in the  
42 panel have experience in starting to understand  
43 where marine productivity changes are affecting  
44 the current status and the trend in abundance,  
45 that we could actually have the oceanographic  
46 information to start to relate to those actual --  
47 to that status and where we understand it's being

1 impacted by marine.

2 So this is a very active area of research  
3 and, I think, very promising. So I think a lot of  
4 progress that we can't put on the table today, but  
5 suffice to say that it's still an area that we  
6 think will be very key going forward. I will  
7 point out, also, that we have a number,  
8 understanding the status of conditions in the  
9 North Pacific, again, is a shared -- is a large  
10 initiative that's shared across not just with  
11 other departments but with other governments,  
12 internationally, and we've got a number of  
13 processes within Pisces, the international  
14 organization -- science organization for  
15 understanding the North Pacific. We also have The  
16 North Pacific Anadromous Fish Commission, and the  
17 Pacific Salmon Treaty and the commission that goes  
18 along with that. There are a number of  
19 organizations that work with DFO to help -- that  
20 have joint interest in understanding the state of  
21 the North Pacific. So it's a large undertaking,  
22 but we've got a number of mechanisms that we can  
23 utilize to bring that information together.

24 Q Thank you. Dr. Irvine, I have a quote from you  
25 from your summary of evidence, saying that the  
26 implementation of Strategy 3 is challenged by  
27 limited human resources. Can you tell the  
28 Commissioner, please, just what resources DFO has  
29 dedicated to the implementation of Strategy 3?

30 DR. IRVINE: Well, you have to realize that as  
31 scientist, you know, we're kind of unusual in the  
32 Government of Canada, in more than one way, I  
33 suppose. But we don't have like specific jobs --

34 Q We don't have time.

35 DR. IRVINE: No, no, we don't have, you know, specific  
36 job descriptions that say, "Thou shalt do this,"  
37 right? We have more flexibility in what we do,  
38 and so we tend to be doing research in broader  
39 areas, and we do have annual work plans. I think  
40 in those work plans that we've looked at, there  
41 probably is -- I know in at least one of them  
42 there is a measure of the number of PY's or FTE's  
43 dedicated towards --

44 Q I thought you could --

45 DR. IRVINE: -- Strategy 3 --

46 Q -- put a human face on this because you're  
47 directly involved and can tell us who, besides you

1 and Dr. Hyatt or --

2 DR. IRVINE: Well, Dr. Hyatt says he spends about a  
3 third of his time on the Barkley pilot; I would  
4 suggest that I spend about 40 percent or 45  
5 percent of my time dealing with this issue, which  
6 includes the Fisheries and Oceanography Working  
7 Group.

8 Q Dr. Hyatt, is that about -- would you say a third  
9 of your time is spent on the Strategy 3 issue?

10 DR. HYATT: I depends how you interpret the Strategy 3  
11 issue, but about 30 percent of my time goes  
12 towards the Barkley pilot; another 20 percent of  
13 my time is spent on the Wild Salmon Policy  
14 implementation team. That makes up 50 percent.  
15 The other 50 percent of my time is spent on  
16 research that will inform ecosystem-based  
17 management of wild salmon. So in that general  
18 sense, 100 percent of my time goes to doing  
19 research and supporting activities of relevance to  
20 the Wild Salmon Policy and its implementation.

21 I've been an ecosystem scientist for most of  
22 the last 30 years, and it was one of the reasons  
23 that I was put in this position, to actually  
24 solidify smoke into brick.

25 Q Is there anyone else engaged in the Strategy 3  
26 implementation?

27 DR. HYATT: Going back more than a year, Dr. Janelle  
28 Curtis participated with Dr. Irvine and myself on  
29 a multi-month process to begin to identify the sub  
30 objective, the sector-specific objectives that  
31 would pertain to ecosystem values, objectives and  
32 indicators under Strategy 3. So DFO has very  
33 specific sectoral activities, which include a  
34 harvest of wild salmon, enhancement, aquaculture  
35 on the coast, and then essentially the giant of  
36 all activities, habitat protection. And under  
37 each of those sectors, there is a requirement to  
38 identify specific ecosystem-based objectives that  
39 fall under the general objective of maintenance  
40 and sustaining ecosystem integrity. and the  
41 sectors, you know, that process of identifying  
42 familiar objectives in terms that they could see  
43 implementing elements of Strategy 3 is an  
44 important process that is, as yet, incomplete.

45 MR. WALLACE: Thank you. If we could move onto the  
46 Strategy 6, the five-year review. Mr. Lunn, could  
47 we have Exhibit 163, please.

1 MR. LUNN: Yes.

2 MR. WALLACE: Thank you.

3 Q This is a record of a meeting of the Wild Salmon  
4 Policy Implementation Team. I think everybody on  
5 the panel was either at the meeting or received a  
6 -- no? I'm sorry, Heather was not copied with the  
7 minutes, but the others were. And that's where  
8 there was a briefing of the team on the Strategic  
9 Directions Committee, direction to postpone the  
10 five-year review. Does any one of you recall the  
11 reason for the postponement expressed at that  
12 time?

13 DR. HYATT: I can provide my recollection. The five-  
14 year review was, as well as other tasks that the  
15 Implementation Team was charged with coordinating,  
16 was something that comes up cyclically for  
17 discussion, and so policy representatives  
18 identified, once again, that a five-year review  
19 was, you know, rapidly approaching, and queried us  
20 for our views on the capacity and the benefits of  
21 conducting such a review. Certainly there was  
22 discussion about capacity. The Cohen inquiry had  
23 begun by that time, and many of us were beginning  
24 to receive requests for supplementary -- to  
25 support supplementary activities, data requests,  
26 requests for interviews, and there was some  
27 discussion along the lines that these requests and  
28 the unknown expansion of the requirement to  
29 support this would make it difficult for a limited  
30 number of individuals to actually support a  
31 parallel and probably very demanding review of  
32 where we were at. The other general commentary --

33 Q If I could make a --

34 DR. HYATT: Yes?

35 MR. WALLACE: If I could ask, Mr. Lunn, if you could go  
36 to page 3, where the item of Strategy 6 is being  
37 discussed?

38 Q There's no record in those notes of a reference to  
39 the Cohen Commission; is that correct?

40 DR. HYATT: Well, first, it's important to  
41 understand --

42 Q Oh, sorry --

43 DR. HYATT: -- that these notes are really just  
44 bullets.

45 Q Okay.

46 DR. HYATT: These certainly aren't a transcript of our  
47 discussions. They're a quick reminder of major

1 topics of discussion, but by no means do they  
2 represent a complete record of the full range of  
3 discussion that would be entered into.

4 Q SO your recollection is that it was a question of  
5 capacity, given the --

6 DR. HYATT: Capacity was certainly a major item. You  
7 know, certainly in my own case, working on the  
8 Barkley Sound Pilot, the Implementation Team, and  
9 other projects, there is very little room, and I  
10 know from my colleagues -- discussions with my  
11 colleagues, there's very little room in their  
12 workloads to entertain, you know, more than a few  
13 percentage point changes in work tasks within --  
14 at any point in time. So, you know, we're always  
15 very tight for both time and resources.

16 Q Do you recall a discussion, at page 2 -- is that  
17 the right number?

18 MS. TESSARO: Yes.

19 MR. WALLACE:

20 Q Where it says, "Direction to postpone the 5-year  
21 Review." And then the statement:

22

23 WSP is not a program; therefore a program  
24 evaluation approach is not appropriate.

25

26 Can anyone explain, or can anyone explain,  
27 what that means? Mr. Saunders, thank you.

28 MR. SAUNDERS: I think the, Mr. Commissioner, that the  
29 intent of the Wild Salmon Policy has always been,  
30 and we talked about this in the panel, is it being  
31 transformative. But I think transformative in the  
32 chain -- applies, in part, to changing the way we  
33 do business. We're not necessarily adding a new  
34 program or taking on a new responsibility; we're  
35 taking on a new way of doing business with this.  
36 So the funding that had been provided at the  
37 outset is to take on those action steps that we  
38 needed to make the transformation, so identify  
39 conservation units, a lot of one-time activities  
40 that, once they were done, would then allow the  
41 operational aspects to kick in, so stock  
42 assessment on the ground programs would then  
43 function differently, as would our habitat  
44 programs and then our subsequent management and  
45 programs.

46 So generally within the department we refer  
47 to a program as a specific collection of

1 activities that are part of an ongoing  
2 responsibility and program. These ones wouldn't  
3 necessarily -- the Wild Salmon Policy  
4 implementation wouldn't be normally referred to as  
5 a program.

6 Q Dr. Hyatt, you were at the meeting. Can you  
7 comment on that sentence?

8 DR. HYATT: Yes, I was at the meeting, and, in fact,  
9 the difference between having policy that provides  
10 guidance as opposed to having a specific program  
11 that has, you know, annual funding and clearly  
12 demarcated timeframe for its existence, you know,  
13 was identified as the difference between a policy  
14 and a program. The Wild Salmon Policy, like  
15 other departmental policies, will be ongoing until  
16 either being modified or found wanting and  
17 replaced with something else, but it will -- it's  
18 open-ended, whereas programs tend not to be open-  
19 ended; they tend to have beginnings and endings,  
20 they have an annual budget, and so there is that  
21 distinction.

22 Now, the distinction was important, because  
23 at that meeting - I believe it was at that meeting  
24 - that there was a bit of supplemental discussion  
25 about, well, setting aside the notion of the five-  
26 year review in terms of the actual time of it, who  
27 would do a review of the program, you know, what -  
28 - would this be done internally within DFO, would  
29 it be done by an external, totally independent  
30 group? and so the suggestion, at that time, was  
31 that the program evaluation and audit branch in  
32 Ottawa might have both sufficient distance from  
33 Wild Salmon Policy to execute such an independent  
34 review and also might have the expertise. And so  
35 policy did make queries of that branch to  
36 determine whether or not they would be amenable to  
37 such a review or, alternately, if they had a  
38 framework by which such a review would be  
39 conducted, and my understanding of their response  
40 was they said, "We're not normally in the business  
41 of reviewing policies; we're in the," you know,  
42 "we review" -- "We're a program evaluation and  
43 audit branch, not a policy audit branch."

44 Q Perhaps, Dr. Hyatt, you're referring to an  
45 exchange that happened earlier than 2010, when the  
46 postponement was determined?

47 MR. WALLACE: Mr. Lunn, could you call up the



1 Commission document for implementation number 62,  
2 which was in our list but not marked as an  
3 exhibit? These are the WSP Team meeting minutes  
4 of September 14, 2009. Can you just take first  
5 box and blow it up a bit?

6 MR. LUNN: Certainly.

7 MR. WALLACE:

8 Q Is that the record, Dr. Hyatt, of the discussion  
9 about the internal or external review that you  
10 were just referring to? The third bullet --  
11 sorry, second -- third bullet.

12 DR. HYATT:

13  
14 Discussion on timing and process for WSP  
15 review - internal or external reviewer,  
16 collaboration with ENGO's and other  
17 stakeholders.

18  
19 I believe, certainly -- this topic was  
20 certainly discussed briefly more than once. As I  
21 said, these items were cyclically reviewed, so  
22 it's difficult for me to recall when the -- a  
23 major, as opposed to just a minor, discussion  
24 about that topic occurred, but that's the general  
25 subject matter, yes.

26 Q This appears as a debriefing from the June 25th,  
27 2009, Operations Committee to the Wild Salmon  
28 Policy Team by Amy Mar. Now, in that briefing, do  
29 you recall that there was any direction from the  
30 Operations Committee as to what the Wild Salmon  
31 Policy ought to be doing in the last year before  
32 the review was due?

33 DR. HYATT: Well, I think at this time no decision had  
34 been made about a review. This was one of those  
35 occasions on which, as we progressed through  
36 implementation of the policy, there was an  
37 awareness that within the Wild Salmon Policy,  
38 itself, there were certain timeline indicators or  
39 benchmarks, if you will, for activities that  
40 should be executed. So my recollection was that  
41 this would have been a brief discussion about the  
42 fact that there, within the policy, was the  
43 identification that a review would be required in  
44 year five, and there would have been some general  
45 expression of where we were at and what such a  
46 review might contain.

47 Q Dr. Holt, is that your recollect -- I understand



1           it appears you were at that meeting as well. Do  
2           you recall the discussion about - either at that  
3           meeting or at other times in the recent past - of  
4           the need for the review, and directions on how it  
5           should be conducted?

6       DR. HOLT: It's not clear to me that I was at that  
7           meeting. Which meeting was this?

8       Q     If you go to the bottom, you're credited as being  
9           there, I think.

10       DR. HOLT: Can you please scroll to the top so I can  
11           see the date on this?

12       Q     It's September 14th, 2009.

13       DR. HOLT: I don't have any recollection of this  
14           meeting.

15       Q     Thanks. Mr. Saunders, wouldn't you expect that  
16           there would be some more firm planning a year  
17           ahead of the deadline for meeting the need for  
18           review?

19       MR. SAUNDERS: I don't have a lot of recollection -- I  
20           mean, I've been in the current position for a year  
21           and a half, so I haven't -- I don't have a lot of  
22           recollection about these -- these particular  
23           meetings, and so I'm not sure to what degree there  
24           was, you know, this would have been discussion  
25           around both tables and ultimately a decision taken  
26           by the RDG, so I don't -- I'm not aware of the  
27           degree of planning that was -- or discussion that  
28           was taking place around the issue.

29       Q     I was really asking your -- the context of your  
30           role as a former coordinator of the Wild Salmon  
31           Policy team. Wouldn't you expect there to be a  
32           lot more -- a firmer commitment to doing something  
33           required by the policy?

34       MR. SAUNDERS: I would agree that there would be an  
35           expectation that some level of planning would have  
36           occurred. I don't know about whether -- I can't  
37           be a judge of whether "more" would have been  
38           warranted, because I don't understand how much has  
39           happened.

40       Q     All right. Looking, again, at the September 14th  
41           note. In the right-hand column, in the action  
42           items, it says:

44                   Amy to do a briefing note for decision on how  
45                   to conduct the review.

47                   Is anyone aware of that note, or decision

1           being made on how to conduct the review arising  
2           out of this meeting? Let the record show a lot of  
3           head shaking.

