

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.

Wednesday, August 31, 2011

**Tenue à :**

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

le mercredi 31 août 2011

## **APPEARANCES / COMPARUTIONS**

Brock Martland Kathy L. Grant	Associate Commission Counsel Junior Commission Counsel
Mitchell Taylor, Q.C. Jonah Spiegelman	Government of Canada ("CAN")
Clifton Prowse, Q.C. Tara Callan	Province of British Columbia ("BCPROV")
No appearance	Pacific Salmon Commission ("PSC")
No appearance	B.C. Public Service Alliance of Canada Union of Environment Workers B.C. ("BCPSAC")
No appearance	Rio Tinto Alcan Inc. ("RTAI")
Alan Blair Shane Hopkins-Utter	B.C. Salmon Farmers Association ("BCSFA")
No appearance	Seafood Producers Association of B.C. ("SPABC")
Gregory McDade, Q.C.	Aquaculture Coalition: Alexandra Morton; Raincoast Research Society; Pacific Coast Wild Salmon Society ("AQUA")
Tim Leadem, Q.C. Judah Harrison	Conservation Coalition: Coastal Alliance for Aquaculture Reform Fraser Riverkeeper Society; Georgia Strait Alliance; Raincoast Conservation Foundation; Watershed Watch Salmon Society; Mr. Otto Langer; David Suzuki Foundation ("CONSERV")
Katrina Pacey	Area D Salmon Gillnet Association; Area B Harvest Committee (Seine) ("GILLFSC")

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

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

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

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No appearance	Métis Nation British Columbia ("MNBC")

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

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

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1 Vancouver, B.C. /Vancouver  
2 (C.-B.)  
3 August 31, 2011/le 31 août  
4 2011  
5

6 THE REGISTRAR: The hearing is now resumed.

7 MR. MARTLAND: Mr. Commissioner, we are convening early  
8 today to provide an additional 15 minutes for Ms.  
9 Gaertner, given the request she made yesterday.  
10 So we have the two returning panel members from  
11 regulatory panel number 1. I'll also advise that  
12 Ms. Gaertner very helpfully has organized a series  
13 of exhibits, proposed exhibits that she's looking  
14 to enter via this panel. She's, I understand,  
15 reviewed that with other counsel here. I don't  
16 understand there to be any objection so that may  
17 happen fairly quickly in the absence of objection,  
18 given agreement by counsel in the room. Thank  
19 you.

20 THE COMMISSIONER: Thank you, Mr. Martland. Ms.  
21 Gaertner?  
22

23 TREVOR SWERDFAGER, recalled.  
24

25 ANDREW THOMSON, recalled.  
26

27 MS. GAERTNER: Thank you, Mr. Commissioner. For the  
28 record, Brenda Gaertner, and with me, Leah Pence,  
29 for the First Nations Fish Coalition. I have  
30 numerous documents that I've provided and I'm  
31 going to run through very quickly. The first two  
32 are the First Nations Summit Resolutions that are  
33 the companion resolutions to the Union of B.C.  
34 Indian Chiefs Resolutions of 2009, and I proposed  
35 that they be marked Exhibit 1647 and 1648.

36 THE REGISTRAR: So marked.  
37

38 EXHIBIT 1647: First Nations Summit,  
39 Resolution #0909.06, B.C. First Nations'  
40 Statement of Jurisdiction on Aquaculture  
41

42 EXHIBIT 1648: First Nations Summit,  
43 Resolution #0909.07, B.C. First Nations'  
44 Statement of Solidarity on Aquaculture  
45

46 MS. GAERTNER: The next two documents at First Nations  
47 Coalitions Tabs 3 and 4. These are DFO meeting

1 notes that were held on June 16th, 2009 and June  
2 17th, 2009. These are meetings that were hosted  
3 by the First Nations Fisheries Council at which  
4 First Nations and DFO, including Mr. Swerdfager  
5 and Mr. Thomson were present. I propose that they  
6 be marked 1649 and 1650.

7 THE REGISTRAR: So marked.

8  
9 EXHIBIT 1649: Meeting Notes, B.C. First  
10 Nations/DFO Aquaculture Management, June 16,  
11 2009

12  
13 EXHIBIT 1650: Meeting Notes, B.C. First  
14 Nations/DFO Aquaculture Management, June 17,  
15 2009

16  
17 CROSS-EXAMINATION BY MS. GAERTNER, continuing:

18  
19 Q Mr. Thomson?

20 MR. THOMSON: I'm sorry, those two meetings were not  
21 hosted by the First Nations Fisheries Council.

22 Q I'm sorry, who were they hosted by?

23 MR. THOMSON: DFO.

24 MS. GAERTNER: All right. Thank you for that  
25 clarification. Moving next to Tab 10, which is  
26 the First Nations Fisheries Council Analysis of  
27 the Strategic Questions posed by Department of  
28 Fisheries and Oceans for the Development of the  
29 Regulatory Framework, dated January 2010, and I  
30 propose that that be marked 1651.

31 THE REGISTRAR: So marked.

32  
33 EXHIBIT 1651: Analysis of "Strategic  
34 Questions" posed by Fisheries and Oceans  
35 Canada for the Development of a Regulatory  
36 Framework for B.C. Aquaculture, January 2010

37  
38 MS. GAERTNER: Moving next to First Nations Tab 11,  
39 which is a report done for the First Nations  
40 Fisheries Council by Diane Urban called  
41 "Aquaculture Policy and Past Inquiry  
42 Recommendations on B.C. First Nations Title and  
43 Rights, Report to First Nations Fisheries  
44 Council," Exhibit 1652.

45 THE REGISTRAR: So marked.

46  
47 EXHIBIT 1652: Aquaculture Policy and Past

1                   Inquiry Recommendations on B.C. First Nations  
2                   Title and Rights, Report to First Nations  
3                   Fisheries Council from Diane Urban  
4

5       MS. GAERTNER: Moving next to Tab 21 of the First  
6                   Nations Coalition, the briefing notes from the  
7                   First Nations Fisheries Council that was provided  
8                   to the B.C. First Nations communities, providing  
9                   comments on the draft B.C. Aquaculture  
10                  Regulations, dated July 12th, 2010. I propose  
11                  that it be marked 1653.

12       THE REGISTRAR: So marked.

13  
14                   EXHIBIT 1653: Briefing Note, July 12, 2010,  
15                   Comments on Draft B.C. Aquaculture  
16                   Regulations  
17

18       MS. GAERTNER: A letter from Sechelt Indian Band dated  
19                   August 24th, 2010, regarding the proposed  
20                   regulations. That letter is found on the First  
21                   Nations Fisheries Council's public website.

22       Q       I'll just pause for a moment and ask the witnesses  
23                   this question. This is a letter that was done in  
24                   August 2010. You'll agree it's an example of a  
25                   number of letters that the Department received  
26                   around that time from individual First Nations as  
27                   distinct from the letters that were received from  
28                   either the Summit, the Union, or the First Nations  
29                   Coalition; is that correct? It's an example of a  
30                   type of letter that was received by the  
31                   Department?

32       MR. SWERDFAGER: Yes, I think that it is exemplary of I  
33                   don't know exactly how many, but I'd say we got  
34                   quite a few of a very similar nature.

35       MS. GAERTNER: Thank you. And I propose that that be  
36                   marked 1654.

37       THE REGISTRAR: So marked.

38  
39                   EXHIBIT 1654: Response to Proposed  
40                   Regulations regarding B.C. Aquaculture,  
41                   August 24, 2010  
42

43       MS. GAERTNER: Moving to Tab 29, which is an email from  
44                   the First Nations Fisheries Council to Deputy  
45                   Minister Claire Dansereau dated August 27th, 2010,  
46                   providing concerns related to the Pacific  
47                   Aquaculture Regulations and the need for improved

1           collaborations, and I note that those emails were  
2           cc'd to both Mr. Thomson and Mr. Swerdfager. Can  
3           we have that marked as 1655?

4   THE REGISTRAR: So marked.

5  
6  
7           EXHIBIT 1655: Email dated August 27, 2010  
8           from Brenda McCorquodale to Claire Dansereau,  
9           re Concerns related to Pacific Aquaculture  
10          and the need for improved collaboration with  
11          B.C. First Nations Greetings Deputy  
12

13   MS. GAERTNER: And the next is a letter from Chief  
14          Claxton of the First Nations Fisheries Council to  
15          Trevor Swerdfager, dated August 27th, 2010,  
16          regarding the draft Pacific Aquaculture  
17          Regulations and the 60-day consultation period,  
18          and I note that that's a 10-page letter. May I  
19          have that marked as 1656?

20   THE REGISTRAR: So marked.

21  
22          EXHIBIT 1656: First Nations Fisheries  
23          Council letter to Trevor Swerdfager re Draft  
24          Pacific Aquaculture Regulations and B.C.  
25          First Nations engagement in the development  
26          of an Aquaculture Management Framework for  
27          the Pacific  
28

29   MS. GAERTNER: First Nations Fisheries Council,  
30          Perspectives on a Management Framework for  
31          Aquaculture in British Columbia, dated April 20,  
32          2011, Tab 45 of our documents, I propose that that  
33          be marked 1657.

34   THE REGISTRAR: That's Tab 45? You skipped 42.

35   MS. GAERTNER: We're not doing 42.

36   THE REGISTRAR: You're not doing 42? Thank you.

37   MS. GAERTNER: Tab 45, sorry.

38   THE REGISTRAR: That's 1657.

39   MS. GAERTNER: Tab 42 is already an exhibit.

40  
41          EXHIBIT 1657: First Nations Perspectives on  
42          a Management Framework for Aquaculture in  
43          British Columbia  
44

45   MS. GAERTNER: And finally, Commission Tab number 7,  
46          which is the B.C. Aquaculture Licensing Approach,  
47          something called Special Notes.



1 Q I'm wondering if one of you could advise us what  
2 that document is, when it was produced and by  
3 whom?

4 MR. THOMSON: Can the document be scrolled down?

5 MR. SWERDFAGER: Can you just scroll down a little bit?

6 MR. THOMSON: Can you just scroll down? Is it that?

7 Q It's my understanding that this accompanied the  
8 draft suite of policies. Does that help either of  
9 you?

10 MR. SWERDFAGER: Not me.

11 MR. THOMSON: No. There are certainly aspects of it  
12 that are similar to documents I've seen, but I  
13 couldn't say for certain that I've seen this  
14 document.

15 MS. GAERTNER: Could we have that marked for  
16 identification at this point in time?

17 MR. MARTLAND: Indeed, it is referred to in our Policy  
18 and Practice Report, it's referenced there. I  
19 don't see an issue with it. In the absence of  
20 objection, I appreciate it's a little artificial,  
21 but that nonetheless, it could be marked as an  
22 exhibit proper, unless there is an objection?

23 MR. TAYLOR: I don't have an objection, it's just going  
24 in as a bare document. The witnesses don't know  
25 what it is, but it's not a particularly surprising  
26 content.

27 MS. GAERTNER: It's a document created by the  
28 Department of Fisheries and Oceans.

29 THE REGISTRAR: That will be marked as 1658.

30 MS. GAERTNER: Thank you.

31

32 EXHIBIT 1658: B.C. Aquaculture Licensing  
33 Approach, Special Notes  
34

35 MS. GAERTNER:

36 Q I'll turn now to the substantive questions that  
37 I'm going to try to get with you in this very  
38 short period of time.

39 MS. GAERTNER: But before I do, I must note on the  
40 record, Commissioner, that Grand Chief Stewart  
41 Phillip is here today, and also Jordan Point, who  
42 is the Executive Director for the First Nations  
43 Fisheries Council.

44 Q Would you agree with me that the work of the First  
45 Nations Fisheries Council, first, in obtaining the  
46 mandates from both the UBCIC and the Summit to  
47 meet with DFO officials on strategic issues and

1 concerns regarding the transfer of primary  
2 regulatory authority of the Department of  
3 Fisheries and Oceans, and in providing information  
4 and hosting meetings with the First Nations around  
5 the province and gathering, theoretically, the  
6 concerns have been useful for the Department of  
7 Fisheries and Oceans?  
8 MR. THOMSON: Yes.  
9 Q And would you agree that this work needs to  
10 continue?  
11 MR. THOMSON: I agree that we need to continue working  
12 with the First Nations Fisheries Council on  
13 aquaculture issues, yes.  
14 Q And you'll agree with me that as early as June  
15 16th and 17th, 2009, at meetings that both of you  
16 attended, that DFO was put on notice that First  
17 Nations had concerns regarding such things as the  
18 protection of wild fish stocks as it relates to  
19 the siting of farms?  
20 MR. THOMSON: Yes.  
21 Q That First Nations needs to be consulted about all  
22 decisions regarding fish farms in their  
23 territories?  
24 MR. THOMSON: Yes.  
25 Q They were concerned with how enforcement of fish  
26 farms would be carried out?  
27 MR. THOMSON: Yes.  
28 Q They raised concerns as to whether farms can or  
29 will be moved upland or inland and contained?  
30 MR. THOMSON: I honestly don't remember that particular  
31 point.  
32 Q If that was in your minutes that I've tabled,  
33 would you agree with that?  
34 MR. THOMSON: Okay. I would agree if it's in the  
35 minutes, yes.  
36 Q And that First Nations believe that they've been  
37 involved too late in the process?  
38 MR. THOMSON: Again, if it's in the minutes, I would  
39 agree with it. I don't remember that particular  
40 concern at that particular meeting.  
41 Q That they raised concerns about how First Nations  
42 roles would be dealt with in the management of  
43 fish farms?  
44 MR. THOMSON: Yes.  
45 Q That they should have been consulted before first  
46 fish farms were ever entered into the water?  
47 MR. THOMSON: I've certainly heard that concern in many

1 meetings.

2 Q They asked questions of how you'd be responsive to  
3 new science as you looked at the siting of these  
4 farms?

5 MR. THOMSON: Yes.

6 Q And they asked questions on how the Pacific  
7 Aquaculture Regulations would work with the Wild  
8 Salmon Policy?

9 MR. THOMSON: Yes.

10 Q And can you confirm for the Commissioner that as  
11 early as 2009, First Nations advised DFO that they  
12 saw the transfer of regulatory jurisdiction to  
13 Canada as an opportunity, both legally and  
14 otherwise for their substantive concerns regarding  
15 potential impacts and infringements to their s. 35  
16 rights to be substantially considered and  
17 addressed by the Crown?

18 MR. THOMSON: Do you want to take it?

19 MR. SWERDFAGER: I think that certainly, I would agree  
20 that some First Nations made that point to us.  
21 Others did not. And some of the materials and the  
22 opinions that were conveyed to us dealt with those  
23 topics, others focussed more specifically on  
24 aquaculture.

25 MS. GAERTNER: And if I could turn now to Exhibit 1240,  
26 and I want to turn to page 8 of that exhibit?

27 Q That's the listing, that's the report that the  
28 First Nations Fisheries Council did summarizing  
29 the meetings that were held in 2010. You're  
30 familiar with that report. And I want to go to  
31 page 8 of that, where there's a listing of  
32 concerns and for the purposes of the  
33 Commissioner's terms of reference, ask you what  
34 specific and independent steps have you taken on  
35 behalf of the Department of Fisheries and Oceans  
36 to substantially consider and address items number  
37 2 and number 6? Number 2 is the need to conserve  
38 wild stocks and their habitats vis-à-vis the  
39 proposed Federal Aquaculture Regulations, and  
40 number 6 is the need to base management decisions  
41 on science and comprehensive environmental  
42 assessment. What specific and independent steps  
43 have you taken since these concerns have been  
44 raised with you?

45 MR. SWERDFAGER: If you go back up to number 2, please?  
46 So conservation and restoration of wild stocks and  
47 their habitats, and the kinds of things that are

1 listed there in the description, I think it would  
2 take us a very, very long time to identify all of  
3 the things that DFO has done and is doing with  
4 respect to that item.

5 Certainly, in terms, if you're posing the  
6 question specifically related to the Pacific  
7 Aquaculture Regulations, we have structured them  
8 in a way that we feel allows us to address all of  
9 those sub-bullets in the Description column,  
10 there. And when you look at some of the far-field  
11 indicators, et cetera, that are in the sub-themes,  
12 I'm not sure just what that means, but I think the  
13 regulation is very much structured that way.

14 If you're looking for an itemization of all  
15 of the activities that the Department of Fisheries  
16 and Oceans does to "conserve and restore wild  
17 stocks," I think that would take us a very long  
18 time, and I think a lot of evidence has probably  
19 been introduced on that already.

20 The sixth point, which I recall is -- if,  
21 again, you could scroll down, Mr. Lunn -- with  
22 respect to basing management on science and  
23 comprehensive environmental assessment tools and  
24 broadening the scope as I indicated in there,  
25 certainly, the decision making processes that  
26 we've got in place in design of the regulation and  
27 in terms of its administration, in our view, at  
28 least, will quite comprehensively cover those  
29 points.

30 Q To your knowledge, has there been a comprehensive  
31 study completed, or initiated since 2009 to  
32 address the concerns First Nations have raised  
33 with the Department of Fisheries and Oceans  
34 regarding the size, location and number of the  
35 existing finfish farms along the migratory route  
36 of the Fraser River sockeye salmon, including  
37 cumulative impacts?

38 MR. SWERDFAGER: A separate study? No, we haven't  
39 conducted a separate study described as you have  
40 just now.

41 Q Would you agree that a comprehensive study aimed  
42 to do that which had terms of reference agreed  
43 upon by the First Nations and the Department of  
44 Fisheries, and ideally agreed to with the support  
45 of other stakeholders, would be a useful step in  
46 addressing this concern?

47 MR. SWERDFAGER: I think that the idea of conducting

1 some kind of overall study may have some merit.  
2 It's not something I would want us to agree to on  
3 the spot, so to speak, because it depends on what  
4 would be involved in it. I do think that a large  
5 part of our integrated managements plans will  
6 address many of those issues. That's why they're  
7 being structured and designed in the way they are.  
8 I think, at this point, the need is most urgent to  
9 get on with managing and guiding the sector  
10 overall as opposed to studying more. And I do  
11 think, as well, we will have the benefit of the  
12 outcome of this inquiry to guide us in much of our  
13 decision making and activity so that a further  
14 comprehensive study of the nature you're  
15 describing may not be necessary.

16 Q Or if based on the concomitant of all of the  
17 information that the Commissioner has that such a  
18 study would be useful, it would be welcomed by the  
19 Department, including you?

20 MR. SWERDFAGER: I think that if we got to the point  
21 where we had the work of the Inquiry before us,  
22 and so on, and we felt that another study of the  
23 nature you're describing is necessary and  
24 beneficial, certainly, the Department would look  
25 at it.

26 Q I have only three minutes left, and I have to turn  
27 to the decision to grandfather these licenses. I  
28 would like to turn to Exhibit 1244 and 1238.  
29 These are two letters, one from the First Nations  
30 Summit, and the other from the Leadership Council.  
31 They're dated in July. You're familiar with these  
32 letters? It's two letters to the Minister Shea.

33 MR. THOMSON: We're both trying to follow the document  
34 fairly quickly, there.

35 Q Shea. Yes.

36 MR. THOMSON: Minister Shea. And I'm familiar with  
37 both of those letters.

38 Q And you'll agree with me that those letters raised  
39 very strong concerns that DFO's plans to rollover  
40 the existing licenses without adequate  
41 consultation would not meet your legal  
42 obligations?

43 MR. THOMSON: I would need an opportunity to read them  
44 all in detail again. My understanding at this  
45 point in the process is that the letters, for the  
46 most part, were focussed on the consultation  
47 process around the regulation, itself, as opposed

1 to any site specific decisions. Now, perhaps  
2 further down in the text, but it does maybe talk  
3 about site specific issues, but if you look at the  
4 one, for example, that's on the left now --

5 Q Could I just take you to page 2 of Exhibit 1238,  
6 at the top of the page --

7 MR. THOMSON: Yeah.

8 Q -- where it says:

9

10 We also understand that DFO plans to rollover  
11 existing aquaculture licenses without any  
12 consultation with First Nations. These  
13 licenses were issued pursuant to a regulatory  
14 regime which the courts have determined is  
15 unconstitutional. A jurisdiction rollover  
16 without consultation --

17

18 MR. THOMSON: Yeah.

19

20 Q -- accommodation of the infringement caused  
21 by these licenses would be unconstitutional.

22

23 MR. THOMSON: Yeah, so I see that now that you've  
24 pointed it out and obviously, yes, it does raise  
25 that --

26

26 Q Could you tell me who made the --

27

27 MR. THOMSON: -- the main focus was, of course, the  
28 regulations, and that's the timeframe that we were  
29 in at that point, if you recall?

30

30 Q Could you tell me who in DFO made the decision to  
31 approach these licenses by way of grandfathering  
32 or rollover?

33

33 MR. THOMSON: I think that the decision in the  
34 Department was to issue licenses to people who  
35 held them already.

36

36 Q Who made that decision?

37

37 MR. THOMSON: And the approach was taken not so much to  
38 just simply grandfather and roll them over.

39

39 Q I'm sorry, I'm asking the question who made the  
40 decision?

41

41 MR. THOMSON: Yeah. I think the Department's decision  
42 on these issues would have been made by our Deputy  
43 Minister, with advice from people within the  
44 Department.

45

45 Q And were there briefing notes that were made?

46

46 MR. THOMSON: I hadn't quite finished my previous  
47 answer, sorry.

1 Q Were there briefing notes made to the Deputy  
2 Minister on this?

3 MR. THOMSON: I wonder if maybe I could just finish, if  
4 I may, the previous one? When we had our Deputy  
5 Minister briefed up fully with respect to the  
6 decision to issue licenses, I would have to go  
7 back and check to see where and when in that  
8 process we may have briefed our Minister, as well,  
9 because the licenses, of course, are issued on her  
10 behalf, so to speak. And so I wouldn't want to  
11 leave you with the impression that we left our  
12 Minister out of the process, so to speak, but I  
13 can't say to you she was briefed specifically on  
14 that issue at that time, so to speak.

15 MS. GAERTNER: Mr. Commissioner, none of the documents  
16 that the Commission counsel put before you or the  
17 Crown contained any of this history and I'm asking  
18 that these briefing notes and the history  
19 associated with this decision be made available to  
20 you for your review and be presented.

21 MR. MARTLAND: And with respect to that request,  
22 certainly, we'll follow up with Ms. Gaertner, with  
23 Canada, and we'll address the request that's been  
24 made.

25 MS. GAERTNER: I understand I've used up my time this  
26 morning, Mr. Commissioner. I will be continuing  
27 with these witnesses to see if we can get the full  
28 story of all these issues as the days go on.  
29 Thank you, gentleman.

30 MR. MARTLAND: Mr. Commissioner, that was productive in  
31 terms of leading exhibits and evidence, but also  
32 in terms of inspiring counsel for Canada to have  
33 some questions on re-examination, I understand.  
34 I'm hoping that will be very quick, as well.

35 MR. TAYLOR: I'll be quick. Three interrelated  
36 questions, all related to the documents that Ms.  
37 Gaertner put in just now as exhibits, which I  
38 appreciate flash by quite quickly, but I think you  
39 gentlemen are familiar with the drift.  
40

41 CROSS-EXAMINATION BY MR. TAYLOR, continuing:  
42

43 Q My three interrelated questions, picking up on the  
44 correspondence where First Nations or First  
45 Nations organizations are raising concerns or  
46 seeking more consultation about the change of  
47 regime from the Province to the Federal Government

1 and the regulations or regulatory process being  
2 put in place. Was there follow-up discussion or  
3 correspondence from DFO to the correspondence  
4 she's just put in? Is that discussion or  
5 correspondence ongoing, and is some of anything  
6 you might answer part of what you were speaking  
7 about yesterday?

8 MR. SWERDFAGER: The correspondence was replied to, is  
9 the answer to the first one. Some of the dialogue  
10 between ourselves and First Nations is ongoing for  
11 sure. And the third question, again, Mr. Taylor,  
12 was?

13 Q Just whether what you've just said and what Ms.  
14 Gaertner was putting in earlier is related or part  
15 and parcel of some of the things that were being  
16 said earlier yesterday?

17 MR. SWERDFAGER: Absolutely, yeah.

18 Q I think Mr. Thomson, mainly.

19 MR. SWERDFAGER: Yeah. Yeah.

20 MR. TAYLOR: All right. Thank you. Ms. Gaertner chose  
21 not to put any response material into the  
22 overtures that the First Nations were putting  
23 forward, Mr. Commissioner. I'll take that up with  
24 Mr. Martland and see what more we might have and  
25 how we might deal with that.

26 THE COMMISSIONER: Thank you very much, Mr. Taylor.

27 MR. MARTLAND: Mr. Commissioner, that, I believe,  
28 concludes the evidence from regulatory panel  
29 number 1. What we propose to do, rather than  
30 standing down and losing time, if it's agreeable,  
31 would be simply to have Mr. Thomson excused. He  
32 returns on a separate panel tomorrow. Mr.  
33 Swerdfager would remain in place and be joined by  
34 three further witnesses, all of whom are present  
35 and ready to go.

36 THE COMMISSIONER: Yes, certainly, that's fine.

37 MR. MARTLAND: Thank you. So I will ask the additional  
38 witnesses for this panel, Drs. Marty, Sheppard and  
39 McKenzie to please come forward. We've explained  
40 to them the logistics. The binders are in front  
41 of them, and once they are there, Mr. Registrar,  
42 I'll ask they please be affirmed.

43  
44 TREVOR SWERDFAGER, reminded.

45  
46 THE REGISTRAR: The remaining three, I'll read your  
47 affirmation.



1 MARK SHEPPARD, affirmed.

2  
3 PETER McKENZIE, affirmed.

4  
5 GARY MARTY, affirmed.

6  
7 THE REGISTRAR: Thank you. Counsel?

8 MR. MARTLAND: Thank you. And what I'll do at the  
9 outset is move through the background of these  
10 witnesses. I'll try to do this in the most  
11 expeditious manner, but inviting my learned  
12 friends to identify a concern if they have one.  
13 Rather than my long-winded greeting in of  
14 biography or background about the witnesses, I'd  
15 like to rely on the CVs and the information set  
16 out there.

17 First of all, for three of these witnesses,  
18 Mr. Commissioner, I'll be asking to have them  
19 qualified as experts. Mr. Swerdfager's the  
20 exception to that. His CV is Exhibit 1578. I  
21 don't propose to review his background now.

22  
23 EXAMINATION IN CHIEF ON QUALIFICATIONS BY MR. MARTLAND:

24  
25 Q Dr. Marty, sir, if I might turn to you, please.

26 MR. MARTLAND: And Mr. Lunn, if you could bring on  
27 screen number 1, please, from Commission's list of  
28 documents?

29 Q Do you recognize that, sir, as being your CV?

30 DR. MARTY: Yes.

31 MR. MARTLAND: If this might be the next exhibit,  
32 please?

33 THE REGISTRAR: 1659.

34  
35 EXHIBIT 1659: *Curriculum vitae* of Gary Marty

36  
37 MR. MARTLAND: And without reviewing the information  
38 contained therein, but relying on what it says,  
39 I'm proposing to have this witness qualified as an  
40 expert in fish toxicology and fish pathology, with  
41 a specialty in veterinary pathology. And I don't  
42 see anyone rising to object.

43 THE COMMISSIONER: Very well, thank you.

44 MR. MARTLAND: Number 3 on our list of documents, I  
45 hope will be Dr. Sheppard's CV.

46 Q Dr. Sheppard, sir, do you recognize that as being  
47 your CV?

14

PANEL NO. 59

In chief on qualifications by Mr. Martland

In chief by Mr. Martland

1 DR. SHEPPARD: I do.

2 MR. MARTLAND: If this might be Exhibit 1660, please.

3 THE REGISTRAR: So marked.

4

5 EXHIBIT 1660: *Curriculum vitae* of Mark

6 Sheppard

7

8 MR. MARTLAND: Again, relying on the information

9 contained in that document, I'll ask that this

10 witness -- and I can advise further, Mr.

11 Commissioner, Commission counsel have circulated

12 witness summaries that summarize the expertise and

13 communicate that to participants in addition to

14 the CVs. I don't propose to put those in, but

15 that information has been communicated.

16 On the basis of this witness's background, I

17 ask to have him qualified as an expert in

18 veterinary medicine, with experience in fish

19 health. Again, seeing no objection, I'll ask to

20 have that qualification made, please.

21 THE COMMISSIONER: Thank you.

22 MR. MARTLAND: Mr. Commissioner, number 2 on Commission

23 Counsel's list of documents is Dr. McKenzie's CV,

24 I expect.

25 Q Dr. McKenzie, is that correct?

26 DR. MCKENZIE: Yes.

27 MR. MARTLAND: If this might be Exhibit 1661, please?

28 THE REGISTRAR: So marked.

29

30 EXHIBIT 1661: *Curriculum vitae* of Peter

31 McKenzie

32

33 MR. MARTLAND: On a similar footing, I'll ask to have

34 this witness qualified as an expert in veterinary

35 medicine, with experience in fish health.