4       DR. HYATT: I'm sorry, this would have been a -- Amy  
5           Mar, at the time, was the policy lead,  
6           coordinating the activity of the Implementation  
7           Team, and so this would have simply been following  
8           some discussion in the meeting, Amy identifying  
9           that she would do a briefing note for decision on  
10          how to -- identifying some options, I assume, that  
11          would be presented to the ops committee on how to  
12          conduct the review. But that note, I have no  
13          knowledge of that note coming back to us.

14       Q     Thank you. Mr. Saunders, in your summary of  
15           evidence you indicate you believe that the  
16           decision to postpone was made by the RDG. Was  
17           that Paul Sprout? Is that before the current RDG?

18       MR. SAUNDERS: I believe it's the current RDG, but I'm  
19           not -- I don't know exactly when that decision was  
20           taken, but I believe it would have been the  
21           current RDG.

22       Q     Thank you. Dr. Irvine, what is your reaction to  
23           this postponement of the need or the production of  
24           a review?

25       DR. IRVINE: The independent review?

26       Q     Yes.

27       DR. IRVINE: Well, I feel that the WSP should be  
28           reviewed regularly. However, I think one of the  
29           points we seem to be missing is that this is an  
30           independent review, so I'm not even sure that DFO  
31           -- I mean, obviously DFO should be involved, but  
32           it sort of begs the question, "Who would do the  
33           review and who should be initiating it?"

34       Q     Yeah. Or to have one at all?

35       DR. IRVINE: Well, no, I, as I indicated, and as the  
36           policy states, regular independent reviews are a  
37           good idea.

38       Q     Are you concerned, Dr. Irvine, that this  
39           demonstrates a lack of commitment by the  
40           department to this policy?

41       DR. IRVINE: No. As Dr. Hyatt indicated, there's  
42           multiple reasons why the key players within DFO  
43           are essentially over-committed at this particular  
44           time. So, no, I don't believe that's the case.

45       Q     Thanks. Mr. Saunders?

46       MR. SAUNDERS: Yes, Mr. Commissioner, as a manager of  
47           the Salmon and Freshwater Ecosystem Division,

1           which includes all of the research scientists,  
2           biologists and technicians that work on salmon, I  
3           am not -- I would certainly not have welcomed an  
4           additional workload burden in 2010, and as a  
5           drafter of the -- and a participant of the policy,  
6           I was committed then and I'm committed now, that  
7           the transparency and the need to do that is  
8           absolutely paramount, but I also recognized that  
9           it was, I think, an unrealistic burden on staff in  
10          the current fiscal year to be engaged in that  
11          activity.

12       MR. WALLACE: I'd like to move onto the next topic,  
13          which is the Marine Stewardship Council  
14          Certification connection. Could I have Exhibit  
15          159, please, Mr. Lunn? This is the DFO Action  
16          Plan to Address Conditions for Marine Stewardship  
17          Certification, from December of 2009.

18       Q     Mr. Saunders, when did you first become aware of  
19          -- or when did you first see this document?

20       MR. SAUNDERS: I don't recall the exact date that I  
21          would have seen this document.

22       Q     Were you involved in the - I take it, then, you  
23          were not involved in drafting this response?

24       MR. SAUNDERS: I was not involved in drafting this  
25          response.

26       Q     Now, was anyone on the -- of the panel involved in  
27          writing this document? Mr. Saunders -- there was  
28          negatives from the others. Mr. Saunders?

29       MR. SAUNDERS: Well, it may be a matter of what it  
30          means "drafting" it. I didn't write it, but I --  
31          I, or some of -- I would have had some input into  
32          aspects of it where commitments to staff within  
33          science would have been allocated to conducting  
34          various components of the action plan.

35       Q     Were you involved in any of the substance of it?  
36          For example, Conditions 5, at page 4, which  
37          requires lower reference points for each Fraser  
38          River sockeye CU?

39       MR. SAUNDERS: I wasn't involved in drafting the actual  
40          details of it.

41       Q     And indeed, as I recall, you are not sure when you  
42          saw the document, but it was after it was  
43          completed?

44       MR. SAUNDERS: Well, I don't recall the exact history  
45          of this document, but there would have been a  
46          trail of discussion with science branch around --  
47          and some science branch participation by my staff

1 in the development of this document. and I would  
2 have -- it would have come back to me for approval  
3 of the various conditions that we were agreeing  
4 to.

5 The process is -- there's an ongoing dialogue  
6 around certification and adherence to the various  
7 conditions and status of our action plan, with  
8 meetings as recently as several weeks ago around  
9 these issues.

10 Q And is that when you first saw the document, this  
11 fall of 2010?

12 MR. SAUNDERS: As I stated, I don't recall when I first  
13 saw this document.

14 Q Dr. Irvine, when did you first see this document?

15 DR. IRVINE: Well, to the best of my recollection, it  
16 was when I was meeting with some of you, the first  
17 interview.

18 Q Dr. Hyatt?

19 DR. HYATT: That's certainly the first time that I saw  
20 the document, was in the interviews with Cohen  
21 counsel.

22 Q Dr. Holt?

23 DR. HOLT: First time was when I was in interviews with  
24 you, as well.

25 Q Ms. Stalberg, I'm not sure if you've been involved  
26 with this one.

27 MS. STALBERG: Today is the first time I've sent his  
28 document.

29 Q And Dr. Irvine, if we can look at Condition 5, do  
30 you agree with that approach, the requirement tied  
31 to lower reference points for each Fraser River  
32 conservation unit?

33 DR. IRVINE: You keep referring to lower reference  
34 points, but I think what you really mean to say --

35 Q Oh, I'm sorry.

36 DR. IRVINE: -- is limit reference points.

37 Q I apologize; limit reference points.

38 DR. IRVINE: Well, you know, I haven't studied this  
39 document, so I'm not an expert on this document.  
40 So we're talking about certification as  
41 conditional. Well, I'd have to think a little bit  
42 about what is meant by "certification". This  
43 hasn't been an area of my concentration. I think  
44 perhaps you want to look later on in the document,  
45 but I'm not sure.

46 Q That was the point I wanted your view on. I had  
47 thought you did have a view on use of --

1 DR. IRVINE: Well, no, but my view on this document was  
2 the equating of lower and upper benchmarks with  
3 limit and target reference points, which is not  
4 really made in Condition 5, but that is developed  
5 at a different point in this document.

6 Q I see. And what is your concern about the --

7 DR. IRVINE: Well, perhaps if we could find --

8 Q Can we scroll down?

9 DR. IRVINE: Perhaps if we could find the more  
10 appropriate part in the document, it might...

11 Q Is it Condition -- or the top of page 5? Perhaps  
12 you could blow that up a bit.

13 MR. TIMBERG: Excuse me, I'm wondering, Mr. Commission  
14 counsel, if it would be perhaps better for the  
15 witnesses to review the document over the lunch  
16 break than taking them to it right now?

17 MR. WALLACE: I really didn't want to spend that much  
18 time on this, but perhaps if they have a comment  
19 to make, during your examination they could do  
20 that. Let's move on.

21 DR. IRVINE: I could, perhaps, deal with it quickly --

22 Q Please.

23 DR. IRVINE: -- if you like?

24 Q Yes, please.

25 DR. IRVINE: Simply that within the Wild Salmon Policy  
26 Strategy 1, we're dealing with biological  
27 benchmarks, which relate to the biological status  
28 of the resource. Limit reference points and  
29 target reference points invoke other types of  
30 information, additional types of information, and  
31 they are appropriate management targets and  
32 limits, but Strategy 1 is dealing with the  
33 biological status of the resource.

34 So I was concerned that this paragraph  
35 appears to assume that a lower benchmark is  
36 synonymous with a limit reference point, and an  
37 upper benchmark is synonymous with a target  
38 reference point. and essentially, when you think  
39 of the status of a population, it's like a line  
40 with an infinite number of points along it. The  
41 lower benchmark and the upper benchmark are  
42 specific points along that biological status line.  
43 A target reference point is really a management  
44 goal. So where does one -- what is the management  
45 objective for that particular population? and  
46 depending on the population and the management  
47 goals, that point could be at different points

1           along that line.  
2           And similarly with the limit reference, that  
3           could be at different points along the line. So  
4           the two are not -- they're both useful, they're  
5           both valid, both different -- they're different  
6           ways of measuring different things.  
7           Q     And this document reflects a commitment, I think,  
8           of DFO to meet these standards within a particular  
9           timeline, and that's at the bottom of that page?  
10          DR. IRVINE: Well, I haven't reviewed this document.  
11           Really, I was just indicating that they equate the  
12           lower benchmark with a LRP and the upper benchmark  
13           with a TRP, and the two are not -- they're not  
14           synonymous.  
15          Q     I think I understand that point. And I was moving  
16           on to a question about whether or not you think  
17           DFO can meet the time commitments which are  
18           reflected in that table at the bottom of the page,  
19           which has reference points for each target stock  
20          DR. IRVINE: Well, I don't feel I'm qualified to  
21           comment on that.  
22          Q     Perhaps Dr. Holt is the person to answer the  
23           question?  
24          DR. HOLT: I've been working on lower benchmarks and  
25           not limit reference points, so I'm not -- I can't  
26           speak to limit reference points; it's a different  
27           -- not what I work on.  
28          Q     If you look at the third line in that box, it  
29           says, "Define lower reference, or LRP's, for each  
30           target stock".  
31          DR. HOLT: I think that's the confusion that Dr. Irvine  
32           was talking about, that this document confuses  
33           those two items, and they shouldn't be confused.  
34          Q     Thank you. Mr. Saunders?  
35          THE COMMISSIONER: Mr. Wallace, I just want to find  
36           out, it's time to take a lunch break.  
37          MR. WALLACE: Yes. I'm down to very few more  
38           questions.  
39          THE COMMISSIONER: So what time are we returning?  
40          MR. WALLACE: If we could return at 1:45, that would be  
41           helpful.  
42          THE COMMISSIONER: And I understand, do the  
43           participants know that some of our panel members  
44           have to --  
45          MR. WALLACE: We've communicated that to the panel  
46           members. I have not communicated it to the  
47           participants; I should have done that this

40  
PANEL NO. 7  
In chief by Mr. Wallace

1 morning. These panellists have to catch a ferry  
2 at five o'clock, so we're going to rise at 3:43.  
3 THE COMMISSIONER: Does the ferry system know how  
4 precise you're being, Mr. Wallace?  
5 MR. WALLACE: They know, but they don't care.  
6 THE COMMISSIONER: It's the uncertainty.  
7 THE REGISTRAR: The hearing will now adjourn until  
8 1:45.  
9

10 (PROCEEDINGS ADJOURNED FOR NOON RECESS)  
11 (PROCEEDINGS RECONVENED)  
12

13 THE REGISTRAR: Order. The hearing is now resumed.  
14 MR. WALLACE: Thank you, Mr. Commissioner. Brian  
15 Wallace, Commission council. One housekeeping  
16 matter from this morning. The document 23, which  
17 is one the screen, was referred to, and I wonder  
18 if that could be marked as the next exhibit,  
19 please.  
20 THE REGISTRAR: Exhibit number 187.  
21

22 EXHIBIT 187: Wild Salmon Policy Team Meeting  
23 Minutes, dated September 14, 2009  
24

25 MR. WALLACE: Right. Whatever the document number was  
26 before, it is the WSP Team Meeting Minutes of  
27 September 14th, 2009.  
28 Could I have Exhibit 8, at page 36, please,  
29 the Wild Salmon Policy?  
30

31 EXAMINATION IN CHIEF BY MR. WALLACE, continuing:  
32

33 Q This page of the policy refers to a requirement  
34 that has been mentioned by several of you on the  
35 panel, today, that the second requirement for  
36 successful policy implementation, which is:  
37

38 The Department must adopt better partnerships  
39 with First Nations Governments, volunteers,  
40 stakeholders and other levels of Government,  
41

42 I have a question for Mr. Saunders, first.  
43 Can you tell the Commissioner, please, just  
44 briefly, what the department does to engage the  
45 Province of B.C. with respect to WSP  
46 implementation?  
47

MR. SAUNDERS: Yes, Mr. Commissioner. I'm not sure

1 I've got the full answer to that question. Since  
2 I've been back in the department from my assign  
3 where I worked, and I know, in the last year and a  
4 half, work on the science component, so I'm less  
5 clear on what the state of our partnership -- or  
6 our engagement of the province is, which some -- a  
7 high degree of that would be within the OHEB  
8 division and within the context of Strategy 2 and  
9 the habitat piece. So I don't feel I really know  
10 enough to answer that definitively.

11 Q All right. And to whom should that question be  
12 put?

13 MR. SAUNDERS: I think that would be well directed in  
14 the panel with the RDG.

15 Q All right. Thank you. What about within the  
16 science division, itself, what engagement is there  
17 with the province?

18 MR. SAUNDERS: Yes, Mr. Commissioner, I need to reflect  
19 on that a little bit, and some of my colleagues  
20 maybe aware of where -- I know at the working  
21 level there has been an exchange of information  
22 with scientists and biologists within the  
23 province, around the development of the  
24 conservation units and interest from the province  
25 on the development of their steelhead policy and  
26 whether or not the concepts -- the underlying  
27 concepts of the conservation units were  
28 comparable, and I think the outcome of that was  
29 that they were.

30 So I think there's engagement at that level,  
31 and we have had, for instance, in the most recent  
32 paper that we've been discussing, the Grant et al  
33 paper, the advisory scientific peer review process  
34 engaged a review of one if not two reviewers from  
35 the province in the development of that paper. So  
36 there's an academic and an applied interest and  
37 collaboration that occurs at the working level.  
38 And I know there may be -- Dr. Hyatt might want to  
39 comment, within the context of the pilot, whether  
40 or not there's engagement of the province in the  
41 Port Alberni Somass, but there is some engagement  
42 at the working level, that I'm aware of, in  
43 science.

44 Q Dr. Hyatt?

45 DR. HYATT: There are engagements at the working level  
46 in a number of separate initiatives so that in the  
47 Barkley Sound pilot there is engagement with the



1 province through a couple of NGOs, the Living  
2 Rivers Trust and the B.C. Conservation Foundation,  
3 both of whom have close contact with the province  
4 and have leads that were formerly with the  
5 province. So there is representation there on the  
6 pilot as it develops.

7 Mr. Saunders spoke of working level  
8 initiatives that engage the province, and so in  
9 our -- the normal conduct of our work these  
10 engagements come up intermittently but frequently.  
11 So, for example, in the Southern Okanagan, where  
12 I've been working on a decision support system  
13 that includes ecosystem objectives and biological,  
14 social, ecological, cultural indicators, that is a  
15 project where a tripartite group made up of First  
16 Nations, the Province of B.C., represented by  
17 their area water manager and their senior  
18 fisheries manager, participate with DFO on that  
19 particular initiative, and it is WSP relevant.

20 And then, finally, at the policy level, I  
21 have had occasion, along with others from DFO  
22 Policy and from habitat, to engage in government  
23 to government discussions about the new *Water Act*  
24 modernization initiative that the Province of B.C.  
25 is undertaking with an eye to modernize a *Water*  
26 *Act* that's more than a century old, and we have  
27 made representation there in terms of the  
28 relevance of DFO policies and acts to the *Water*  
29 *Act*. But also, I, personally, in providing input  
30 there, have brought the Wild Salmon Policy  
31 initiative to their attention to point out that  
32 there are opportunities to make -- to enter into  
33 partnerships and to efficiently move ahead with  
34 implementation of things that they aspire to.

35 Q In your summary of evidence, Dr. Hyatt, you say  
36 that there is a critical need to establish a  
37 formal Canada/B.C. agreement or set of agreements  
38 to actively collaborate on WSP implementations.  
39 Is that still your view?

40 DR. HYATT: That is still my view. As I mentioned in  
41 previous testimony, once you enter into Strategies  
42 2 and 3, Fisheries and Oceans Canada really only  
43 has partial authority, partial responsibility in  
44 terms of the science, the management of -- we have  
45 a responsibility for the protection of fish  
46 habitat but, of course, fish habitat consists of  
47 water and forest and agricultural lands that are

1 under the authority of the province.

2 And so this co-authority, in order to make  
3 really major headway with Wild Salmon Policy  
4 implementation, first has to be recognized, which  
5 it is, but then, secondly, requires that the  
6 parties be enjoined in common cause to implement  
7 something as forward-looking as Wild Salmon  
8 Policy, and without that kind of joint action,  
9 Wild Salmon Policy will have -- will face  
10 insurmountable difficulties.

11 Q Mr. Saunders, in your summary of evidence, you  
12 credited to Paul Sprout the direction that the  
13 province should lead watershed initiatives and  
14 that DFO should participate. Do you understand  
15 why that was that direction?

16 MR. SAUNDERS: Could you repeat the question, please?

17 Q In your will say, it says:

18  
19 However, [you] will say that the direction of  
20 the previous RDG Paul Sprout was that the  
21 Province should lead watershed initiatives, and  
22 then would DFO participate  
23

24 The question is: Why do you see that, or  
25 does -- why do you understand that was the  
26 direction?

27 MR. SAUNDERS: Yes, Mr. Commissioner, I think I should  
28 be clear in that statement that Mr. Sprout wasn't  
29 directing the province to lead in that regard.  
30 His direction was to us, that we, as DFO, would  
31 not lead a watershed governance role, but we  
32 provide -- be prepared to provide leadership and  
33 resources to be engaged, should the province be  
34 willing to lead in that regard. And I think it's  
35 just -- that would be a question for Mr. Sprout,  
36 but it would be in relation to the mandate that  
37 Dr. Hyatt's referred to.

38 And I also wonder if I might elaborate a  
39 little bit on the partnership with the province  
40 and DFO?

41 Q Please.

42 MR. SAUNDERS: Yes. I was remiss. I should have  
43 pointed out one of the key areas for partnership  
44 was a program that was initiated by the province  
45 and the Department of Fisheries and Oceans and  
46 other partners, called Fraser Salmon and  
47 Watersheds Program. And I don't recall that came

1 up in the questions in my evidence, but it is a  
2 key area for collaboration. And in my resume, my  
3 C.V., you'll see that I spent a year and a half,  
4 prior to coming to DFO a year and a half -- back  
5 to DFO a year and a half ago, I was seconded to  
6 the Pacific Salmon Foundation to direct this  
7 program.

8 The program received five million in cash and  
9 five million in kind from the Department of  
10 Fisheries and Oceans, as well as - and I forget  
11 the exact number - something in the order of about  
12 30 million dollars from the province over five  
13 years under their living rivers fund. And these  
14 funds were directed to making progress towards  
15 sustainability for salmon and watersheds in the  
16 Fraser Basin. And I went -- I was requested by  
17 the Salmon Foundation, because of my background in  
18 the Wild Salmon Policy, and in going there, Mr.  
19 Sprout recognized the potential for me to  
20 participate and to help move ahead areas of the  
21 policy that were -- that required -- assumed some  
22 shared responsibility -- as we've talked about,  
23 DFO can't do these things alone, especially around  
24 areas of Strategy 4 and governance and, as you  
25 heard this morning, in Strategy 2 and 3 in  
26 understanding the state of ecosystems.

27 so I went over and directed that program,  
28 which had four elements to it. One was around  
29 governance. So how should we be -- to maintain --  
30 to sustain salmon in watersheds, what kind of  
31 changes would we see in governance? And through  
32 that, a number of projects. Again, we were  
33 looking to transformative projects. A  
34 collaborative governance project was struck on  
35 that -- on the governance piece. We had a science  
36 component as well, so how to improve stock  
37 assessment and monitoring in the Fraser. And a  
38 number of large initiatives were developed in that  
39 regard.

40 We also recognized that in the long run the  
41 sustainability of salmon in watersheds is about a  
42 change in public values. So if we look in other  
43 jurisdictions where population growth has  
44 continued, salmon ultimately pay the price, and we  
45 still have time, in British Columbia and the  
46 Yukon, and so we recognized that there needed to  
47 be a lot more directed work in the area of

1 education and outreach around the state of  
2 ecosystems, et cetera. And there was a fourth  
3 component related to habitat, so restoration and  
4 assessment of habitat status.

5 I will say that as a mechanism for  
6 collaboration, one of the key pieces in this, Mr.  
7 Commissioner, that I feel personally made -- is  
8 something that made a huge difference, is we  
9 brought together all of the province, ourselves,  
10 First Nations and stakeholders, to develop an  
11 integrated plan, and it's loosely referred to as a  
12 tool, called a logic model, but showed the  
13 outcomes that all of the interested parties were  
14 interested in supporting.

15 So what is DFO's contribution to  
16 sustainability in the basin? What is the  
17 province's contribution to salmon and  
18 sustainability in the basin? And how are -- and  
19 articulation of what the gaps were that we needed  
20 to address across all four orders of government  
21 and the public to achieve that sustainability, and  
22 we used that to guide the projects that we went  
23 forward with.

24 And I see that as a key piece of integration  
25 of the partnerships around not just the Wild  
26 Salmon Policy, but sustainability for fisheries,  
27 salmon and, indeed, the watersheds in the Fraser  
28 and elsewhere. My understanding is that program  
29 is in its final year right now and is being  
30 considered by both the province and others as to  
31 whether it will continue. It certainly had a  
32 potential to be a model, just not for the Fraser,  
33 but also for the rest of the province, in terms of  
34 rivers.

35 So that's an important aspect of  
36 collaboration that we have supported very strongly  
37 and I believe still see as model.

38 Q Am I correct, though, that that program wasn't  
39 directed specifically at the Wild Salmon Policy  
40 but, rather, similar initiatives, which I would  
41 interpret, from what you say, as being consistent  
42 with it, but it wasn't for the purpose of the  
43 implementation of the Wild Salmon Policy; correct?

44 MR. SAUNDERS: I think it was recognized, and I don't  
45 have the documents -- I can't recollect the  
46 documents, Mr. Commissioner, in front of me, but  
47 the Wild Salmon Policy, from the DFO side, was a

1 very key driver in our participation in that  
2 program. I think this is where the partnership,  
3 there has to be the logic model or the integrated  
4 plan that I referred to. We came to the  
5 recognition that the DFO and others are all  
6 working towards the same level of wanting to  
7 understand the state of ecosystems and salmon and  
8 wanting to understand how to move forward. We've  
9 all got different roles to play, but how do we  
10 move forward in doing that together?

11 Q If I can just move to another subject, Mr.  
12 Saunders, I'm now in Challenges to Implementation,  
13 and I'm getting very near the end. Would you  
14 agree that Wild Salmon Policy implementation is  
15 going to become more expensive as you go into the  
16 monitoring and assessing of CU status?

17 MR. SAUNDERS: Mr. Commissioner, in terms of is it  
18 going to become more expensive, I think is a very  
19 difficult question to answer. I think, as we move  
20 forward, I'll -- by way of example, it's been  
21 recognized that we are developing a business plan  
22 or a stock assessment framework to lay out exactly  
23 what is required in terms of assessment or what we  
24 will assess, and I think we heard that 26 -- 10 of  
25 the 36, or 39, perhaps, depending on the two in  
26 question, do we have enough -- we don't have  
27 enough information those. So the question will  
28 become, you know, what level of effort needs to be  
29 applied to sort of -- to fill those gaps. But to  
30 some degree, that question is: Do we need to have  
31 a full suite of information on absolutely every  
32 conservation unit, is a very good question.

33 From an aspect of fisheries resource  
34 management, if there is very little risk being  
35 visited on a conservation unit, we may not need a  
36 lot of information to manage it. If we want to  
37 push the envelope in terms of risk, you may need a  
38 higher degree of certainty in that information,  
39 and the costs need to be developed in concert with  
40 the management risks and requirements of  
41 fisheries.

42 So we're right in the middle of reforming --  
43 or the way we conduct fisheries in the Fraser and  
44 in the region, and we'll have to look at an  
45 assessment program that fits that. Do we have the  
46 adequate resources to do it? I mean, right now we  
47 don't evaluate -- we don't have the resources to

1 evaluate pink salmon in the Fraser, and some of  
2 the other species in the Fraser. We are  
3 monitoring, as Brian -- Dr. Riddell pointed out in  
4 the previous panel, we're at a very, you know,  
5 we've maintained our assessment programs for  
6 sockeye perhaps at the expense of others. But the  
7 question is: What do we -- do we need to assess  
8 pink salmon? To what degree? The answer will  
9 depend on what advice is required to support  
10 fisheries management. So it's a very difficult  
11 question to answer with some certainty.

12 Q Let me try and make it simple. Does DFO have the  
13 resources to monitor and assess CU status, CU  
14 habitat status and ecosystems, as contemplated in  
15 the Wild Salmon Policy?

16 MR. SAUNDERS: I think, again, I would say that it's an  
17 extremely difficult question to answer. We don't  
18 have the resources, at this time, to assess all of  
19 the conservation units in the Fraser, for example,  
20 but again, it's going to have to be assessed in  
21 terms of need.

22 On the other items, Strategies 2 and 3 and  
23 the ecosystem, I think Dr. Hyatt can speak to the  
24 essence of how are -- and he's spoken to it  
25 already, to indicate, Mr. -- that we're trying to  
26 -- Mr. Commissioner, that we're trying to get to  
27 that point where we have a practical and  
28 affordable solution in terms of monitoring. And  
29 I've just spoken to the need for partnerships that  
30 we go into it in a shared responsibility.

31 Does DFO have the resources, on its own, to  
32 implement a full monitoring of ecosystem status in  
33 the terrestrial and marine environments? So the  
34 answer to that would be, "No." But will we be  
35 able to achieve that? I believe, in partnership  
36 and in a very -- in a very sort of targeted  
37 approach at what indicators we need, and make use  
38 of work that's being done and will be done by  
39 other agencies, level -- orders of government, I  
40 think -- I believe we'll get there.

41 Q Dr. Hyatt, do you have a -- does DFO have the  
42 resources to implement -- to do the monitoring and  
43 assessment that is required by the Wild Salmon  
44 Policy?

45 DR. HYATT: The resources and the timelines are filled  
46 with uncertainty, because the question needs to be  
47 qualified in terms of how much progress one wishes

1 to make within a specified amount of time. To  
2 some extent, that's uncertain. It's also  
3 dependent, and it's articulated in a number of  
4 places in the policy, that this does depend on  
5 engagement with other governments, other levels of  
6 governments, with NGOs, others external to the  
7 department, and the effectiveness of those  
8 engagements. So in the best of all worlds where  
9 engagements of substance occur and parties make  
10 common cause, Wild Salmon Policy will move forward  
11 progressively.

12 If those things don't happen, then Wild  
13 Salmon Policy will move very slowly.

14 Q Dr. Holt?

15 DR. HOLT: One of the specific challenges for Strategy  
16 1.2 is we talked about several dimensions of  
17 status, one being metrics of distribution,  
18 assessing distribution across a conservation unit.  
19 That's currently one of the challenges with a  
20 monitoring system right now within DFO.

21 However, I do share Mr. Saunders' and Dr.  
22 Hyatt's position that through collaboration with  
23 other groups, for example, other levels of  
24 government or NGOs, who have information that are  
25 more spatially extensive information, as opposed  
26 to primarily indicator populations, that we might  
27 be able to get -- make progress in assessing a  
28 status on that distributional metric.

29 Q Would you agree, though, that the resources issue  
30 goes beyond just that one metric and, in fact,  
31 beyond Strategy 1, but generally human resources  
32 and financial resources are a challenging to the  
33 department in implementing WSP?

34 DR. HOLT: Yeah, my focus is on the Strategy 1 --

35 Q Of course.

36 DR. HOLT: -- and so, you know, I could give my expert  
37 opinion or my opinion more directly on that. It's  
38 reasonable, I think, to say that human resources  
39 are challenged in other strategies as well.

40 Q Thank you. Dr. Irwin?

41 DR. IRVINE: Well, maybe I'm not going to repeat --

42 Q NO.

43 DR. IRVINE: -- what my colleagues have said.

44 Q Do you have anything -- let me put it another way.

45 DR. IRVINE: Well, I --

46 Q Do you have anything to add?

47 DR. IRVINE: Yeah. I'm just going to take a slightly



1 different tact. And if you think of the three  
2 objectives of the Wild Salmon Policy, and I'm  
3 referring to the house, which is on page 8 of the  
4 policy. I don't know, it might be worth putting  
5 it up there.

6 MR. WALLACE: Please do, Mr. Lunn.

7 DR. IRVINE: But if you just blow up that picture of  
8 that fancy house there, and if you look at the  
9 three objectives of the Wild Salmon Policy. So  
10 the first is to safeguard the genetic diversity of  
11 Pacific salmon. So it's all about protecting the  
12 fish. The second objective is to maintain habitat  
13 and ecosystem integrity. So it's kind of about  
14 protecting the environment that produces the fish.