36 THE COMMISSIONER: Thank you

37

38 EXAMINATION IN CHIEF BY MR. MARTLAND:

39

40 Q At the outset, panel members, and this is directed

41 to the three veterinarians on the panel, we began

42 hearings last week, some of you may be aware, on

43 the topic of disease. We heard from witnesses

44 such as Michael Kent and Stewart Johnson, and I

45 neglected to ask some fairly obvious first

46 questions. Perhaps I'll take the opportunity to

47 do that in a quick way, if I might ask one of you

- 1 to help us in understanding some terminology. One  
2 question is the meaning of pathogen as opposed to  
3 disease, and pathogen as opposed to infectious  
4 pathogen, if there is a distinction. I don't have  
5 a preference as among the witnesses. Maybe we'll  
6 take turns. Dr. Marty?
- 7 DR. MARTY: There are many microorganisms that can  
8 infect fish and so that's one level of association  
9 with microorganisms, they're just present. The  
10 next thing is the microorganism, in some cases,  
11 may cause problems in the fish, and in that case,  
12 it would be called a pathogen. Now, you had one  
13 other question, I think?
- 14 Q Infectious pathogen, is "infectious" necessarily  
15 part of pathogen, or there are non-infectious  
16 pathogens?
- 17 DR. MARTY: I think all pathogens would be considered  
18 infectious in some regard. There may be  
19 intermediate hosts that make the interaction more  
20 complex. There is also a difference between  
21 disease and not disease. Disease is a broader  
22 category. It includes pathogens, but it also  
23 could include things like exposure to toxins, and  
24 I think Dr. Rensel addressed that in a previous  
25 panel.
- 26 Q With respect to the term, "disease agent," I'll  
27 try and be fair in peppering you with these  
28 questions, Dr. McKenzie, what does that term refer  
29 to, "disease agent"?
- 30 DR. MCKENZIE: Disease agent. So just to add on to  
31 what Dr. Marty said, disease can be other things,  
32 other than infectious pathogens. So disease  
33 should not be included only as a microorganism  
34 causing a heart disease that's not caused by a  
35 microorganism. So there is another level of that.  
36 So when you're referring to a disease -- or what  
37 was the terminology, sorry, again?
- 38 Q Disease agent.
- 39 DR. MCKENZIE: Disease agent. So in that case, when  
40 there's a specifically defined disease and  
41 negative impact on the host, the pathogen that is  
42 associated with causing that disease would be the  
43 disease agent. And again, it could be a toxin, as  
44 Dr. Marty said.
- 45 Q Dr. Sheppard, but you're welcome to defer to a  
46 colleague, if you'd like, they may owe you one if  
47 you do that, "viral particle" was the next term

- 1           that we've heard described, and I don't know that  
2           it's perfectly clear what that refers to.
- 3       DR. SHEPPARD: A viral particle can't really be  
4           described as a living entity, it can't replicate  
5           on its own, Commissioner. It's essential that it  
6           invades a host and makes use of the host's  
7           metabolic cellular activity. The viral particle,  
8           itself, is an accumulation of DNA or an RNA  
9           genetic material, and then it uses the host animal  
10          and its cells to replicate.
- 11       Q    My last few terms, indeed, will take me into my  
12           next few questions, which look to have a brief  
13           understanding of the work that each of you in  
14           relation to fish farms. And by fish farms, I'm  
15           thinking of finfish aquaculture facilities on the  
16           coast of this province for today's purposes. So  
17           the terminology question, Dr. Marty, I'll ask of  
18           you. The terms, "necropsy" and "histopathology"  
19           are familiar ones in your world, but they may not  
20           be familiar for folks in the room. Could you help  
21           us understand what they refer to, please?
- 22       DR. MARTY: The term, "necropsy," is a broad term  
23           that's used for examination of the dead. It's a  
24           broad term if you're looking at any animal,  
25           essentially. If you're doing a necropsy on a  
26           human, it's called an autopsy, "auto," looking at  
27           yourself. So an autopsy is a subset of a  
28           necropsy. And your second question?
- 29       Q    And the necropsy work you would do in connection  
30           with fish we'll come to in a moment, but I take it  
31           that involves, obviously, examining a dead fish?
- 32       DR. MARTY: Correct.
- 33       Q    "Histopathology" was the second term.
- 34       DR. MARTY: Histopathology. The broad term,  
35           "pathology," is the study of disease, just the  
36           study of disease. Histopathology is the study of  
37           disease at the cellular level. And the key  
38           specialty that I have that would separate out me  
39           from, say, the other veterinarians here is that my  
40           ability to look at a section of tissue under the  
41           microscope and come up with a diagnosis and then  
42           write my report. They're trained to read my  
43           report and interpret it with their clinical and  
44           other findings, but I'm the one who's trained to  
45           actually look at the slide, itself, and render a  
46           diagnosis.
- 47       Q    With respect to the work that each of you does,

1 first of all, if I can start at the farm level,  
2 Dr. McKenzie, with you, sir, if you could help us  
3 in a quick way to understand the day-to-day work  
4 that you do, and I should perhaps briefly pause  
5 just to make it perfectly clear that by way of  
6 your background, you are one of the veterinarians  
7 or a veterinarian for Mainstream, one of the fish  
8 farm operators on the coast. What do you do in  
9 your work, what responsibilities do you have in  
10 your job, please?

11 DR. MCKENZIE: So as a veterinarian, I have a broad  
12 range of training, as do we all, in both the  
13 areas, in animal health, but also in food safety  
14 and food quality. And so my role in the company  
15 can be quite broad and is quite broad in looking  
16 at everything from egg to plate, as we say.

17 So aside from my role, I won't discuss any  
18 further the role in food safety and those aspects,  
19 but as far as fish health is concerned, my role is  
20 to manage all areas of fish health within the  
21 company. This starts off with our genetics  
22 program, how we monitor disease in our brood fish,  
23 how we maintain the eggs in the juvenile fish that  
24 we produce are in top physical health. I also  
25 monitor and control and manage disease throughout  
26 the production cycle, both on the freshwater,  
27 saltwater side, to ensure that any disease or  
28 concern that we're having is being managed.

29 Now, this is done fundamentally through the  
30 process, through one document, which is the Fish  
31 Health Management Plan. The Fish Health  
32 Management Plan is sort of the Bible for our  
33 production system in the sense that it lays out  
34 all the factors within our production cycle.  
35 Every activity that we undertake, we consider fish  
36 health and welfare. So our fish health management  
37 plans dictate how we do business to ensure that  
38 our fish are kept in optimum fish health. And so  
39 it's my role to ensure that, one, that document is  
40 as accurate as it could be, two, that it's updated  
41 as science and our understanding of disease and  
42 concerns evolve, and three, to ensure that it's  
43 implemented at its full length.

44 On top, as a strictly pure veterinarian, my  
45 role, again, is to manage disease. So I do a lot  
46 of analysis on disease, monitoring disease on all  
47 our farms and hatcheries, looking for changes,

1 looking for trends, looking for identifications or  
2 deviations from what I consider the normal, normal  
3 fish health. And as a result, then, I would  
4 conduct the investigations into any deviations  
5 from normal and from that, draw conclusions. I  
6 would rely on people such as Dr. Marty to provide  
7 me information in order to better understand my  
8 knowledge of what's going on in our farms, and I  
9 would add that to my clinical experience, which is  
10 how the fish are behaving, how the fish are  
11 performing, what I'm seeing grossly during a  
12 necropsy and other tests that we may take in  
13 house, other laboratories, other steps. History,  
14 I also have background in history, which Gary  
15 Marty, Dr. Marty, wouldn't always have. I know  
16 where those fish came from, any issues they've had  
17 all along the path. So it's my job to sort of  
18 keep that all into perspective and then ensure  
19 that it's being applied into our production  
20 scheme.

21 Q You made a reference to "our fish," and you're  
22 working for the operator of the fish farm. I  
23 wonder if you can help me to understand, is there  
24 for veterinarians, similar to human doctors,  
25 doctors who -- I don't know what the right  
26 terminology is here without this turning slippery  
27 so I won't try to head down that path, but is  
28 there a similar concept of the duty to the  
29 patient, and if there is a similar ethical kind of  
30 a concept, is your ethical duty in your capacity  
31 working for an operator to the fish on the farm  
32 and/or wild fish, or other wildlife, I suppose?

33 DR. MCKENZIE: The veterinary profession in B.C., the  
34 College of Veterinarians for British Columbia, we  
35 have a code of ethics and conduct, and this is  
36 something we rely on. I believe it is at Tab 18  
37 of --

38 DR. MARTY: Provincial tab.

39 DR. MCKENZIE: Provincial Tab 18 --

40 Q Okay.

41 DR. MCKENZIE: -- is the document that actually is the  
42 Code of Ethics.

43 MR. MARTLAND: And I'll just narrate for the record,  
44 Dr. Marty assisted you by referring you, I take  
45 it, to Tab 18, there.

46 DR. MCKENZIE: And this is a code of ethics that  
47 applies to all veterinarians, regardless of

1 species, because we do work with a large number of  
2 species, and it outlines our responsibilities.  
3 And our responsibilities are, and as it defines in  
4 there, to the public is one of our  
5 responsibilities as a veterinarian, to the animal,  
6 to the owner, as well as to the profession,  
7 itself. And that's laid out in our Code of  
8 Conduct that we take very seriously.

9 Q Do you face situations in your work where there  
10 may be a conflict as between what's in the best  
11 interests of the fish on the farm and what may be  
12 in the best interest of wild fish in the vicinity,  
13 let's say? It's easy for me, as a lawyer, to see  
14 conflicts of interest or to frame it that way. I  
15 don't know if that describes what you encounter.

16 DR. MCKENZIE: Sorry?

17 Q The question is do you have a situation where  
18 there's a conflict, where you're pulled in  
19 different directions and one, the duty to the fish  
20 on the farm has to override, or become the higher  
21 priority than any secondary concern about  
22 implications of a measure or non-measure for wild  
23 stocks in the area?

24 DR. MCKENZIE: I don't believe I can give you an  
25 example of that. I can give you an example of the  
26 reverse, though, where it becomes a bit of a  
27 conflict for me. We run a system of sea lice  
28 treatments that we consider, and we take the  
29 approach to treat fish, regardless of sea lice  
30 levels, in our spring out-migration periods in  
31 order to ensure that the lice levels on our farms  
32 are as low as possible during the out-migration of  
33 wild stocks.

34 Medically, these treatments are not  
35 necessary, in some cases where lice levels are  
36 incredibly low on farms, but to be cautious, we  
37 use that. Prophylactic treatments and the use of  
38 medication in that method goes against some of the  
39 better judgment and the decision making that a  
40 veterinarian really should hold. But we do that  
41 for the greater good and we've sort of wrestled  
42 with that for years, but that's my point there.

43 Q All right. So you're describing there, if I have  
44 it right, and this may indeed include or refer to  
45 the three motile lice per fish threshold for a  
46 management response, which may include a SLICE  
47 treatment.

1 MR. MARTLAND: I'll just narrate, that's in the PPR at  
2 paragraph 70, for those who want to read up on it  
3 further.

4 Q But at a general level, I think what you're  
5 describing there is that there can be, and perhaps  
6 your perspective, but tell me if I have this  
7 right, is that that standard for treatment, or  
8 some of the management responses that are required  
9 of you by government may be measures that aren't  
10 specifically needed, in your view, for the fish on  
11 the farm, but are intended to serve the interest  
12 of addressing the health of wild stocks.

13 DR. MCKENZIE: Yes. Now, I guess, one other example  
14 that comes to mind that is more towards what you  
15 were asking was years ago, when we found cases of  
16 IHN on a farm, and I diagnosed a case in a brood  
17 stock facility, it was very contrary to the  
18 business model of the company to cull these fish  
19 because the mortality was actually not that high.

20 Q Mm-hmm?

21 DR. MCKENZIE: There was a number of researchers that  
22 were very interested in keeping these fish so that  
23 we could see if there would be a resistant strain  
24 of Atlantic salmon that could be produced and that  
25 was against my judgment because the risk of  
26 disease release, not only to farms in the area,  
27 but wild stocks and that, I was very adamant that  
28 these fish should be removed from the water. And  
29 following a series of discussions, that ultimately  
30 was the outcome, but that was probably the closest  
31 thing to a conflict, I would say, but it never  
32 really was. I was listened to. And at the time,  
33 I was a very new veterinarian in the field so it  
34 was important to me that the company recognized  
35 the ethical obligation I had and followed through.

36 Q I haven't got so far in learning everyone's day-  
37 to-day work, but I would like to indeed pick up,  
38 we've had a useful discussion here with respect to  
39 the sea lice treatment approach, if I could ask  
40 both Dr. Sheppard and Dr. Marty, do you have  
41 comments on whether the three motile lice  
42 standard, or the management approach, perhaps more  
43 broadly to fish farms treating sea lice, is it a  
44 scientifically-based standard, as opposed to one  
45 that has a political provenance?

46 DR. SHEPPARD: That's a good question, and before I  
47 answer that, Mr. Commissioner, just one for the



1 record. Mr. Martland suggested that any  
2 consideration of sea lice medications by private  
3 practitioners is not regulated by any government  
4 body. It's an option that they can go to, but to  
5 my knowledge, there are no regulated treatments of  
6 animals by government bodies. It's a veterinary  
7 decision.

8 In answer to your question, Mr. Martland,  
9 about the --

10 Q And I'm sorry to do this, but I wouldn't want to  
11 let this pass, just to make sure I'm clear, but  
12 when you say it's not regulated, I take it SLICE  
13 is regulated, but are you describing that it's not  
14 mandated that there be an application of SLICE?

15 DR. SHEPPARD: That's more accurate, yes.

16 Q All right. I just wanted to be clear on that.

17 DR. SHEPPARD: Yeah, the product, itself, is certainly  
18 licensed and available for prescription by a  
19 licensed veterinarian, but it's not mandated by  
20 the governing body.

21 The trigger level of three motile lice per  
22 fish in the out-migration period was initiated,  
23 that trigger, I think, around the period of 2004,  
24 and it was largely based on the precautionary  
25 principle in looking at the scientific information  
26 from other regions that were having effects by a  
27 pathogenic strain of this *Lepeophtheirus salmonis*,  
28 Atlantic salmon louse, or Atlantic Ocean louse.  
29 And so the Province of British Columbia adopted  
30 that same level, which would be comparable to what  
31 was seen as a trigger level in Norway and in  
32 Europe.

33 Q Thank you. Let me, in fact, move to Dr. Marty and  
34 ask you the basic question about your job. As the  
35 provincial fish pathologist, what do you do, how  
36 does your work tie to finfish aquaculture? And if  
37 you could help us, I think you started into this  
38 distinction between the work you do and that  
39 veterinarians more broadly may do in relation to  
40 aquaculture, that would be helpful.

41 DR. MARTY: Okay. I'm based at the Animal Health  
42 Centre in Abbotsford, and that is the veterinarian  
43 diagnostic laboratory run by the Province of  
44 British Columbia. We are a full service  
45 laboratory that does all species of animals. I am  
46 specifically charged to work with fish so any  
47 fish, whole fish, or fish samples that are

1 submitted are run through our technicians, but I'm  
2 the one who does the final case send off on those.

3 In most cases, our laboratories are set up in  
4 the centre of the poultry and dairy industries so  
5 we're about a day away from most of the  
6 aquaculture industry. So most of my clients,  
7 including our fish health audit and surveillance  
8 program, sample the fish on the sites. The fish  
9 tissues decompose very rapidly and so they are  
10 trained to sample the fish, preserve the samples  
11 appropriate for the methods that we do for  
12 diagnostic methods and then send them to me.

13 Technicians in our laboratory will do the  
14 bacteriology that's necessary. They'll do PCR  
15 tests for tests that are requested. And then I  
16 will do the histopathology.

17 In the end, all these different diagnostic  
18 modalities are brought together in a single case  
19 report that I will examine. I'll usually come up  
20 with a final diagnosis of what I think maybe is  
21 the most likely cause and also some other causes,  
22 and often, in my comments, I'll just include some  
23 factual information that will give some background  
24 information about the changes that I'm seeing.  
25 And then those will go out as a report that will  
26 then go either to the veterinarian in the field,  
27 like Dr. McKenzie, or go to the regulatory  
28 veterinarians like Dr. Sheppard.

29 So we receive both cases as part of official  
30 government audit programs and cases directly from  
31 the fish farms when they have problems with their  
32 fish.

33 The other things we receive from the fish  
34 farms, they'll often do a fish health screen when  
35 they're going to do a transfer, or something, and  
36 these are often just healthy fish. They just want  
37 to certify and have an independent lab that  
38 certifies that their fish are free of diseases of  
39 concern.

40 Dr. Sheppard, in skipping over the reading  
41 in, really, of your biography, I didn't -- it  
42 would have been clear from someone who'd read your  
43 CV, you know work for the DFO's Aquaculture  
44 Environmental Operations Unit, but indeed, your  
45 handover was close to or coincided closely to the  
46 handover to federal regulation for aquaculture,  
47 you previously worked with the Province. If you

1           could help us understand your present work, in a  
2           quick way, at least, your present work in the  
3           context of the work you used to do for the  
4           Province?

5       DR. SHEPPARD: Yes, and I think this will be discussed,  
6           I noticed it here on Tab 2 of the Canada doc  
7           binder, which lays out the work that was performed  
8           in the province, as well, and is following on now  
9           within the Department of Fisheries and Oceans, but  
10          my role was, literally, with the Provincial  
11          Government was as the aquatic animal health  
12          veterinarian to oversee the Fish Health Program  
13          for the Province and it's largely a program to  
14          monitor and collect, and record, and then report  
15          out on the information of health-related findings  
16          at the farm on an audit basis. And largely, that  
17          program was in place so thank you very much for --  
18          it sort of outlines that in the first paragraph of  
19          this document.

20       Q       All right. So thank you, that's actually helpful.  
21           You've referred to Canada's Tab 2, this document  
22           on the Fish Audit and Surveillance Programs. This  
23           is a description, I take it, then of the work you  
24           do?

25       DR. SHEPPARD: Yes, I did draft this two-page document  
26           as a quick synopsis as to how the program was  
27           designed, why it was designed and how it was  
28           monitored.

29       MR. MARTLAND: I'll ask this, please, to be marked as  
30           the next exhibit.

31       THE REGISTRAR: Exhibit 1662:

32  
33                   EXHIBIT 1662: British Columbia's Fish Audit  
34                   and Surveillance Programs  
35

36       MR. MARTLAND:

37       Q       Mr. Swerdfager, you may be wondering why you're  
38           here. Obviously, folks yesterday couldn't get  
39           enough of you so you're back. What I'd like to  
40           do, though, or at least our thinking was that it's  
41           also important to have some evidence today with  
42           respect to not only the questions of disease,  
43           pathogens, the health issues arising from fish  
44           farms, but also from the government and a  
45           regulatory perspective of what the approach is.  
46           I'd like to try to ask you some questions,  
47           sir, by using Tab 8 of Commission's list of

1 documents. You'll see, we know from your evidence  
2 yesterday, and your background, you've been  
3 intensely involved in the development of the  
4 Pacific Aquaculture Regulation, as well as in the  
5 DFO's approach to fish health vis-à-vis  
6 aquaculture. This document was put in as Exhibit  
7 1611 yesterday by Canada.

8 MR. MARTLAND: This is number 8, Mr. Lunn on  
9 Commission's list of documents, Exhibit 1611.

10 Q This is called, "The Approach to Fish Health." I  
11 should pause just to confirm, is this in a draft  
12 form?

13 MR. SWERDFAGER: It is in a draft form.

14 Q All right. And I won't do this at any great  
15 length, but just to frame the question, if we look  
16 at the bottom of page 2, and then on to pages 3, 4  
17 and 5, looking at least at the sub-headings we see  
18 at the top of page 3, keeping fish healthy is one  
19 of the key aspects of the approach. I'll pause  
20 just to ask this question here, but maybe I'll ask  
21 the same question for the other sub-headings. We  
22 see, at the start of that sentence:

23  
24 The fish held at culture facilities must be  
25 provided with a healthy and appropriate  
26 rearing environment.

27  
28 So the premise, or at least the focus would seem  
29 to be on the fish on the farm vis-à-vis what this  
30 document describes, as opposed to wild fish? Is  
31 that a fair way to put it?

32 MR. SWERDFAGER: This particular document, when it is  
33 completed, and it's not --

34 Q No.

35 MR. SWERDFAGER: -- will be focussed very much on  
36 guiding the Fish Health Management Program of the  
37 aquaculture activity, itself. Very, very  
38 specifically focussed in that regard. So it does  
39 not set out to put forward a fish health approach  
40 for all organisms in the sea, if you will.

41 Q No, fair enough.

42 MR. SWERDFAGER: So that we read about, and I won't  
43 read it in, but keeping fish healthy, the bottom  
44 of that page, "Monitoring fish health," onto page  
45 4, "Responding to Fish Health Issues," then on  
46 page 5, "Recording and Reporting Fish Health," and  
47 then, ultimately, "Reference to Fish Health

1 Management Plans." Dr. McKenzie previously  
2 touched on the fish health management plans, or  
3 FHMPs, just to add another acronym to our  
4 hearings. From a regulatory point of view, could  
5 you help us understand where these fish health  
6 management plans fit in, or will fit in? I take  
7 it, they are going to be part, or are required as  
8 a condition of licence for the fish farm operator?

9 MR. SWERDFAGER: The logic here is that what we wanted  
10 to do is make sure that there is no sense that  
11 fish health management, or fish health management  
12 plans, I guess, specifically, are in any way,  
13 shape or form discretionary, advised, thought to  
14 be a good idea. They are required. And so this  
15 document begins the process of setting out what  
16 will be in those, how they will unfold, and so on.  
17 And a big part of Dr. Sheppard's work is going to  
18 be to help us design, in quite a bit of detail, a  
19 structure and content of a FHMP, a fish health  
20 management plan and what it should contain, and so  
21 on. And as I say, or as the document, rather,  
22 says, it will be a condition of licence, it will  
23 be something that is mandatory and is required.

24 Q When do you expect that will -- I take it it's not  
25 the case now, that a FHMP is --

26 MR. SWERDFAGER: It's not the case now because when we  
27 introduced the licences on the 19th of December,  
28 the fish health management plans that we sought to  
29 attach them were not all complete, they were not  
30 all the same form and structure, and again,  
31 perhaps Dr. Sheppard will talk about, if he  
32 wishes, the content of them. But what we've done  
33 is we've set out what we see those plans being --  
34 or what's being required in those plans and they  
35 will form part of the licence conditions in the  
36 next batch or suite of licences that we issue in  
37 December of this year.

38 Q Dr. Sheppard, our Policy and Practice Report makes  
39 reference to FHMPs in the provincial context.  
40 Maybe you can help us understand this, they're not  
41 a brand new creation moving forward, they're  
42 something that did exist under the provincial  
43 regime, so to speak, and that is now being  
44 developed, perhaps in a different way, for the  
45 federal environment. Could you help us understand  
46 what the differences are or are expected to be in  
47 the work that's ongoing there?

1 DR. SHEPPARD: Yes, and I apologize if I'm pre-empting  
2 Canada counsel here, but they have noted on Tab 6  
3 of their binder the required elements of a fish  
4 health management plan, dated 2003, and they've  
5 also noted on Tab 8, I believe, the actual  
6 template document for a fish health management  
7 plan.

8 Q Well, this is helpful. I'll just address Mr.  
9 Taylor's time allocation. So let's go to Tab 6,  
10 The Required Elements of a Fish Health Management  
11 Plan. This bears the date of 2003. What, in  
12 brief, is this? Who's prepared this document?

13 DR. SHEPPARD: That document, "The Required Elements,"  
14 was developed by my predecessor in 2003 to inform  
15 the marine salmon producers what the minimum  
16 requirements would be within their health  
17 management plans that they develop. So it's a  
18 guide to a bit of an overview, and I think on, I'm  
19 going to say page 3 of that document, if it's  
20 available, on the bottom, there, the heading,  
21 "Goals of a Fish Health Management Plan," fairly  
22 succinctly lays out the purpose of developing one.

23 Q All right.

24 DR. SHEPPARD: And so that was through the provincial  
25 oversight of the industry. And then on the  
26 template, itself, was the document which is a bit  
27 of a -- well, simply a template that the farmers  
28 would use in conjunction with their veterinarians  
29 to write and develop their own corporate health  
30 management plan, following that same format, with  
31 the same headings, et cetera, but, of course, it  
32 would be catered to their own individual business.  
33 And if I may just add a little more, it's that  
34 these health management plans and this template  
35 can almost be broken out into two main components.  
36 One is the main body or text which lays out the  
37 fundamental guiding principles, if you will, of  
38 health management. One example would be the  
39 collection of your carcasses on a regular and  
40 routine basis, you know, for early detection and  
41 diagnostic value, that sort of thing, but you'll  
42 notice, at the bottom of that particular  
43 fundamental section, there would be a reference to  
44 an appendix, which is largely the standard  
45 operating procedure of that particular fundamental  
46 aspect. So when you go look at that standard  
47 operating procedure for collecting carcasses, that

1 portion might vary from site to site within the  
2 company. For example, one farming system may use  
3 divers to collect their carcasses, whereas another  
4 farming system on the other side of the Island may  
5 use what's called an uplift system, which will  
6 bring their carcasses to the surface mechanically.  
7 So those standard operating procedures are more  
8 specific to the particular site, and those  
9 standard operating procedures could be reviewed  
10 and revised on a fairly regular basis. So you  
11 will notice one of the requirements of the  
12 condition of licence, the federal conditions of  
13 licence now is that it's been asked that all  
14 marine salmon farmers that have an existing health  
15 management plan, that they submit that, and they  
16 have. And that will be revised, those plans will  
17 be revised based on an update of this template by  
18 the federal government.

19 And the second part of the condition of  
20 licence is to annual submit revisions to that  
21 health management plan when, more specifically, it  
22 refers to annually submit the fine detail of those  
23 standard operating procedures. For example, they  
24 may change the type of disinfectant that they use,  
25 or they may change the concentration of that  
26 disinfectant that they use so those are the  
27 details that we're looking for. They're not  
28 really at liberty to change the fundamentals of  
29 the health management plans.

30 MR. MARTLAND: Before I forget to do it, I'd like to  
31 have, first, Tab 6 from Canada's list of  
32 documents, the June 2003 document, marked as the  
33 next exhibit, please.

34 THE REGISTRAR: Exhibit 1663.

35  
36 EXHIBIT 1663: Required Elements of a Fish  
37 Health Management Plan for Public and  
38 Commercial Fish Culture Facilities in British  
39 Columbia, June 2003  
40

41 MR. MARTLAND: If I could propose as Exhibit 1664 Tab 8  
42 from Canada's book, the template?

43 THE REGISTRAR: 1664.

44  
45 EXHIBIT 1664: Template for Development of  
46 Facility - Specific Fish Health Management  
47 Plans

1  
2 MR. MARTLAND: And just to keep Mr. Lunn on his toes,  
3 if we could move to Exhibit 1 --  
4 DR. McKENZIE: Oh, excuse me.  
5 MR. MARTLAND: If I just might add to this, before I  
6 forget --  
7 DR. McKENZIE: Yeah.  
8 MR. MARTLAND: -- 1594, Mr. Lunn.  
9 Q And I'll just be looking to connect the dots to  
10 confirm if 1594, I expect we'll see that is, Dr  
11 Sheppard, if you have a look on the screen, sir,  
12 you'll see, I hope, when you refer to the  
13 conditions of licence, that's what that is?  
14 DR. SHEPPARD: Yes.  
15 MR. MARTLAND: Sorry, your microphone?  
16 DR. SHEPPARD: I'm sorry. Yes, those are the Marine  
17 Finfish Conditions of Licence from Department of  
18 Fisheries and Oceans.  
19 Q Thank you. Dr. McKenzie, you had a brief point?  
20 DR. McKENZIE: I just wanted to add a brief point on  
21 the background of the fish health management  
22 plans. When they were developed back in 2002,  
23 2003, when we first got started, they were  
24 developed as part of what was a provincially-led  
25 committee that was set up that had representatives  
26 from DFO, Freshwater Fisheries Society, academia,  
27 the industry, as well as the provincial  
28 veterinarian, and as a group, we developed the  
29 template and the contents that we all recognized  
30 that were important. The original format of the  
31 Fish Health Management Plan, and the intent of  
32 that Fish Health Management Plan was to have it  
33 implemented in all levels of aquaculture, so not  
34 just industry, but Freshwater Fisheries Society,  
35 as well as DFO enhancement facilities and any of  
36 their culture facilities. We went through that  
37 process. We actually went through a process where  
38 we developed the different sectors to help the  
39 fish health management plans, brought them back to  
40 that committee. We then reviewed them and updated  
41 that template based on areas they may have missed,  
42 or that weren't well clarified. So I wanted to  
43 just add that it was quite a comprehensive  
44 process, with different stakeholders involved.  
45 And we also saw very different implementation  
46 strategies. The industry, of course, it was part  
47 of our condition of licence and it was very much



1 bought into under the process. Freshwater  
2 Fisheries Society has implemented a lot of theirs  
3 under their structures. And DFO, as Dr. Stephens  
4 reported in his expert report, you know, there has  
5 been some struggles implementing fish health  
6 management plans and all the levels of enhancement  
7 facilities just because of the diversity. And  
8 certainly, that was still the goal. And this was  
9 made to be a part of the fish health database  
10 which, again, was going to be a collaborative  
11 effort that the salmon farmers have continued to  
12 run with.

13 Q I'd like to move on. I think, Dr. Sheppard, you  
14 may be leaning towards the mike, if you have a  
15 brief point, sir, and then I'll --

16 DR. SHEPPARD: Just not to put too fine a point on it,  
17 but just now that you mention the conditions of  
18 licence, the federal conditions of licence that  
19 the fish health management plans was also a  
20 condition of licence under the provincial regime.

21 Q Thank you. What I'd like to ask about next is a  
22 question pertaining to new pathogens and/or  
23 disease. There's been some prominence to concerns  
24 that have arisen about the possible arrival of, in  
25 particular, ISA, and in particular, in the context  
26 of concerns about how aquaculture facilities and  
27 operators import eggs. What I'd like to do is ask  
28 you to respond to, I take it, a shorthand, when I  
29 describe that kind of a concern, that's a concern  
30 that you've heard about and may have some  
31 familiarity with. I'd like to ask for your  
32 responses to those concerns at a broad level.

33 Dr. McKenzie, your background includes having  
34 worked with CFIA. Mr. Swerdfager, you have  
35 familiarity with the introductions and transfers  
36 process so if it's helpful for you to rely on that  
37 background in answering this question, I'd  
38 appreciate that. I don't have a batting order  
39 here so I don't know if you gentlemen -- Dr.  
40 McKenzie, would you like to first --

41 DR. MCKENZIE: What specifically --

42 Q Well, the general question is ISA and egg  
43 importations as the specific way that this has  
44 arisen, but the general question is about the  
45 concern that fish farm operators may be or may in  
46 the future be responsible for importing exotic  
47 diseases that could have devastating impacts on

1 wild stocks.

2 DR. MCKENZIE: Okay. Yes, certainly, through my role,  
3 and just to clarify my role in CFIA, when I worked  
4 for the National Aquatic Animal Health Program, my  
5 role was the National Manager of Import and  
6 Export, and we were developing regulations and  
7 programs to control imports and exports through  
8 the new regulation that was being set up under the  
9 **Health of Animals Act**. So that's the future, but  
10 through that process, we reviewed a lot of  
11 international strategies, standards and approaches  
12 to import and export controls.

13 The import controls that are in B.C. and that  
14 have been in place in B.C. for a number of years  
15 are internationally renowned as far as being very  
16 strict, almost to the point where they're too  
17 restrictive for many countries to consider.

18 So there are many levels of control, but the  
19 fundamental process that's been in place over the  
20 years, and Trevor, I'm sure, will add to this, is  
21 the introductions and transfers process, which is  
22 the control of any introduction into British  
23 Columbia.

24 Now, the Introduction and Transfers Committee  
25 are an interesting structure in the sense that  
26 they are a collaborative effort between the  
27 federal and provincial governments and, therefore,  
28 different provinces have slightly different  
29 criteria and ways that they approach imports. So  
30 I'm speaking specifically of how B.C. handles  
31 imports. So there is a process in place. There  
32 has been imports allowed over the last few years,  
33 and the B.C. Salmon Farmers have produced a  
34 document by John Lawrie that has a summary of all  
35 the imports that have occurred over those time  
36 periods and the mitigative steps that are in  
37 place. But to summarize, the Introduction and  
38 Transfers process is the controlling body. So  
39 I've worked, as I said, for CFIA, but I've also  
40 worked in the industry on the import side.

41 As far as imports are concerned, if an  
42 industry is interested in importation of eggs into  
43 British Columbia, they make an application to the  
44 Department of Fisheries and Oceans. The  
45 Introduction and Transfers Committee, and the  
46 insurers and the local fish health officer ensure  
47 that the applicant is able to meet the criteria

1 that is laid out under the fish health protection  
2 regulations, which stipulate the criteria that you  
3 have to have an approved source that has met  
4 standards that are laid out under the **Fish Health**  
5 **Protection** Regulation, you have to have a facility  
6 in order to receive those eggs that is considered  
7 a quarantine facility with acceptable water  
8 treatment pre and post that restricts those  
9 importations. In addition, you have to have  
10 testing done after the arrival into British  
11 Columbia. And B.C.'s unique in that they limit  
12 imports to only eggs. You can't be importing  
13 fish, salmonid fish. Again, this is disease  
14 mitigation.

15 So the process from an industry perspective  
16 is you make that application, you're provided with  
17 -- assuming that you can find a source that is  
18 approved by DFO where they conduct a risk  
19 assessment and an inspection of that facility. If  
20 that facility meets the standards that is laid out  
21 by **Fish Health Protection** Regulations, then DFO  
22 provides an import contract to the applicant. It  
23 lays out the conditions of testing, quarantine,  
24 release, communications that have to be relayed to  
25 DFO and approved as you go through the process.  
26 The eggs have to be put into quarantine. They go  
27 through a series of testing, usually once a month.  
28 So it's usually six or seven tests during the  
29 quarantine period. Only after satisfactory  
30 testing results are provided to DFO from a DFO-  
31 approved lab are we able to release them from that  
32 quarantine. They then go into an isolation  
33 process, where they can be on natural water, but  
34 are still kept separate from all other production  
35 facilities. They are continued to be tested  
36 during that period and only at that point when the  
37 final testing is approved by DFO can they be  
38 released. At that point, they still need to be  
39 tracked as an individual group in the saltwater.  
40 All of that information is provided to DFO through  
41 those various steps.

42 ISA, in particular, is a disease that is on  
43 those import contracts that we were required to  
44 test for. We also -- speaking for Mainstream, we  
45 require of our exporting company, actually, to be  
46 testing for ISA, as well, with a methodology that  
47 we prefer, which is PCR. So we have that stage

1 and then we test for ISA on, as I said, up to six  
2 or seven times prior to release. We also are  
3 monitoring those fish on a daily basis. Myself,  
4 I'm responsible for clinical signs and evaluating  
5 those fish at all those different stages, as well  
6 a local fish health officer has a responsibility  
7 to come by, visit the fish, ensure the facility is  
8 sufficient prior to the eggs arriving, ensuring  
9 the fish health and the quality is sufficient  
10 during their quarantine period before they are  
11 released from that. So there's a massive number  
12 of steps in order to reach that end goal of  
13 releasing those fish into native waters.

14 Q Mr. Swerdfager, I'm going to ask you a question in  
15 just one moment on this topic, but first, Dr.  
16 McKenzie, the testing that you've just described,  
17 is it ever revealed or found ISA?

18 DR. MCKENZIE: We've never found ISA in that testing,  
19 no.

20 Q Mr. Swerdfager, from your point of view, Dr.  
21 McKenzie has outlined the system that's in place.  
22 How do you respond to the criticism that the  
23 Department's approach here is inadequate, that the  
24 risks outstanding are too significant?

25 MR. SWERDFAGER: Well, I suppose I would respond in two  
26 ways. The first is that the process that Dr.  
27 McKenzie has just laid out is, from my point of  
28 view, at least, one that is extremely rigorous,  
29 extremely thorough, and we have a very high degree  
30 of confidence in it. And we are quite confident  
31 that the regulatory regime that we have had in  
32 place and that we have in place now effectively  
33 prevents the introduction via egg imports of  
34 disease into Canada for the very reasons that Dr.  
35 McKenzie has just laid out.

36 I would add simply two things, really. The  
37 first is that as Dr. McKenzie pointed out, he was  
38 focussed on British Columbia. I would just simply  
39 add that we have a similar, not identical, but  
40 very, very similar process in place for "the rest  
41 of the country." Each province has a variance and  
42 a nuance on it because of the particularities of  
43 the province, and so on, but the system is one  
44 that is national in nature. Its operation  
45 reported up to me, as the Director General of  
46 Aquaculture Management, so I'm quite familiar of  
47 the structure of the process in each of the

1 provinces. So if someone wished to bring or  
2 apply, rather, for an import into Canada and bring  
3 it in to, say, Nova Scotia, you still have to have  
4 a similar sort of permit to bring it from, say,  
5 Nova Scotia to British Columbia. So internally,  
6 within the country, it's not simply exports or,  
7 rather, imports into British Columbia from other  
8 nations, it's from anywhere outside the boundaries  
9 of British Columbia. So we do have a very  
10 comprehensive system in place, and I would note  
11 that I wouldn't say it's, by any stretch, a daily  
12 occurrence, but it is a regular occurrence that we  
13 refuse applications for imports. We have not done  
14 so or had any cause to do so in British Columbia,  
15 but we refused two, for example, last year into  
16 Nova Scotia, where there's an application to  
17 import fish eggs from France. I won't list all of  
18 the refusals, simply to note that the system is  
19 not just simply a rubber stamp that says, "Lah-di-  
20 dah, away you go."

21 The second thing that I would simply point  
22 out with respect to amplifying on what Dr.  
23 McKenzie has said is that the kind of information  
24 that is being spoken about here has not,  
25 historically, been made public, perhaps, in the  
26 way that we could have and should have. We have  
27 remedied that. We are now going to -- we have  
28 already posted information on egg imports into  
29 British Columbia. It's something we are going to  
30 work on nationally, I might add, as an asterisk,  
31 outside the bound of this question, so to speak.  
32 But one of our concerns in the past is that if  
33 people don't know things, necessarily,  
34 occasionally, you make them up, or exaggerate, or  
35 surmise things that are not there and we have not  
36 done as good a job as we could have and should  
37 have of putting that information out there in a  
38 public way that says, quite simply, in black and  
39 white, "Here's what was imported, here's the  
40 time." And that, now, has been remedied and so it  
41 will be a matter of routine that egg imports with  
42 respect to aquaculture, in British Columbia, will  
43 now be posted on the DFO website. I don't know  
44 the frequency, simply because there just isn't a  
45 lot. We're not going to post a monthly update if  
46 nothing happens, so to speak, but it will be a  
47 very, very regular updating and will be quite

1 public.

2 Q On an annual basis?

3 MR. SWERDFAGER: Mr. Martland, I'm not sure exactly if  
4 it will be annual, it may be more frequent. As I  
5 say, this is not an area where there's a lot of  
6 activity so posting, shall we say, a monthly  
7 update simply to say nothing happened, the benefit  
8 of that is probably rather marginal, but I don't  
9 actually know. We may end up doing that anyway,  
10 just simply to indicate that nothing's happened.

11 Q Mm-hmm?

12 MR. SWERDFAGER: But I expect that the frequency of the  
13 updates on that will be greater than annual. I  
14 don't know if it will be monthly, weekly, it  
15 certainly won't be daily, but it will be regular  
16 and frequent.

17 Q Dr. McKenzie, you had a brief point?

18 DR. MCKENZIE: Just a very quick comment. I wanted to  
19 reiterated the fact that the standards that have  
20 been set have been recognized internationally as  
21 being very robust, and those are the conditions  
22 that are in place in B.C., if you look around the  
23 world. The British Columbia Salmon Farmers  
24 Association has also asked Dr. Larry Hammell,  
25 who's the director of the OIE, Epidemiology and  
26 Risk Assessment Committee on aquatic animal  
27 diseases to do a review of the import documents.  
28 And I believe that document was submitted for  
29 identification previously. And he did a review of  
30 the risk associated with imports since 1985 to  
31 2009 and provided his commentary on that.

32 Q Thank you.

33 MR. MARTLAND: Mr. Commissioner, if I might take one  
34 brief moment to confer with a colleague? Thank  
35 you, Mr. Commissioner, that, from my perspective,  
36 concludes the Commission's questions for this  
37 panel. I wonder if I can put an asterisk on that,  
38 to use Mr. Swerdfager's phrase, and propose that  
39 we go to, if it's agreeable, perhaps a 10-minute  
40 break now, and I can not quite finalize, in case  
41 Ms. Grant or Ms. Chan has a further point that I  
42 ought to address. So if I might propose we move  
43 to a break now, please?

44 THE COMMISSIONER: Yes, thank you, Mr. Martland.

45 THE REGISTRAR: The hearing will now recess for 10  
46 minutes.

47

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

4 THE REGISTRAR: Order. The hearing is now resumed.  
5 MR. MARTLAND: Thank you, Mr. Commissioner. I have Mr.  
6 Spiegelman, for Canada, next, 35 minutes.

7 MR. SPIEGELMAN: Good morning. For the record, its  
8 Jonah Spiegelman for the participant Government of  
9 Canada. Some of my ground was covered earlier  
10 this morning, so whereas I was going to start with  
11 a caution to answer very quickly, perhaps we can  
12 take more time and give more comprehensive answers  
13 than I had expected, so that's great.  
14

15 CROSS-EXAMINATION BY MR. SPIEGELMAN:  
16

17 Q I'll begin by asking a very broad question and  
18 asking you whether you all agree with that, on  
19 this panel, and that's this: Keeping cultured  
20 fish healthy is an objective that's shared by all  
21 stakeholders concerned with aquaculture; can you  
22 all agree with that?

23 DR. MARTY: I agree.

24 DR. MCKENZIE: I agree.

25 DR. SHEPPARD: I agree.

26 MR. SWERDFAGER: Yes, absolutely I agree.

27 Q Dr. McKenzie, you commented, earlier, on some of  
28 the measures in place, but I wonder if you could  
29 expand a little bit on some of the measures taken  
30 by aquaculture operators to ensure that the stock  
31 in the pens remains healthy throughout their life?

32 DR. MCKENZIE: Okay, specifically, I guess, I might end  
33 up taking you through a lot of the elements of the  
34 Fish Health Management Plan, but to start off, we  
35 -- industries are in control of their brood stock  
36 programs. This is the ultimate -- this is the  
37 starting point of fish health for our programs is  
38 to start off with good, healthy stocks. So we  
39 maintain brood stock programs, mainstream in  
40 particular. We have a genetics program that we've  
41 been utilizing genetics and evolution to better  
42 improve not only our growth but our health of  
43 fish, and so that's our very first step, is to  
44 have good, healthy brood stocks. Then produce  
45 eggs in a manner that is sanitary, using screening  
46 methods for all our brood stocks, disinfection  
47 methods for all our eggs, and very stringent

1 biosecurity standards, while we're stripping these  
2 eggs in order to ensure that they are not exposed  
3 to pathogens. We want to start, in our  
4 hatcheries, with a clean, healthy egg.

5 From there, we have -- all the processes we  
6 have in place are to maintain a good rearing  
7 environment, a good nutritional environment for  
8 our fish as they start out. When they reach a  
9 certain age, typically around one to three grams,  
10 we use - some companies do and some companies  
11 don't; it depends a lot on your hatchery - but we  
12 use a dip vaccine, which is the first vaccine that  
13 they'll use, and this will help them fight off any  
14 level of disease. We also take -- we also make  
15 great measures to disinfecting the water coming  
16 into the hatchery, so even if there's any pathogen  
17 that's existing in the water before it reaches the  
18 hatchery, that we are removing that.

19 So we're providing them with the best rearing  
20 environment, low pathogen exposure, we're  
21 providing them with a vaccine in order to fight,  
22 if they were exposed to any pathogen. We then  
23 take very seriously our biosecurity to ensure  
24 we're not moving high risk people, equipment,  
25 animals, into and between hatcheries, again,  
26 keeping pathogens out, keeping our fish as healthy  
27 as we can. We monitor them on a daily basis.  
28 When we're looking at mortality curves, we're  
29 looking at classifications of mortality, if they  
30 occur, the veterinarian and fish health staff  
31 investigate those conditions. So we take that as  
32 a step-wise process, and that's seven days a week,  
33 365 days a year we're undertaking that process.

34 If things occur, and requires a treatment or  
35 it requires a process of culling, or there's --  
36 there's different options we can use if something  
37 does occur. But the importance for us is to have  
38 early detection and constant monitoring of the  
39 overall fish health.

40 As we go through the freshwater process, that  
41 is -- we'll get to a later stage where we  
42 vaccinate, where we actually use an injectable  
43 vaccine. Every single fish gets injected by a  
44 vaccine to protect us against a lot of the endemic  
45 pathogens we have in saltwater to ensure that they  
46 are well protected before they go to saltwater.

47 They are vaccinated and allowed, for a period



1 of time, for that immune response to kick in,  
2 usually around the 400-degree days. It can be  
3 several months, in some cases. Once those  
4 conditions are made, the fish then are ensure --  
5 we test them to ensure that they are in optimum  
6 physiological conditions, as far as smoltification  
7 is concerned. There is different ways that we can  
8 assess fish to ensure that they are healthy and  
9 physiologically fit to be transferred from a  
10 freshwater facility to a saltwater location.  
11 That's an important point, because that period of  
12 time, what they call smoltification, is the period  
13 of time where the anadromous fish is switching its  
14 body from freshwater acclimatized to saltwater.  
15 During this period, they have -- their immune  
16 system can be compromised and it's a very  
17 important period for us to maintain high  
18 biosecurity standards and to ensure that they're  
19 fully vaccinated before that point.

20 From that position on, we move the fish into  
21 saltwater, where the same practices are in place.  
22 We're doing daily observation, monitoring, I do  
23 monitoring of trends, disease trends,  
24 classification trends. We have technicians that  
25 are daily looking at fish, cutting open, doing  
26 necropsies every day, thousands of fish that we do  
27 all year long, looking at fish to look for trends,  
28 new emergence, any sort of change as to the  
29 normal.

30 If there's an issue, we investigate; if  
31 there's a treatment response, then the  
32 veterinarian is involved into the appropriate  
33 actions that we may take. So we do that level of  
34 monitoring.

35 We also do regular screening during that  
36 process to ensure that we aren't seeing anything,  
37 that we aren't missing anything, and we do that  
38 throughout our process and it never stops until  
39 the day we harvest.

40 Q Thank you. And to what extent are these measures  
41 that you've just outlined required by government  
42 regulation?

43 DR. McKENZIE: All the measures that I've described are  
44 elements of the Fish Health Management Plan, and  
45 so if you look at the template you'll see that  
46 they are parts of them. The Fish Health  
47 Management Plan goes beyond that and talks about

1 appropriate nutrition, appropriate welfare  
2 standards, avoiding predators, which are  
3 stressors, and things that we do that further  
4 enhance our -- the overall health of our fish.

5 Q Thank you. Dr. Sheppard, I'll turn to you. Under  
6 the new federal regime for monitoring and  
7 surveillance of fish health, I wonder if you could  
8 describe the process in brief. And if you want to  
9 make reference to Tab 2 of Canada's binder, which  
10 is now Exhibit 1662, you may do so.

11 DR. SHEPPARD: Thank you. That particular document in  
12 Tab 2 does outline our activities within the  
13 program, and it happened while working for the  
14 Province and now working for Fisheries and Oceans,  
15 in general, the program involves -- has three  
16 major components. One, is the -- using as a  
17 cornerstone the health management plan, and our  
18 program is designed to monitor the compliance and  
19 the implementation of -- that the farms are  
20 implementing, that particular health management  
21 plan for that particular company. So we have a  
22 checklist. Every time we go to a farm site, we  
23 will use a checklist to verify that.

24 The second component, of course, is the audit  
25 and surveillance of the health aspects. So,  
26 again, as outlined on page 1 of the document, it  
27 -- we coordinate with the farmers and with the  
28 divers to make the carcasses available to the  
29 surface, and we will collect samples based on a  
30 standard operating procedure and based on  
31 recommendations from the OIE, et cetera, to look  
32 for causes of death in, most recently, dead fish,  
33 which is the -- we feel to be the most likely  
34 sample that we can collect, which would reflect  
35 what is happening in that population of animals.

36 So in other words, the farms are selected  
37 randomly each quarter by an algorithm, and so it  
38 -- each farm in British Columbia has equal  
39 opportunity to be selected for an audit. But once  
40 we -- once that farm is identified to be audited,  
41 there's a targeted selection for the fresh  
42 carcasses that are most likely to reflect what's  
43 happening in that population at that farm.

44 And then the third component is to monitor  
45 sea lice abundance within the cages, and again, an  
46 independent algorithm and selection, random  
47 selection, of active Atlantic salmon farms is used

1 to identify which farms will be monitored. And  
2 then, again, a standard operating procedure  
3 whereby the farm staff will view 30 fish from  
4 three different selected cages and the regulatory  
5 government staff will view the other 30 fish, so  
6 60 fish in total, the idea being that we can then,  
7 as the regulator, be comforted that we are seeing  
8 the same things that the farmer is seeing and it's  
9 being recorded in an identical way, so we can  
10 actually then compare the results and be confident  
11 that the farmers are actually looking for the  
12 right things and recording it as such.

13 And that's just as part of the audit program.  
14 They will conduct their own audit, or abundance  
15 counts, regularly, in general, twice each month.

16 Does that answer your question?

17 Q Yes, thank you. Mr. Lunn, can I have Tab 10 of  
18 Canada's list, please.

19 Dr. Sheppard, you mentioned an inspection  
20 checklist, and I wonder if you can confirm that  
21 that is the document on the screen?

22 DR. SHEPPARD: Yes, it is.

23 MR. SPIEGELMAN: Can I mark that as the next exhibit,  
24 please.

25 THE REGISTRAR: Exhibit 1665.

26  
27 EXHIBIT 1665: Fisheries and Oceans Health  
28 Management & Mortality Management Plan (HMP)  
29 Inspection  
30

31 MR. SPIEGELMAN:

32 Q And you touched on it briefly, but I just wonder  
33 if you could tell the Commissioner how this  
34 document is used in practice out in the field on  
35 your audits.

36 DR. SHEPPARD: Right. Again, to reiterate, at the  
37 beginning of each quarter, calendar quarter, 30  
38 farms would be selected for audit. So in total,  
39 120 farms would be visited for the purpose of  
40 health and surveillance, audit and surveillance.  
41 And on sea lice component, an additional 40 or 50  
42 farms would be selected. So in general, our goal  
43 is to, from a fish health perspective, visit the  
44 active farms in British Columbia in the  
45 neighbourhood of 150 or 160 times each year. And  
46 each of those visits, regardless of whether we're  
47 going to look at health or lice abundance, we

1 would, at the end of that assessment, our staff  
2 will pull out this form - it's been rewritten  
3 since my employment with Fisheries and Oceans -  
4 and it asks a series of questions that our  
5 government staff will interview the farm manager  
6 and sit with him or her in their office to pour  
7 through records and interview them and do a walk  
8 about the farm to answer these questions which are  
9 largely geared toward addressing, are they  
10 following their health management plan, the  
11 fundamentals of it, and more specifically, you'll  
12 note at the tail end of each one of these headings  
13 is largely a reference to the actual condition of  
14 licence that it refers to. For example, there on  
15 the screen, biosecurity (s. 14.2(a)vi) of the  
16 conditions of licence.

17 So that helps us to guide why we're asking  
18 the question, but it also helps the farmer to  
19 understand that this is a requirement and this is  
20 why these records need to be kept. And we find  
21 that this document is not only useful for the  
22 regulator, but it's also useful for the farming  
23 staff and the managers of the farming companies -  
24 and correct me if I'm wrong, Dr. McKenzie -  
25 because it's almost like a good cop/bad cop  
26 situation in that if we find something at all that  
27 happens to be -- highlights an area of improvement  
28 or something, then the farming company can go back  
29 to the staff and fine-tune that fairly  
30 immediately.

31 Q Thank you. Can we have Exhibit 1594, the Federal  
32 Conditions of Licence, please, and in particular  
33 page 10, pdf 10.

34 Now, section 7, which you see on the screen,  
35 sets out the fish health record-keeping  
36 requirements imposed on fish farms under the new  
37 federal regime. I imagine you're all fairly  
38 familiar with these requirements.

39 DR. SHEPPARD: Yes, I am.

40 Q Mr. Swerdfager, I understand you were involved  
41 with the preparation of the conditions of licence.  
42 Can you please comment on the rationale for  
43 requiring so much record-keeping?

44 MR. SWERDFAGER: I was involved in the development of  
45 it. The rationale is that, as I mentioned  
46 earlier, I believe, and certainly yesterday, we  
47 were trying to make the management regime for this

1 industry in this province as transparent as we  
2 possibly can. One of the consistent themes in the  
3 public consultations that we held in the number of  
4 public workshops and in a while series of  
5 bilateral meetings with environmental groups and  
6 First Nations industry and others, was that it was  
7 very difficult to find out information easily  
8 about the nature of the industry, how it operates  
9 and so on, and so we also -- or, rather, we took  
10 that very much on board and wanted to create a  
11 scenario under which the industry became far more  
12 transparent.

13 We also wanted to eliminate any debate and  
14 discussion about this. The conversation, as I  
15 describe it with the industry, is pretty much a  
16 one-way one on this sort of thing. We are simply  
17 saying, "You shall do this," in terms of these  
18 records, "You shall report it. You shall report  
19 it in the time and the manner that we lay out."  
20 It's not a negotiation, the dialogue or discussion  
21 and so on, it's just simply that, "This is the  
22 rule. Please comply, and if you don't," there's  
23 an appropriate response to that. So we are very  
24 confident that we will receive all this material  
25 in due course and in the appropriate timeframes  
26 and format and so on with the goal of making  
27 ourselves fully aware of the nature of the  
28 operations on the farm, and also putting ourselves  
29 in a position to make all that information public.

30 Q Thank you. Dr. Sheppard, it's not just a matter  
31 of requiring information and record-keeping for  
32 the sake of transparency, this information, I take  
33 your evidence, earlier, this information is very  
34 useful to you in your audit function as a  
35 regulator; is that correct?

36 DR. SHEPPARD: Yes, it is. And I failed to mention  
37 that during those health audits or sea lice  
38 audits, we have several other field sheets, if you  
39 will, where we document much of the same  
40 information which comes back with the actual fish  
41 tissues and is incorporated into the fish health  
42 database and this is largely what myself and a  
43 colleague and the field operations veterinarian  
44 use in conjunction with all other bits of evidence  
45 from the pathologist and the laboratory results to  
46 help make our diagnosis.

47 And again, just one last comment is that

1 largely, it's probably no surprise to the  
2 veterinarians on the panel here, today, that this  
3 is information that would be kept normally,  
4 anyway, as part of a veterinary record and farming  
5 record, back to your earlier question, your first  
6 question, perhaps, which was, it's in everybody's  
7 best interests, who's working with these animals,  
8 to record it and keep them healthy, and this is  
9 largely how it's documented.

10 Q Thank you. Dr. McKenzie, do you agree with Dr.  
11 Sheppard's last comments there?

12 DR. MCKENZIE: Yes, I do. You know, the industry's  
13 commitment to fish health is, from our  
14 perspective, everybody recognizes that healthy  
15 fish are productive fish, and so it certainly  
16 helps the business, there's no conflict, so  
17 everybody agrees.

18 Q Okay. Thank you. I'm going to switch topics a  
19 little bit. Dr. Marty, are you aware that  
20 Commission Counsel in these proceedings permitted  
21 Alexandra Morton to make a confidential report to  
22 the CFIA regarding documents she found in the  
23 Commission's disclosure database?

24 DR. MARTY: My interpretation of the actual order is a  
25 little unclear, but I know that the report did  
26 occur.

27 Q And how do you know about that?

28 DR. MARTY: I was informed about it through, I think,  
29 reading one of Alexandra Morton's blogs, or  
30 possibly from CFIA. I don't remember exactly.

31 Q Okay. And the documents at issue were reports  
32 that you authored; is that correct?

33 DR. MARTY: Yes.

34 Q Mr. Lunn, can I have Tab 4 of Canada's binder,  
35 please. On the screen is a CFIA record that  
36 documents the actions and decisions it took in  
37 response to this report. Have any of you seen  
38 this document before?

39 DR. MARTY: Yes, I have. It's also at Provincial Tab  
40 40.

41 MR. SPIEGELMAN: May I have that as the next exhibit,  
42 please.

43 THE REGISTRAR: Exhibit 1666.

44  
45 EXHIBIT 1666: Aquatic Animal Health  
46 Division, Canadian Food Inspection Agency,  
47 Record of Decisions, May 16, 2011

1 MR. SPIEGELMAN:  
2 Q Dr. McKenzie, on page 2 of this document - Mr.  
3 Lunn, if you could scroll down - under the Follow-  
4 Up (Decision #1), it states that you were  
5 contacted by Dr. Kim Klotins of the CFIA; is that  
6 correct?  
7 DR. MCKENZIE: Yes, that's correct.  
8 Q And they were inquiring or requesting further  
9 information to investigate this report?  
10 DR. MCKENZIE: Yes, Dr. Klotins informed me of the  
11 situation, that they received a report, and a  
12 number of reports were provided to them,  
13 histopathology reports that were provided to them.  
14 They had gone through them and selected out any  
15 reports they didn't feel they had enough  
16 information on to make a decision, and that they  
17 had informed me that two of those reports were  
18 associated with clinical cases I had submitted  
19 and, therefore, they requested some follow-up  
20 information.  
21 Q And you provided them with the information they  
22 requested?  
23 DR. MCKENZIE: All the information that was requested,  
24 and they, yeah, they had no follow-up request.  
25 Q Thank you. On page 3 of this document, if we can  
26 go to Recommendation #3 (sic), down under  
27 Decisions there, it states that, "All cases were  
28 evaluated as NO RISK for ISA". Dr. Marty, is that  
29 evaluation consistent with the conclusions you  
30 reached as to these particular cases in the first  
31 case?  
32 DR. MARTY: Which number are you pointing out, again?  
33 Q Recommendation number --  
34 DR. MARTY: Under Decisions?  
35 Q No, that's not -- sorry.  
36 DR. MARTY: I have item 2 on June 24th, 2011 --  
37 Q Oh, that's --  
38 DR. MARTY: -- is that the one to which you're  
39 referring?  
40 Q Yeah, that may be it. Sorry about that.  
41 DR. MARTY: And also while I'm talking, I now recall I  
42 think I actually heard about this first through an  
43 application from Mr. McDade.  
44 Q Yeah, June 24th, number 2 there, you're right.  
45 DR. MARTY: Yes, I have seen that before.  
46 Q And that's consistent with your original  
47 interpretation of the results in these cases?

1 DR. MARTY: Yes.

2 Q Then if I can ask, why, in those cases, did you  
3 make reference to ISA?

4 DR. MARTY: Part of my role as a pathologist is to  
5 provide information to my clients. So often what  
6 I'll do, if you actually read the individual  
7 reports, is the first sentence or so will say,  
8 "Here is my summary. Here's what I think it is.  
9 Here's what is probably most common." In the case  
10 of these reports, often I would say that viral  
11 hemorrhagic septicaemia virus is the most common  
12 identified cause of these lesions of concern. But  
13 also, I'm also aware of the interest and the  
14 potential for ISA to come into B.C. And so in all  
15 of these cases I have a standard comment that I  
16 use with this lesion that says something like,  
17 "Sinusoidal congestion," which is the lesion of  
18 concern, "is a classic lesion associated with  
19 ISAV." That's just a statement of fact that  
20 provides my clients with information. And I also  
21 include a clause after that, "but ISAV has not  
22 been" -- "never been identified in British  
23 Columbia."

24 And I think if we want to have some support  
25 for that, there's an application that was put in  
26 earlier that showed the number of tests that have  
27 been done in British Columbia over the years.  
28 Throughout the audit program, we test between 600  
29 and 800 fish every year, since 2003, with a highly  
30 sensitive and specific PCR test, and those have  
31 been all negative. And so that gives me a great  
32 deal of confidence that we don't have ISAV in  
33 British Columbia.

34 So in several of these cases, it's not  
35 routine, when you have that level of confidence,  
36 it's not routine to always test for it when it's  
37 not known to occur, especially when you always  
38 have this active audit program going on. In fact,  
39 CFIA actually discourages us to test for  
40 international foreign animal diseases. They  
41 prefer that they be called.

42 So the fish health, because there weren't  
43 requirements from CFIA before January, we sort of  
44 have a grandfather-type system. We have this very  
45 good audit and surveillance program, and sometimes  
46 the fish farmers, themselves, actually just  
47 request the tests. The reason they would request



1 the test is to build up a history that we have  
2 something that might be considered a suspicious  
3 lesion, we've tested for it, month after month,  
4 year after year, it's consistently negative. That  
5 is very good evidence to international regulatory  
6 bodies that we're testing suspicious lesions,  
7 they're negative. That gives them a lot of  
8 confidence that, indeed, we do not have this virus  
9 in British Columbia.

10 Q Thank you. That leads nicely into this  
11 opportunity, since we have veterinarians on the  
12 stand. I was hoping that we could get a  
13 description either in general terms or, in  
14 particular, with a disease, about how a diagnosis  
15 is arrived at when a dead fish is examined.

16 And Dr. Sheppard, if I can start with you,  
17 and then we can let the others chip in.

18 DR. SHEPPARD: It sometimes is a difficult thing to  
19 describe. I don't know if it's in the -- I can't  
20 recall if it's in the Provincial binder or not,  
21 but there's a reference, probably, to the 2009  
22 annual report. Within there, at which I am  
23 responsible to author each year, but I think maybe  
24 on page 10 or something like that, or I'm not  
25 exactly sure, but anyway, it does describe sort of  
26 the process that we go through for to make the  
27 farm level diagnosis.