15 Now, it would be quite simple to - well, not  
16 simple - but it would be conceivable, or  
17 theoretically possible, to achieve those two  
18 objectives without any budget, simply by shutting  
19 down all fisheries and postponing or eliminating  
20 all development in the watershed.

21 However, the third objective is to maintain  
22 fisheries for sustainable benefits. So obviously  
23 we want to -- the sustainable use aspect of the  
24 policy is an important one. So I guess what I'm  
25 saying is it's all a matter of degree. You know,  
26 you could -- is the budget sufficient? Well, of  
27 course we'd like to have more money. You know,  
28 and we could use additional resources. But it  
29 really depends on what we're trying to achieve.  
30 You know, if we wanted to eliminate all fisheries  
31 and stop all development in the watersheds, we  
32 probably wouldn't need much of a budget, but  
33 obviously that isn't our objective. So it's  
34 really how much do we want to extract from the  
35 resource. So it's kind of a -- it's not a simple  
36 question to answer.

37 Q Thank you. Ms. Stalberg, do you have anything to  
38 add?

39 MS. STALBERG: Well, my colleagues are very well  
40 spoken. As I had referred to earlier, about the  
41 National Habitat Management Policy not  
42 encompassing environmental monitoring, within  
43 OHEB, particularly around delivering Strategy 2  
44 and habitat status works, they're currently not  
45 set up to deliver on Strategy 2 and environmental  
46 monitoring. But as Kim has said, depending on the  
47 timeframe, there is an evolution of -- the Wild



1 Salmon Policy calls for an evolution transition in  
2 the delivery of the programs, and so it depends on  
3 the support that can be garnered by interested  
4 partners in helping to facilitate the shift.

5 Q Thank you. Mr. Saunders, you had something to  
6 add?

7 MR. SAUNDERS: Yes, Mr. Commissioner, I just wanted to  
8 elaborate on, you know, this notion of partnership  
9 and, you know, looking very simply at putting  
10 resources into DFO and saying, "Well, do you have  
11 adequate resources?" and it being a tough  
12 question. There are a number of examples that can  
13 show how partnerships, I think, are a big part of  
14 moving forward on the delivery. One of the next  
15 steps in the habitat, and I think we had a good  
16 demonstration of the indicators and how they were  
17 developed, and that the next step is to determine  
18 a framework for actually monitoring the ecosystem  
19 and the salmon habitat.

20 We have a number -- I think Ms. Stalberg  
21 pointed out that there are a number of groups, and  
22 we have stream keepers, and probably -- I may have  
23 the numbers wrong, but they are in the order of  
24 tens of thousands. I think it's frequently quoted  
25 between thirty and fifty thousand stream keepers  
26 in the province that are actively involved in our  
27 -- in work on restoration and monitoring of our  
28 streams. And there is a very large interest and  
29 through the Salmon Enhancement Advisory Board,  
30 which is the way our -- that community accesses  
31 and provides advice to the department. I worked  
32 -- we've been working very closely with them over  
33 the last several years, and there is a strong  
34 interest in having them provide us with  
35 information. And as Dr. Holt points out, that  
36 relates to our distributional pieces. So that's  
37 one example.

38 We also have a -- the department devotes  
39 significant resources, and there's a very strong  
40 interest from First Nations communities to be  
41 involved, as we heard in the previous panel, not  
42 just with the development of the policy and the  
43 indicators but the implementation of it. And  
44 First Nations we have -- First Nations are on the  
45 land. They're actually in these remote  
46 watersheds, they live there, they're very  
47 interested in having a role in providing status

1 around habitat.

2 So there are a lot of resources that when we  
3 get past -- and I believe we're in a -- at a  
4 tipping point in the implementation of the Wild  
5 Salmon Policy in that we've got the indicators for  
6 those habitat, we've got the benchmarks, we've got  
7 the conservation units to find, and I think -- and  
8 a lot of that responsibility was initially on  
9 science to make that happen, and it's -- and once  
10 that tipping point is reached I think suddenly you  
11 get into sort of an - excuse the - watershed of  
12 work that can start to happen in assessing of  
13 habitat and the monitoring. So I think it's very  
14 important to understand the complexity, but the  
15 amount of resources that are out there to start to  
16 focus on this are substantial.

17 MR. WALLACE: Thank you. Mr. Commissioner, that's my  
18 last question about resources. I want to go to  
19 another challenge, and the first point isn't  
20 actually a question, but this being an inquiry,  
21 I'd like to take this opportunity just to, for the  
22 record, to show from an exhibit that's already  
23 before us, Exhibit 14, please, Mr. Lunn, from the  
24 previous recommendations and responses. I just  
25 want to identify, at pages 279 and 280, if you  
26 could just go there, the recommendations of the  
27 Williams report, and the response on page 279 and  
28 280, and just a couple of points from that and the  
29 initial response.

30 MR. TIMBERG: Commission counsel, perhaps before you  
31 proceed you could explain what this document is,  
32 for the benefit of the panel.

33 MR. WALLACE: Thank you.

34 MR. TIMBERG: I'm sure some of them have not seen this.

35 MR. WALLACE: Sorry. This is a document that was  
36 produced by Canada, setting out previous  
37 recommendations that had been provided by  
38 commissions looking at matters related to the  
39 Fraser River fishery. One of them was the  
40 Williams report of 2005, I believe it was 2005,  
41 and one of the parts of the mandate of this  
42 commission is to look at those recommendations and  
43 the government's responses to them.

44 I don't have any questions on this one, I'm  
45 just simply putting it on the record so the  
46 Commissioner has it in the context of these  
47 questions.

1                   And one of the recommendations was to  
2                   recommend that an independent consultant be hired  
3                   to review the situation and provide guidance to  
4                   senior management with respect to the core  
5                   objectives of --

6       THE COMMISSIONER: I don't think we have that on the  
7                   screen, Mr. Wallace.

8       MR. WALLACE: Yes, thank you..

9       THE COMMISSIONER: Do we have that on the screen?

10      MR. WALLACE: Yes. And then the initial response --

11      THE COMMISSIONER: Perhaps we could just highlight it.

12      MR. LUNN: Which portion would you like highlighted?

13      THE COMMISSIONER: Well, I'll just ask Mr. Wallace:  
14                   Which part would you like highlighted?

15      MR. WALLACE: Thank you. The recommendation 40. And  
16                   the response. And going down to the bottom of the  
17                   next page.

18      MR. LUNN: That's as much as I can do across two pages,  
19                   sorry.

20      MR. WALLACE: Okay. I think that's got it. And this  
21                   is recommendation 40:

22  
23                   DFO Pacific region should reassess its core  
24                   mandate with respect to management of Fraser  
25                   River sockeye (and indeed all Pacific  
26                   fisheries resources) and devise a management  
27                   organizational structure that best supports  
28                   that mandate.

29  
30                   And:

31  
32                   We recommend that an independent consultant  
33                   be hired to review the situation and provide  
34                   guidance to senior management.

35  
36                   And the initial response is:

37  
38                   [We] disagree with qualifications - The  
39                   Department has a broad mandate to fulfill,  
40                   which goes well beyond fisheries management.  
41                   While the Department would be open to  
42                   reviewing its organizational structure, any  
43                   review would have to consider the full scope  
44                   of the DFO mandate.

45  
46                   And then all of that is -- and then, continuing  
47                   down, there's a reference in the response to the

1 Wild Salmon Policy, in the third paragraph:  
2

3 In the longer term, changes related to new  
4 initiatives (e.g. Pacific Fisheries Reform,  
5 Wild Salmon Policy implementation) will  
6 likely require a review of organizational  
7 structures. Any changes related to these  
8 activities will have to consider the broad  
9 DFO mandate, including structure at both the  
10 national and regional levels.  
11

12 I have a question for the panel relating to  
13 that recommendation and the response reflecting --  
14 accepting the need for organizational structures,  
15 and just asking about the implementation of the  
16 Wild Salmon Policy in that context.

17 Dr. Irvine, you indicated that one of the  
18 issues that relates to the Wild Salmon Policy is a  
19 lack of an upper level champion to oversee it, and  
20 I'm looking at page 6 of your summary of evidence,  
21 the bullet at the bottom of the page.

22 DR. IRVINE: So maybe you could put that up on the  
23 screen?

24 MR. WALLACE: Yes. Dr. Irvine's summary. I'm sorry, I  
25 don't the exhibit number.

26 MR. LUNN: It's 103.

27 MR. ROSENBLUM: It's 103.

28 MR. WALLACE: And page 6, the last three bullets.

29 Q And I'll just put those to you, and then I have  
30 one question that arises from it. So you  
31 identified the need for an upper level champion,  
32 and it says:  
33

34 [You] will say that another limiting factor  
35 on Strategy 3, as with WSP implementation  
36 generally, is the lack of strong leadership  
37 and direction from senior management.  
38

39 And the next bullet:  
40

41 He will say that, in his own personal view, a  
42 challenge to WSP implementation is how DFO  
43 sectors are organized. Specifically, he will  
44 say that it would be more effective to  
45 approach the WSP as an integrated whole,  
46 rather than parsing out the Strategies and  
47 Action Steps amongst different sectors.

1           It seems to me that those views reflect a couple  
2           of things, which I would like to ask you about.

3           Am I correct that there currently is no  
4           senior official overseeing WSP policy  
5           implementation?

6       DR. IRVINE: Well, if you will think back to the  
7           previous panel, and recall that we had Mr. Pat  
8           Chamut, who was, you know, a former ADM as well as  
9           the RDG, who was essentially tasked with directing  
10          the completion of the policy and, in fact, worked  
11          full time on that for, I don't know, 15 or 18  
12          months, that really galvanized a lot of action and  
13          saw that the -- and saw the policy really  
14          completed to fruition.

15          And similarly, his experience and contacts  
16          within Ottawa ensured that the policy was received  
17          the consideration that it needed to be accepted as  
18          a national policy. So that's what I was  
19          indicating is that - now, this is my personal view  
20          - is that as far as implementation, I think we  
21          have to get away -- we should be moving away from  
22          these individual strategies and we should be  
23          looking at WSP implementation.

24          And I think the reason I say that is that  
25          this is a policy; this is not legislation. And I  
26          can assure you that we didn't -- when we were  
27          writing this policy, we didn't expect a bunch of  
28          lawyers to be looking at it line by line, right?  
29          A policy is really intended to provide general  
30          guidance in the development of, you know, in the  
31          future development. So that's why it's somewhat  
32          vague in places, is that we assumed that, you  
33          know, the implementers would be able to learn as  
34          they went and make choices.

35          But that being said, you know, really, if you  
36          think in terms of the Barkley Sound Pilot that Dr.  
37          Hyatt has talked about, you know, that is more of  
38          an integrated approach and, really, we're looking  
39          not only at, you know, Action Step 1.1 or 6.2,  
40          you're looking at what the effects of WSP  
41          implementation will be on that region and that  
42          resource. So that's really where I was getting  
43          at.

44          And then I think the third point you've sort  
45          of referred to is public inclusiveness, and this  
46          is another -- something that I feel was extremely  
47          vital. And again, remember that, you know, my

1 main role in WSP was in the development of the  
2 policy, more so than its implementation. But I  
3 witnessed, firsthand, how much we learned by  
4 interacting with people outside of DFO, and this  
5 included, you know, First Nations as well as other  
6 interested stakeholders, and I was always  
7 astonished at how much we would learn when we  
8 would interact with, you know, with what we call  
9 the extended peer community, which are people  
10 outside of the specific discipline.

11 Q So let me try and summarize, Dr. Irvine. I think  
12 you said more money would make it easier. I don't  
13 think you said the lack of money would --

14 DR. IRVINE: I didn't mention money at all, actually,  
15 here, but --

16 Q No, no, I'm going back to the previous -- the  
17 previous question on costing. And then on the  
18 structural issues, you would like to see an  
19 integrated, rather than a separate approach by --  
20 in silos, I guess, by separating the strategies.  
21 That it would benefit from senior -- that  
22 integrated process would benefit from senior  
23 leadership, and that the public side of it was a  
24 very important part of the process?

25 DR. IRVINE: So let me just see if I can touch on each  
26 of those four points so it's sort of in my words  
27 instead of yours.

28 Q That would be better.

29 DR. IRVINE: So the first issue was resources. I think  
30 we'll - and I'll speak from a science perspective  
31 - I mean, I think where we are limited is  
32 basically in capacity. So it's not so much  
33 resources -- well, it is resources, but it's  
34 people resources. So it's having, you know, young  
35 scientists, like Dr. Holt, that can kind of take  
36 us into the next phase. And so we would move more  
37 quickly if we had more people resources, that is  
38 for sure.

39 In terms of an upper level champion, I've  
40 seen, actually, significant improvement in the  
41 last year, where there has been -- in terms of  
42 implementation, where there has been some  
43 improved, I would say, direction, and a little bit  
44 more involvement from -- in terms of the policy  
45 implementation, so I think that we've made some  
46 significant improvements.

47 As far as the sectorization, yes, I think

1 that there's always need for additional  
2 integration, and it's a very difficult thing to do  
3 when you're dealing with a diverse organization  
4 like Fisheries and Oceans Canada, and I think we  
5 are making progress there. And yes, I think that  
6 we need to work harder to involve members of --  
7 inform members of the public in the implementation  
8 of the policy, and I think we're also -- we have  
9 made significant strides in that area.

10 Q Thank you. Let me just see whether or not others  
11 on the panel see that as a way forward, or a way  
12 to improve implementation. Mr. Saunders?

13 MR. SAUNDERS: Yes, Mr. Commissioner. I've had the  
14 fortune of, in the development, sort of working  
15 with Mr. Chamut and then, for a year -- several  
16 years afterwards, working on the implementation  
17 under several -- and had a chance to look at the  
18 model, and I think the Wild Salmon Policy -- I  
19 just want to speak to this notion of the champion  
20 or where that should lie in the organization. And  
21 DFO, as all government organizations, are a  
22 command and control organization, they're  
23 hierarchical, and I don't, when I look at the  
24 recommendation we were talking about there, there  
25 was a question about our organizational structure.  
26 And I think, just for the ability to manage  
27 demands that you have some kind of silo or  
28 departmental structure. And that's a -- whether  
29 we organized along -- there are a number of ways  
30 you can reorganize, and I don't believe a  
31 reorganization would be anything that would assist  
32 in this regard. But what would -- I think it is  
33 important to decide where the responsibility lies,  
34 and I think currently we -- after the policy was  
35 developed there was a question about who would  
36 have lead responsibility, and initially it was  
37 thought perhaps science would have that  
38 responsibility, because it was recognized as a  
39 very largely -- a science responsibility, and we  
40 were very clear in saying, "No," we didn't feel  
41 that was appropriate, it should be -- it should be  
42 someone that -- perhaps policy branch, which in  
43 the end it was, that has more of an overarching  
44 responsibility, that we wouldn't get full enough  
45 engagement from each of the sectors if it was  
46 relegated to one of those sectors.