28 So it begins with, well, first, a distinction  
29 between - and we've spoken about it earlier - the  
30 distinction between the presence of an organism  
31 versus an infection versus what's really a  
32 disease, three very different things. And so the  
33 veterinarian who needs to make the diagnosis, if  
34 you'll allow me, Mr. Commissioner, I make the  
35 analogy of we need to compile all of the  
36 information collected not only from the farm, the  
37 interviews with the staff, the information on the  
38 field sheets, all these different tools we use in  
39 terms of, if you'll allow me, evidence, right  
40 through to what Dr. Marty will present as his  
41 diagnosis on a cellular level and a tissue level  
42 and an individual fish level, we use all that as  
43 tools and we compile all that in an  
44 epidemiological approach to look at all the  
45 factors to determine not what is the diagnosis in  
46 that individual fish, in other words, a lab result  
47 or a histopathology result, but what is the

1 diagnosis at the farm level, at the population  
2 level, where the audit was conducted. And so we  
3 compile that information.

4 So as an example, we may collect 10 fresh  
5 carcasses at a farm. One of them may have  
6 indications of pathology as described by Dr.  
7 Marty. Then my job would be to look at, is that  
8 relevant to the main population when the mortality  
9 rate is low, there have been no treatments  
10 required, no fish health events, the attending  
11 veterinarian is very aware of what's going on and  
12 is taking no action. So I would tend to not call  
13 that a disease-level problem at that farm. I  
14 would consider it one fish, one sample, it's a lab  
15 result.

16 Does that help to...?

17 Q Does anyone else want to add to that, please?

18 DR. MCKENZIE: Perhaps I could just go to a little more  
19 of the farm level, because Mark certainly -- or  
20 Dr. Sheppard certainly comes in, in place in an  
21 auditory process, and again, he's a little bit on  
22 the outside in the sense that he may not have the  
23 history or the knowledge of how these fish -- what  
24 changes may have occurred or in the recent past.

25 So just fundamentally, as a veterinarian, we  
26 go through a process. And every time we look at a  
27 problem or a disease diagnosis or a concern, we go  
28 through a mental process, and that's fundamental  
29 to our training. So we go through a process of we  
30 identify history, what history or conditions may  
31 have created a greater probability for different  
32 outcomes or different causes for the disease. We  
33 then look at behaviour. We may look at changes in  
34 behaviour, changes in mortality occurrences, or in  
35 activities such as where they occupy in the water  
36 column, or something along those lines. So those  
37 are our first pieces of evidence that we collect  
38 as veterinarians on a routine basis.

39 The next is we start to look at the fish,  
40 itself. We look at gross examination of  
41 individuals, look at the external appearance, are  
42 there any -- is there any evidence of particular  
43 things we see. With plankton you see gills that  
44 are a different colour. We see external lesions.  
45 We see darkening of fish. There's a number of  
46 things that we bring into play there.

47 Then we add in the necropsy, which is

1 experience of looking at fish, looking at  
2 different pathology, findings of different  
3 diseases, and what consistent clinical findings we  
4 see in those fish. And from our experience, we  
5 take those conditions and we, again, add them to  
6 our mental picture. So we're making a list of the  
7 information that we're collecting.

8 The next step is to collect external  
9 information, laboratory information. So maybe  
10 those are tissues that go to Dr. Marty. Maybe  
11 they're tests that we can look at and microscope  
12 at the farm. Maybe there are other options, we do  
13 bacterial cultures on the farm. Those are --  
14 again, we keep building that list.

15 As a veterinarian, what you do is you create  
16 what we call a differential diagnosis. So we  
17 create an immediate list of, say, the top 10  
18 things that would cause this picture, and as we go  
19 through our process of adding in all this  
20 information, we start knocking off, what is the  
21 most likely. Most likely. In some cases, I feel  
22 it's disease A and I send the results to Dr. Marty  
23 for a very specific test, and it'll come back,  
24 "Yes, that's exactly it." That reaffirms not only  
25 my clinical experience, because I've seen this,  
26 I've seen that, and it was positive, just like I  
27 thought, so you gain knowledge and experience  
28 through that process. So it's a bit of a learning  
29 process every single time we do a case. But at  
30 that point, you have a diagnosis.

31 So you have to put all of those pieces of  
32 information together. It's not a single test. If  
33 Dr. Marty sends me a negative and I -- that just  
34 is -- that's another piece of information that  
35 knocks off these three causes and gets me closer  
36 to the final diagnosis in the field, so that I can  
37 manage that particular situation.

38 So that's kind of the process we go -- mental  
39 process we go through for diagnosis.

40 Q So I if I understand your evidence, then, a given  
41 symptom, if it was found on a fish in isolation, a  
42 symptom isn't indicative of any particular disease  
43 or health problem, there may be symptoms that  
44 would give rise to a whole list of, on that  
45 differential diagnosis, and further information  
46 and experience would be required to narrow it down  
47 and come to a diagnosis; is that --

1 DR. McKENZIE: Certainly with time you develop an  
2 experience. Unfortunately, with fish, a lot of  
3 clinical signs are consistent among many diseases.  
4 They're not what we call pathognomonic. You don't  
5 see it and, "Oh, that's it." But you do see  
6 trends, and over years of experience, and I've cut  
7 open thousands of fish, and you've gone through --  
8 worked through many cases, you learn that  
9 knowledge. You gain that experience. And you get  
10 to a point where you have a really good -- your  
11 differential diagnosis gets far more refined with  
12 time and expertise filling in the gaps for you.  
13 So yes, with times you gain that.

14 MR. SPIEGELMAN: Thank you. I have, on Canada's list  
15 of documents, from Tabs 11 through 16, Canada was  
16 requested, on June 3rd, I believe, by the  
17 Aquaculture Coalition, for documents related to  
18 egg import and fish health testing of imported  
19 Atlantic salmon eggs. And I wanted to, in the  
20 interest of full transparency, try and get those  
21 into the record. We don't have witnesses being  
22 called that will be able to firsthand identify  
23 them, but I wonder if we could, first of all, ask  
24 the panel:

25 Q Are any of you familiar enough with the actual  
26 records for egg imports that you could identify  
27 them and lay a proper foundation for documents?  
28 And perhaps, Mr. Lunn, if we could pull up Tab 15  
29 just as an example. Is anyone on the panel  
30 familiar with these sorts of documents?

31 DR. McKENZIE: This is the FHPR Fish Health Certificate  
32 required for importation, and it's a form that has  
33 to be filled out by the authority from the  
34 exporting country. So this has been filled out  
35 and signed by the chief veterinary officer in  
36 Iceland, for an importation, and he's certifying  
37 that these fish have been tested for these  
38 diseases and found to be free.

39 Q And the list of diseases that are on there, that's  
40 a pretty standard list, I understand?

41 DR. McKENZIE: That is the specific list that comes out  
42 of the **Fish Health Protection Regulations**.

43 Q Right. And I don't see ISA on that list.

44 DR. McKENZIE: There is also a provision under the **Fish**  
45 **Health Protection Regulations** where they stipulate  
46 "any filterable agent," so there's sort of a  
47 catchall phrase for any unknown disease. But that

1 is the -- those are the criteria that are  
2 currently in regulation.

3 Q And would ISA be caught under the other filterable  
4 replicating agent?

5 DR. McKENZIE: Yes, it would. A number of these  
6 conditions, depending on the method used, they'll  
7 use cell culture for IHN, VHS, and the methodology  
8 that's used, if there's other viruses there,  
9 you're likely to pick them up.

10 DR. SHEPPARD: If I may, the particular reference to  
11 what Dr. McKenzie's talking about, I think, is on  
12 page 7 of the Manual of Compliance, the official  
13 protection regulations, where it does refer to  
14 filterable agents of the importing --

15 Q Thank you. I believe that manual of compliance is  
16 in evidence. I don't have the exhibit number  
17 close at hand. But in the interests of time - I  
18 understand I have less than one minute remaining -  
19 so I wonder if I could get Tab 11, or the records  
20 from the year 2000, and they go forward through  
21 Tab 16, and I thought I could just enter them as a  
22 series of exhibits and then, so --

23 THE REGISTRAR: Mr. Spiegelman, perhaps we can enter  
24 Tab 11 as Exhibit 1667; Tab 12 as 1667A; Tab 13 as  
25 1667B; Tab 14, 1667C; Tab 15, 1667D; and Tab 16,  
26 1667E.

27  
28 EXHIBIT 1667: Fisheries and Oceans Canada  
29 Fish Health Certificate for Cascade Animal  
30 Farms, May 28, 1999

31  
32 EXHIBIT 1667A: Fisheries and Oceans Canada  
33 Fish Health Certificate for Cascade Animal  
34 Farms, December 7, 2001

35  
36 EXHIBIT 1667B: Government of Canada,  
37 Fisheries and Oceans fax to John C. Davis,  
38 From Laura Richards, Subject: Request to  
39 import Atlantic salmon eggs from Iceland  
40 (Decision sought), dated October 3, 2003

41  
42 EXHIBIT 1667C: Fish Health Service Report  
43 for Mainstream Canada, dated March 15, 2005

44  
45 EXHIBIT 1667D: Fisheries and Oceans FHPR  
46 Fish Health Certificate for Stofnfiskur Ltd.,  
47 dated July 31, 2007

1 EXHIBIT 1667E: Fisheries and Oceans FHPR  
2 Fish Health Certificate for Stofnfiskur Ltd.,  
3 dated May 16, 2008  
4

5 MR. SPIEGELMAN: Thank you. Those are my questions.

6 MR. MARTLAND: Thank you. Mr. Commissioner, I have  
7 counsel for the Province at 35 minutes. I think  
8 that'll take us to the midday break, thank you.

9 MS. CALLAN: Mr. Commissioner, Callan, C-a-l-l-a-n,  
10 initials T.E., appearing on behalf of Her Majesty  
11 the Queen in Right of the Province of British  
12 Columbia.  
13

14 CROSS-EXAMINATION BY MS. CALLAN:  
15

16 Q Dr. Sheppard, I understand that the Provincial  
17 Fish Health Auditing and Surveillance Program has  
18 been reviewed by the Centre for Coastal Health.  
19 Is Provincial Tab 39 the executive summary of the  
20 review, and if so, what are the findings of the  
21 review?

22 DR. SHEPPARD: I'm sorry, counsel, I'm afraid -- oh,  
23 thank you. I didn't have that binder in front of  
24 me. Yes, that is the external review by the  
25 Centre for Coastal Health, Dr. Jane Parmley, who  
26 is an epidemiologist and veterinarian. That  
27 independent review was commissioned by my  
28 predecessor in 2006. I didn't begin with the  
29 Province until 2007. But yes, this executive  
30 summary would contain the key points of their  
31 criticisms.

32 MS. CALLAN: Could we mark that as the next exhibit.

33 DR. SHEPPARD: Specific --

34 THE REGISTRAR: Exhibit 1668.  
35

36 EXHIBIT 1668: Centre for Coastal Health, A  
37 Review of the British Columbia Ministry of  
38 Agriculture and Land's Fish Health Audit and  
39 Surveillance Program, by Jane Parmley,  
40 October 2006  
41

42 MS. CALLAN:

43 Q Dr. Sheppard, continue.

44 DR. SHEPPARD: Did you have a specific question about  
45 anything in there?

46 Q What were the findings of the review?

47 DR. SHEPPARD: Probably most salient, if it's possible

1 to scroll down to the third page or the end of the  
2 executive summary, yeah, page 2 of the executive  
3 summary, it's a paragraph below the table. So I'm  
4 sorry, page 3 of this particular document. Below  
5 the table there, I think there is an indication  
6 here that -- there was some reference in this  
7 area, anyway, to the -- that the audit and  
8 surveillance program was -- exceeds the standards  
9 of an audit and surveillance program as far as --  
10 Q Perhaps I could assist. Is it the second  
11 paragraph of page 3?

12 DR. SHEPPARD: Oh yes, I'm sorry, it's above -- yes,  
13 that's true. Probably the second sentence that  
14 starts, "The data collected is part of the BC Fish  
15 Health Audit and Surveillance Program," that was  
16 quite encouraging to receive.

17 MS. CALLAN: I note that Dr. McKenzie referred to  
18 Provincial Tab 18 before the break. That's the  
19 Code of Ethics, and I was just going to mark it as  
20 the next exhibit.

21 THE REGISTRAR: 1669.

22  
23 EXHIBIT 1669: British Columbia Veterinary  
24 Medical Association Bylaws - Appendix A Code  
25 of Ethics  
26

27 MS. CALLAN:

28 Q Now, I understand before you left the employ of  
29 the Province, that your office produced the annual  
30 reports for the Fish Health Program, Dr. Sheppard,  
31 and that the 2009 reports have been marked. Would  
32 you agree that Provincial Tabs 6, 7, 9, 11 and 12  
33 comprise the annual reports from 2003 to 2008?

34 DR. SHEPPARD: I agree.

35 MS. CALLAN: If those could be marked sequentially as  
36 the next exhibits.

37 THE REGISTRAR: Tab 6 will be marked as 1670; Tab 7  
38 will be 1671; Tab 9 will be 1672; Tab 11 will be  
39 1673; Tab 12 will be 1674.

40  
41 EXHIBIT 1670: Fish Health Program 2003 -  
42 2005  
43

44 EXHIBIT 1671: Fish Health Program 2006,  
45 Ministry of Agriculture and Lands  
46

47 EXHIBIT 1672: Fish Health Program 2007,

1 Ministry of Agriculture and Lands  
2

3 EXHIBIT 1673: Ministry of Agriculture and  
4 Lands, Animal Health Branch - Fish Health  
5 2008, Fish Health Program Annual Report  
6

7 EXHIBIT 1674: Ministry of Agriculture and  
8 Lands, Animal Health Branch - Fish Health  
9 2008, Fish Health Program Supplemental  
10 Appendices to the Annual Report  
11

12 MS. CALLAN:

13 Q Dr. Sheppard, besides fish health inspections,  
14 were there any other inspections that were  
15 conducted by your office or other offices in  
16 Courtenay with respect to fish farms in the  
17 province? And if so, what were they and how many  
18 occurred per year?

19 DR. SHEPPARD: Yes, as I said in my tenure with the  
20 Province, Fish Health conducted upwards of 150 or  
21 160 individual inspections of the farms, but there  
22 were other members of the Provincial Government  
23 that did attend farms on a fairly regular basis.  
24 Those would be the fisheries inspectors. I think  
25 their goal was to visit every farm at least once  
26 each year. And the Minister of Environment staff  
27 also visited the farms. I know Fisheries and  
28 Oceans staff were also commonly seen on the farm  
29 sites as well. So yeah, the Fish Health component  
30 and its staff members were probably most -- most  
31 frequented the farms.

32 Q Now, this question's for either Dr. Sheppard or  
33 Dr. Marty, depending on who feels best to answer  
34 the question. On Monday, Mr. McDade, on behalf of  
35 the Aquaculture Coalition, questioned Dr. Korman  
36 regarding whether the audit data aligned with the  
37 salmon farmers' data. Are the two databases  
38 expected to measure the same issues?

39 DR. SHEPPARD: Not specifically, in the sense that our  
40 audits are, if you will, snapshots in time,  
41 whereas the information collected and submitted by  
42 the industry is much more voluminous and much more  
43 frequent, and the veterinarians and the Fish  
44 Health Management staff for those corporations  
45 were -- had their finger on the pulse most of the  
46 time. Our goal, and it probably is reflected best  
47 in the 2009 Fish Health report - sorry, I don't



1 know what the page number is - but there's a  
2 figure, I think figure 4A or 4B or 4, which would  
3 reflect the findings -- the audit findings of  
4 things found inside the carcasses that we  
5 collected, whereas figure 15, I think, later on in  
6 the document, around page 37, maybe, reflects the  
7 Fish Health events reported by the industry.

8 So when you compare those two pie graphs, it  
9 would, in answer to your question, counsel, is  
10 that we would find similar causes of, or diagnoses  
11 at the farm level, Fish Health events versus what  
12 we found at the audit level, so that the numbers  
13 may vary, but certainly the categories of findings  
14 were -- almost overlapped completely in every  
15 case. My recollection is that only one time that  
16 the audit information did not find something that  
17 the industry had actually reported. But again,  
18 it's a snapshot in time. We're not looking at the  
19 same carcasses on the same day.

20 MS. CALLAN: If you could turn to Exhibit 1564, Mr.  
21 Lunn, and specifically page 19. Actually, page 19  
22 of the document as it stated, so...

23 MR. LUNN: It's the same on ringtail as on paper.

24 MS. CALLAN: I think the problem is that this is a  
25 supplement and I'm actually looking to the main  
26 report.

27 MR. LUNN: I see.

28 MS. CALLAN: Sorry, it's Exhibit 1560, and page 19.

29 Q Is that the graph you're referring to?

30 DR. SHEPPARD: Yes, it is. This is a reflection of the  
31 diagnoses made by the veterinarians at a farm  
32 level, based on our collection of fresh carcasses  
33 during an audit for the entire year of 2009.

34 Q Thank you. Dr. Marty, on Monday, an issue arose  
35 where Dr. Korman said only two of the seven  
36 instances of IHN were identified. Can you explain  
37 where Dr. Korman may have erred in his analysis,  
38 using Exhibit 1549 BCP002850 as a reference?

39 DR. MARTY: Will you be able to bring that up?

40 MR. LUNN: I'm just working on it.

41 DR. MARTY: Okay. I think I can explain the  
42 difference, if it's the document I think it is.  
43 This is a very complex database, and the transfer  
44 of what was on the database to Dr. Korman missed  
45 something.

46 In all of our samples, we first do the  
47 preliminary chain reaction, or PCR test, for

1 something like IHNV. If it's positive, then we  
2 bring out tissues from the freezer and inoculate  
3 them onto cell culture and attempt to culture it.  
4 So the tab that Dr. Korman used was the virology  
5 tab number 4. That was the virus culture results.  
6 Because it takes a day for the samples to get to  
7 us, often the virus culture results are negative  
8 when, in fact, there still is virus there. So we  
9 actually depend on the PCR results more than we do  
10 on the virus culture results.

11 So if you go to the next tab, which is viral  
12 virus, and then go up to the top, the column N,  
13 Nancy, poolPCR, that's actually the column that we  
14 use for most of our reports. That's the basis  
15 that we use as the PCR test. And so this has  
16 several examples of, even though it's a negative  
17 one here, that's actually a positive PCR result.  
18 So this, I think, would equal -- probably equalize  
19 the cases that Dr. Korman was getting some  
20 negative results in one sense but seemed like we  
21 were missing them. I think if we put these  
22 together his numbers would come out a little  
23 more --

24 DR. SHEPPARD: If I may assist, I have reviewed this.  
25 And Mr. Lunn, if you're able to go to Tab 15 or  
26 16, where it says Farm Diagnosis. There it is at  
27 18. And the top of the page, if you begin there,  
28 if you start looking at the farm diagnosis column  
29 F, there will be, I think it refers specifically  
30 to seven cases of IHN between 2002 and 2003. So  
31 those are the seven cases he looked at. And then,  
32 as Dr. Marty pointed out, if you're able to change  
33 back to 4, Tab 4, Mr. Lunn, at the top of that  
34 page you'll notice, what we're looking for,  
35 specifically, is in column number J, or letter J.  
36 You'll see we're looking for -- there are two  
37 trues in that column in the top little bit there.  
38 Those are the two positive viral isolations on  
39 cell culture. This is where -- and I take full  
40 responsibility for misdirecting Dr. Korman,  
41 because he did ask me about this and I -- it's a  
42 complicated set of data, the way it's formatted.  
43 But if you, as Dr. Marty said, on Tab 5, those  
44 negative ones better reflect the pools of tissue  
45 that were analyzed using molecular diagnostics,  
46 and there you would be able to count up to seven  
47 cases that were identified and diagnosed at a farm

1 level.

2 MS. CALLAN:

3 Q So essentially, then, if you had used the viro  
4 virus tab instead of the virology tab, he would  
5 have come up with consistent results?

6 DR. SHEPPARD: Yes, and a very understandable mistake  
7 or -- by Dr. Korman, because it is a complicated  
8 set of data to analyze.

9 Q Now, Mr. McDade also referred to a DFO document  
10 that identified that 60 live fish were needed to  
11 be sampled to show us 95 percent confidence rate  
12 the disease wasn't present. Now, the Province  
13 takes five fresh silvers for samples in its  
14 audits. Can you describe the difference between  
15 the sampling measurements and whether or not this  
16 was effective? And this can be to either Dr.  
17 Marty or Dr. Sheppard, depending on your  
18 preferences.

19 DR. MARTY: I guess I'll go on that one. The number of  
20 fish that you take depends on the goal that you  
21 have for your study. For example, Dr. McKenzie  
22 talked about import regulations. Whenever the  
23 Animal Health Centre did diagnostics for imports,  
24 for many of the veterinarians, we always ran 150.  
25 I've always assumed that that was the standard for  
26 OIE, because our goal in that situation was to  
27 certify this specific lot of fish being free from  
28 disease. The audit program is quite different.  
29 The audit program, the goal of that program is to  
30 audit the fish health events that are reported by  
31 industry. So we are not attempting to certify any  
32 individual farm free from disease.

33 Now, because we do five fish today and five  
34 fish tomorrow, and then over the course of a  
35 quarter we get about 150 fish a quarter, our  
36 epidemiologists tell us that we can actually add  
37 those up, and because it's a randomized sample,  
38 we're sampling fish that are the most likely to be  
39 diseased, so at the end of the quarter we have 150  
40 fish, if they are all free of, say, ISA, we can  
41 then state with a level of confidence that we have  
42 95 percent confidence that the prevalence of ISAV  
43 in our population, our British Columbia fish, is  
44 less than two percent.

45 So even though the individual farm is not  
46 certified free, we have a lot of information from  
47 the industry as a whole in the province, and that

1 adds up year after year after year, so we're now  
2 at the point where we have over 5,000 tests for  
3 ISAV, all are negative, and that gives us an  
4 extremely high level of confidence that our  
5 industry is free from ISAV.

6 Q Dr. McKenzie?

7 DR. MCKENZIE: I'd just like to add to that a little  
8 bit from my international experience. The 60 fish  
9 discussion is often when you're sampling a random  
10 sample in order to identify or find something in a  
11 population. The strategy that the Province  
12 utilizes is a bias sample, as Dr. Marty suggested.  
13 We are targeting, or the program targets silver  
14 fish, which have a -- that have died. We're not  
15 sampling live fish that are healthy. So we  
16 actually are biasing our sample to find disease  
17 which, again, increases our confidence.

18 In addition to that, when you're evaluating  
19 other countries for their import controls and the  
20 disease control mechanisms they have in place, you  
21 have to look at the whole picture of the disease  
22 mechanism that you have in place. So the  
23 Provincial program does not stand alone as a  
24 sampling program. It is an additive program. It  
25 is essentially a quality control system for the  
26 day to day farming observation and surveillance  
27 that occurs every day on farms. So every day  
28 we're looking at clinical signs of disease. We're  
29 doing tests, we're doing evaluations. The numbers  
30 and the support of information the Provincial  
31 program has adds onto that confidence by selecting  
32 onto a bias sample where your mortality in your  
33 silver fish are going to have a higher percentage  
34 of disease than your healthy fish swimming in the  
35 population. You further strengthen your numbers.

36 So by adding all these mechanisms together,  
37 you end up with a very robust system, and this is  
38 why evaluations of the program have been, as Dr.  
39 Parmley mentioned in the assessment of the  
40 program, meet and exceed international standards,  
41 because there's so many layers of confidence.

42 Q Now, Dr. Marty, before the transfer the Province  
43 monitored for viruses, can you outline how they  
44 monitored for viruses and roughly what number of  
45 samples were being taken per year?

46 DR. MARTY: Exhibit Number 1471, if that could be  
47 brought up, that will give us a summary that I

1 mentioned earlier. With the Fish Health Audit and  
2 Surveillance Program, we routinely test all the  
3 fish that are sampled. Sometimes we'll pool fish,  
4 up to five fish per pool, for the test, and that's  
5 an international standard. We have some diseases  
6 that are what we call endemic in British Columbia.  
7 They occur in wild fish and occasionally they can  
8 get into our farm fish. The one we test for is  
9 viral haemorrhagic septicaemia virus. That occurs  
10 every year in a few farms. Another is infectious  
11 hematopoietic necrosis virus. We've not had a  
12 case of that since 2003. And that's very  
13 devastating to the Atlantic salmon. The previous  
14 virus I talked about may kill a few salmon, but it  
15 tends to be what we call self-limiting; it just  
16 goes away after a while.

17 Then we have exotic diseases that we don't  
18 have in British Columbia. One of them is  
19 infectious pancreatic necrosis virus, and all  
20 tests have been negative for that, and they're  
21 listed here. The other virus is infectious salmon  
22 anaemia virus. It has had the most interest in  
23 these proceedings. And again, all these tests  
24 were negative for that.

25 Finally, we have a primitive bacteria that  
26 has to live inside cells, and that's called  
27 *Piscirickettsia salmonis*. This is another one  
28 that we occasionally see in our fish in British  
29 Columbia. There's a variety that's very severe in  
30 Chile, but we do not have that variety in British  
31 Columbia, but we do test for it, and our test  
32 would pick up the Chilean strain if it were to  
33 appear in our samples. So that's the main reason  
34 we have that, because there are a more significant  
35 strain of this organism elsewhere, and we do  
36 occasionally get some positives for that organism.

37 DR. SHEPPARD: Ms. Callan, if I may add, on the note of  
38 -- on the precautionary note, the program, the  
39 Audit and Surveillance Program is very  
40 precautionary in following the requirements and  
41 expectations of the international community, the  
42 World Organization for Animal Health, the OIE. In  
43 their manual of disease detection tests, I think  
44 it may be chapter 1.14, that chapter speaks to  
45 freedom of infection, and it's accepted by the  
46 World Organization and leading experts,  
47 virologists, veterinarians, be they federal or

1 provincial or private, there's agreement that  
2 British Columbia has freedom of infection of a  
3 number of these exotic pathogens that Dr. Marty  
4 just mentioned.

5 So the program is designed with a confidence  
6 of 95 percent at a two percent prevalence. I  
7 don't want to get into the statistics, because I'm  
8 not a statistician. But it's designed every  
9 quarter to test for this in a meaningful manner to  
10 continue to support that we have freedom of those  
11 infections.

12 Now, over time, of course, if you start  
13 looking at historical information, that  
14 confidence, intuitively, you can tell that  
15 confidence level rises from 95 percent upward,  
16 because each quarter we continue to not find it.  
17 In addition, the two percent prevalence  
18 intuitively can fall, get more toward one percent  
19 or even less than one percent because, again, each  
20 quarter we continue to not find it. So this is  
21 why, I think, the independent epidemiological  
22 studies have supported that the program currently  
23 as it's designed should provide the public  
24 confidence and the international confidence for  
25 trade out of B.C. and out of Canada, that we have  
26 freedom of infections.

27 Q And Dr. Marty, there's reference in some of your  
28 reports to sinusoidal congestion. Can you  
29 describe what this is and if you would consider  
30 the presence of sinusoidal congestion of  
31 haemorrhaging, or both, enough to found a  
32 diagnosis of infection salmon anaemia?

33 DR. MARTY: Sinusoids are the special name for  
34 capillaries in the liver. Congestion is just  
35 expansion of the size of the capillaries by blood  
36 cells. So sinusoidal congestion is just  
37 engorgement of the capillaries in the liver.  
38 Sometimes this can appear as distinct, round, foci  
39 that can actually be seen by the fish health  
40 technicians in the field. So they submit that to  
41 me, I make a diagnosis, and I have a standard  
42 comment that I use, that I discussed before. And  
43 based on the information that is shown here on  
44 this exhibit, I can be very confident that even  
45 though in Europe this might be a concern for ISAV,  
46 I can be very confident in British Columbia that  
47 ISAV is not the cause.

1 Q Now, if we turn to Exhibit 1540, page 24 to 25,  
2 Dr. Dill says, and I'll just add "ISA," and then  
3 the quote is:

4  
5 ...is an important viral disease of farmed  
6 Atlantic salmon in some parts of the world  
7 (Europe and Chile in particular). No records  
8 of it can be found in the BCMAL or BCSFA  
9 records, and according to M. Sheppard  
10 (personal comment) there have been "no  
11 suspect cases of ISA in BC since sampling  
12 began in 2003". However, in his diagnostic  
13 reports on dead fish collected from salmon  
14 farms Dr. Gary Marty (fish pathologist with  
15 BCMAL) reports "classic symptoms of ISA" -

16  
17 -- and he references BCP002864, and then goes on  
18 to say:

19  
20 - which according to the World Organization  
21 of Animal Health (OIE) should make any one of  
22 these what they call a 'suspect case'. These  
23 "classic symptoms", according to the BCMAL  
24 document, are sinusoidal congestion of the  
25 liver and interstitial hemorrhage/congestion  
26 of the kidney.

27  
28 Can you respond to this statement and provide me  
29 your opinion on whether Dr. Dill has appropriately  
30 quoted you and whether or not the documents he  
31 refers to are actually suspect cases of ISA?

32 DR. MARTY: Well, the first sentence, he describes ISA  
33 is an important viral disease of farmed Atlantic  
34 salmon in some parts of the world, and I do agree  
35 with that. Regarding the quote "classic symptoms"  
36 of ISA, I looked through my reports and I don't  
37 actually use that terminology. I think I use  
38 something like "a classic lesion" of ISA, and  
39 that's just a somewhat wording difference.

40 I think Provincial Tab 31 has an affidavit  
41 that I produced that described quite a bit of how  
42 we approach this sinusoidal congestion issue, and  
43 on page 55 of that document, this is the, I  
44 believe, OIE manual that describes infectious  
45 salmon anaemia, so this would be the document,  
46 page 55, I thought, but it may be different on  
47 ringtail than that. It's titled, Infectious

1 Salmon Anaemia. So if you just go down on -- page  
2 down, page down, I think it's a page down from  
3 there, but I'm just going to quote from the  
4 clinical methods in gross pathology for ISAV, they  
5 say, "No lesions are pathognomonic to ISA". And  
6 so what that means, as Dr. McKenzie referred to,  
7 is there isn't a single thing, if you see it,  
8 you're sure it's ISAV. So that's one important  
9 point.

10 If we continue in that same document - okay,  
11 that looks like it - that would be page 226 on the  
12 actual document that you can see in the bottom  
13 left-hand corner there, and item 4.2 Clinical  
14 Methods, Gross pathology, and you can see that  
15 first paragraph, second line, "No lesions are  
16 pathognomonic to ISA". So in the same document,  
17 if you just go to page 232 of that document, so, I  
18 think, six pages, and down at the bottom of the  
19 page, under Definition of a suspect case, and item  
20 i) so it mentions:

21  
22 Clinical signs consistent with ISA or  
23 pathological changes consistent with ISA...

24  
25 So because there's no specific lesion that's  
26 pathognomonic for ISA, you actually need a suite  
27 of lesions, or suite of changes. You need more  
28 than one. So a single finding of sinusoidal  
29 congestion is not sufficient.

30 The other point that's important here is I  
31 just have a limited amount of information on the  
32 farms. So I provide -- I am part of a diagnostic  
33 team that helps diagnose animal health in the  
34 province, so I'm providing my results to the  
35 veterinarians, and they use their expertise, as  
36 Dr. McKenzie described, to look at mortality  
37 patterns and other things that he has described,  
38 to determine is this, indeed, what we call  
39 reportable suspicion of ISA.

40 Reportable suspicion of ISA is different than  
41 just as may be an outlier differential diagnosis.  
42 We want to report to CFIA things that are actually  
43 of concern from our perspective as a pathologist  
44 or as a clinician we think might be there. To  
45 report every time the fish had sinusoidal  
46 congestion would not be helpful for the  
47 international regulatory bodies. That's why we're



1 experts. We're supposed to look at the whole  
2 picture and come to a decision whether it needs to  
3 be reported. And because, as Dr. McKenzie  
4 mentioned, many fish diseases have the same  
5 lesion, we're actually in the process, now, of  
6 trying to cleanly define what it is that we see  
7 that we need now to report to CFIA.

8 Fortunately, all our audit cases, because  
9 they always have a PCR test and it's always  
10 negative, the PCR test is what they would use to  
11 rule it out. So when we have a PCR test and it's  
12 negative, and even if I see some suspicious signs,  
13 then I wouldn't report on that basis. Dr.  
14 Sheppard may receive my results and have some  
15 other information to suggest that there's a  
16 problem with our PCR test. That's part of the  
17 back and forth that we have as professionals and  
18 part of the way that we gain confidence in each  
19 other. If he has questions, he can ask me, or he  
20 may just report it directly to CFIA.

21 Q Now, earlier in these proceedings, Ms. Morton has  
22 referred to 111 reported incidences of ISA. Is  
23 this the same issue?

24 DR. MARTY: I think she might have even reported a few  
25 more instances of ISA.

26 MR. McDADE: Excuse me just for a second. I don't  
27 think Ms. Morton has testified before this  
28 proceeding yet.

29 MS. CALLAN: Well, she has provided some documentation  
30 which is in an exhibit as QQ.

31 MR. McDADE: Well, if we have that up on the screen, is  
32 that signs of ISA or symptoms of ISA compared to  
33 ISA? The way you put the question was a little  
34 too general, I think.

35 MS. CALLAN: Okay. Well, she has reported 111-plus  
36 reported classic lesions associated with ISA.

37 MR. McDADE: Yes, that's far better.

38 MS. CALLAN: Okay.

39 DR. MARTY: So that would be Provincial Tab 2?

40 MS. CALLAN: If we can mark Dr. Marty's affidavit as  
41 the next exhibit.

42 THE REGISTRAR: 1675.

43  
44 EXHIBIT 1675: Affidavit #2 of Dr. Gary  
45 Marty, affirmed April 26, 2011  
46

47 MS. CALLAN:

1 Q Now, Provincial Tab 15 is the document from the  
2 OIE in a much more easy to find format; would you  
3 agree with that?

4 DR. MARTY: Yes, that's the same as in my affidavit.

5 MS. CALLAN: If we can mark that as the next exhibit,  
6 please.

7 THE REGISTRAR: 1676.

8

9 EXHIBIT 1676: Chapter 2.3.5 infectious  
10 Salmon Anaemia

11

12 MS. CALLAN:

13 Q We're just switching topics, now, to marine  
14 anaemia. Can you describe your understanding of  
15 marine anaemia or plasmacytoid leukemia?

16 DR. MARTY: Marine anaemia I see as a clinic syndrome,  
17 and so it's not something that I would diagnose.

18 And maybe Dr. Sheppard might just give a little  
19 idea of what the clinical syndrome is, what  
20 science he sees when he's out on the field.

21 DR. SHEPPARD: I would agree with Dr. Marty in that the  
22 -- and as we heard Dr. Kent and Dr. Stephen  
23 testify last week, that it's debatable what that  
24 syndrome is and what causes it. The term "marine  
25 anaemia" is just simply a morphological  
26 description of a fish in the water that doesn't  
27 have enough blood cells to circulate blood. There  
28 are many, many causes for that. The specific  
29 lesion is plasmacytoid leukemia, which is an  
30 amplification of white blood cells that seems to  
31 be out of control. So in that sense, it's not  
32 immunosuppressive. It could be debated that it's  
33 actually an excess of immunostimulation. And I  
34 think that was part of the thesis from Dr. Stephen  
35 that, "what is disease," that it may just be an  
36 indication of inflammation.

37 So I could speak to this topic somewhat,  
38 because I was one of the early veterinarians. The  
39 last 20 years has gone by quickly, but I was at  
40 the farms with Dr. Kent and Dr. Stephen at the  
41 time that these papers were written back in 1990  
42 and '93, for example, and the clinical signs that  
43 we would see in affected Chinook salmon are very  
44 obvious. So these fish are grossly -- the gross  
45 pathology is very evident. Some of the signs  
46 overlap with other indigenous infection, such as  
47 bacterial kidney disease, or the *Rickettsia*, the

1           *Piscirickettsia* infection. And so there are some  
2 field tests between the gross pathology, the  
3 experience and the histology or the history of the  
4 farm. There are some quick and easy tests that  
5 would help to determine whether it was a bacterial  
6 kidney disease that was causing these lesions or  
7 whether it was the *Rickettsia* causing these  
8 diseases. And then often that those lesions would  
9 be collected and sent to a pathologist to confirm  
10 that.

11           So in short, the diagnosis of plasmacytoid  
12 leukemia is really quite easy to determine at the  
13 farm and the gross clinical examination.

14 Q       Okay.

15 DR. MARTY: And the other point is that if you have a  
16 diagnosis of bacterial kidney disease, or  
17 *Piscirickettsia*, then you do not give a diagnosis  
18 of marine anaemia. Those are not the same thing.

19 DR. SHEPPARD: That's correct.

20 Q       Now, Ms. Morton has prepared some graphs outlining  
21 marine anaemia in Chinook and Atlantic salmon, at  
22 Provincial Tab 2. What are your thoughts on the  
23 graph that was provided by Ms. Morton and,  
24 specifically, what are your thoughts on ISH  
25 symptoms being equated with marine anaemia  
26 symptoms in Atlantic and Chinook salmon?

27 DR. MARTY: To answer that question, Mr. Lunn, could  
28 you bring up Exhibit 1549.

29 MS. CALLAN: And that would be BCP002864.

30 DR. MARTY: In the interest of time, I've brought up  
31 the database that was discussed on Monday in quite  
32 detail, and what I've asked Mr. Lunn to do is, as  
33 a pathologist, I'm the one who created this entire  
34 database, filled in every one of those numbers.  
35 And so after a while I kind of get a feel for if I  
36 see one thing there's often something else  
37 associated with it. These aren't independent  
38 things over time.

39           So what we're going to do here is I'm going  
40 to have a hypothesis. As Dr. Sheppard mentioned,  
41 this ISH is just increase in blood-forming cells  
42 in the kidney. And I'm going to have a hypothesis  
43 that I think these might be related to bacterial  
44 kidney disease, or *Piscirickettsia*. So I've asked  
45 Mr. Lunn to go ahead and collapse the columns that  
46 aren't necessary for those diagnoses, and we're  
47 just putting the focus, here, on the RS category.

1           So if you could just click through those, and it  
2           is the -- and I think he's just going to click  
3           "undo" or "redo" unless they disappear. Okay.  
4   MR. LUNN: I'm trying to do that. It looks like all of  
5           our changes have disappeared.  
6   DR. MARTY: All right. So Plan B, what I want you to  
7           do is go to the -- go home --  
8   MS. CALLAN: Maybe if I could interrupt you. Could I  
9           just get the highlights, since I'm starting to run  
10           out of time?  
11   THE COMMISSIONER: Ms. Callan, I think --  
12   DR. MARTY: Okay.  
13   THE COMMISSIONER: May I just interrupt? I apologize  
14           to you for that. I'm going to take the break now,  
15           and if Mr. Lunn can address this issue, it might  
16           be more helpful for me.  
17   MS. CALLAN: Okay.  
18   THE COMMISSIONER: Thank you.  
19   THE REGISTRAR: The hearing is now adjourned until 2:00  
20           p.m.

21  
22                   (PROCEEDINGS ADJOURNED FOR NOON RECESS)  
23                   (PROCEEDINGS RECONVENED)

24  
25   THE REGISTRAR: The hearing is now resumed.  
26   MR. MARTLAND: Mr. Commissioner, I've simply moved to a  
27           different mike so that Ms. Callan has the same  
28           one. She's got a further two minutes of questions  
29           to conclude, and then we'll move immediately to  
30           Mr. Blair for the Salmon Farmers Association with  
31           30 minutes. Thank you.

32  
33   CROSS-EXAMINATION BY MS. CALLAN, continuing:

34  
35   Q    Dr. Marty, if we could turn back to Exhibit 1549  
36           and BCP002864 for your answer on whether or not  
37           ISH symptoms are -- what your thoughts are on ISH  
38           symptoms being addressed in marine anaemia.  
39   DR. MARTY: Okay. What I've done is ask Mr. Lunn to go  
40           ahead and just collapse the spreadsheet and sort  
41           the ISH scores from most severe to least severe.  
42           And what he's done here is highlighted, there are  
43           actually no severe cases, a score of 3, but he has  
44           23 cases with a score of 2. Now, if you go down  
45           the "Cause of Death" list on all of these, you'll  
46           see that there is, for example, "HRS", Heart  
47           *Renibacterium salmoninarum* or bacterial kidney

1 disease, and then there's just -- you go down the  
2 row and there's several "RS"s. There's one "BHM"  
3 on line 37, but if you look over at the "KRS"  
4 line, there's actually a severe kidney, this is  
5 bacterial disease.

6 Keep going down further, every one has a  
7 cause of death that's either "RS", there are a few  
8 that are "PS", which is *Piscirickettsia salmonis*.  
9 Dr. Sheppard mentioned that those are two causes  
10 that can cause ISH. So in this case we have a  
11 cause of death for every one of these fish, and so  
12 we don't need to use the diagnosis of marine  
13 anaemia at all, and in fact these are not marine  
14 anaemia like, that would not be an appropriate way  
15 to designate them because we have another cause of  
16 death in stead of marine anaemia.

17 Q And my last question is if you could turn to Tab  
18 45 of the Province's book of documents. Is this  
19 an email that you wrote to Dr. Miller?

20 DR. MARTY: Yes.

21 MS. CALLAN: If that could be marked as the next  
22 exhibit.

23 THE REGISTRAR: Exhibit 1677.

24  
25 EXHIBIT 1677: Email from Gary Marty to  
26 Kristi Miller-Saunders Re: FINAL "unblinded"  
27 FR sockeye histopathology results 2011-2111,  
28 June 27, 2011  
29

30 MS. CALLAN: And that's all the time I have, so those  
31 are my questions. Actually, one point. If Mr.  
32 Lunn could save the amended Excel spreadsheet as a  
33 new document, that might facilitate manipulation  
34 of the data, so it would always appear the same  
35 way.

36 MR. LUNN: Did you want to mark it, as well as...

37 MS. CALLAN: Yes, I'd like to mark it as an exhibit.

38 THE REGISTRAR: That last document, Ms. Callan, was  
39 there two documents there? We feel that it has  
40 been marked before.

41 MS. CALLAN: The document I'm referring to is  
42 BCP002864, and Mr. Lunn modified by hiding some  
43 columns.

44 MR. LUNN: We're talking about Tab 45, sorry, that's on  
45 the screen right now.

46 MS. CALLAN: Oh, yes, that one needs to be marked as an  
47 exhibit, as well.

66

PANEL NO. 59

cross-exam by Ms. Callan (BCPROV)

Cross-exam by Mr. Blair (BCSFA)

1 THE REGISTRAR: So this is a separate document,  
2 independent of the other one.

3 MR. LUNN: We believe this has been marked previously.

4 MS. CALLAN: My understanding is that Mr. McDade didn't  
5 mark it because we didn't have a clean copy yet,  
6 so this is the clean copy of that.

7 THE REGISTRAR: Thank you. Now, the second document  
8 you wanted marked will be marked as 1678.  
9

10 EXHIBIT 1678: Excel spreadsheet Data Sort  
11 for BC - Dr. Marty 01 - BCP002864  
12 Histopathology detail  
13

14 THE COMMISSIONER: Mr. Blair.

15 MR. BLAIR: Thank you, Mr. Commissioner. For the  
16 record it's Alan Blair, appearing for the B.C.  
17 Salmon Farmers Association, and with me is my  
18 associate, Shane Hopkins-Utter.  
19

20 CROSS-EXAMINATION BY MR. BLAIR:  
21

22 Q Gentlemen of the panel, I'll start with an opening  
23 question, if I may. Would you all agree as  
24 experts in the area of management of fish health  
25 and aquaculture that you have a high confidence  
26 that the risk of disease in salmon farms is  
27 manageable with appropriate care and attention?  
28 Right to left, perhaps. Dr. Marty.

29 DR. MARTY: Yes.

30 Q Dr. McKenzie.

31 DR. MCKENZIE: I do.

32 Q Dr. Sheppard.

33 DR. SHEPPARD: I agree.

34 Q Not "Dr.", but do you have an opinion on that from  
35 a management perspective, Mr. Swerdfager?

36 MR. SWERDFAGER: I agree.

37 Q Thank you. Mr. Lunn, would you be kind enough to  
38 go to B.C. Salmon Farmers Tab 20, please. This  
39 question -- just one second, please.

40 MR. MARTLAND: I think in our binder we may have a  
41 different document at Tab 20, which would be a  
42 Briefing Note for the Minister, For Information.  
43 I don't know if that's what Mr. Blair had, or, Mr.  
44 Lunn, if we might try that. I'm sorry, 21.

45 MR. BLAIR: Mr. Lunn, are you at B.C. Tab 20?

46 MR. LUNN: This is 21 on the screen.

47 MR. BLAIR: I was asking for 20, I'm sorry. It may

August 31, 2011

1           have been my mistake. I think I'm going there  
2           eventually. Thank you. That looks better. Could  
3           you go to page 2, please.

4           Q     Dr. Sheppard, you see this is a document that you  
5           prepared as a briefing note to the Minister. The  
6           date on the first page is August the 1st, 2007.  
7           Do you agree, Dr. Sheppard?

8           DR. SHEPPARD: I agree.

9           Q     And in this document you referred to some of the  
10          issues which were arising in the aquaculture  
11          industry in Chile. And if we could go back to  
12          page 1, please, Mr. Lunn, the passage immediately  
13          above in bold "First Nations Considerations". If  
14          you could highlight that paragraph of  
15          "Discussion". Dr. Sheppard, you referred to a  
16          number of issues which were happening in the  
17          Chilean farm salmon industry at the time, and the  
18          bottom sentence after you highlight the things  
19          that were going on in Chile, you note:

20  
21                    These high-risk activities are not allowed in  
22                    [British Columbia].

23  
24           Do you see that comment?

25          DR. SHEPPARD: I do.

26          Q     And that was the case in 2007 and those activities  
27          are still not allowed in British Columbia in 2011?

28          DR. SHEPPARD: Mr. Commissioner, as you're aware, these  
29          briefing notes sometimes are drafted and then go  
30          places after me. But I have to admit that this  
31          one, to my recollection, was done -- and sometimes  
32          these briefing notes take some time to develop  
33          before they get sent along, and this was done in a  
34          fairly rushed manner, based on a media report, I  
35          think the day previous. And that particular  
36          statement I would probably tend to word more  
37          accurately now.

38          Q     We'll take you to the second page of the document.  
39          The document essentially relates to the issue of  
40          ISA and egg importation. If we go to page 2,  
41          please. Thank you. If you could have a look at  
42          the first two paragraphs. The first paragraph  
43          starts with "Company veterinarians" and the second  
44          one "The most likely source of ISA". If you could  
45          read those two paragraphs, and comment on them,  
46          please, Dr. Sheppard.

47          DR. SHEPPARD: The first bullet reads:

- 1  
2           • Company veterinarians and BCMAL's fish health  
3           audit and surveillance program is well suited  
4           to detect any viral problems, including [ISA  
5           virus] ISA, at fish farms as early as  
6           possible.  
7

8           I agree with that statement.

9           Q     And the second paragraph into the record, as well.  
10          DR. SHEPPARD:   The second bullet reads:

- 11  
12           • The most likely source for ISA in BC is from  
13           migrating wild fishes from other regions of  
14           the Pacific Ocean as there is no importation  
15           of live Atlantic salmon or eggs to BC.  
16

17          MR. BLAIR:   And I wonder if this could be marked as the  
18           next exhibit, please.

19          THE REGISTRAR:   Exhibit 1679.  
20

21                       EXHIBIT 1679:   Sheppard, Ministry of  
22                       Agriculture and Lands, Briefing Note for  
23                       Minister, For Information, August 1, 2007  
24

25          MR. BLAIR:

26          Q     And now, Dr. McKenzie, my questions now are for  
27           you. With this document on the screen as Exhibit  
28           1679, can you comment on the remarks that Dr.  
29           Sheppard made in 2007, and in particular can you  
30           comment on the ability of company veterinarians  
31           and the auditing staff to detect viral problems on  
32           farms, such as an occurrence of ISA.

33          DR. MCKENZIE:   Mr. Commissioner, sorry to go back on  
34           topics that I've addressed a little bit before,  
35           but I'm very confident that veterinarians and the  
36           auditing program would detect ISA for the specific  
37           reasons I discussed before, which was the multi-  
38           tiered approach we have for fish health  
39           management. We start off at the farm level where  
40           the veterinarian and the technician are on a daily  
41           basis monitoring for disease and any changes in  
42           trends or mortality, veterinarians such as myself  
43           that are skilled in detecting ISA, recognizing  
44           some of the early clinical signs and the  
45           appropriate sampling methodologies and diagnostic  
46           tests that will be required.

47                       The next level of that program is then an



1 auditing program where the province, and now DFO  
2 comes in and does additional sampling on top of  
3 what we do on a regular basis, searching for  
4 silvers, so targeted sampling, that is biased  
5 towards finding disease. On top of that level we  
6 -- and they do analysis at that level, so --  
7 sorry, they do analysis for ISA at that level.  
8 All of this combined meets what is the  
9 international standard for detection of disease or  
10 freedom from disease. And because these standards  
11 can meet that level, the OIE recognized level of  
12 diagnostics, I feel very comfortable that the  
13 program that we have in place would detect the  
14 virus if it was to occur.

15 MR. BLAIR: Thank you. Mr. Lunn, could we go to B.C.  
16 Tab number 3, please.

17 MR. LUNN: B.C. Farmers you mean?

18 MR. BLAIR: B.C. Farmers.

19 MR. LUNN: I thought you mean Province.

20 MR. BLAIR: I'm sorry. I'm 0 for 2 with you this  
21 afternoon, Mr. Lunn. We'll try to improve. B.C.  
22 Farmers Tab 3, the top will look like this. There  
23 we go. Thank you.

24 Q This question is for Dr. McKenzie. Dr. McKenzie,  
25 I'm going to suggest that this document, which  
26 goes on for several pages, is available on a B.C.  
27 Salmon Farmers Association website and addresses  
28 the issue of "Fish Health", and what is done by a  
29 salmon farmer to maintain healthy fish, and the  
30 health-related measures that are taken on the  
31 farms in British Columbia, as well as the role of  
32 the fish health veterinarian. I assume you're  
33 familiar with this particular document?

34 DR. MCKENZIE: I am.

35 MR. BLAIR: Could we mark it as the next exhibit,  
36 please.

37 THE REGISTRAR: Exhibit 1680.

38  
39 EXHIBIT 1680: B.C. Salmon Farmers  
40 Association website printout re "Fish Health"  
41

42 MR. BLAIR: Thank you.

43 Q Can you comment just briefly, sir, on some of the  
44 items which are highlighted in this document.

45 DR. MCKENZIE: Just highlighted at the top, or...?

46 Q You know what, in the interests of time, we've had  
47 it filed, we can read it. We'll move on.

1           Dr. McKenzie, my questions now relate to your  
2 knowledge of the management of fish health and the  
3 considerations that you take into account as a --  
4 as a fish health professional and as a fish  
5 veterinarian, the strategy you use and your  
6 incorporation of various management systems. And  
7 I'm thinking in particular of ecosystems  
8 management and area management and mitigation  
9 strategies. Can you expand a little bit on how  
10 fish health management is done at your particular  
11 company and the industry generally, please.

12 DR. MCKENZIE: So not specifically the technical  
13 aspects, like...

14 Q No, just the reference that I understand from the  
15 profession that the use of ecosystem management  
16 and area management and the like.

17 DR. MCKENZIE: Yes. So I've already touched on a  
18 little bit of the fish health management plan and  
19 the specific items that fall into that. Now,  
20 that's a guidance document for how we -- how we  
21 manage our day-to-day working activities and how  
22 production strategies are done. Now, into the  
23 bigger picture of how we manage disease is we  
24 always have to manage disease in a very holistic  
25 perspective. We have to be monitoring the -- we  
26 monitor the environment very closely as it has  
27 great influence on our fish health.

28           We monitor fish -- a lot of aspects of our  
29 fish, but in a big picture we manage on an area  
30 basis, so we are conscious of diseases that are  
31 found in the wild stocks, very important to us.  
32 We don't have a lot of knowledge about what  
33 exactly is in the wild stocks, many times, but  
34 it's very important that we understand what is  
35 present, what could be exposed to our fish.

36           We also manage our farms on an area basis, so  
37 that we are looking not just within a pen. We're  
38 not blind, we're not operating in a fish health  
39 perspective in a vacuum. So we don't see our farm  
40 as that. We look at interactions in the  
41 environment. We often consider migratory pathways  
42 and how we manage fish. We consider different  
43 aspects of whether it be algae blooms, or changes  
44 in the environment that may impact how we do our  
45 -- use our production strategies. Where we enter  
46 fish, what times of year we will enter fish in  
47 order to minimize exposure to, say, blooms of

1 jellyfish, or plankton, or -- so we're very  
2 conscious, and we have to manage it in a very  
3 large way.

4 In some of the specific aspects of our farm  
5 management, we have a very close relationship with  
6 other companies in the area so that we can have a  
7 very open communication about issues and how we  
8 manage our farms together so that we are -- we are  
9 monitoring areas and understanding if there's any  
10 changes in those areas.

11 Q Thanks, Dr. McKenzie. Mr. Lunn, we'll try B.C.  
12 Salmon Farmers Association Tab 10, please. If you  
13 could put that on a split screen with B.C. Salmon  
14 Farmers Tab 35, as well. Dr. McKenzie, as these  
15 are being queued up on the screen, we've  
16 highlighted on the screen a report prepared by Dr.  
17 Ron Lewis for the B.C. Salmon Farmers Association,  
18 and I'm also asking Mr. Lunn to bring up the  
19 *curriculum vitae* of Dr. Lewis. I'm going to be  
20 seeking to have the *curriculum vitae* marked only  
21 for identification, Mr. Commissioner, but I'd ask  
22 Dr. McKenzie to quickly run through the  
23 credentials of Dr. Lewis.

24 DR. MCKENZIE: Dr. Ron Lewis is a veterinarian. He  
25 also has a Master's degree in Pathology, and he  
26 has a diploma from the American College of  
27 Veterinary Pathologists. His experience, he has  
28 over 25 years of experience as a veterinarian,  
29 working in the B.C. Ministry of Agriculture and  
30 Lands, and between the time of 1999, I believe,  
31 and 2009, he was the Chief Veterinary Officer for  
32 the Province of B.C., as well as the Director of  
33 the Animal Health Branch.

34 MR. BLAIR: Could his c.v. be marked as the next for  
35 identification, the next lettered exhibit for  
36 identification.

37 THE REGISTRAR: That's Tab 35 you're referring to?

38 MR. BLAIR: Yes.

39 THE REGISTRAR: Yes, that will be marked YY, double  
40 "Y".

41  
42 YY FOR IDENTIFICATION: Abbreviated Resume of  
43 Ronald John Lewis  
44

45 MR. BLAIR: Thank you. Thank you, Mr. Lunn. You can  
46 take that off the screen so that we can see more  
47 fully the paper, the Tab 10. Thank you.

1 Q Dr. McKenzie, can you explain to the Commission  
2 the history of this paper, how it was created and  
3 for what purpose and on whose instructions?

4 DR. MCKENZIE: Mr. Commissioner, we recognized that  
5 there was a number of diseases identified by Mr.  
6 Kent in his expert report that he considered high  
7 level risk.

8 Q And when you say "we", do you mean yourself and  
9 the (indiscernible - overlapping speakers).

10 DR. MCKENZIE: The B.C. Salmon Farmers Association,  
11 sorry. I'm part of a committee that is -- has  
12 been organizing efforts on the B.C. Salmon Farmers  
13 committee for the Cohen Commission. We identified  
14 the need to look into these diseases and how they  
15 relate to aquaculture. Because Dr. Ron Lewis, who  
16 was the Director of the Animal Health Branch, and  
17 therefore he has overseen the development of  
18 aquaculture program as far as fish health is  
19 concerned for the last ten years, we asked him --  
20 as a result, we asked him to look at the diseases  
21 of high risk and to look into their occurrence in  
22 the aquaculture industry with the idea of looking  
23 at risk, what was present in -- on farms and what  
24 sort of mitigative actions were taken by farms to  
25 control these diseases.

26 Now, in summary, if -- so he, in this  
27 document, he has gone through each of the diseases  
28 that were identified as severe, I believe was the  
29 terminology Kent used, or high risk, or I'm not --  
30 I believe it's high risk. He went through the six  
31 agents that were considered high risk for sockeye  
32 salmon and explained their existence in the  
33 aquaculture industry, and whether they occur, and  
34 what steps.

35 If we can -- if we can go to page 3, the  
36 second paragraph down, where it starts "Of the  
37 high-risk" diseases. So in his conclusion, from  
38 assessing the prevalence of these diseases on  
39 farms, of the high-risk diseases identified by Dr.  
40 Kent, the salmon farm industry, really there was  
41 only two that appeared to be a possible source,  
42 and these are the IHN and BKD.

43 IHN would be -- is a factor, it's present in  
44 the wild, and we know it's been present and has  
45 been previously mentioned through these  
46 discussions that there has not been a positive IHN  
47 since 2003 on any farm. And it has been

1 documented in the past that they are quite --  
2 sockeye salmon, adult sockeye salmon can be  
3 resistant to this virus.

4 But BKD is the other pathogen that was  
5 identified, and it occurs mostly in chinook and  
6 coho salmon. And as he mentioned here, the  
7 prevalence is diminishing, which is consistent  
8 with what has been seen in the database, and  
9 basically the prevalence has been diminishing  
10 because of strategies around breeding programs and  
11 screening programs for brood stock to minimize any  
12 sort of vertical transmission.

13 Q Dr. McKenzie, I see on the following page 4 of 4  
14 it's signed by Dr. Lewis and dated August the  
15 10th, 2011, so this is a very recent report.

16 DR. MCKENZIE: Yes.

17 Q It's also a very short report. My question to you  
18 now, sir, is as an expert, fish health expert,  
19 have you read and do you adopt the findings of the  
20 report of Dr. McKenzie (sic), which is exhibited  
21 on the screen today?

22 DR. MCKENZIE: I do, I think it's a very good summary.

23 MR. BLAIR: Mr. Commissioner, we're seeking to have  
24 this marked as the next exhibit.

25 MR. McDADE: We object, Mr. Commissioner. My friend  
26 has nothing but if he's not persistent. This is a  
27 backhanded way to try and get his expert report  
28 in. We had a number of experts that we wanted to  
29 have called. The Commission has ruled that we  
30 can't do that, it would be wrong to allow my  
31 friend to do it and not allow us to do it. We've  
32 been over this before. I don't think we need to  
33 take a lot of time.

34 MR. MARTLAND: Mr. Commissioner, unless there's an  
35 application I'm not familiar with, the Commission  
36 hasn't ruled. Commission counsel have given their  
37 view on what we're prepared to do. We've  
38 communicated a hearing plan. I don't believe  
39 anyone has brought an application to have a  
40 further witness called vis-à-vis aquaculture or  
41 disease hearings. We would suggest that as has  
42 been the case very broadly through many of these  
43 hearings, if the document is used to ask  
44 questions, as has been done, if ultimately  
45 questions with respect to its use or its weight,  
46 without having heard testimony from the author,  
47 and in the absence of cross-examining the author

1 of the report, or considerations in terms of the  
2 ultimate use or weight to be given to the  
3 document, my submission would be that, broadly  
4 speaking, it's been a liberal approach to  
5 admissibility in terms of documents that are put  
6 forward. And on that footing, our suggestion  
7 would be that this document can be received into  
8 evidence.

9 THE COMMISSIONER: I can save you some time, I think,  
10 Mr. McDade. I thank you for that, Mr. Martland,  
11 but there's a number of documents now that have  
12 been marked for identification purposes that at  
13 some juncture are going to have to be dealt with.  
14 And this particular document may or may not fall  
15 into the category of some of those documents, but  
16 my preference would be that it be marked for  
17 identification purposes at this time. And there  
18 will be an opportunity at some point, either as a  
19 separate submission or in the final submissions,  
20 to deal with whether or not the documents marked  
21 for identification purposes ultimately should be  
22 received in evidence, and counsel can make their  
23 submissions at that time. I think it should be  
24 marked for identification purposes, because it has  
25 been used to examine this witness, just as I think  
26 the credentials of Dr. Lewis were marked for  
27 identification.