47 And so I believe that -- and policy branch, I



1 still -- I would argue that the champion should be  
2 at a level of the RDG or the associate RDG, and if  
3 the -- because it's an overarching policy, and I  
4 think that's where you get the strongest sort of  
5 leadership and push forward. I think the  
6 development, having Mr. Chamut there, gave us,  
7 because ultimately the responsibility was at the  
8 departmental management committee level, he was an  
9 essential to provide the link and to that -- to  
10 that committee, and unless you had all the levels  
11 represented and the penultimate one, you weren't  
12 going to get the policy through.

13 I think with the implementation it is more of  
14 a regional issue and that you need to have it at  
15 -- because it's overarching across all of the  
16 sectors, you need to have the champion at that RDG  
17 or associate level.

18 MR. WALLACE: Any other ideas on how to improve, going  
19 forward?

20 Mr. Commissioner, I have no further questions  
21 for this panel.

22 MR. TIMBERG: Mr. Commissioner, will we be taking a  
23 break this afternoon? I note the time and we're  
24 going to be ending today's session at 3:40, I  
25 understand, so I'm wondering if this is a  
26 convenient time for a break, but I'm prepared to  
27 proceed.

28 THE COMMISSIONER: I think you should proceed.

29 MR. TIMBERG: Okay.

30 So, for the record, Mr. Timberg, T-i-m-b-e-r-  
31 g, counsel for Canada. Mr. Commissioner, for my  
32 examination, I've got a series of exhibits to  
33 enter by consent. I will then be tendering, or  
34 going back to the panel members' qualifications  
35 under their *curriculum vitae* and take you through  
36 those, so you understand their qualifications.

37 I will provide a brief overview of the  
38 panellists of the Implementation Team Plan, so  
39 that there's a broad understanding of that. And  
40 then I'll be taking us through the three stages of  
41 Strategies 1, 2, and 3. So that's my brief  
42 overview to assist you with my direct.

43 So Mr. Registrar, we have a letter that I've  
44 sent to Commission counsel, and the participants,  
45 setting out a series of exhibits to be entered by  
46 consent, dated November 30th. And the first one  
47 is Exhibit number 3, Slaney et al, 1996.



1 THE REGISTRAR: That will be marked as Exhibit 188.  
2 EXHIBIT 188: Status of Anadromous Salmon and  
3 Trout in British Columbia and Yukon, by T.L.  
4 Slaney, et al, dated October 1996  
5

6 MR. TIMBERG: And then Tab 17-E, Pacific Region  
7 Consultation Plan.

8 THE REGISTRAR: 189.  
9

10 EXHIBIT 189: Pacific Region Consultation  
11 Plan: Wild Salmon Policy, 2009-2010  
12

13 MR. TIMBERG: Then 17-H, Annual Fall Community  
14 Dialogue, 2008.

15 THE REGISTRAR: H, you say?

16 MR. TIMBERG: H.

17 THE REGISTRAR: That's 190.  
18

19 EXHIBIT 190: Fisheries and Oceans Canada 5th  
20 Annual Fall Community Dialogues - 2008  
21

22 MR. TIMBERG: I.

23 THE REGISTRAR: 191.  
24

25 EXHIBIT 191: Pacific Region Consultation  
26 Plan: Wild Salmon Policy, Draft June 6, 2008  
27

28 MR. TIMBERG: J.

29 THE REGISTRAR: 192.  
30

31 EXHIBIT 192: Fisheries and Oceans Canada  
32 Operations Committee WSP Update, January 8,  
33 2009  
34

35 MR. TIMBERG: K.

36 THE REGISTRAR: 193.  
37

38 EXHIBIT 193: Draft Department of Fisheries  
39 and Oceans Wild Salmon Policy Forum, March 27  
40 - 28, 2008, Richmond  
41

42 MR. TIMBERG: M.

43 THE REGISTRAR: 194.  
44

45 EXHIBIT 194: Fisheries and Oceans Canada  
46 Operations Committee WSP Update, January 31,  
47 2008

1 MR. TIMBERG: O.  
2 THE REGISTRAR: 195.

3  
4 EXHIBIT 195: Fisheries and Oceans Canada,  
5 Wild Salmon Policy Implementation, Progress  
6 in 2005/06 & Workplan for 2006/07, dated May  
7 2006

8  
9 MR. TIMBERG: P.  
10 THE REGISTRAR: 196.

11  
12 EXHIBIT 196: WSP Implementation Workplan,  
13 September 20, 2006

14  
15 MR. TIMBERG: And S.  
16 THE REGISTRAR: 197.

17  
18 EXHIBIT 197: Fisheries and Oceans Canada  
19 Indicators of Status and benchmarks for  
20 Conservation Units in Canada's Wild Salmon  
21 Policy, by Carrie Holt, dated May 28, 2010

22  
23 MR. TIMBERG: T.  
24 THE REGISTRAR: 198.

25  
26 EXHIBIT 198: Regional Management Committee  
27 Meeting, August 9, 2005, Record of Decisions

28  
29 MR. TIMBERG: U.  
30 THE REGISTRAR: 199.

31  
32 EXHIBIT 199: Regional Management Committee  
33 Meeting, May 3, 2005, Record of Decisions

34  
35 MR. TIMBERG: AA.  
36 THE REGISTRAR: 200.

37  
38 EXHIBIT 200: Fisheries and Oceans Canada WSP  
39 Strategy 3 Implementation Approach,  
40 Operations Committee, by K. Hyatt, dated  
41 September 27, 2009

42  
43 MR. TIMBERG: And EE.  
44 THE REGISTRAR: 201.

45  
46  
47

1 EXHIBIT 201: Fisheries and Oceans Canada -  
2 Wild Salmon Policy - Work Planning, Strategic  
3 Directions Committee, dated May 6, 2010  
4

5 MR. TIMBERG: And then, back to Tab 19.

6 THE REGISTRAR: Tab 19, you say?

7 MR. TIMBERG: Back to the letter, yes, Tab, I think  
8 it's, 19.

9 THE REGISTRAR: You've indicated you did not want that  
10 marked as an exhibit.

11 MR. TIMBERG: Oh, sorry. Thank you. So 26.

12 THE REGISTRAR: Number 26 is 202.  
13

14 EXHIBIT 202: Hyatt et al Potential Strategy  
15 3 contributions to Barkley Sound pilot,  
16 dated November 2010  
17

18 MR. TIMBERG: 27.

19 THE REGISTRAR: 203.  
20

21 EXHIBIT 203: Synthesis of Evidence From a  
22 Workshop on the Decline of Fraser River  
23 Sockeye, June 15-17, 2010, Vancouver Island  
24 Conference Centre, Nanaimo, British Columbia  
25

26 MR. TIMBERG: 35.

27 THE REGISTRAR: 204.  
28

29 EXHIBIT 204: Fisheries and Oceans Canada WSP  
30 Strategy 2, Assessment of Habitat Status, The  
31 HMP Connection, dated November 24, 2008  
32

33 MR. TIMBERG: 36.

34 THE REGISTRAR: 205.  
35

36 EXHIBIT 205: Wild Salmon Policy Strategy 2  
37 (Habitat Status), Recommended Essential  
38 Workplan Elements for the OHEB Integration,  
39 dated February 6, 2009  
40

41 MR. TIMBERG: 39.

42 THE REGISTRAR: 206.  
43

44 EXHIBIT 206: East Coast Vancouver Island  
45 Coho Conservation Unit - Englishman River  
46 Coho Habitat Status Report  
47

61  
PANEL NO. 7  
Cross-exam by Mr. Timberg (CAN)

1 MR. TIMBERG: 49.  
2 THE REGISTRAR: 207.

3  
4 EXHIBIT 207: A Fishery Decision-Making  
5 Framework Incorporating the Precautionary  
6 Approach

7  
8 MR. TIMBERG: And 64.  
9 THE REGISTRAR: 208.

10  
11 EXHIBIT 208: Fisheries and Oceans Canada  
12 Next Steps in the Implementation of Canada's  
13 Policy for Conservation of Wild Pacific  
14 Salmon, the Identification of Conservation  
15 Units (CU's), Fall 2006

16  
17 MR. TIMBERG: And, finally, Tab 39.  
18 THE REGISTRAR: 209.

19  
20 EXHIBIT 209: Update on Regional Science  
21 Advisory (PSARC) Meetings, Salmon  
22 Subcommittee Review - June 13-14, 2007, Chair  
23 - Kim Hyatt

24  
25 MR. TIMBERG: Thank you. And if I could have --  
26 MR. WALLACE: Excuse me, Mr. Timberg, is it possible  
27 that Tab 39 was marked twice in the last four  
28 exhibits; the last one and 206?

29 THE REGISTRAR: There's 39 and 49.

30 MR. WALLACE: What's the one ahead of 49?

31 THE REGISTRAR: 39.

32 MR. TIMBERG: They're coming from a different binder,  
33 though.

34 THE REGISTRAR: Yes.

35 MR. WALLACE: Thank you.

36 MR. TIMBERG: If I could have Dr. Hyatt's *curriculum*  
37 *vitae* brought up, it's Exhibit 179, please.

38  
39 CROSS-EXAMINATION BY MR. TIMBERG:

40  
41 Q And Dr. Hyatt, for the assistance of the  
42 Commissioner, could you please explain, briefly,  
43 your educational background?

44 DR. HYATT: Yes. I graduated from the University of  
45 Windsor, with a BSc, and that was in 1970. Went  
46 onto the University of British Columbia, where I  
47 did a PhD in aquatic ecology. I've worked as a --

1 just educational experience, sorry?

2 Q No, that's sufficient. If you could perhaps just  
3 give a very brief summary of your research and  
4 work experience?

5 DR. HYATT: So I'll deal with my work experience first,  
6 because it leads into my research experience. My  
7 work experience is that I've worked as a -- as a  
8 university instructor at Okanagan University  
9 College for a number of years. I went, from  
10 there, to environmental consulting and worked in  
11 that industry for a number of years, and then, in  
12 1980, I began work as a research scientist at the  
13 Pacific Biological Station, the main Fisheries and  
14 Oceans Canada Biological Science establishment on  
15 the west coast, and I have been there, since that  
16 time, working on research that looks at the  
17 relationship between salmon production variations  
18 and life history variations in association with  
19 factors that control both of those in freshwater  
20 and in marine ecosystems.

21 Q Thank you. And how would you describe your areas  
22 of expertise?

23 DR. HYATT: My areas of expertise are in stock  
24 assessment, population dynamics, and in aquatic  
25 ecosystem research.

26 Q Thank you very much. If we could have Dr. Holt's  
27 curriculum vitae brought up? It's Exhibit 178.

28 MR. WALLACE: Mr. Commissioner, the purpose of filing  
29 the c.v.'s was so this would all be on the record,  
30 and I had anticipated that only someone who wished  
31 to challenge a witness's credentials to speak on  
32 the matters they're speaking on would go to the  
33 c.v.'s for that purpose, which wouldn't be  
34 appropriate and isn't being done by Mr. Timberg,  
35 so I'm not sure this is adding to record in a  
36 useful way.

37 MR. TIMBERG: Mr. Commissioner, when the panels were  
38 introduced, a number of them were not introduced  
39 as doctors, and a number of them have expertise  
40 that is directly relevant to this commission and I  
41 think it's relevant to you to understand their  
42 educational background and their research and  
43 their focus so that you can better appreciate the  
44 evidence that they're providing.

45 THE COMMISSIONER: Yes, Mr. Timberg, I think the spirit  
46 of Mr. Wallace's remarks were in the interest of  
47 time, having them filed so they're on record. If

1           there's a controversy with respect to their  
2           credentials, the, of course counsel will have an  
3           opportunity to cross-examine them on their  
4           credentials. I believe what you're wanting to do  
5           is just simply highlight what of their credentials  
6           pertains to the areas in which they're testifying;  
7           is that what you're attempting to do?

8       MR. TIMBERG: That's correct, and I'd like them to  
9           describe what their areas of expertise are so that  
10          that's before this commission. That's not evident  
11          when you look at their resume.

12       THE COMMISSIONER: All right, thank you.

13       MR. TIMBERG:

14       Q     So, Dr. Holt, perhaps you can briefly describe  
15           your PhD thesis?

16       DR. HOLT: Sure. My PhD work was in evaluating  
17           management strategies for Pacific salmon,  
18           accounting for uncertainties in biological and  
19           management systems, and I'd consider that my area  
20           of expertise.

21       Q     And perhaps you can break that down a little bit  
22           as to what that expertise -- if you could just  
23           flesh that out a bit more.

24       DR. HOLT: So it's a way of evaluating management  
25           strategies using a simulating modelling approach  
26           that can account for uncertainties and, therefore,  
27           help with risk assessments by characterizing those  
28           uncertainties in biological systems such as the  
29           biological components of the salmon life history,  
30           as well as management components such as our  
31           uncertainties in how we assess salmon or  
32           estimating the numbers, as well as our  
33           uncertainties in implementing a management rule or  
34           a harvest rule. So evaluating those strategies,  
35           accounting for the uncertainties in the system.

36       Q     That's very helpful. And if we can have Dr.  
37           Hyatt's CV brought up, it's -- oh, I've done that,  
38           sorry. Dr. Irvine's, at Exhibit 177?

39           Dr. Irvine, perhaps you could give a brief  
40           explanation of your academic qualifications and  
41           your area of expertise?

42       DR. IRVINE: Certainly. And my CV was brief, but I did  
43           append to it a series of publications that are  
44           specific to either Fraser sockeye and/or the Wild  
45           Salmon Policy.