28 MR. BLAIR: If I may speak to that further, Mr.  
29 Commissioner, we specifically marked the  
30 credentials for identification because I think  
31 that's the appropriate use of them. The  
32 Commission counsel, the participants should  
33 understand who this is written by, and nothing  
34 more. It's a backgrounder.

35 What distinguishes this report and from the  
36 others that Mr. McDade has suggested that the B.C.  
37 Salmon Farmers have been persistent on, is this is  
38 the first time we've had a B.C. Salmon Farmers  
39 applicant, a participant here, and he's a fish  
40 health professional. He's an expert. He is no  
41 different, I say, than any other experts in any  
42 other forum where he has said I have read and I  
43 adopt the report. We didn't put that test for the  
44 other reports to the witnesses previously. This  
45 report speaks to Dr. McKenzie's expertise.

46 The history again, I think, very briefly  
47 bears some -- and I realize I'm taking up my time,

1 but we've all tried to have experts entered on the  
2 panels and we understand that the time just does  
3 not permit that.

4 My client is in a unique position. It's a  
5 unique position for a couple of reasons. Early in  
6 the process the Commission, when asked whether or  
7 not there could be findings of fault, concluded  
8 that in some circumstances there could be findings  
9 of fault. My client is listed in the terms of  
10 reference as a matter that the Commission should  
11 look into to determine whether our client, the  
12 B.C. Salmon Farmers, may have contributed to the  
13 decline. I think that puts us in a fairly unique  
14 position, where when you're entitled to look to  
15 see whether we may have caused the decline, we  
16 should surely be entitled to have evidence  
17 entered, particularly where there can be a finding  
18 of fault.

19 I did look up the Rules of Procedure and I  
20 understand the oddity is that Rule 38 of the  
21 Procedure would permit this report to be filed as  
22 a public submission on the website. There's  
23 nothing precluding it. Indeed, I think the  
24 Commission, it says, can look at any public  
25 submissions. Now, that seems like a backdoor way  
26 of getting evidence before the Commission.

27 I think in fairness to my client, and also to  
28 the participants here, they ought to know that my  
29 client takes these matters very seriously. You've  
30 heard, Mr. Commissioner, that these are very  
31 technical documents, these massive spreadsheets  
32 and fish health databases. In an effort to make  
33 this understandable for the Commission, we've had  
34 these reports prepared by recognized fish health  
35 experts.

36 I regret we're taking up the time for the  
37 debate, because to me it seems so clear that when  
38 it's been read and adopted by an expert witness, I  
39 don't understand why it would be excluded.

40 I appreciate that we might argue this later,  
41 but we are rapidly losing the opportunity to have  
42 the exercise as we have today with an expert who  
43 can actually on the stand say "I'm an expert.  
44 He's an expert. I read it. I have adopted it."

45 I know that Mr. Taylor wants to have a  
46 moment, and I'll yield the microphone to him.

47 MR. TAYLOR: I'll be quick. There's a case called

1           **Marquard** - I mispronounce it, which I'm not  
2 familiar with. I sense from your nod you are, Mr.  
3 Commissioner - which says in short that, as I  
4 understand it, that if an opinion is put to an  
5 expert on the stand and he adopts the opinion, the  
6 opinion can go in as evidence. And so this is  
7 distinguishable from some of the other material  
8 that's been coming before you, in that sense.

9           THE COMMISSIONER: Yes, thank you for that, Mr. Taylor.  
10 I think your last few remarks are exactly why I  
11 want to take the step of marking this for  
12 identification purposes. I want to have the  
13 opportunity for not only counsel who are here  
14 today, but other counsel who are not here today,  
15 where in the case of the particular sessions they  
16 attended, these same kind of issues may have  
17 arisen so that everyone can have a fair  
18 opportunity to make their submissions on the  
19 question of whether documents marked for  
20 identification should be entered. There may be  
21 similar cases to yours, Mr. Blair, where other  
22 counsel are not here today who may wish to address  
23 this. And I'm trying to deal with this fairly.

24           I'm not intending to rule on this today. I'm  
25 not intending to in any way prohibit you from  
26 asking the questions like the ones you've just  
27 asked. But my preference would be to give  
28 everyone an opportunity to give me their views on  
29 these categories of documents that don't all fall  
30 into the same case, although they've all been  
31 marked for identification purposes. That's really  
32 the intent of my remarks to you. So I'm not  
33 ruling against you, sir. I simply wanted to be  
34 cautious here to make sure that all counsel, even  
35 those who are not here today, may have an  
36 opportunity to take a position, as Mr. McDade has,  
37 and others might follow suit with him. I'd like  
38 to hear from them, as well.

39           MR. BLAIR: Thank you for that additional  
40 clarification.

41           THE REGISTRAR: That document will now be marked as for  
42 identification as ZZ, double "Z".

43  
44                           ZZ FOR IDENTIFICATION: Lewis, Infectious  
45                           Diseases and Potential Impacts on Survival of  
46                           Fraser River Sockeye Salmon, August 10, 2011  
47



1 MR. BLAIR: Thank you.

2 Q Mr. Lunn, B.C. Salmon Farmers Tab 13. Dr.  
3 McKenzie, these questions are for you, and I'll  
4 just lead you a little bit on this. This is  
5 another report prepared as the last one, and also  
6 by Dr. Lewis, correct?

7 DR. MCKENZIE: That's correct.

8 Q And it was specifically, as the title might  
9 suggest, the question of whether or not sea lice  
10 could act as disease vectors. And you've read  
11 this report?

12 DR. MCKENZIE: I have, yes.

13 Q Can you summarize it briefly.

14 DR. MCKENZIE: In this report Dr. Lewis looks at the  
15 literature that's available on substantiating  
16 whether or not *Lepeoptheirus*, sea lice, are  
17 capable of either acting as a vector of disease,  
18 or in other fashions and what diseases may be,  
19 with the idea of looking at the potential risk in  
20 the B.C. situation. So in this case he has looked  
21 at the diseases in his summary. He has -- he has  
22 looked at the diseases that are -- sorry. In his  
23 summary he's evaluated the potential for sea lice  
24 to be a vector or transmit disease. He agrees in  
25 this situation that sea lice can act as a  
26 potential transmitter of disease, but more than  
27 likely as a mechanical transmission versus a  
28 vertical transmission.

29 MR. BLAIR: Thank you. Could this be marked as the  
30 next for identification, please.

31 THE REGISTRAR: For identification?

32 MR. BLAIR: Yes.

33 THE REGISTRAR: That will be triple "A", AAA.

34

35 AAA FOR IDENTIFICATION: Lewis, Sea Lice -  
36 Could They Act as Disease Vectors? July 19,  
37 2011  
38

39 MR. BLAIR: Mr. Commissioner, to speed it along, of  
40 course, I think the Commission knows I wish to  
41 mark it for an exhibit. I don't want to go  
42 through the charade of being overruled, so in all  
43 cases, including the next one, I seek to have them  
44 marked as an exhibit, but I take your earlier  
45 ruling and therefore I'm asking the registrar to  
46 mark them for identification.

47 THE COMMISSIONER: Thank you very much.

1 MR. BLAIR: Thank you.

2 Q B.C. Salmon Farmers Tab 4 -- it's actually  
3 identification 00. This is also for Dr. McKenzie.  
4 This is a report prepared by Dr. Hammell, and  
5 again it's in the same category. This report was  
6 prepared at the request of the B.C. Salmon Farmers  
7 to assist the Commission in understanding, as the  
8 title might suggest, "Qualitative assessment of  
9 risk, and mitigation, of importing exotic disease  
10 through eggs"; is that correct?

11 DR. McKENZIE: Yes. This document was prepared by Dr.  
12 Larry Hammell, as you suggested.

13 Q And have you had an opportunity to read this  
14 report?

15 DR. McKENZIE: I have.

16 Q Can you summarize it briefly.

17 DR. McKENZIE: Yes. So Dr. Hammell is the Director of  
18 the OIE Collaborating Centre on Epidemiology &  
19 Risk Assessment for Aquatic Animal Diseases, and  
20 so he's -- and he has a tremendous amount of  
21 experience in the area of ISA. We requested of  
22 him, in order to save time for the Commission, as  
23 we understood imports were of great interest, we  
24 asked him to conduct a risk assessment of the  
25 practices of importation into British Columbia  
26 from 1985 until 2009.

27 Q Thank you, Dr. McKenzie. Could we pull up Tab 32,  
28 please. This is the c.v. of Dr. Hammell?

29 DR. McKENZIE: Yes.

30 MR. BLAIR: Might that be marked for identification, as  
31 well.

32 THE REGISTRAR: That will be marked as triple "B", BBB.

33

34 BBB FOR IDENTIFICATION: *Curriculum vitae* of  
35 K. Larry Hammell, May 2011

36

37 MR. BLAIR: Thank you.

38 Q Dr. McKenzie, how do you reply to people whose  
39 rhetoric suggests that ISA can be introduced  
40 through egg importation?

41 DR. McKENZIE: I have to admit, Mr. Commissioner, that  
42 the rhetoric that continues on about ISA  
43 introductions and the importation is concerning to  
44 me, both personally and professionally.  
45 Professionally in the sense that there are so many  
46 levels of experts and veterinarians involved, as I  
47 discussed before. Professional veterinarians

1 working in the field, looking every day, that are  
2 fully capable and trained to identify ISA, that  
3 next here we have experts and in the field of  
4 regulatory medicine, working with DFO or the  
5 Province that also have programs that are sampling  
6 for ISA, and are not finding it.

7 In addition to that, we have some of the  
8 highest level of technical expertise in diagnostic  
9 capability, such as Dr. Marty and his colleagues  
10 in areas that we've worked in.

11 In addition to that, we have now a report  
12 from CFIA that, you know, they've looked at the  
13 data we have on ISA and they see it as a no-risk,  
14 in their words from their report, and Canada  
15 recognizes, based on international standards, that  
16 B.C. is free of ISA, based on this infrastructure  
17 of fish health expertise that is in place.

18 But - but - the commentary by people that a  
19 lot of it was initiated when Ms. Morton raised the  
20 concerns of the ISA reports, comments of that  
21 constantly in the media seem to dissuade or  
22 dismiss all of this expertise in these layers of  
23 audits and credentials. And professionally I find  
24 that very, very concerning that we can have this  
25 many individuals, skilled individuals involved,  
26 and we can have people interpret, non-fish health  
27 experts interpret information and run with it and  
28 create this type of -- this type of situation. So  
29 I find that hard -- it's hard to understand.

30 Q I believe my time is all but up, and so I'll ask  
31 Mr. Lunn to put XX for identification on the  
32 screen. Dr. McKenzie, a few days ago in response  
33 to questions by my learned friend, Mr. McDade, he  
34 was asking witnesses on an earlier panel with  
35 respect to the stocking of a site known as --  
36 described as Conville Bay, and the suggestion was  
37 made to an earlier panel that Conville Bay was  
38 stocked until mid to late 2007. You've had the  
39 opportunity to check the records of that farm.  
40 What can you say about that?

41 DR. MCKENZIE: Well, to start off, obviously we're  
42 referring to this particular graph --

43 Q We'll get to the graph in a moment.

44 DR. MCKENZIE: Okay.

45 Q Just speak to the issue of stocking.

46 DR. MCKENZIE: Okay. In the issue of Conville Bay,  
47 Conville Bay is a marine harvest site. Having

1 read the transcripts, I have spoken with the  
2 veterinarian in charge of that facility, and we  
3 discussed the issue of marine anaemia. She was  
4 kind of surprised that there was an issue because  
5 marine anaemia had not been seen on the site and  
6 at any significant level. And what she wanted to  
7 -- the question we posed to her was, was that  
8 accurate as far as the harvest data. I've looked  
9 at the Salmon Farmers data itself, and the harvest  
10 of Conville Bay actually started in late -- it  
11 started in December of 2006, and they were almost  
12 75 percent empty by March of 2007. And the last,  
13 I believe the last harvest was in early May.  
14 Q And directing your attention now to XX on the  
15 screen.  
16 DR. McKENZIE: Yes.  
17 Q The graph which I understand, I think, is in  
18 evidence from my friend, Mr. McDade, was prepared  
19 by Ms. Morton in, if I'm correct in that, whoever  
20 prepared it, there appear to be eight quarterly  
21 reports for 2007. Could you just look along the  
22 axis at the bottom. I think I see 2007 eight  
23 times. It was a very long year, I guess.  
24 DR. McKENZIE: Yes, and there's no 2006.  
25 MR. BLAIR: Okay, thank you. No further questions.  
26 MR. MARTLAND: I have counsel for the Aquaculture  
27 Coalition, also at 30 minutes, next, Mr.  
28 Commissioner.  
29 MR. McDADE: Thank you, Mr. Commissioner. It's Greg  
30 McDade for the Aquaculture Coalition.  
31  
32 CROSS-EXAMINATION BY MR. McDADE:  
33  
34 Q Given the shortness of time, I am also going to  
35 just start by putting in a number of documents, I  
36 think. Can we have Aquaculture Tab 61 up on the  
37 screen. I may ask questions about these later. I  
38 just want to get the document -- make sure we get  
39 the documents in as exhibits. Mr. Swerdfager, you  
40 were part of this email string in February 2010,  
41 that's correct, isn't it?  
42 MR. SWERDFAGER: Yeah, I see my name on there partway  
43 down.  
44 MR. McDADE: All right. Could we have that marked as  
45 the next exhibit.  
46 THE REGISTRAR: Exhibit 1681.  
47

1 EXHIBIT 1681: Email string between Denise  
2 Lapratte, Trevor Swerdfager and others,  
3 February 22, 2010 to February 25, 2010  
4

5 MR. McDADE:

6 Q Tab 51, please. This is also an email string in  
7 relation to yourself and Mr. Thomson. Can we --  
8 will you confirm that and can we have that marked  
9 as the next exhibit.

10 THE REGISTRAR: Exhibit 1682.

11  
12 EXHIBIT 1682: Email string between Annie R.  
13 Champagne, Trevor Swerdfager and others,  
14 March 31, 2010 to April 30, 2010  
15

16 MR. SWERDFAGER: I don't see my name on that one. Is  
17 that what you were asking?

18 MR. McDADE:

19 Q Perhaps we can go to the next page. There, you  
20 see your name down in the third page there.

21 MR. SWERDFAGER: Okay, yes.

22 MR. McDADE: So that's -- next can we have Tab 24 up.  
23 This is a -- there's a large number of pages in  
24 this particular document, received from Canada.  
25 If we could scroll down to later pages, Mr. Lunn.  
26 This starts with two briefing notes to the  
27 Regional Director General regarding Atlantic  
28 Salmon Eggs. Can we accept that's a DFO document  
29 and have that admitted as the next exhibit.

30 THE REGISTRAR: Exhibit 1683.

31  
32 EXHIBIT 1683: Briefing note for the Regional  
33 Director General, Request to Import Atlantic  
34 Salmon Eggs from Iceland October 3, 2003  
35 [DFO]  
36

37 MR. McDADE: Can we have Tab 25 up on the screen,  
38 please. These are a series of reports on egg  
39 testing, I understand. Some of these may be in a  
40 previous exhibit, but I'm not sure they all are.  
41 I'd like to mark this group as the next exhibit,  
42 please.

43 THE REGISTRAR: Exhibit 1684.

44  
45 EXHIBIT 1684: Reports on egg testing [DFO]  
46

47 MR. McDADE: Can we have Aqua Tab 3 up on the screen.

1 Or sorry -- sorry, Mr. Lunn, could we have Tab 53  
2 up first.

3 Q Mr. Swerdfager, you testified before a  
4 Parliamentary Committee, and I believe that's  
5 October of this year, October of 2010?

6 MR. SWERDFAGER: I believe it was October 26. If we  
7 scroll down further, the date's on there, but it  
8 was -- I appeared before a Parliamentary Committee  
9 twice, actually.

10 MR. MARTLAND: I'm going to raise the issue, Mr.  
11 Spiegelman's on his feet, as well. There's issues  
12 with respect to this. I don't know what proposed  
13 use was to be made of the document. I don't want  
14 to anticipate Canada's objection.

15 MR. SPIEGELMAN: I will anticipate the use, although  
16 perhaps I should -- I was waiting until my friend  
17 was attempting to put this into evidence. There's  
18 a well-established rule of evidence that testimony  
19 given to a Parliament or a Parliamentary Committee  
20 can't be entered into evidence in other  
21 proceedings, and so we will object to this going  
22 into the evidence here today.

23 MR. McDADE: Mr. Commissioner, to save time, perhaps I  
24 can suggest it be marked for identification and we  
25 argue that out later.

26 MR. MARTLAND: That's fine. I'll tell you our  
27 position's the same. I think there's a clear rule  
28 of evidence on that very question, but if we're  
29 marking for ID, it's a nonissue.

30 THE REGISTRAR: That document will be marked for  
31 identification CCC, triple "C".

32  
33 CCC FOR IDENTIFICATION: Parliamentary  
34 Standing Committee on Fisheries and Oceans,  
35 Evidence, October 26, 2010  
36

37 MR. McDADE:

38 Q And then Tab 3, please. I think this is your  
39 document, Dr. Sheppard. This is a spreadsheet  
40 that you keep in your health database; is that  
41 right?

42 DR. SHEPPARD: This is an Excel spreadsheet which is a  
43 reflection of the data from the Fish Health  
44 Database. It needed to be created into this form  
45 so it was transferable and readable. It was  
46 extracted from the database in this format.

47 Q And this is the database that you are the keeper

1 of, or were, when you were working for the  
2 province?

3 DR. SHEPPARD: I inherited this database. It began in  
4 2004, and I began with the province in 2007, and  
5 managed it from that point forward.

6 MR. McDADE: And this is a -- well, can I have that  
7 marked as the next exhibit.

8 THE REGISTRAR: Exhibit 1683 (sic).

9 MR. McDADE: Thank you. And --

10 THE REGISTRAR: Actually, you're getting ahead of me,  
11 85.

12  
13 EXHIBIT 1685: Excel spreadsheet of Fish  
14 Health Database

15  
16 MR. McDADE:

17 Q Mr. Lunn, can we go to supplemental document Tab  
18 D. Now, none of you gentlemen are on that email  
19 list, I don't think, but I'm going to -- I'd like  
20 to ask Dr. Marty about this. It's an email from  
21 -- between Dr. Garver and Dr. Saksida. Unless  
22 there's an objection, I'd like to enter that as  
23 the next exhibit.

24 THE REGISTRAR: Exhibit 1686.

25  
26 EXHIBIT 1686: Email string between Kyle  
27 Garver, Sonja Saksida and others from January  
28 27, 2009 to January 28, 2009

29  
30 MR. McDADE:

31 Q Now, gentlemen, let me turn to my questions.  
32 First of all, Dr. Marty, you're employed full-time  
33 as an employee of the Province?

34 DR. MARTY: Yes.

35 Q And it's your program that in part is under  
36 examination here.

37 DR. MARTY: Yes.

38 Q And, Dr. Sheppard, you and Mr. Swerdfager are  
39 full-time employees of the Government of Canada?

40 DR. SHEPPARD: That's correct.

41 Q And you were -- when you were with the Province,  
42 it was your program that has been extensively  
43 examined here that you're defending?

44 DR. SHEPPARD: When I -- during my employment with the  
45 Province of British Columbia, I managed the Fish  
46 Health Program, which is part of the assessment of  
47 animals within the Animal Health Branch.

1 Q And, Dr. McKenzie, you're a full-time employee of  
2 one of the fish farm companies?  
3 DR. MCKENZIE: That's correct.  
4 Q And so I take it all you gentlemen are supporters  
5 of the status quo. Let me ask that question  
6 differently. Is there anyone here -- there's no  
7 one here who's an independent expert from the  
8 government and the companies as to the structure  
9 here.  
10 DR. MARTY: Maybe you should define "independent"?  
11 MR. McDADE: I just want to make a statement, Mr.  
12 Commissioner, that the choice of experts for this  
13 important panel on disease is missing any expert  
14 who can comment in opposition to the current  
15 structure. But we'll work with what we've got,  
16 even if it's working with one hand behind our  
17 back.  
18 MR. MARTLAND: I'm going to just offer in response that  
19 our hearing plan received Mr. McDade's  
20 endorsement, so I'll take that point, but I think  
21 it should be understood in that light.  
22 MR. McDADE: Well, the experts that we asked to call  
23 weren't being called. You're not suggesting that  
24 we haven't asked for other experts to be called.  
25 MR. MARTLAND: No, certainly I haven't suggested that.  
26 But the final hearing plan is one that is received  
27 to differing degrees, either supports or at least  
28 not objections in the way of applications, Mr.  
29 Commissioner.  
30 MR. McDADE: All right, I'm content with that, Mr.  
31 Commissioner.  
32 Q Now, Dr. Marty, let me begin with you. You were  
33 in hearings for the last four or five days when we  
34 were examining disease, and particularly when we  
35 were examining the Fish Health Database?  
36 DR. MARTY: Yes.  
37 Q And so let's see if I can get agreement on a  
38 couple of points, which I think are non-  
39 controversial. The process you go through in  
40 terms of histopathology and diagnosis, you heard  
41 our questions of Dr. Korman that some 60 percent  
42 of the time the diagnosis was left open.  
43 DR. MARTY: Yes.  
44 Q And that's because you could neither say there  
45 were no significant findings, nor could you  
46 actually identify a particular disease?  
47 DR. MARTY: Actually, the open diagnosis would have



1           been assigned by Dr. Sheppard or Dr. Keith, so  
2           that question would need to be given to them.

3       Q     All right. Dr. Sheppard, you agree that the open  
4           diagnosis is roughly 6590 percent of the time?

5       DR. SHEPPARD: I can't recall the exact figure but  
6           there were a large number of open diagnoses made  
7           at a farm level.

8       Q     And I want to get into that, this question of a  
9           farm-level diagnoses. That's as I understood it,  
10          and as I put to Dr. Korman, there are numerous  
11          occasions that we saw in the database where five  
12          or six fish might have been examined and where one  
13          or two of those fish might have been -- had an  
14          identification of disease, and in some cases two  
15          different diseases, which led to an open  
16          diagnosis; is that right?

17       DR. SHEPPARD: That can occur quite regularly, yes.

18       Q     So these 60 percent of open diagnoses do not mean  
19           there's no disease on the farm. As I understand  
20           that they mean there's no, in your opinion,  
21           disease at the farm level.

22       DR. SHEPPARD: Yes. May I refer you to the -- I think  
23           what you're speaking of is largely defined in the  
24           B.C. exhibit that Ms. Callan brought up, which is  
25           the supplemental version or component of the 2009  
26           annual audit. Within that supplemental document  
27           is a list of case definitions, where you'll find  
28           open diagnosis, which explains how and why a  
29           veterinarian would come to that conclusion at the  
30           population level.

31           So in answer to your question, Mr. McDade, if  
32           we take as an arbitrary figure, there are 800,000  
33           fish on the farm and we collect five silver  
34           carcasses that day, I would instantly look at,  
35           well, what's the mortality rate on the farm that  
36           particular day. Those five fish that we collected  
37           and two, as you said, may have been positive for  
38           one disease, is such a minor percentage of  
39           finding, compared to eight million fish that  
40           didn't die that day, or, sorry, 800,000 fish that  
41           didn't die that day, that, yes, we would consider  
42           that that lab finding is a lab finding in an  
43           individual, but is very little relevance to the  
44           population as a whole.

45       Q     So when you're giving a diagnosis of an open  
46           diagnosis, you're not saying there's no disease on  
47           that farm, you're just saying there's no

- 1 consistent disease across the farm; is that fair?  
2 DR. SHEPPARD: That's correct. Within the open  
3 diagnosis there's no significant findings, or no  
4 findings in the laboratory at all. The open  
5 diagnosis would suggest that we're -- the fish  
6 obviously had been diseased possibly by trauma or  
7 something else, not likely an infectious agent  
8 that we found, or that we didn't find. So we  
9 would call it an open diagnosis because we're  
10 unable to conclude why those fish, the silvers  
11 that we collected that day, may have ended up in  
12 the dead pile.
- 13 Q So an open diagnosis could result, even though  
14 there were a number of clinical signs of possible  
15 diseases identified in the histopathology?
- 16 DR. SHEPPARD: Again we would take all bits of evidence  
17 on that particular case into consideration, and we  
18 do make that distinction between is there a  
19 presence of a pathogen here, is there an infection  
20 that's evident, what are the findings on the  
21 individual level versus what are the findings of  
22 the population level. So the indigenous pathogens  
23 that we do find just exist naturally in  
24 populations. As an analogy, if I suggested that  
25 if everyone in this room had their skin swabbed,  
26 we would find staphylococcus. Now staphylococcus  
27 in humans can be the cause of flesh eating  
28 disease, but we don't have flesh eating disease  
29 and I would be hard pressed to suggest that anyone  
30 in this room is actually sick to a staphylococcus,  
31 the presence of staphylococcus on their skin. The  
32 same situation in the farms.
- 33 Q So, Dr. Marty, as I understand it, you're the sole  
34 veterinarian doing histopathology?
- 35 DR. MARTY: Fish histopathology, yes.
- 36 Q And you have been so since 2007?
- 37 DR. MARTY: Since 2004, August 2004.
- 38 Q All right. And so in that time you've not given  
39 any diagnosis of marine anaemia, because you don't  
40 believe in it.
- 41 DR. MARTY: That doesn't quite fairly characterize the  
42 way I would say it. Marine anaemia, as I  
43 mentioned before, is a clinical diagnosis. And so  
44 it's not -- when I'm diagnosing something, it's an  
45 observational diagnosis. So I might diagnose  
46 interstitial cell hyperplasia, and then in my  
47 comment I'll mention that in chinook salmon this

1 is a common finding with marine anaemia. So then  
2 either Dr. McKenzie or Dr. Sheppard can look at  
3 what they say in the fish in the field, and decide  
4 is that consistent with their findings, then they  
5 would put a clinical diagnosis.

6 An example again in human medicine would be  
7 multiple sclerosis. As a pathologist you would  
8 see inflammatory cells around nerves and so you  
9 diagnose an inflammatory neuritis. And I would  
10 send -- the medical pathologist would send that to  
11 the practitioner, who then would take that with  
12 the other information they have and they may come  
13 up with a clinical diagnosis of multiple  
14 sclerosis. The multiple sclerosis, we don't know  
15 what the cause is. There's several different  
16 hypotheses. The same thing with marine anaemia.

17 Q All right. So we're left when we're trying to  
18 figure out how much marine anaemia might or might  
19 not be there in terms of counting the symptoms.

20 DR. MARTY: That would be one thing that you would look  
21 at is the symptoms, or I would call them lesions.

22 Q Okay. And, Dr. Sheppard, in your diagnosis of  
23 farm-level -- of an infection, an active infection  
24 at a population level, I think was the phrase we  
25 saw in spreadsheet 1643 and 1645, do you use a  
26 number, how many fish have to be infected before  
27 you make that diagnosis, or what percentage?

28 DR. SHEPPARD: Well, again, Mr. Commissioner, it varies  
29 from case to case because the evidence collected  
30 from case to case varies. So again, the factors I  
31 would look at are how many silver fish were  
32 available. Sometimes if there are large numbers  
33 of silver fresh carcasses available, it's a clear  
34 indication that there's an active ongoing disease  
35 occurring at the time. Then I would look at the  
36 laboratory results and the information from Dr.  
37 Marty to look at what percentage of those animals  
38 actually are showing indications. And then I  
39 would look at the rest of the information to see  
40 if their veterinarian had been involved with the  
41 mortality rate, if the mortality rate in the farm  
42 had been high, whether there'd been treatments  
43 occurring. All of that would be pieced together  
44 to make me feel at the highest level of confidence  
45 how to assign that diagnosis at the population  
46 level.

47 Does that answer your question, Mr. McDade?

1 Q So it's a subjective consideration.  
2 DR. SHEPPARD: We try to -- being cognizant that we're  
3 looking for all sorts of things, everything from  
4 indigenous natural infections through to disease  
5 that's not infectious, through to exotic agents,  
6 we try to apply as objective oversight as possible  
7 to come to that conclusion based on again our  
8 level of confidence with the information presented  
9 for us.  
10 Q All right. But in point of fact, though, with  
11 that test in mind, as we heard from Dr. Korman,  
12 there is about 30 high-risk infections a year in  
13 fish farms.  
14 DR. SHEPPARD: I don't think I can agree with your  
15 characterization of the question. I'm not even  
16 sure I quite understand it. Would you please  
17 define what the 30 high-risk diseases are?  
18 Q Well, I'm sorry, let me restate it the way Dr.  
19 Korman, I think, stated it, which is there are 30  
20 fish health events associated with the high risk  
21 diseases that were identified by Dr. Kent, per  
22 year.  
23 DR. SHEPPARD: I don't disagree that that may be what  
24 Dr. Korman's testimony was. And it's based on Dr.  
25 Kent's opinion, as to what is a high risk disease.  
26 Q Well, let me ask you then, quite aside from Dr.  
27 Kent. I've looked through your diagnoses and  
28 there's a fair number per year of the diagnosis of  
29 an active infection at the population level.  
30 Would you care to guess how many?  
31 DR. SHEPPARD: No, I would care not to guess.  
32 Q All right. Well, is it less than 30, or somewhere  
33 in that vicinity?  
34 DR. SHEPPARD: I think I'm lost in your question, Mr.  
35 McDade. One more time please.  
36 Q Well, let me try this a different way. Infections  
37 at the farm level, that is, active disease  
38 infections at the farm level happen every year on  
39 the 100 or 120 fish farms that are operating in  
40 B.C., correct?  
41 DR. SHEPPARD: Yes.  
42 Q And they happen despite the best efforts by fish  
43 farms to avoid that happening.  
44 DR. SHEPPARD: If that's a question, we have sentinel  
45 animals inside the cages that tend to reflect what  
46 is -- what they are exposed to within the  
47 ecosystem, and by virtue of that combination of

1 factors, the sentinel Atlantic salmon will express  
2 infections and disease, as would any other  
3 population of animals that exists in the  
4 environment.

5 Q Well, is it fair to say the Fish Health Management  
6 Plans dictate a bunch of strict rules for the  
7 farmers to try and avoid infection, but following  
8 those rules is no guarantee that infection doesn't  
9 occur. It reduces it but it doesn't prevent it.