46           I've basically spent my whole career working  
47           on salmon issues. You know, my honours BSc at UBC

1 was on trout. My masters was in a similar field,  
2 but also on salmonids. My PhD was in New Zealand,  
3 on salmonids. The whole time that I've been at  
4 DFO I've had a range of areas of interest, I  
5 guess. I started off as a freshwater habitat  
6 research scientist, focusing on all species. I  
7 became very involved in stock assessment. I  
8 chaired the PSARC Committee for all of the  
9 species, not only salmon, but also groundfish and  
10 shellfish and marine mammals and we had a group,  
11 called Data Systems, so I did that for a couple of  
12 years.

13 I was in charge of stock assessment programs  
14 in the Fraser Watershed for particularly Coho and  
15 Chinook salmon for, I think, about five years, so  
16 I have a lot of background on Fraser issues. The  
17 conservation biology was a real area interest to  
18 me, so as I mentioned at one point, I did write  
19 the first COSEWIC report on a Pacific salmonid.  
20 I've done quite a thorough review of Species at  
21 Risk legislation, and I've published on that a  
22 couple of times.

23 And then I guess in the last three or four  
24 years I've suddenly - well, not suddenly - but  
25 I've kind of shifted to the marine environment, so  
26 I'm focusing on marine issues, because I feel that  
27 those are really what drive the production of  
28 Pacific salmon, and so part of that has been the  
29 co-chairing this Fisheries and Oceanography  
30 Working Group. And I was involved in the Wild  
31 Salmon Policy development for about seven years.  
32 So that, in a nutshell, is my background, but you  
33 might show the publications, I don't know.

34 MR. TIMBERG: And that's at the second page.

35 DR. IRVINE: Yeah. I mean, I have over 50 primary peer  
36 reviewed publications in the peer review  
37 literature, and over 120 others. So these are -  
38 and I'm not going to describe them - but we have  
39 talked about one or two of them, but each of these  
40 pertains either to Fraser sockeye or Wild Salmon  
41 Policy, and they are largely peer reviewed  
42 publications.

43 MR. TIMBERG: Thank you very much. If we could have  
44 Exhibit 180, the resume of Mr. Saunders.

45 Q And Mr. Saunders, if you could perhaps give us a  
46 brief background of your education and your  
47 relevant experience?

1 MR. SAUNDERS: Yes, Mr. Commissioner, I have a bachelor  
2 of science from the University of Victoria in the  
3 area of biology, with a major in environmental  
4 studies. I've worked my entire career for the  
5 Department of Fisheries and Oceans, and primarily  
6 in the area of marine fish, ecology and stock  
7 assessment.

8 I became involved with salmon about seven  
9 years ago and was seconded to our regional  
10 headquarters to work as the coordinator for the  
11 development of the Wild Salmon Policy. That was  
12 my -- I had never been a work, and that was my  
13 first experience in sort of development of public  
14 policy.

15 At the end of that, when -- I worked for a  
16 year and a half on the implementation, and then,  
17 as I just mentioned earlier, I was seconded to  
18 Pacific Salmon Foundation to -- for a year and a  
19 half, to direct the Fraser Salmon Watersheds  
20 Program. I had the opportunity, at that -- a year  
21 and a half ago, to come back into DFO as the head  
22 of the Salmon and Freshwater Ecosystem Research  
23 Division, and I've been doing that for the past  
24 year and a half.

25 MR. TIMBERG: Thank you. And finally, Ms. Stalberg, if  
26 we could have Exhibit 176 brought up.

27 Q If you could provide a brief introduction as to  
28 your educational background and your work  
29 experience?

30 MS. STALBERG: I gained a diploma in fish wildlife and  
31 recreation from the British Columbia Institute of  
32 Technology, in 1986. I then went on to Simon  
33 Fraser to gain a bachelor of science, and  
34 undertook that from 1987 to 1990.

35 Q Okay. And just briefly, and you've been working,  
36 as we've heard, on the Wild Salmon Policy Strategy  
37 2?

38 MS. STALBERG: That's correct. I started my career in  
39 DFO as a co-op student in the Lower Mainland, as a  
40 habitat management biologist, then gained a  
41 position in the Interior in 1992, and worked  
42 through as a -- at different levels in the habitat  
43 management program up until June 1998, where I  
44 then -- or, sorry, in September '05, took on the  
45 Wild -- took on work on the Wild Salmon Policy  
46 Implementation Team, and then, in July '06, took  
47 on the task of being the Wild Salmon Policy



1 Habitat Working Group coordinator.

2 Q Thank you. I have some general questions with  
3 respect to describing the implementation team.  
4 So, Mr. Saunders, can you please explain the  
5 linkage of the Wild Salmon Policy Implementation  
6 Team to senior management within DFO?

7 MR. SAUNDERS: Yes, Mr. Commissioner, I think, at  
8 various stages we've spoken about this, but  
9 there's -- over the development and the  
10 implementation there has always been a fairly  
11 strong linkage between senior management and the  
12 team that was developing it. So the  
13 Implementation Team has, as we discussed, sort of  
14 the structure of the development has mirrored the  
15 organizational structure of the department. So  
16 there have been -- it's always been led by a  
17 member from policy branch, and as I was speaking  
18 to in the earlier questioning, that the  
19 responsibility for the implementation of the Wild  
20 Salmon Policy, as it gets linked back to senior  
21 management, is through the policy branch.

22 So the coordinator resides within the policy  
23 branch, but there are representatives and, as  
24 we've heard, Heather Stalberg and Gary Taccogna  
25 were the OHEB leads of Oceans, Habitat and  
26 Enhancement Branch. Carol Cross also sat in at  
27 times in that. Paul Ryall has been the  
28 representative for FAM. And from science we  
29 usually had a fairly large contingent: Brian  
30 Riddell; Kim Hyatt; Jim Irvine, and myself at time  
31 -- or, sorry, once I was back in science, I've  
32 been back involved as well.

33 We do have representatives -- that was in the  
34 early part of the implementation --

35 MR. TIMBERG: Yes, and perhaps, Mr. Registrar, you  
36 could pull up Exhibit 168 to assist?

37 Q Yeah, and I think there's a list there. This is  
38 dated September 3rd, 2010.

39 DR. IRVINE: Right.

40 Q And does that membership assist you?

41 MR. SAUNDERS: Yes, it does, indeed. So you can see  
42 that -- well, we've listed them here as strategy  
43 leads, but as we've talked about, the leads tend  
44 to come from a particular sector. So the Strategy  
45 1 lead, Neil Schubert, is the representative for  
46 science. The Strategy 2 lead is currently Melody  
47 Farrell. The Strategy 3 lead is Kim Hyatt and Jim

1 Irvine working on that. And Strategy 4, from  
2 fisheries management, Corey Jackson is the lead.

3 We also recognized that as we move forward on  
4 the implementation we need to engage the areas,  
5 and I think there was a little bit of discussion  
6 about the structure of DFO, but while we have  
7 sectors that flow right through the management  
8 committees, so every management committee within  
9 DFO, right from the -- in Ottawa, the DMC, the  
10 departmental management committee, has a structure  
11 that has representatives from sectors as well as  
12 regions. So the RDG will sit on that departmental  
13 management committee.

14 When you get into the region, the regional  
15 management committee is composed of the regional  
16 directors of each sector, with additional HR,  
17 corporate and treaty and other regional and policy  
18 regional directors sitting on that. So in terms  
19 of -- and the money tends to -- and the -- flows  
20 through the sectors from Ottawa into the regions.  
21 So we structured for the implementation,  
22 recognizing we needed, in each of these,  
23 appropriate expertise from science, fisheries  
24 management or OHEB. Having the appropriate leads  
25 on those strategies, we also needed  
26 representatives from the areas, and each area --  
27 and we have, in the case of the Fraser, there is  
28 -- there are two areas, upper and lower, so B.C.  
29 Interior and the lower Fraser regions, and we  
30 needed to have representatives on this working  
31 group from each of those areas to make sure that  
32 the science staff, that the habitat staff and the  
33 fisheries management staff, in each of those  
34 areas, were engaged, given the uniqueness of the  
35 implementation of the policy and programs in each  
36 of those areas.

37 Q Okay.

38 DR. IRVINE: We structured the -- in order to have an  
39 appropriate interaction with senior management  
40 engagement, the Operations Committee utilizes a  
41 similar structure, but has the regional directors  
42 -- it's chaired by the RDG and it has the regional  
43 directors --

44 Q All right. If I could just interrupt there.

45 DR. IRVINE: Yes.

46 Q So perhaps you could just describe the interaction  
47 of this Implementation Team --

1 DR. IRVINE: Right.

2 Q -- with the three committees. First, the  
3 Operation Committee; second, the Regional  
4 Management Committee; and third, Strategic  
5 Directions Committee. If you could clarify that  
6 reporting structure?

7 MR. SAUNDERS: Yes, Mr. Commissioner. The  
8 implementation -- I guess I can describe those  
9 three committees in general. So as I mentioned,  
10 senior management in the region would be made up  
11 of those senior -- the regional director general  
12 and the regional directors of each of those  
13 sectors, or branches, as well call them when  
14 you're in the region. And they come together  
15 under various committees. The same people and  
16 positions, but they come together for different  
17 reasons.

18 The regional management committee is the  
19 senior decision-making body in the region. So if  
20 a decision has to be made, that's where it goes  
21 for decision.

22 Q Okay.

23 DR. IRVINE: It has another configuration, called  
24 Strategic Directions, that if you're developing a  
25 policy, something, an ideas around change, it gets  
26 developed in this Strategic Directions Committee,  
27 and then brought forward to RMC for decision. An  
28 Operations Committee is, again, a reconfiguration  
29 of the senior management team, and it would be for  
30 operational issues or policies that are already  
31 gone through the developmental stage and are being  
32 implemented. So we've talked about, in previous  
33 panels, PICFI, Wild Salmon Policy, initiatives  
34 like that. They would be the subject of the  
35 Operations Committee.

36 While the Operations Committee provides  
37 direction and can make decisions at that level,  
38 any substantive decision would be referred back to  
39 the RMC table for final decision.

40 So the Wild Salmon Policy implementation  
41 would be the subject of the Operations Committee.  
42 The Operations Committee meets approximately every  
43 -- probably quarterly, has an established  
44 schedule, but only meets when there is particular  
45 issues arising.

46 So there would be standing meetings between  
47 our working group and the Operations Committee

1 around the development of a program each year.  
2 So around the work plan and around business  
3 planning. But there would be subsequent meetings  
4 that would be of any -- probably every six months,  
5 roughly, around progress being made on the policy  
6 and if there's any direction required on  
7 particular issues.

8 So I can't recall off the top of my head, but  
9 some of the decks that we saw earlier, the one  
10 from Dr. Hyatt on the Strategy 3.

11 Q Right.

12 DR. IRVINE: So he would have taken that to the Ops --  
13 worked it through the working group then taken it  
14 to Operations Committee to apprise them and to get  
15 approval to move forward on a particular approach,  
16 and would have done that through Operations  
17 Committee.

18 So that kind of cycle of performance review  
19 and policy implementation and development would go  
20 through that structure.

21 Q Thank you, that's very helpful. And so for  
22 Strategy 1, I'm wonder if, perhaps, Dr. Irvine, if  
23 you could describe who the key players were on the  
24 Strategy 1 team?

25 DR. IRVINE: You're talking about the implementation?

26 Q Yes.

27 DR. IRVINE: Well, really, there wasn't a formal team,  
28 or at least that's my understanding, and Dr. Holt  
29 can add to this, but, you know, Dr. Blair Holtby  
30 was the primary scientist initially involved in  
31 the identification of conservation units, and he  
32 was assisted by Dr. Kristy Ciruna of Nature  
33 Conservancy Canada. And then, you know, Dr. Holt  
34 worked with Dr. Riddell and Mr. Al Cass and --

35 DR. HOLT: Dr. Blair Holtby.

36 DR. IRVINE: And Blair, as well, in sort of the next  
37 step, the identification of benchmarks.

38 Q Okay, thank you. So those were the key players  
39 there. And Ms. Stalberg, if you could perhaps  
40 describe who the members were on the habitat  
41 working group for Strategy 2?

42 MS. STALBERG: I did describe the membership this  
43 morning on the habitat working group --

44 Q Oh.

45 MS. STALBERG: -- that it represented different  
46 managerial levels throughout --

47 Q Right.

1 MS. STALBERG: -- the department and, as well,  
2 different doctrines, and I did generate a terms of  
3 reference for that working group, as well as a  
4 governance structure that the terms of reference  
5 were accepted by OHEB.

6 Q Okay. Thank you. And then, for Strategy 3,  
7 perhaps Kim, Dr. Hyatt, you could just describe  
8 the key players for Strategy 3?

9 DR. HYATT: Under Strategy 3, I've been the major  
10 conceptual developer of the framework, and then  
11 within the sectors, where we've begun to identify  
12 sector-specific sub-objectives, Irvine and, some  
13 time ago, Dr. Janelle Curtis, both worked in a  
14 committee over a period of about 18 months with  
15 me, to do that work. And then Dr. Irvine is, as  
16 he's already stated, with respect to the State of  
17 the Oceans report and development, also working on  
18 Strategy 3.2.

19 Q Thank you. At this point I'd like to move to  
20 Strategy 1, and I'd like to just sort of move  
21 through each of the strategies to provide clarity  
22 on the subject.

23 MR. TIMBERG: And I'll ask if we could have Exhibit 8  
24 brought up, Mr. Registrar, at page 38. We have a  
25 definition here of "conservation". And just to  
26 get us -- of "conservation unit", sorry.

27 Q And I just would ask Dr. Irvine just to briefly  
28 describe the definition of the conservation unit  
29 here, and then I have a follow-up question to  
30 that.

31 DR. IRVINE: Certainly. So a conservation unit, the  
32 definition in the policy, I'll read that, but then  
33 maybe I'll just elaborate a little bit. So in the  
34 policy it's defined as:

35  
36 A group of wild salmon sufficiently isolated  
37 from other groups that, if extirpated -

38  
39 -- which means locally extinct, so if a group was  
40 made extinct, that's extirpation --

41  
42 - is very unlikely to recolonize naturally  
43 within an acceptable timeframe.

44  
45 So basically what we're talking about here,  
46 the way that I used to kind of describe it, is if  
47 you think that the group of fish that you're

1 interested in is a conservation unit, just imagine  
2 that that group of fish was totally eliminated,  
3 you know, all years, and go away for 100 years and  
4 come back. And if that -- if the area that those  
5 fish were living in had been recolonized  
6 naturally, then that was not a conservation unit.