10 DR. SHEPPARD: Yes, the goal is -- the risk can never  
11 be zero. There's always a risk, and then so the  
12 Fish Health Management Plan is designed to  
13 minimize those risks as best we can as managers of  
14 those animals in an open environment.

15 Q No, I'm actually not talking about risk here. I'm  
16 talking about results. If one looks back over the  
17 last year or five years or ten years, despite  
18 following all the procedures in the Fish Health  
19 Management Plans, fish farms do get disease.

20 DR. SHEPPARD: That's correct, and the -- and the  
21 prevalence of those diseases has been declining  
22 precipitously since the beginning of fish farming  
23 in British Columbia.

24 Q All right. And in the last 20 years we've had  
25 major epidemics of IHN three times.

26 DR. SHEPPARD: Correct.

27 Q And we've had a major epidemic of plasmacytoid  
28 leukemia in the early '90s.

29 DR. SHEPPARD: I would disagree with that statement.

30 Q You don't think we did?

31 DR. SHEPPARD: No.

32 Q What do you think those fish died of?

33 DR. SHEPPARD: That wasn't the question. Your  
34 characterization of the question was a "major  
35 epidemic". It was a finding of a clinical  
36 syndrome that is quite natural in Pacific salmon  
37 of British Columbia, and it was -- it became a  
38 point of interest for some researchers and it was  
39 monitored very closely. And since then we see  
40 next to no signs of plasmacytoid leukemia in  
41 chinook or coho salmon.

42 Q Well, you're not diagnosing it, but -- well, let's  
43 come to this. I understood that what Dr. Kent and  
44 Dr. Stephen were working with was a disease that  
45 they said killed 50 to 80 percent of the fish at  
46 some farms; isn't that right?

47 DR. SHEPPARD: I don't recall the cumulative loss

1 specifically to marine anaemia. As I said this --  
2 or, I'm sorry, that the plasmacytoid leukemia,  
3 because in my recollection back in the day when I  
4 was examining those very same animals, the  
5 presence of plasmacytoid leukemia was often  
6 concomitant with bacterial kidney disease, and  
7 bacterial infections that which -- which are very  
8 overlapping symptoms. So, no, marine anaemia, as  
9 you say, was not -- or plasmacytoid leukemia was  
10 not the cause, the sole cause of mortality.  
11 Q Well, have you read Dr. Kent's papers?  
12 DR. SHEPPARD: Yes.  
13 Q Do you disagree with them?  
14 DR. SHEPPARD: Yes.  
15 Q Oh, I see. Have you published -- have you seen  
16 any peer-reviewed literature that contradicts  
17 them?  
18 DR. SHEPPARD: Yes, Dr. Stephen's thesis.  
19 Q All right. We have Dr. Stephen's thesis. Dr.  
20 Marty, what do you think those 50 to 80 percent of  
21 the fish died of?  
22 DR. MARTY: I haven't examined those, so I can't  
23 comment.  
24 Q Well, Dr. Marty, you say that, as I understood it,  
25 that marine anaemia is often associated with BKD.  
26 DR. MARTY: No, I said that interstitial cell  
27 hyperplasia, the ISH, is often associated with  
28 BKD.  
29 Q And as I understood the disease that Dr. Kent was  
30 talking about, plasmacytoid leukemia, it would  
31 weaken fish but might not often be the cause, the  
32 actual cause of death. Is that fair?  
33 DR. MARTY: I don't recall specifically how Dr. Kent  
34 described that.  
35 Q All right. Let's leave that. Dr. McKenzie, do  
36 you agree that despite the best efforts you might  
37 make under a Fish Health Management Plan, some of  
38 your facilities are inevitably going to get some  
39 disease?  
40 DR. MCKENZIE: As Dr. Sheppard said, there is a natural  
41 background disease level that we will see, and  
42 just like any salmonid species in the same  
43 waterway, we would see at some level those  
44 diseases: whether it's an outbreak, no; presence  
45 of a pathogen, yes.  
46 Q Some outbreaks are -- some outbreaks have occurred  
47 and will continue to occur, won't they.

1 DR. McKENZIE: I would hope they would not.  
2 Q NO.  
3 DR. McKENZIE: But they have.  
4 Q They have. And I don't know who the right person  
5 to ask this question of, but I'll try you, Dr.  
6 McKenzie, and maybe you, Dr. Marty. Where those  
7 disease outbreaks have occurred, has there been a  
8 -- is that a contravention of the Fish Health  
9 Management Plan?  
10 DR. McKENZIE: The Fish Health Management Plan doesn't  
11 specify you can or cannot have a disease finding.  
12 It's a process, it's a way of managing to mitigate  
13 disease. So it would be hard to be in  
14 contravention of that.  
15 DR. SHEPPARD: If I may comment, Mr. McDade, to help  
16 you, is that within the Fish Health Management  
17 Plan itself there is a section that is outlined  
18 and headed as an outbreak -- management outbreak  
19 control procedures. In light of the fact that,  
20 yes, the natural virus IHN does appear  
21 occasionally, and these indigenous pathogens can  
22 sometimes under certain conditions be defined as  
23 an outbreak. Now, the definition of an outbreak  
24 varies from individual to individual.  
25 Q Well, right. But if you have an outbreak of IHN,  
26 it's possible to have an outbreak of IHN without  
27 being in breach of the Fish Health Management Plan  
28 at all, right?  
29 DR. McKENZIE: I guess I don't understand the question.  
30 The Fish Health Management Plan is not a law or  
31 something that -- again, it's a description of how  
32 you do a process.  
33 Q It's a --  
34 DR. McKENZIE: So I don't understand how you could  
35 breach something that doesn't give you boundaries  
36 that you can or cannot do.  
37 Q Well, I think that's what I'm getting at. The  
38 Fish Health Management Plans don't prohibit  
39 getting disease. They simply set out a process to  
40 try and do some sensible things to avoid it.  
41 DR. McKENZIE: But there's nothing that could prohibit  
42 disease.  
43 Q No.  
44 DR. McKENZIE: There's no piece of paper that could do  
45 that. So what the Fish Health Management Plans do  
46 is they take all the effort possible to mitigate  
47 risk.

- 1 Q All right. And once -- once you get a disease, if  
2 you get an outbreak of a virus, the Fish Health  
3 Management Plans, I'm going to suggest to you, set  
4 a bunch of rules to avoid transmitting it to other  
5 fish farms.
- 6 DR. MCKENZIE: Yes, the concept of biosecurity is a  
7 paramount piece in fish health management in all  
8 aspects, whether it be in hatcheries or in fish  
9 farms.
- 10 Q And it sets out rules in extreme outbreaks for  
11 quarantine, right?
- 12 DR. MCKENZIE: Again, these are mitigative steps that  
13 you would take in any animal health or human  
14 health.
- 15 Q Yes, but let's understand what quarantine is.  
16 Quarantine is quarantine from other fish farms,  
17 isn't it. You can't quarantine the wild salmon  
18 that are swimming past the pen.
- 19 DR. MCKENZIE: Again, you control the risk that you can  
20 to mitigate potential extension of that disease.
- 21 Q Right. But when the disease outbreak occurs,  
22 there's nothing you can do to keep it from -- to  
23 keep the pathogens from going out and going to the  
24 wild salmon.
- 25 DR. MCKENZIE: Well, I disagree. The approach that  
26 we've taken in the industry in the standards that  
27 we have in place now, our outbreak management  
28 plans are how do we remove those fish in the  
29 quickest possible manner in order to mitigate any  
30 potential release.
- 31 Q Are you telling me that the Health Management  
32 Plans that have been filed in evidence require you  
33 to take your fish out the day you find a disease?
- 34 DR. MCKENZIE: No, but there is -- there is agreement  
35 that there are viral outbreak management  
36 agreements within the industry that we have agreed  
37 that they will be removed on that period of time.  
38 And in the past, when there were disease  
39 outbreaks, the government at the time asked for  
40 them to be removed.
- 41 DR. SHEPPARD: And if I may clarify, Mr. McDade, or I'm  
42 sorry, Mr. Commissioner, the example you're using  
43 is IHN, which is a reportable disease under the  
44 jurisdiction of the Canadian Food Inspection  
45 Agency, which when it occurs, there's notification  
46 immediately and they will dictate, if they can, to  
47 remove that population of fish if it's an index



1 case.  
2 Q So when --  
3 DR. SHEPPARD: Or they may not. They have not made  
4 that decision yet, as far as I know.  
5 Q Let me ask you, Dr. Sheppard, when you get a  
6 diagnosis of active at the population level, what  
7 do you do about it?  
8 DR. SHEPPARD: Again, Mr. McDade, would you use a  
9 specific example, because it depends on the -- the  
10 infectious agent.  
11 Q Well, what if it's BKD, what would you do?  
12 DR. SHEPPARD: If it's BKD I will note it and record it  
13 and report it.  
14 Q And so you have no obligation to actually regulate  
15 that, or go in and take the fish out?  
16 DR. SHEPPARD: No, there's no regulation over how much  
17 or how little BKD you can have in a population.  
18 If it's a new -- if I feel it's a new finding, and  
19 this has happened in the past, and this might be a  
20 criticism in one of the exhibits that we -- has  
21 already been presented in terms of that third  
22 party assessment by Dr. Parmley.  
23 Q Yes.  
24 DR. SHEPPARD: It would be that the communication part  
25 has not occurred, when in fact I would contest  
26 that statement, because if we make a finding,  
27 whether it be at the histopathological cellular  
28 level, or whether it's at the farm level when  
29 we're observing the animals, there is and has been  
30 an immediate communication with the attending  
31 veterinarian to assure us and assure them that  
32 they have been monitoring this, or is it in fact  
33 that we have found the first case. More often  
34 than not, the attending veterinarian is well aware  
35 of what's going on and is well into the management  
36 of the situation.  
37 Q Let me ask you this. In the Fish Health  
38 Management Plans, either in the provincial one  
39 that's been ongoing for a number of years, or in  
40 the proposed federal one, are there any special  
41 rules where the farm with the disease is in the  
42 migratory path of the wild salmon?  
43 DR. SHEPPARD: I'm sorry, would you repeat the  
44 question?  
45 Q Are there any special rules for farms within the  
46 migratory path of the wild salmon.  
47 DR. SHEPPARD: Not in so many words.

1 Q No. So no particular extra reason to take action.  
2 DR. SHEPPARD: AS I said, there's an outbreak  
3 management protocol within the Health Management  
4 Plans, and so the -- which would include  
5 everything from increasing reporting to increasing  
6 the biosecurity measures to ultimately a  
7 functional quarantine.

8 Q And none of that will help the wild salmon, will  
9 it, not one of those things.

10 DR. SHEPPARD: I think those measures, Mr. McDade, are  
11 in place to minimize the risks of that situation  
12 and minimize the risks not only to the fish within  
13 the cages, but also to the ecosystem outside of  
14 those cages.

15 Q And just one final question to Dr. McKenzie. Dr.  
16 McKenzie, you told us what great care is taken to  
17 keep ISA away from the eggs. Your company is  
18 Cermaq, right?

19 DR. MCKENZIE: I work for Mainstream Canada.

20 Q Whose parent company is Cermaq.

21 DR. MCKENZIE: That is correct.

22 Q Who is the very company that allowed ISA to get  
23 into the eggs in Chile, right?

24 DR. MCKENZIE: That's not correct. I would not agree  
25 with that.

26 Q The Chilean outbreak of ISA came from Norway?

27 DR. MCKENZIE: There are research papers that have  
28 indicated that, yes.

29 Q And there's a Cermaq paper that's indicated that.

30 DR. MCKENZIE: There is a Ph.D. student, or a Master's  
31 at the time, who has wrote a paper, who does work  
32 for Cermaq, but that is not a Cermaq paper.

33 Q Can I just -- I'll enter that as an exhibit and  
34 then I'll sit down. And that's, Mr. Lunn, I think  
35 that's Tab 16 of the Project 5 list.

36 THE REGISTRAR: Exhibit 1687.

37

38 EXHIBIT 1687: Vike, Preventative fish health  
39 work, Cermaq, April 27, 2011  
40

41 MR. McDADE:

42 Q Perhaps over the break we can pull that -- that's  
43 the paper you're referring to, Dr. McKenzie?

44 DR. MCKENZIE: Yes.

45 MR. McDADE: Thank you. Thank you, gentlemen.

46 MR. MARTLAND: Thank you. Mr. Commissioner, the next  
47 counsel is counsel for the Conservation Coalition

1 with a 20-minute allocation. We're sort of down  
2 to the wire on the day. I'm in your hands,  
3 though, as to whether Mr. Leadem starts now or  
4 whether we take a short break and...

5 THE COMMISSIONER: We'll start.

6 M. MARTLAND: Thank you. Mr. Leadem.

7 MR. LEADEM: For the record, Leadem, initial T.,  
8 appearing as counsel for the Conservation  
9 Coalition. You may know some of my clients as  
10 CAAR and Watershed Watch and these are individuals  
11 or groups I think that you've dealt with in the  
12 past.

13

14 CROSS-EXAMINATION BY MR. LEADEM:

15

16 Q I want to begin with Commission document number  
17 11, if I could. Tab 11 from Commission -- there  
18 we go. This is a Draft Fish Pathogen and Pest  
19 Treatment Regulation. I'm going to ask you, Mr.  
20 Swerdfager, if you recognize this particular  
21 draft.

22 MR. SWERDFAGER: It's actually not a draft regulation.  
23 It's a draft of a -- if you scroll down just a  
24 little bit, we've got the similar heading on quite  
25 a number of these things, but I think it's a  
26 beginning of some of our preparatory work for if  
27 we were to introduce or develop a regulation. We  
28 do not at this point have a draft regulation.

29 Q Right. And that was going to be my second point.  
30 This proposed regulation, or this area would cover  
31 the application of SLICE and agents such as that  
32 in an aquaculture situation, would it not?

33 MR. SWERDFAGER: No, it would not. Essentially this  
34 regulation, which does not exist in draft in any  
35 way, shape or form, is something that we've given  
36 thought to for use mostly for the application in  
37 Eastern Canada of pesticides, is primarily what  
38 its use would be for if it were to be developed.  
39 And secondarily in several of the lakes in  
40 Ontario, and parts of Quebec, for disease control  
41 purposes fish are destroyed by means other than  
42 fishing, which today is a potential contravention  
43 of s. 32 of the **Fisheries Act**. And so if this  
44 regulation were to be developed, it would allow  
45 for the destruction of fish by means other than  
46 fishing.

47 Q I'm a bit confused, because when I look down at

1 the description and the issues under the first  
2 page there under "B", if you can just highlight  
3 that, please, Mr. Lunn. It says:

4  
5 Chemical treatments for fish pests and  
6 pathogens in farmed or wild fish.

7  
8 And then a bullet, and it says:

- 9  
10 • For [example] drugs regulated under the **F&DA**  
11 for use in fish pathogen and pest treatment  
12 including medicated feed such as the use of  
13 SLICE® to combat sea lice (s. 36)  
14

15 MR. SWERDFAGER: Mm-hmm.

16 Q So that would be not a topical application, but it  
17 would be an adjustive application; is that what  
18 you're saying?

19 MR. SWERDFAGER: Yeah, and part of the reason that it's  
20 perhaps somewhat unfortunate that this is the  
21 focus of discussion. This, again I emphasize,  
22 that the regulation doesn't exist even in here's  
23 the proposed title context. But this discussion  
24 document, which was developed quite some time ago,  
25 at one point we were thinking it would capture the  
26 use of SLICE. We no longer do.

27 Q So am I correct, then, in saying we have s. 36 of  
28 the **Fisheries Act**, which prohibits the deposition  
29 of a deleterious substance. Would SLICE be  
30 covered within the confines of that provision?

31 MR. SWERDFAGER: We think not, that we have never  
32 treated the use of SLICE or other in-feed  
33 treatments - I shouldn't focus necessarily on  
34 SLICE, there are other in-feed treatments, as well  
35 - as a s. 36 deleterious substance.

36 MR. LEADEM: All right. Could this be marked as the  
37 next exhibit please.

38 THE REGISTRAR: Exhibit 1688.

39  
40 EXHIBIT 1688: Fisheries and Oceans Canada,  
41 Proposed Fish Pathogen and Pest Treatment  
42 Regulations DRAFT  
43

44 MR. LEADEM:

45 Q Now, I want to turn to you, Dr. McKenzie, and I  
46 want to look at and examine with you some  
47 spreadsheets which I think are B.C. Salmon Farmer

1           spreadsheets. for sea lice. And if I could have,  
2           I think it's Tab 75 of the Conservation Coalition.  
3           And if you can use the tab for "Total Lice 2007".  
4           I don't know whether you would be familiar with  
5           this or not, Dr. McKenzie, and if you're not, I  
6           can ask perhaps Dr. Marty or some other person on  
7           the panel.  
8       DR. MCKENZIE: I'm familiar with the table.  
9       Q     Thank you. If I could ask, Mr. Lunn, to pull up  
10           line 59, scroll down to line 59. And what I'm  
11           interested in examining with you is "K", which I  
12           understand is the "Motile Leps" column.  
13       DR. MCKENZIE: Okay.  
14       Q     Are you still with me?  
15       DR. MCKENZIE: Yes.  
16       Q     And then if we look at the number of fish that are  
17           sampled, that would be column "I", right? So  
18           that's usually 20, I believe.  
19       DR. MCKENZIE: Yes.  
20       Q     So it's usually 20 fish and then out of those 20  
21           fish there's then a total of motile *Leps* that are  
22           counted; is that -- do I have that right? Is that  
23           how it works?  
24       DR. MCKENZIE: Yes. We classify them based on 20 fish  
25           out of a single pen.  
26       Q     Right.  
27       DR. MCKENZIE: And these would be the total number of  
28           lice.  
29       Q     All right. So then if I do a simple arithmetical  
30           calculation, 20 fish which have 66 motile *Leps* on  
31           them, I get 3.3.  
32       DR. MCKENZIE: Yes.  
33       Q     Right? And then if I look at treatment column "N"  
34           and "O", I see that there's no treatment for that.  
35           That's what that reflects, does it not?  
36       DR. MCKENZIE: That's what it says.  
37       Q     Okay. And so my understanding of the -- I don't  
38           know whether it's a protocol or when you apply  
39           SLICE, but my understanding is, is that it's done  
40           for the period of time, roughly March to the --  
41           beginning of March to the end of June when the  
42           outmigration of smolts is occurring. And that if  
43           the average number of motile *Leps* hits 3 or  
44           higher, then usually SLICE is applied; is that  
45           correct?  
46       DR. MCKENZIE: That's usually, yes.  
47       Q     And it was not done in this case.

1 DR. MCKENZIE: Looking at the numbers that proceed in  
2 the following months, I would say there was a  
3 SLICE treatment. I would be surprised, but it is  
4 certainly not recorded here.  
5 Q Okay.  
6 DR. MCKENZIE: Because we have our -- the responses we  
7 can have to elevated numbers trigger a treatment,  
8 or harvest, or increased sampling, but you do see  
9 the motile numbers over the proceedings months --  
10 proceeding two months drop right down to 1, and  
11 that's not a natural occurrence.  
12 Q And I'm further confused a little bit about how  
13 SLICE may be applied or not applied in farms.  
14 Because if I use that same table, and I apologize,  
15 Mr. Lunn, but if you can go down to line 253 and  
16 look across, it looks as though SLICE is being  
17 applied in this situation, does it not?  
18 DR. MCKENZIE: Yes.  
19 Q And it looks as though 20 fish were sampled, the  
20 "Motile Leps" column "K" is 35, and my rough  
21 arithmetical calculation is that that's 1.7, in  
22 other words...  
23 DR. MCKENZIE: Yes, lower than 3.  
24 Q Lower than 3, but --  
25 DR. MCKENZIE: Yes.  
26 Q -- you still see an application of SLICE.  
27 DR. MCKENZIE: Yes.  
28 Q All right.  
29 DR. MCKENZIE: And the rationale behind that, as I --  
30 would be that these fish, as you can see, they are  
31 no longer sampled after July, so they most likely  
32 were going to be harvested. So in order to meet  
33 withdrawal periods associated with treatments, and  
34 in order to take the precautionary approach that  
35 those numbers would hit 3 in April or May, when  
36 you would not be able to do a treatment, a  
37 treatment is done earlier as a trigger in order to  
38 ensure that we don't hit those levels.  
39 MR. LEADEM: Okay. Could we have this marked. And  
40 before we do so and give it a number, Conservation  
41 documents from Tab 71 through 78, Mr.  
42 Commissioner, are all B.C. Salmon Farmers Lice  
43 documents, and I would propose that we simply mark  
44 them in sequence. And in this case we've got it  
45 right chronologically, so we go from the latest  
46 ones to the -- or I should say the earliest ones  
47 to the latest ones. So if I could suggest, Mr.

1           Giles, that Tab 81 be marked as the next exhibit  
2           in these proceedings.

3           THE REGISTRAR: That will be 1689.

4  
5                   EXHIBIT 1689: Excel spreadsheet re Lice,  
6                   2003, BCSFA

7  
8           MR. LEADEM: And then 72 would be 1681.

9           THE REGISTRAR: Sorry, which tab?

10          MR. LEADEM: Tab 72 of the --

11          MR. MARTLAND: My note was that Tab 71 would be Exhibit  
12                   1689.

13          MR. LEADEM: Oh, I'm sorry.

14          MR. MARTLAND: Tab 72 would be 1690, and so forth.

15          MR. LEADEM: That's right.

16          THE REGISTRAR: Yes, 1690, Tab 72.

17  
18                   EXHIBIT 1690: Excel spreadsheet re Lice,  
19                   2004, BCSFA

20  
21          MR. LEADEM: And Tab 73 would be 1691, all the way  
22                   through.

23  
24                   EXHIBIT 1691: Excel spreadsheet re Lice,  
25                   2005, BCSFA

26  
27          THE REGISTRAR: Tab 74, 1692.

28  
29                   EXHIBIT 1692: Excel spreadsheet re Lice,  
30                   2006, BCSFA

31  
32          THE REGISTRAR: Tab 75, 1693.

33  
34                   EXHIBIT 1693: Excel spreadsheet re Lice,  
35                   2007, BCSFA

36  
37          THE REGISTRAR: Tab 76, 1694.

38  
39                   EXHIBIT 1694: Excel spreadsheet re Lice,  
40                   2008, BCSFA

41  
42          THE REGISTRAR: Tab 77, 1695.

43  
44                   EXHIBIT 1695: Excel spreadsheet re Lice,  
45                   2009, BCSFA

46  
47          THE REGISTRAR: Tab 78, 1696.

1 EXHIBIT 1696: Excel spreadsheet re Lice,  
2 2010, BCSFA  
3

4 MR. LEADEM: Thank you.

5 Q One further question to you, Dr. McKenzie. With  
6 respect to the treatment for lice, when it -- when  
7 the hit is above 3, my understanding is that  
8 another way you can deal with that situation is by  
9 harvesting; is that correct? You can simply  
10 remove the -- start removing fish from the pens.

11 DR. MCKENZIE: That is another alternative, assuming  
12 the fish are of size, and that you can actually  
13 remove them in a timely manner. In the case of  
14 harvesting, it's not always the best option  
15 because it can take several months.

16 Q Now, I want to come back to you, Mr. Swerdfager,  
17 and finish off some issues that I was dealing with  
18 you before. So you other gentlemen can rest easy  
19 for a bit, and Mr. Swerdfager and I are going to  
20 have a discussion about communications again.

21 MR. SWERDFAGER: Oh, good, the thesaurus for "promote"  
22 again?

23 Q No, I haven't -- I'm not going to belabour the  
24 "promote" part, Mr. Swerdfager. I pretty well  
25 have your evidence on that point. With all due  
26 respect, you're what my mother used to call a very  
27 smooth talker.

28 But I'll go to Conservation Tab 61, if I  
29 could. Now, my understanding of this document,  
30 and you recognize this document?

31 MR. SWERDFAGER: It's the same one we had up yesterday,  
32 I think, eh?

33 Q I don't think so.

34 MR. SWERDFAGER: Or is it a different one?

35 Q No, it should be a different one. The one  
36 yesterday --

37 MR. SWERDFAGER: Could we just maybe scroll to the  
38 content a little bit. We had one that looked to  
39 me at least quite similar yesterday.

40 Q Okay. This one is entitled DFO Aquaculture  
41 Communications Overview, and if I take you to the  
42 "Introduction" I think I can perhaps prompt your  
43 memory.

44 MR. SWERDFAGER: Yes.

45 Q "Introduction" says:

46  
47 The Government of Canada, through its new



1 initiative **Aquaculture 2012**, is looking to  
2 strengthen public confidence, increase  
3 transparency --

4  
5 - which you talked about yesterday -

6  
7 -- and build strategic interjurisdictional  
8 partnerships across the country...  
9

10 MR. SWERDFAGER: Yes.

11 Q Et cetera. And then the third paragraph down:

12  
13 Mike Randall Communications was hired to  
14 conduct a series of interviews across the  
15 country with key industry stakeholders...  
16

17 Does this prompt your memory now?

18 MR. SWERDFAGER: Yes, it does, thank you. It's a  
19 document that was produced by our Communications  
20 Directorate, in other words, as it says there,  
21 Mike Randall, who is a communications consultant  
22 based in Nova Scotia, I think - it doesn't matter,  
23 I suppose - was contracted, it says that he was  
24 asked to talk to key industry stakeholders. In  
25 fact, that's not quite correct. He did talk, as I  
26 recall, to some industry people, but the majority  
27 of his conversation, so to speak, was actually  
28 with DFO employees.

29 Q Right. That's my understanding, as well.

30 MR. SWERDFAGER: Yes.

31 Q Could we have this marked as the next exhibit,  
32 please.

33 MR. SWERDFAGER: I should add he did speak, as well, I  
34 don't have -- maybe in the appendix of the report  
35 itself, I know he spoke with a number of  
36 environmental organizations, and I mean I can't  
37 list the names, so to speak, but predominantly the  
38 focus was internal to the Department.

39 MR. LEADEM: Right.

40 THE REGISTRAR: Tab 61 will be marked as 1697.  
41

42 EXHIBIT 1697: DFO Aquaculture Communications  
43 Overview, July 7, 2008  
44

45 MR. LEADEM:

46 Q And I just want to take you very briefly to the  
47 third -- or, sorry, the fifth page of that

1 document, and you'll see a heading "Pacific  
2 Region" and then underneath that in italics, "*Sr.*  
3 *Management*". So there's no attribution to who's  
4 actually making these statements, as I understand  
5 it. But it's fair to say, is it not, Mr.  
6 Swerdfager, that these statements are being made  
7 by senior management within Pacific Region?  
8 MR. SWERDFAGER: These are Mike's summary -- Mike  
9 Randall's summary of comments that he has picked  
10 up and heard. I can't remember to be honest who  
11 he interviewed in senior management, but certainly  
12 it's probably fair to say that this is his  
13 characterization of what he was told by senior  
14 managers out here.  
15 Q All right. And were you interviewed by Mr.  
16 Randall?  
17 MR. SWERDFAGER: I was, in a number of -- my role was a  
18 little bit not so much a participant. I was aware  
19 that the contract had been let to him. So to some  
20 degree I had a role at the early stage in  
21 designing some of the contract work, but I wasn't  
22 interviewed as part of it, *per se*, I guess, is how  
23 I would put it.  
24 Q Would you fit under the category of "National  
25 Headquarters"?  
26 MR. SWERDFAGER: I would, yes.  
27 Q All right. If we can look at page 11. I'm not  
28 sure of this acronym, MINO, M-I-N-O.  
29 MR. SWERDFAGER: MINO is the Minister's office.  
30 Q Oh, okay. That's not you, though.  
31 MR. SWERDFAGER: That is not me, no.  
32 Q What about if we flip the page, "Aquaculture  
33 Management"?  
34 MR. SWERDFAGER: So those would be -- I know he  
35 interviewed the directors that reported to me, and  
36 I think he also talked to -- well, we had them  
37 listed separately, regionally. I know he talked  
38 to Aquaculture Management staff, as well.  
39 Q I can't resist this one. You know where I'm  
40 going.  
41 MR. SWERDFAGER: "Marketing is not our role", is that  
42 where you're going to get to?  
43 Q Well, the "rock star" comment that you see in the  
44 middle of the page there.  
45 MR. SWERDFAGER: Well, I think that this is reflective  
46 of the discussion internally, now externally. I  
47 think that the message here certainly is that the

1 Department had, I think, for a very long time,  
2 been quite passive in its communication  
3 activities. And the notion here is that I know  
4 we've focused on British Columbia only, and those  
5 are not my words, of course, but I think that the  
6 non-governmental organization community has been  
7 very, very successful in communicating its views  
8 on aquaculture and the Department had taken an  
9 extremely passive approach, and that's the result.

10 Q I just want to flip back to number 10 because  
11 there is some serious message in here that I want  
12 to get across.

13 MR. SWERDFAGER: Mm-hmm.

14 Q And if we look at page 10, five bullets down. I  
15 gather there were some suggestions that were  
16 coming forward as a result of this communication  
17 and as a result of all these interviews.

18 MR. SWERDFAGER: Mm-hmm.

19 Q And the one that I focus upon, because I represent  
20 these clients, are:

- 21
- 22 • We need to engage in dialogue with the ENGOs
- 23 to show we're taking steps to address
- 24 concerns
- 25

26 How are you doing that? How are you -- how do you  
27 propose to do that?

28 MR. SWERDFAGER: Well, your clients may have mentioned  
29 to you that on four occasions that I can remember  
30 I proposed the establishment of a B.C. Aquaculture  
31 dialogue forum. I sought CAAR engagement quite a  
32 number of times to establish some kind of  
33 mechanism that would bring people together from  
34 all sides of the issue. I tried it two different  
35 ways. I tried to do this at the national scale,  
36 and that was a bad idea. It just became too  
37 cumbersome. I tried that a number of times, and  
38 that dog won't hunt.

39 So I backed up and tried to focus only on  
40 British Columbia. I spent quite a bit of time  
41 talking to CAAR with a view to trying to establish  
42 some kind of a forum, through which we could bring  
43 together people working in industry and the  
44 environmental community, First Nations and  
45 governments.

46 And I would say in my time with AMD, this is  
47 probably one of the more frustrating experiences

1 during that period, and I will wrap up, but I  
2 tried very hard to get people to engage. And  
3 essentially at the beginning the industry was so-  
4 so on it, and then they changed their mind, and  
5 then the ENGOs didn't want to, and then the  
6 government, I couldn't get people around that  
7 table. So we did make quite a number of steps to  
8 cause a forum to come into being, and sadly, from  
9 my perspective, we did not succeed.