7 So in other words, the conservation unit is a  
8 group of fish that is largely isolated from other  
9 groups of fish, both genetically and  
10 geographically. So a lot of people think, "Well,  
11 a conservation unit," you know, "maybe it's the  
12 fish in my backyard, or the fish in a watershed,"  
13 but most people don't understand the degree to  
14 which fish move around and fish stray, if you  
15 like, and move into new habitats. And so the  
16 concept here was to have largely distinct groups  
17 of fish that were important units of diversity in  
18 amongst themselves.

19 Q All right. And so it's the intent of the  
20 conservation unit, then, is to capture a similar  
21 inter-breeding population that has a defined  
22 geographic distribution; is that...

23 DR. IRVINE: Well, that's right. I'm not sure how much  
24 detail we could go into, but it might be  
25 interesting to look at figure 2 in the policy,  
26 which is on page 12. And if you could blow that  
27 up. And the reason for showing this is two-fold.  
28 One, is I think it would be useful for the  
29 Commissioner and others to understand some of the  
30 differences among species of Pacific salmon, and  
31 the second is just to show how much progress we've  
32 made since 2005.

33 So when we were developing the policy, we  
34 were asked to identify just about how many  
35 conservation units do we think that we have within  
36 BC and the Yukon, and so this particular figure  
37 was my -- well, it was a group project, but I  
38 guess I take responsibility for it, so it was  
39 really an estimate of the number of conservation  
40 units for the different species.

41 And so the first thing to look at is this  
42 triangle on the left-hand side, and this is  
43 similar to one that Dr. Riddell showed on the  
44 first day of this -- the previous panel, in that  
45 it shows where a conservation unit might fit  
46 within this range of genetic diversity.

47 And so if you think of the taxonomic species,

1 and in this case we have species: sockeye, Coho,  
2 Chinook, pink and chum salmon, and so the  
3 taxonomic species is the one upper unit of  
4 diversity. And then right down at the bottom we  
5 have what we call "demes". So demes are really a  
6 very local spawning groups, so within a stream.

7 So it's at the deme level is where you start  
8 to get things like adaptations for specific  
9 environments. And when you're trying to protect  
10 salmon, what you're really trying to do is protect  
11 their diversity so that there's a range of  
12 adaptations to different environmental conditions  
13 that are preserved or protected.

14 So "conservation unit" is sort of within that  
15 range between the taxonomic species and the deme.  
16 It may or may not be equivalent to what we call a  
17 population.

18 But I'm very quickly just going to go across  
19 the second row. And so you'll see that the second  
20 row, in our naivety we estimated approximately 100  
21 conservation units. So remember, this is before  
22 Drs. Holtby and Ciruna had done their very  
23 complicated approach. They'd developed their  
24 approach, finalized their approach to actually  
25 identify conservation units. So this was kind of  
26 a "this is our best guess" without actually  
27 developing the method. So --

28 Q So at the time you estimated 100 in 2005?

29 DR. IRVINE: That's right, of which about 25 were  
30 within the Fraser. So we now know there's about  
31 400 and there was about 40 in the Fraser.

32 But I'm just very quickly just going to just  
33 indicate, because these numbers for the other  
34 species are not accurate.

35 Q Right.

36 DR. IRVINE: But just to show that there's a real  
37 difference amongst the species. And so depending  
38 on the degree of genetic interchange among  
39 habitats, that really determines the geographic  
40 extent -- the freshwater geographic extent of a  
41 conservation unit. So sockeye, the default is a  
42 lake. For the other species, the area -- the  
43 freshwater area that is encompassed by a  
44 conservation unit tends to be much larger, and so  
45 it's not a simple thing.

46 So anyway, hopefully that will -- and then,  
47 within the conservation units, then you might have



1 populations, you might have subpopulations, you've  
2 got spawning locations. So you have the diversity  
3 within the conservation unit, as well as the  
4 diversity among the units, and they are all  
5 important when we're trying to protect salmon for  
6 the future, especially with the climate change.

7 Q Thank you. What is meant by the phrase "an  
8 acceptable timeframe" in the definition of a  
9 conservation unit?

10 DR. IRVINE: Yeah, so in the policy --

11 MR. TIMBERG: That's back at page 38, Mr. Registrar.

12 DR. IRVINE: Sorry. Yeah, the definition at the back  
13 doesn't indicate the timeframe, but if you find in  
14 the text where "conservation unit" is defined, we  
15 do provide a little more background, a little more  
16 detail, and so we indicate that an acceptable  
17 timeframe is, as kind of I implied earlier, about  
18 a human lifetime, or 100 years. And we did that  
19 just to provide, you know, some feel for the  
20 period of time. So it doesn't really matter  
21 whether it's 90 years, 110 years. But we decided  
22 that it was more appropriate to indicate this time  
23 in a human lifetime rather than a salmon lifetime.

24 Q And why is that?

25 DR. IRVINE: Why is that? Because the salmon,  
26 depending on the species, a Coho salmon lives two  
27 years; the pinks are -- Coho salmon normally lives  
28 three years, I'm sorry; pink salmon lives two;  
29 sockeye are normally four, but they could be  
30 three, four or five; Chinook could be three, four,  
31 five, six, seven or eight, usually four, five or  
32 six, so there's a tremendous variability in the  
33 lifespan of the individual species.

34 So perhaps a more appropriate way to define  
35 this would be in terms of generations of fish, but  
36 we're already talking about five species with many  
37 different life history approaches, so we felt,  
38 "Well, let's just talk about a human lifetime.  
39 People can relate to a human lifetime," even  
40 though my grandfather lived to be 106; I'll  
41 probably die at 66, you know, so it varies, but it  
42 doesn't really matter. So it's really just the  
43 idea that this is sufficiently isolated, this  
44 group of fish is sufficiently isolated from other  
45 groups of fish that if it was extirpated that this  
46 is not a final result, because, after all, all of  
47 these salmon have colonized from, say, four or



1 five glacial refugia, to all of the habitats  
2 within B.C. and the Yukon over the last 10,000  
3 years.

4 So this is not a final point, but from a  
5 human perspective, a human lifetime is a long  
6 time.

7 Q And that's related back to, then, the Wild Salmon  
8 Policy centred around human use so that if -- that  
9 our children will be able to --

10 DR. IRVINE: That's right. And, you know, I think I  
11 can speak for everybody up here that, you know, my  
12 personal motivation, and I'm sure the others, the  
13 reason why I got involved in the Wild Salmon  
14 Policy, and this is very personal, is I have  
15 children and I hope - I don't know - but I hope  
16 that they're going to have children some day, and  
17 I would like to think that my grandchildren would  
18 be able to, you know, go and watch salmon  
19 spawning, as we saw in the Adams River this year,  
20 I mean, so that they would be there for future  
21 generations of people. So that's -- this is,  
22 after all, about a policy -- or we manage people,  
23 not the fish, but the whole idea is so that there  
24 will be salmon available for people to observe and  
25 enjoy in future human generations.

26 Q Thank you. I thought it would be of assistance,  
27 Dr. Irvine, if before we -- if you could just  
28 briefly provide a summary on behalf of the panel  
29 for each of Action Steps 1.1, 1.2 and 1.3, so just  
30 so we have a quick overview?

31 DR. IRVINE: Sure, I can start there, and perhaps Dr.  
32 Holt might want to expound on Action Step 1.2.  
33 But what if --

34 MR. TIMBERG: Perhaps we could have page 16 brought up,  
35 Mr. Registrar?

36 DR. IRVINE: That would be good. And perhaps we could  
37 start on the table in the upper left-hand corner.  
38 Because one of the things I've noticed this week  
39 is we've been kind of -- it's been a little bit  
40 fragmented, you know, we haven't been sort of  
41 looking at the whole policy from beginning to end,  
42 and I'm not going to do that, now, but I'm just  
43 going to remind the Commissioner that there's the  
44 three basic information-gathering strategies, and  
45 the first is about fish. So how many units do we  
46 have and how healthy are they and then what do we  
47 do? The second is about the habitat, you know,

1           how's the habitat in the conservation units? How  
2           do we assess their status, and then what do we do?  
3           The third is about the ecosystems, both the  
4           freshwater and the marine. They all feed into the  
5           integrated strategic planning process, which is  
6           Strategy 4.

7           Now, if you look down at Strategy 1, okay, so  
8           there's -- so this is really the foundation for  
9           the Wild Salmon Policy, and it starts with the  
10          identification of conservation units.

11       MR. TIMBERG: So Mr. Registrar, if we could just go  
12          down to the bottom of the page, now.

13       DR. IRVINE: Action Step 1.1

14       Q       Yeah.

15       DR. IRVINE: Now, I don't know whether -- you know, Ms.  
16          Stalberg, this morning, went to her document where  
17          the habitat indicators were developed, and she  
18          described the extensive work and consultation that  
19          went on to identify these habitat indicators. And  
20          you can advise me, we could go to Holtby and  
21          Ciruna.

22       MR. TIMBERG: Well, I think it might be of assistance;  
23          we keep talking about it, but we never go there,  
24          so --

25       DR. IRVINE: I think that's - okay.

26       MR. TIMBERG: Yeah, it's CAN004236. I know it's been  
27          entered as an exhibit, but I'm not sure what that  
28          is.

29       MR. LUNN: Any assistance would be appreciated.

30       MR. TIMBERG: It was Tab 5 of Canada's list of  
31          documents.

32       DR. IRVINE: Okay, so the first point that I have to  
33          really make is that I'm not an author of this  
34          document.

35       MR. LUNN: I'm still looking it up.

36       DR. IRVINE: It's on the screen.

37       MR. TIMBERG: Perhaps we could go to the abstract?

38       DR. IRVINE: The abstract would be the right -- the  
39          best place to go.

40       MR. TIMBERG: I think that was it there. You might  
41          have to go back one.

42       DR. IRVINE: You could have French or English; I prefer  
43          English. So perhaps just highlight the text  
44          there.

45          Okay, so we saw, in the policy development,  
46          that there were very preliminary provisional  
47          estimates of conservation units that were in that

1 figure 2 that I described just a few minutes ago,  
2 and the sidebar accompanying that figure indicated  
3 how preliminary and provisional they were. So we  
4 sort of know, now, that there were 435  
5 conservation units and about 39 or so sockeye  
6 conservation units within the Fraser Watershed.

7 So this report basically documents the  
8 process by which we went from about 150, perhaps,  
9 conservation units, to about 435, and that number  
10 is still in review, or it will fluctuate as more  
11 information comes in, and so I want to give full  
12 credit to Drs. Holtby and Ciruna who worked  
13 extremely hard on this document, and I think it's  
14 safe to say Dr. Holtby probably spent -- worked on  
15 it full time for a couple of years. And so he --  
16 so this was a huge amount of work.

17 Q Right.

18 DR. IRVINE: So anyway, I'll just very quickly just  
19 walk through this, just the abstract, perhaps?

20 Q Yes, thank you.

21 DR. IRVINE: So this work that Dr. Holtby led is really  
22 modified from work by Dr. Robin Waples, who is  
23 indicated there. It's one of his many papers, is  
24 bullet number 4 -- or footnote number 4. So Robin  
25 Waples is probably one of the world's best fishery  
26 population geneticists, and so he has been  
27 instrumental in the identification of units under  
28 the American endangered species legislation. So  
29 he's the real kind of father of this methodology,  
30 I suppose.

31 So what Drs. Holtby and Ciruna did, is they  
32 kind of started with Dr. Waples' approach, but  
33 they modified it and they made it specific to  
34 British Columbia.

35 Q So for the Commissioner, can you briefly describe  
36 the methodology for identifying CU's?

37 DR. IRVINE: Certainly. So the whole idea here is what  
38 we want to do is we want to -- do we want to  
39 identify these units of genetic distinctiveness?  
40 And so if you recall, we have five taxonomic  
41 species of Pacific salmon.

42 Q Right.

43 DR. IRVINE: So you've got five conservation units  
44 right there. So that would be your very first  
45 step, okay?

46 Q Okay.

47 DR. IRVINE: So then if you think of pink salmon, pink

1 salmon have -- they're a two-year fish, and the  
2 two years there's essentially no genetic flow  
3 between pink salmon in the odd year and the even  
4 year. So we divide the pink into two, okay? So  
5 we're now up to six conservation units, as the  
6 very minimum, which is just basically the species.  
7 So then the approach that Drs. Holtby and Ciruna  
8 used, is they looked at the ecological maps. And  
9 so this was where Dr. Ciruna, who works with  
10 Nature Conservancy and has a very strong  
11 background with the province, this is where here  
12 expertise, I think, was particularly useful.

13 And so they've got maps of British Columbia,  
14 which are essentially divided up into these eco  
15 regions.

16 Q Right.

17 DR. IRVINE: And I'll just explain the concept here.  
18 So the idea is that because we don't have  
19 information on genetics or the life history of  
20 salmon and all these different areas of the  
21 province, the concept is that if the if share  
22 living in a different ecosystem, in a different  
23 environment, that those fish will be adapted to  
24 that environment, and we may not have the  
25 information on the fish to be able to actually  
26 confirm that.

27 Q Right.

28 DR. IRVINE: So what Dr. Holtby and Ciruna did is they  
29 started with these provincial maps, and there were  
30 some 20 or 25 --

31 Q Right.

32 DR. IRVINE: -- areas in the province. So that's based  
33 largely on fresh water, on hydrology. So it's,  
34 you know, the flows are different, the  
35 temperatures are different, the salmon presumably  
36 that live in those different areas will be  
37 different.

38 Q Right. And so that -- one factor, then, is the  
39 ecology?

40 DR. IRVINE: And I'm just going to mention the marine  
41 aspect.

42 Q Okay.

43 DR. IRVINE: So then there's another set of maps which  
44 were developed in Portland by the State of the  
45 Salmon Group in Portland, and they basically  
46 mapped the -- from a salmon perspective, they  
47 looked at salmon in the North Pacific and they

1 identified areas of the marine environment which  
2 were different, and so there were a number of  
3 these areas in B.C. And so, for example, the  
4 Strait of Georgia would be thought of as different  
5 from, say, the west coast of Vancouver Island.  
6 Q Okay.  
7 DR. IRVINE: So then what you do is you look at the  
8 streams that flow into those marine areas and you  
9 have another layer of maps, okay? So then  
10 essentially what you do is you overlay those two  
11 maps and you end up with, I think it was, 31  
12 units, I think, 31 potential areas. Okay, so we  
13 started with six species -- or five species, one  
14 was divided into two, so we had six -- a minimum  
15 of six conservation units, okay?  
16 Q Right.  
17 DR. IRVINE: So then you've got something like 31 of  
18 these --  
19 Q So I'm going to just try to --  
20 DR. IRVINE: Speed this --  
21 Q -- keep this moving --  
22 DR. IRVINE: All right.  
23 Q -- because Dr. Riddell did a bit of this.  
24 DR. IRVINE: Okay.  
25 Q So you've talked about for the methodology for  
26 identifying CU's.  
27 DR. IRVINE: Right.  
28 Q Ecology, freshwater and marine.  
29 DR. IRVINE: Yeah.  
30 Q And then, two, there's an issue of molecular  
31 genetics?  
32 DR. IRVINE: That's right. So then you've got these --  
33 Q And then I'll just lead, if I may?  
34 DR. IRVINE: Okay.  
35 Q The third is biology --  
36 DR. IRVINE: That's right.  
37 Q -- is that correct?  
38 DR. IRVINE: That's right.  
39 Q So just briefly, just in the interest of time --  
40 DR. IRVINE: Okay.  
41 Q -- you've described the ecology. If you could  
42 just, briefly, to get us back onto this page, how  
43 the molecular genetics works and how the biology  
44 works?  
45 DR. IRVINE: Okay, so I explained how we don't have  
46 information on salmon in all the areas, so  
47 essentially you use the ecosystem to tell you

1 where the salmon are likely to be different. So  
2 then what you do is you could look at information  
3 on the salmon, themselves, so you look at things  
4 like the run timing and their spawn timing, their  
5 distribution, and what you tended to find, as well  
6 as the genetics. So we don't have information on  
7 genetics for all of these areas -- from salmon  
8 from all these areas.

9 But what was really fascinating, at least to  
10 me, and I'm sure to others, is that the genetic  
11 information largely confirmed the information that  
12 was assumed based on these ecological maps.

13 Q Okay, so just to try to keep this moving along,  
14 then, we've got your conservation units. I'm  
15 wondering if, going back to the abstract, if  
16 there's anything else we need to know to  
17 understand Dr. Holtby's work that he did over --  
18 and Dr. Ciruna's work?

19 DR. IRVINE: No, I think that's covered it, but I just  
20 want to emphasize how thorough a job they did.  
21 And I mentioned this morning how we visited, you  
22 know, 12 communities, both First Nations  
23 communities and the public presented these  
24 proposed units, received feedback from a large  
25 number of individuals, which did result in some  
26 revisions to the maps, or to the conservation  
27 units.

28 Q Okay. And so --

29 DR. IRVINE: So you have the units identified.

30 Q Yeah.

31 DR. IRVINE: So the next thing, of course, is to  
32 identify the benchmarks.

33 Q So that's Action Step 1.2?

34 DR. IRVINE: That's Action Step 1.2.

35 Q Okay.

36 DR. IRVINE: And we have described -- talked about this  
37 figure 3 which -- with red, amber and green zones  
38 and the lower and upper benchmarks. And I think  
39 it would be best if Dr. Holt briefly described  
40 what has been done there.

41 Q Okay. Dr. Holt, if you could, trying at this  
42 stage just to give us an overview so that we can  
43 understand the flow of Steps 1.1, 1.2 and 1.3?

44 DR. HOLT: Okay, as we've talked about before it was --  
45 that Action Step was -- developed criteria to  
46 assess CU's and identified benchmarks which  
47 represented biological status, so we developed

1 four --  
2 Q If you could speak just a bit slower just for the  
3 translator. Yeah.  
4 DR. HOLT: Developed criteria to assess CU's and  
5 identified benchmarks to represent biological  
6 status. We identified four classes of indicators,  
7 which I spoke about yesterday. Those were  
8 abundances, distribution, trends and abundance  
9 over time, and fishing mortality relative to  
10 productivity. For each of those classes of  
11 indicators we identified specific metrics.  
12 Q Right.  
13 DR. HOLT: And then, within each of those individual  
14 metrics we identified lower and upper benchmarks.  
15 And on two of those classes of indicators we  
16 evaluated them using a simulation modelling  
17 approach. Now, I know you just want an overview,  
18 now, so I won't go into the details, unless you  
19 want me to get into the details.  
20 Q I think we might as well. We're here right now,  
21 so let's go for that. I'm thinking that we should  
22 perhaps look at your paper --  
23 DR. HOLT: Okay.  
24 Q -- at this time. If we could have Canada's Tab  
25 13. It's CAN010353.  
26 MR. BUTCHER: Exhibit 184.  
27 MR. TIMBERG: Exhibit 184, thank you.  
28 DR. HOLT: So if we look at figure 4 --  
29 Q Page 17.  
30 DR. HOLT: -- on page 9.  
31 Q Or page 9, sorry.  
32 DR. HOLT: Oh, you might be right.  
33 Q I think it's page 17 or 9; we'll take a look.  
34 DR. HOLT: You're probably right. Yeah. So you can  
35 see the classes, the four classes of indicators  
36 here. They're the metrics within those classes  
37 underneath them and the benchmarks. So from this  
38 we come up with a multi-dimensional assessment of  
39 status. There's no single red/amber/green status;  
40 we have a red/amber/green on each of those metrics  
41 within those classes of indicators.  
42 Q Can you explain why you've decided on these four  
43 metrics?  
44 DR. HOLT: Sure.  
45 Q Yeah.  
46 DR. HOLT: We chose the abundance metrics and the  
47 distribution metrics because they were highlighted

1           in the policy as being important components of a  
2           status assessment.

3           Q     Okay.

4           DR. HOLT: We also included changes in abundance over  
5           time, because the policy also states that that  
6           lower benchmark should be -- allow for a  
7           significant buffer between that level and a level  
8           that would be considered listing by COSEWIC.

9           Q     Right.

10          DR. HOLT: And COSEWIC actually uses trends and  
11          abundance over time commonly to assess status.

12          Q     Okay.

13          DR. HOLT: So we wanted to have a class of indicators  
14          that mirrored what COSEWIC might consider.

15                 We further included fishing mortality, which  
16          is different than the other three in that it's not  
17          an intrinsic property of the system but is a  
18          threat on the system, but we included it because  
19          it can help us in situations where we don't have  
20          information on abundances. If we do have  
21          information on the exploitation rates, we can  
22          identify situations where those exploitation rates  
23          are beyond what might be sustainable for that  
24          conservation unit.

25          Q     And so fishing mortality, is that fish that are  
26          caught in fishing?

27          DR. HOLT: Yes.

28          Q     Okay, thank you.

29          MR. WALLACE: For the record, the exhibit on the screen  
30          is Exhibit 153. Also, for the record, the  
31          previous exhibit was 143, the Holtby and Ciruna  
32          report.

33          MR. TIMBERG:

34          Q     And so I understand that the fishing mortality  
35          indicator is different, because that's not a  
36          property that's intrinsic to the conservation  
37          unit --

38          DR. HOLT: Right.

39          Q     -- it's an outside influence; is that correct?

40          DR. HOLT: Exactly.

41          Q     And so the other three sort of occur within their  
42          own natural environment; is that --

43          DR. HOLT: They are properties of the fish within the  
44          conservation unit themselves.

45          Q     Okay, so abundance is the amount, changes in  
46          abundance over time, and then the distribution?

47          DR. HOLT: Yes.



1 Q Okay. I'm with you on there. So what is a  
2 metric?

3 DR. HOLT: So metrics are specific quantifiable ways so  
4 assess status within those classes of indicators.  
5 So abundance could be the number of spawners  
6 within a single year or number of spawners  
7 averaged over a generation, as an example. So  
8 it's a quantifiable way to measure the status  
9 within that class of indicator.

10 Q Okay. So for our assistance, can you give us a  
11 sense of what the metrics are for each of the four  
12 classes of indicators?

13 DR. HOLT: So abundance, as I mentioned, could be the  
14 spawner abundances within -- for a current -- for  
15 a single year, the current year. Change in  
16 abundance over time could be the reduction in  
17 numbers of spawners within a conservation unit  
18 over three generations, which is commonly used by  
19 COSEWIC as a metric of change over time.

20 Fishing mortality could be exactly that, the  
21 fishing mortality or exploitation rate for the  
22 current year, or averaged over the current  
23 generation.

24 Q Right.

25 DR. HOLT: Distribution is a little bit more  
26 complicated. The simplest metric could be the  
27 number of spawning locations within a conservation  
28 unit. So you might have a conservation unit with  
29 50 --

30 Q Right.

31 DR. HOLT: -- spawning locations, or 50 locations where  
32 we count spawners. There could be another one, a  
33 conservation unit, with only one. Or we could  
34 imagine a single conservation unit that, 20 years  
35 ago, used to have 50 different locations and now  
36 only has one.

37 Q So a lot of that will depend on the size of the  
38 CU? A large CU might have more distribution  
39 internally?

40 DR. HOLT: It might not be directly related to the  
41 spatial size, but they do differ among  
42 conservation units.

43 Q Okay.

44 DR. HOLT: Some conservations might have always just  
45 had one location and that's just the way the unit  
46 is.

47 Q And do you need data on each of these metrics,

1           then, to do this?

2       DR. HOLT: No, we have argued that assessments can  
3           proceed without information on all of them. In  
4           fact, we -- part of the reason why we describe  
5           multiple metrics and multiple dimensions is  
6           because we understood that information won't be  
7           available for every single metric for every single  
8           CU.

9       Q     Right.

10      DR. HOLT: So this provides a way to assess status,  
11           even if we don't have information for one  
12           component.

13      Q     Okay. Thank you. And then we then move down to  
14           benchmarks relative to a metric. So what would  
15           that be? What is the benchmarks on each metric?

16      DR. HOLT: So we have lower and upper benchmarks for  
17           each, where the lower benchmark was to be set at a  
18           level to allow for a substantial buffer between it  
19           and the level to be -- that could be considered  
20           listing by COSEWIC.

21      Q     And so this is the figure that we've been looking  
22           at, figure 3 in the Wild Salmon Policy?

23      DR. HOLT: Figure 3 on page 17 of the Wild Salmon  
24           Policy.

25      Q     Okay. So this is how we tie all this back to this  
26           chart. Okay, thank you.

27      DR. HOLT: And so we derived many of these lower and  
28           upper benchmarks from the scientific and  
29           management literature from previous examples.  
30           What we did for two of those classes of indicators  
31           is we quantitatively evaluated their performance,  
32           so we did this, as I briefly mentioned before,  
33           using a simulation modelling approach, which is  
34           really a cutting-edge technique for evaluating  
35           benchmarks or things like this. It's been just  
36           recently applied in the last five or 10 years,  
37           internationally. The way it works is we -- we  
38           applied it because we don't know what the future's  
39           going to be like. We can envision many different  
40           trajectories of what might happen in the future.  
41           We use a simulation model to project what multiple  
42           trajectories of future events might be, and then  
43           we apply these benchmarks to those multiple future  
44           trajectories to evaluate how they might perform.  
45           So performance could be, "What's the probability  
46           the population will actually go extinct or become  
47           extirpated?" or, "What's the probability that a

1 population at low abundance will recover to a  
2 higher level?" So we can, by using the simulation  
3 model, we can evaluate what the performances of  
4 the benchmarks are under a variety of different  
5 future trajectories.

6 Now, this is a process that takes time. It  
7 took us about a year to develop it. Like to run  
8 the single model, itself, takes about four or five  
9 days, so you can imagine that when we're doing  
10 sensitivity analysis, when we're coding, when  
11 we're running, you know, revising this, it takes a  
12 long time. So it took us about a year to develop  
13 this model and apply it to these benchmarks.

14 So we used this simulation model that  
15 accounted for uncertainties in the biological  
16 system. So in processes such as recruitment,  
17 uncertainty in recruitment, uncertainty in age of  
18 maturity, uncertainty in the management system,  
19 such as uncertainty in how well we can measure,  
20 how many fish there are, uncertainty in how well  
21 we can estimate these benchmarks using that date,  
22 how well we can -- so uncertainties in the  
23 management and biological system.

24 Q Right. So what -- I'm just noting the time, so  
25 I'm thinking that we should start to, if it's  
26 convenient --

27 DR. HOLT: Okay.

28 Q -- wrap up shortly. So you're running these  
29 assessments, and so the purpose of all of that is  
30 for what purpose?

31 DR. HOLT: To evaluate the long-term performance of  
32 these benchmarks, to evaluate how precautionary  
33 they were. So we, through those analysis, we  
34 identified several benchmarks on the two classes  
35 of indicators, abundances and fishing mortality,  
36 that we then recommended for use.

37 Q Okay. And then that work is being done for -- and  
38 you're doing this for how many CU's right now?

39 DR. HOLT: So we are applying these to the conservation  
40 units, the 26 --

41 Q Right.

42 DR. HOLT: -- plus 10 conservation units in the Fraser  
43 River.

44 Q Gotcha.

45 DR. HOLT: This methodology has also been applied to  
46 the west coast of Vancouver Island, to all species  
47 there; however, that hasn't been formally

1 reviewed, but it was done informally over a year  
2 ago. My understanding is it's also being applied  
3 in the Skeena-Nass.

4 MR. TIMBERG: Okay. Mr. Commissioner, if this is a  
5 convenient time?

6 THE COMMISSIONER: Yes, thank you, Mr. Timberg. And  
7 we'll adjourn until 10:00 a.m. on Tuesday morning;  
8 is that correct?

9 MR. TIMBERG: Yes.

10 THE REGISTRAR: The hearing is now adjourned until  
11 10:00 a.m. Tuesday, December the 7th.

12  
13 (PROCEEDINGS ADJOURNED TO TUESDAY, DECEMBER  
14 7, 2010, AT 10:00 A.M.)  
15  
16  
17

18 I HEREBY CERTIFY the foregoing to be a  
19 true and accurate transcript of the  
20 evidence recorded on a sound recording  
21 apparatus, transcribed to the best of my  
22 skill and ability, and in accordance  
23 with applicable standards.  
24  
25  
26

27 \_\_\_\_\_  
28 Patricia Kealy  
29

30 I HEREBY CERTIFY the foregoing to be a  
31 true and accurate transcript of the  
32 evidence recorded on a sound recording  
33 apparatus, transcribed to the best of my  
34 skill and ability, and in accordance  
35 with applicable standards.  
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39 \_\_\_\_\_  
40 Karen Hefferland  
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