10 Q All right. But from the perspective of my  
11 clients, they were more than willing to engage you  
12 at that level, were they not?

13 MR. SWERDFAGER: No, they weren't.

14 Q And who specifically was not willing to engage  
15 you?

16 MR. SWERDFAGER: The discussion that I had was usually  
17 a mix of the members of CAAR, so the people  
18 involved on occasion would change from time to  
19 time, but for the most part I dealt with David  
20 Lane, I dealt with John Waring, Jay Ritchlin. I  
21 forget to be honest who came a number of times  
22 from the Living Oceans Society, the people changed  
23 a number of times. I think Samantha works for  
24 them, if I'm not mistaken. Catherine Stewart, I  
25 think was in there a little bit, and then from  
26 time to time a few others. And essentially the  
27 proposal that I made to them a number of times -  
28 oh, Craig Orr, as well, was involved a couple of  
29 times - was various iterations. At one point I  
30 suggested, as well, that we would be happy to let  
31 a small contract, to provide staff support for  
32 them to organize such a thing, and invite us to  
33 it, if you will, so that it wasn't our show, if  
34 you will, and I didn't get any uptake on any of  
35 that.

36 And then at various stages over the course of  
37 this dialogue, which went on for a period of time  
38 -- oh, I also had Greenpeace, Sarah King involved  
39 a little bit, which I know is -- actually I don't  
40 know if she's one of your clients or not. But so  
41 all this to say I engaged quite a number of people  
42 and from time to time their positions changed.  
43 There was willingness to do something of this  
44 nature, and then the other parties didn't. And  
45 frankly, I gave up.

46 Q When you say "the other parties", do you mean  
47 industry representatives?

1 MR. SWERDFAGER: Well, for a little while there was a  
2 sense that if I -- if you get -- the provincial  
3 government for a while was extremely reluctant to  
4 participate in a dialogue with this because they  
5 were engaged at that point in a very active  
6 dialogue with First Nations and they didn't want  
7 to be drawn into another forum with ourselves and  
8 with industry. And then for a little while CAAR  
9 took very much the view that we'd been think-  
10 tanked and dialogued to death, we don't want to  
11 participate in this one. So they -- the five or  
12 six corners, if you will, of the playing field  
13 kept shifting on me quite a bit.

14 MR. LEADEM: All right. My time is up, Mr.  
15 Commissioner.

16 MR. MARTLAND: Mr. Commissioner, I wonder if I could  
17 propose a five-minute break as opposed to the  
18 longer break. I know I keep doing that, but it  
19 will allow us to stay on our schedule.

20 THE COMMISSIONER: If I could just ask my hearing room  
21 colleagues in addition to counsel, Mr. Lunn and  
22 Mr. Giles and Madam Reporter, if we could sit  
23 through until 4:00 and then break at that point?  
24 If there's discomfort with that, we'll break now,  
25 but otherwise that's my suggestion.

26 It looks like everyone's in agreement with  
27 that. Thank you.

28 MR. MARTLAND: Thank you, Mr. Commissioner. In that  
29 case, I have five minutes now for counsel for  
30 Areas D and B.

31 MS. PACEY: Thank you, Mr. Commissioner. Thank you,  
32 panel. My name is Katrina Pacey, P-a-c-e-y,  
33 initial K., counsel for Areas D and B.

34  
35 CROSS-EXAMINATION BY MS. PACEY:

36  
37 Q Dr. McKenzie, a couple of questions for you in  
38 terms of the testing of eggs. My first question  
39 is whether or not you are able to - and whether or  
40 not you do - test for the parvovirus?

41 DR. MCKENZIE: As far as I'm aware, there is no test  
42 for parvovirus so, no.

43 Q And my second question is whether, in the testing  
44 of eggs, you test for marine anaemia?

45 DR. MCKENZIE: There is no specific test for marine  
46 anaemia. As Dr. Marty said, it's a clinical  
47 diagnosis in fish, not in eggs. It's not

- 1           expressed in eggs.  
2           Q     And my final question is for any of the panellists  
3           from DFO that may be able to answer whether or not  
4           there's any auditing going on at the moment of the  
5           fish farms themselves.  
6           DR. SHEPPARD: I can certainly answer that, and yes,  
7           the Department of Fisheries and Oceans has been  
8           active since April 1st of this year to emulate a  
9           very similar program as to what was offered by the  
10          -- in the provincial government. But that said,  
11          we're ramping up. It's taken -- we've had some  
12          training and some resource bottlenecks, but we're  
13          -- our aim is to achieve the status quo that was  
14          set by the province by the end of this year.  
15          Q     And perhaps I can just -- oh, did you have  
16          something to add?  
17          MR. SWERDFAGER: I was just going to make one small  
18          addition to that. The Conservation and Protection  
19          Program is now fully established in the region as  
20          well. There are now a total of 12 fishery  
21          officers whose primary focus is on aquaculture.  
22          So they are not typically captured under the  
23          terminology you used of "audit". So they are not  
24          doing audits, per se, but they are carrying out  
25          compliance functions as part of the overall  
26          program to ensure compliance with the regulations  
27          and the conditions of licence.  
28          Q     So just to make sure that I'm clear of your  
29          evidence, is that just clarifying the evidence of  
30          your colleague, or is that correcting?  
31          MR. SWERDFAGER: It's adding --  
32          Q     Adding to.  
33          MR. SWERDFAGER: -- to what he spoke of, yeah.  
34          Q     So when you use the term "active", do you have a  
35          sense of numbers in terms of audits since the  
36          April 1st date?  
37          DR. SHEPPARD: And again, these audits, are you  
38          specifically referring to fish health or sea lice  
39          audits?  
40          Q     To any audits relating to fish farms disease and  
41          sea lice, yes.  
42          DR. SHEPPARD: Well, then, I will respectfully add to  
43          Mr. Swerdfager's comments too, because there is  
44          also an environmental team that, again, audits and  
45          monitors benthic situations around the farms as  
46          well, and they began again this summer as a field  
47          season.

1                   But specifically to -- I can answer the fish  
2 health audits. Our goal initially was to --  
3 again, normally, we would audit 30 farms for fish  
4 health and approximately 12 or 15 for sea lice.  
5 Our initial start-up was to monitor for 15 fish  
6 health in the first -- sorry, second quarter --  
7 that's April 1st for three months. So there were  
8 12 fish health audits completed and 15 sea lice  
9 audits completed, and now we're into the next  
10 quarter and our goal is to achieve 25 fish health  
11 audits.

12                   Now, since we're past the migration season,  
13 we're going to probably audit somewhere in the  
14 neighbourhood of five to ten sea lice assessments.

15 MS. PACEY: Thank you. Those are my questions.

16 THE COMMISSIONER: Thank you, Ms. Pacey.

17 MR. MARTLAND: Thank you, Mr. Commissioner. I have  
18 counsel for the First Nations Coalition, 15  
19 minutes.

20 MS. GAERTNER: For the record, Brenda Gaertner and,  
21 with me, Leah Pence, for the First Nations  
22 Coalition.

23  
24 CROSS-EXAMINATION BY MS. GAERTNER:

25  
26 Q     Mr. Swerdfager, we have to pick up where we left  
27 off this morning if we may for a few minutes, and  
28 if I manage to get what I need to accomplish with  
29 you in about ten minutes, I have a couple of  
30 questions for the whole panel. So we'll do the  
31 others first if we could

32 MS. GAERTNER: In response to my friend Mr. Taylor's  
33 comments that I had chosen not to put the entire  
34 record between the UBCIC and the Department of  
35 Fisheries and Oceans and, in particular, letters  
36 to the Minister Shea. I have those documents,  
37 Commissioner, and I'm going to tender them now.  
38 On March 30th, there was a letter from UBCIC to  
39 Minister Shea. I propose that that be the next  
40 exhibit.

41 THE REGISTRAR: Exhibit 1698.

42  
43                   EXHIBIT 1698: Letter from UBCIC to Minister  
44                   Shea dated March 30, 2010

45  
46  
47 S. GAERTNER:

1 Q On July 15th, there was a letter from UBCIC to  
2 Minister Shea. I propose that that be Exhibit  
3 1699.

4 THE REGISTRAR: So marked.

5

6 EXHIBIT 1699: Letter from UBCIC to Minister  
7 Shea dated July 15th, 2010

8

9 MR. LUNN: That's July 20th, I'm sorry.

10 MS. GAERTNER: July 15th, 2010 is the next -- oh, July  
11 20th, sorry. My error. And then there's a letter  
12 -- oh, no, I'm sorry, we're getting mixed up. I'm  
13 going to too fast. Our Tab 23 --

14 MR. LUNN: Thank you.

15 MS. GAERTNER: -- there is a letter July 15th from  
16 UBCIC to Minister Shea.

17 MR. LUNN: Yes.

18 MS. GAERTNER: That would be 1699. And then --

19 THE REGISTRAR: That's Tab 23?

20 MS. GAERTNER: That's our Tab 23. Then July 20th,  
21 2010, there's a letter from Minister Shea to UBCIC  
22 in response to their March 30th letter. Can I  
23 have that marked as 1700?

24 THE REGISTRAR: 1700.

25

26 EXHIBIT 1700: Letter from Minister Shea to  
27 UBCIC dated July 20, 2010 in response to  
28 March 30 letter

29

30 MS. GAERTNER: On August 26th, 2010, there's a letter  
31 from UBCIC to Minister Shea. Can I have that  
32 marked as 1701?

33 THE REGISTRAR: So marked.

34

35 EXHIBIT 1701: Letter from UBCIC to Minister  
36 Shea dated August 26, 2010

37

38 MS. GAERTNER: On October 20th, 2010, there's a letter  
39 from Minister Shea to the summit which is at our  
40 Tab 35. May I have that marked as 1702?

41 THE REGISTRAR: So marked.

42

43 EXHIBIT 1702: Letter from Minister Shea to  
44 the summit dated October 20, 2010

45

46 MS. GAERTNER: And on October 20th, 2010, Minister Shea  
47 also writes to the UBCIC and I'd have that marked



1 as 1703:

2 THE REGISTRAR: So marked.

3

4 Exhibit 1703: Letter from Minister Shea to  
5 UBCIC dated October 20, 2010  
6

7 MS. GAERTNER:

8 Q And just at the end of that document, if I may,  
9 I'll take you to -- and you're familiar with these  
10 documents, are you, Mr. Swerdfager?

11 MR. SWERDFAGER: I'm pretty familiar with them, they  
12 went by fairly quickly, but they spark memories,  
13 yes.

14 Q Thank you. I understand from your answers to your  
15 counsel this morning that it's DFO's position that  
16 there's ongoing consultation with First Nations  
17 regarding these matters. And this was a letter  
18 that was written in response partly to the short  
19 time frames around the 60-day period, and of  
20 course it was written after the 60-day period; is  
21 that correct?

22 DR. SHEPPARD: That's correct.

23 Q And at the bottom of that letter, it says that you  
24 intend to continue to --

25 MS. GAERTNER: I wonder if we could go to the next, on  
26 page 3.

27 Q The Department's intent is to fund First Nations'  
28 engagement in the development of the operation of  
29 policies needed to manage the industry; is that  
30 correct? That is the intention of the Department?

31 MR. SWERDFAGER: It is, and it is through the  
32 aquaculture working group. I'm not up to date on  
33 the current status of those activities, though.

34 Q And that would be better aimed at Mr. Thomson  
35 tomorrow, if I may?

36 MR. SWERDFAGER: Fire away.

37 Q I shouldn't have used the acronym of AIM, I'm  
38 sorry, I apologize for that.

39 MR. SWERDFAGER: That's okay. We're used to that in  
40 DFO.

41 Q Well, you know what, it's hard in this category,  
42 because I have to go so quickly.

43 MR. SWERDFAGER: Mm-hmm, I understand.

44 Q I actually would prefer a more improved dialogue  
45 with you.

46 So I'm going to take you to a couple of  
47 recommendations 'cause we just have a very short

1 period of time, and ask you what your thoughts are  
2 on these recommendations. Do you agree that there  
3 needs to be continued work in earnest to develop  
4 and implement a transparent consultative process  
5 at a Tier 1 and Tier 2 level between the  
6 Department of Fisheries and Oceans, and First  
7 Nations, and all of the substantive concerns  
8 raised by First Nations, including developing a  
9 scaled-approach to understanding what can occur at  
10 the strategic level and what can occur at the  
11 local level?

12 MR. SWERDFAGER: Can you explain to me Tier 1 and Tier  
13 2, please?

14 Q Tier 1 is First Nations together, and Tier 2 is  
15 First Nations and the Department of Fisheries and  
16 Oceans.

17 MR. SWERDFAGER: Okay. I think that in general concept  
18 and principle certainly we'd agree with the need  
19 to do that sort of work together, whether we get  
20 into the details of it here and now, probably not  
21 so much. But certainly in concept, obviously,  
22 we'd be open to that.

23 Q We don't have time to go to details. I just want  
24 to give you an opportunity --

25 MR. SWERDFAGER: Yeah.

26 Q -- from a senior management position to respond to  
27 these. Do you agree that we need to ensure that  
28 both DFO and First Nations have the human and  
29 financial capacities to engage in these  
30 activities? Because it's very difficult if you  
31 get started on these and can't keep them up. It  
32 doesn't build trust; is that correct?

33 MR. SWERDFAGER: I took note of both aspects of that.  
34 You noted that DFO needs the capacity in place as  
35 do First Nations. I think that we've made  
36 substantial progress in building some of the DFO  
37 programming at this point, at this stage. I'm  
38 very cautious, I guess, in expressing any view  
39 that we should provide funding to First Nations  
40 simply because that creates an expectation that in  
41 fact we have it. At this point, we don't.

42 Now, having said that, I take your point and  
43 that of one of your colleagues from late in the  
44 day yesterday that clearly First Nations need some  
45 capacity to be able to engage in dialogue working  
46 with us and with others. I wouldn't necessarily  
47 want it to flow from that, that DFO is making a

1           commitment to provide such funding.

2           Q     Can you commit that no multi-year licences will be  
3                 issued by Canada for any existing finfish licences  
4                 along or potentially impacting the migratory route  
5                 of Fraser River sockeye salmon, until that  
6                 consultation process has been developed and  
7                 implemented in a meaningful way?

8           MR. SWERDFAGER:  No, I'm not prepared to make that  
9                 commitment today.

10          Q     And why is that?

11          MR. SWERDFAGER:  I think that the idea of issuing  
12                 multi-year licences at some point is one we would  
13                 entertain.  We are certainly open to that.  We  
14                 have no plans to do that certainly for the next  
15                 go-round of licences, but I know that putting in  
16                 place the nature of the consultative process and  
17                 mechanism you describe can take a very, very long  
18                 time and often may be difficult to determine  
19                 exactly when it's in place effectively and so on.

20                 So I wouldn't want to stack that up as a  
21                 precursor, if you will, to modernizing -- or  
22                 extending, rather, the licensing regime.

23          Q     I want to take you to Exhibit 1652, which is that  
24                 report that Diane Urban did for First Nations  
25                 Fisheries Council, and I want to take you to the  
26                 third paragraph under heading 3.1.1 which is on  
27                 page 4.  There she suggested an ecosystem approach  
28                 to the issue of siting.  Third paragraph under --  
29                 there it is.  The first of -- I'm going to just  
30                 read from the second sentence:

31  
32                         First a thorough understanding of the  
33                         characteristics and functions within an  
34                         ecosystem will be necessary.

35  
36                 And I don't --

37  
38                         Area specific indicators --

39  
40                 And you'll continue on, if you can.  I think  
41                 you'll be able to read that quicker than I read it  
42                 aloud.

43          MR. SWERDFAGER:  Mm-hmm.

44          Q     Can you comment on this approach and whether this  
45                 would be a useful approach to addressing the issue  
46                 of siting, particularly including reviewing those  
47                 that have been sited along the migratory route?

1 MR. SWERDFAGER: I continue to experience great  
2 difficulty with the concept of ecosystem-based  
3 approach to management, and this is not germane  
4 specifically to this. I think that the idea has  
5 tremendous theoretical allure, and I think to  
6 build an argument against it is probably  
7 difficult. I think that the idea of integrating  
8 multiple variables, multiple aspects of the  
9 ecosystem, understanding it on a broad-based  
10 multi-disciplinary scientific perspective makes an  
11 awful lot of sense.

12 Translating that into specific management  
13 decisions and actions is much more difficult.  
14 Typically, many of the licensing decisions, for  
15 example, or allocations, or when I used to work in  
16 the Wildlife Service harvesting allocations and so  
17 on, are binary issues. They're yes or no. It's  
18 very difficult to translate that necessarily into  
19 broad-based ecosystemic approaches.

20 So I apologize if this sounds smooth, but  
21 making the transition between the concept of  
22 ecosystem-based approaches into direct management  
23 action is a challenge. So I endorse the general  
24 concept, but with reservations about how to make  
25 it real.

26 Q Yes, I actually find the frankness of that  
27 challenge helpful, because when I hear - and I  
28 heard it yesterday - this idea that we're going to  
29 move quickly to an ecosystem approach and get the  
30 IMAPs done and all of that, I don't think that's  
31 realistic. Do you agree with me on that, that  
32 it's going to take time to do this properly?

33 MR. SWERDFAGER: I would back up just a little bit if I  
34 may. When I used to be the Regional Director of  
35 the Conservation Branch of Environment Canada out  
36 here, one of the things we tried to do was to  
37 provide or present, rather, an ecosystem  
38 characterization of the Georgia Basin, to  
39 understand all its various dimensions in a variety  
40 of scientific perspectives. That became a major  
41 undertaking, one that took an awful lot of time.  
42 I have some experience with it.

43 So when I think about that experience and  
44 translate that into the aquaculture world, I  
45 believe that the IMAP process can work if it  
46 remains as focused as possible on aquaculture.  
47 If, by contrast, by "ecosystem-based approach" we

1 start to say, okay, where does aquaculture fit in  
2 the context, for example, of forestry development,  
3 fisheries allocations, mining activities, et  
4 cetera, et cetera, et cetera that some people may  
5 feel, as part of the ecosystem-based approach,  
6 that will not work.

7 I am confident that we will be able to take a  
8 systems-based approach on the aquaculture scale,  
9 though.

10 Q A systems-based approach on the aquaculture base  
11 will require us looking at the migratory route of  
12 the Fraser River sockeye salmon, though, and  
13 that's going to be complex. Would you agree with  
14 me on that?

15 MR. SWERDFAGER: Certainly it's a complex topic, no  
16 doubt about that, and I --

17 Q So we need to be -- sorry.

18 MR. SWERDFAGER: -- agree with your fundamental point  
19 that -- sorry -- that we're not just going to snap  
20 our fingers and have it done.

21 But, as Mr. Thomson suggested yesterday,  
22 often the most difficult step in these processes  
23 is the first one, and we are going to take that in  
24 October. We're going to launch -- or right in  
25 around there anyway -- launch the development of  
26 those processes, and we all will learn as we go.

27 Q And you'll work closely with First Nations in that  
28 work?

29 MR. SWERDFAGER: Very much so, and not just with First  
30 Nations. I know that wasn't your question, but  
31 certainly with all people with interest in the  
32 issues before us.

33 Q All right. I just want to take my last five  
34 minutes and ask a broader question of all of the  
35 panel.

36 Mr. Blair asked you whether the risk of  
37 disease is manageable, and whenever I hear those  
38 words, "risk of disease", I get a little bit  
39 triggered from my first -- from my client's  
40 prospective. You'll agree with me that risk  
41 analysis and a risk assessment requires those who  
42 wear the outcome of that risk to be part of the  
43 decision-making process and the risk assessment,  
44 Mr. Swerdfager?

45 MR. SWERDFAGER: I would agree in many respects, and if  
46 I may just characterize, before we pass over to  
47 the veterinarians, I think that certainly from my

1 perspective at least, one of the things you may  
2 have noticed over the course of today's  
3 discussion, the "Three Amigos" here on my left are  
4 extremely well prepared, they're very thorough,  
5 they're very cautious, they're very deliberate,  
6 they're detail freaks, they're not prone to  
7 exaggerated statements and so on. They're not  
8 performing today. This is what they're like in  
9 real life so to speak. I will finish.

10 This are exemplary -- or examples, rather --  
11 sorry, you can't refer to a person as an example,  
12 but this exemplifies the nature of the advice  
13 that's given to the management program overall,  
14 and so from my perspective at least, the framework  
15 we had in place that relies on the advice of  
16 gentlemen like these, is a very solid one.

17 Does it reduce the risk to zero? No. But it  
18 substantially reduces it.

19 Q Maybe I'll just add to that before I go to the  
20 rest of them. If those that are wearing the risk  
21 -- and in this case the First Nations who rely on  
22 the Fraser River sockeye, and if there is an  
23 impact and they lose their fish, if they are not  
24 part of the package, if they are not the  
25 scientists, then you appreciate that it's  
26 difficult for them to accept the outcomes, and to  
27 accept that somebody else is assessing the risk.  
28 Do you agree with me on that?

29 MR. SWERDFAGER: I agree that whoever wears the risk -  
30 and it's not just First Nations, and I don't think  
31 that's necessarily what you were saying - but  
32 certainly anyone who bears the risk to some degree  
33 needs to be part of the discussion and dialogue on  
34 how we proceed with it.

35 Q And that's how we're going to build trust.

36 MR. SWERDFAGER: I believe that's correct.

37 Q And that's how we're going to build better  
38 understandings of the true impacts, and better  
39 understandings of how those impacts should be  
40 balance; is that correct?

41 MR. SWERDFAGER: I think that's a fair statement.

42 Q Does anybody in this panel disagree with that?  
43 Could you all say "No"?

44 DR. MCKENZIE: No.

45 DR. SHEPPARD: No, I don't disagree.

46 DR. MARTY: I think I'll just say I'm not an expert on  
47 risk assessment, so I didn't follow the entire

1 conversation. I'll just -- yes.  
2 MS. GAERTNER: All right. I'd like to just finish with  
3 one final question on recommendations, if I may,  
4 Mr. Commissioner, and I'd like to go to Exhibit  
5 1540, which is Technical Report 5D, which was  
6 provided by Dr. Dill. At page 36, he's offering  
7 some management options for reducing risks. I'll  
8 appreciate that he goes from management options  
9 within the farms all the way to the option of  
10 closed containment, and I won't take you that far.  
11 I'm sure that would be difficult for some of you.  
12 But I want to go to recommendation 2 and 3.  
13 Particularly, I'd like to hear from you, Dr  
14 McKenzie, and then if we have time, Dr. Sheppard.  
15 Would you agree that recommendations 2 and 3 would  
16 be useful ways of managing the risks of the  
17 interactions between farm fish and wild fish and  
18 the transference of pathogens and disease between  
19 them?  
20 DR. MCKENZIE: Sorry, I'm just reading it again.  
21 Q Yeah, please do.  
22 DR. MCKENZIE: With respect to issue 2, there's a lot  
23 of research that has been done on the health of  
24 fish and what are optimum densities that are run  
25 for fish, both for health perspective, but it is  
26 also welfare. They are schooling animals so we do  
27 have to consider densities that way.  
28 I don't believe that -- I believe the  
29 operating density that currently exist fit well  
30 within those research perspectives on what is  
31 optimal health and welfare. So I don't believe  
32 there is a great need to reduce densities.  
33 Q Dr. Sheppard?  
34 DR. SHEPPARD: Yeah, I wouldn't say I'm in agreement  
35 with either of those statements in the sense that,  
36 as a point in fact, the number of farm fish on the  
37 coastline in the last ten years - and the density  
38 of those animals - has increased as the B.C.  
39 salmon farming industry has grown from within.  
40 Yet we see a decline in mortality rate due to  
41 infectious diseases.  
42 So his characterization of risk to wild fish  
43 seems a bit broad.  
44 Q You were saying "decline in mortality", you're  
45 talking about the farm fish at that point in time?  
46 DR. SHEPPARD: That's true.  
47 Q And so we don't really know about the increased

1 mortality rate in the wild stocks in that  
2 circumstance?

3 DR. SHEPPARD: No, I take it to be that's the question  
4 before this Commission.

5 Q Yeah, but I was asking you whether or not if we  
6 were trying to minimize the interactions between  
7 the wild fish and the farm fish, and trying to  
8 minimize the risks associated with them, whether  
9 those two steps, 2 and 3, might be good ways of  
10 starting.

11 DR. SHEPPARD: Well, again, density being one stressor  
12 of many. Fundamentally, yes, this is some  
13 fundamental principles worthwhile.

14 MS. GAERTNER: Thank you. Those are my questions, Mr.  
15 Commissioner.

16 MR. MARTLAND: Thank you. Mr. Kelliher for the  
17 Aboriginal Aquaculture Association has in fact  
18 contributed time to the Commission. I think it's  
19 a first that we've actually receive such a  
20 donation. We're grateful for it. I don't propose  
21 to use it.

22 What I'd like to do is ask counsel for the  
23 Musgamagw Tsawataineuk Tribal Council to use her  
24 five-minute allocation next, please.

25 MS. ROBERTSON: Thank you, Mr. Commissioner. Krista  
26 Robertson for the Musgamagw Tsawataineuk Tribal  
27 Council. I have just two brief questions.

28 Mr. Lunn, if you could bring up Tab 8 of  
29 Canada's list of documents, please.  
30

31 CROSS-EXAMINATION BY MS. ROBERTSON:  
32

33 Q Dr. Sheppard, this is a question for you. Can you  
34 identify that document?

35 DR. SHEPPARD: Yes. It is the document drafted by my  
36 predecessor with the province. It was in 2006 and  
37 it forms a guide for the salmon-farming  
38 organization to write their own health management  
39 plan specific to their business.

40 Q So basically this dictates what the content of the  
41 plan would be?

42 DR. SHEPPARD: Yes, as a guideline. It's not a  
43 prescriptive plan. It's an overall general  
44 guidelines.

45 MS. ROBERTSON: All right. May we mark that as the  
46 next exhibit, please?

47 THE REGISTRAR: It's already been marked. It's 1664.



- 1 MS. ROBERTSON: And if we could go to page 23 of that  
2 document. Now, looking at 2.8.2, please, if you  
3 could highlight that, Mr. Lunn.
- 4 Q So this, Dr. Sheppard, this sets out the steps  
5 required if there's an infectious disease  
6 emergency. I've looked at the list of steps. It  
7 goes over on to the next page. What I don't see  
8 there is a requirement to notify First Nations in  
9 the area if there's been a disease outbreak on the  
10 farm. Is that correct? Am I correct that that's  
11 not a requirement? It's not an element of the  
12 templates there?
- 13 DR. SHEPPARD: That's true. I don't see it there  
14 either, but again, it's not a prescriptive plan.  
15 The overall feeling is you communicate with your  
16 neighbours of who may be interested in this  
17 situation, so there's open communication of the  
18 situation at the farm.
- 19 Q Dr. -- are you doing that, Dr. McKenzie?
- 20 DR. MCKENZIE: Yeah, I was just going to add that this  
21 is a technical document, so the technical steps we  
22 take to mitigate disease.  
23 On top of this is how you communicate, your  
24 communications strategies, which companies have  
25 and the industry has as a whole. But  
26 communication strategies on a number of issues,  
27 including this one, are not included in this  
28 technical documents.
- 29 Q So your company -- are you aware -- is your  
30 company -- do you have a procedure or a protocol  
31 that you notify the local First Nations in --
- 32 DR. MCKENZIE: We, and even the industry has agreed on  
33 a viral outbreak management plan that has a  
34 communications portion in it, and First Nations is  
35 listed on that.
- 36 Q It's listed on that.
- 37 DR. MCKENZIE: Yes.
- 38 Q So you can confirm you are doing that?
- 39 DR. MCKENZIE: We haven't had an outbreak that we  
40 needed to publicly -- since the creation of that  
41 document, there hasn't been an emergency outbreak  
42 which is what this section refers to.
- 43 Q Dr. Sheppard, I mean, you're the regulator here.  
44 I mean, would you agree with me -- I mean, I don't  
45 think you could disagree that the wild salmon  
46 stocks are of just profound importance to the  
47 coast First Nations in terms of their sustenance

1 and their culture. Do you agree with that?

2 DR. SHEPPARD: Yes, as they are to the rest of the  
3 Canadian public.

4 Q But they do have a special right, a constitutional  
5 right.

6 DR. SHEPPARD: Yeah, I agree with you, yes.

7 Q So don't you think that DFO should regulate, then,  
8 having a right to know when there's an outbreak in  
9 a farm in their territory? Should that be a  
10 requirement?

11 DR. SHEPPARD: The questions you're asking of me are  
12 policy decisions above my level. My job is to  
13 record, report, collect. And we certainly put  
14 that information out onto the websites posted very  
15 regularly. It's available and, as I said,  
16 somewhere else within this document is to suggest  
17 communication with the persons of interest in the  
18 area.

19 MS ROBERTSON: All right. I'll leave it at that. Just  
20 one other question, then, Mr. Lunn, Tab 11 of the  
21 Commission's documents.

22 Q Mr. Swerdfager - pardon me, I always struggle with  
23 your name - this document has already been put to  
24 the panel by Mr. Leadem, and I just want to have  
25 some clarification around your comments there.

26 As I understand it, then, this is a draft  
27 document wherein DFO was contemplating the  
28 development of regulations for fish pathogens and  
29 pest treatment regulations under s. 36 of the  
30 **Fisheries Act**; is that correct?

31 MR. SWERDFAGER: It is a draft document. It is  
32 something that we were considering for development  
33 under s. 36 and 32 of the **Fisheries Act**. It is  
34 the template of what a regulation eventually would  
35 look like, but there is no draft regulation at  
36 all.

37 Q And, as I understand it, s. 36 is the section of  
38 **Fisheries Act** that prohibits the deposit of  
39 deleterious substances into the ocean. And this  
40 regulation is contemplated on the basis that the  
41 use -- introduction of pesticides into the  
42 environment is a -- is in fact an introduction of  
43 such a substance and may be a violation of s. 36  
44 of the **Act**?

45 MR. SWERDFAGER: Essentially, the motivation of this  
46 initiative to begin some kind of regulatory  
47 attention to this issue stems from the fact that

1 under the **Pest Products Control Act**, which is  
2 administered by Health Canada, someone can see  
3 approval to use a pesticide, and this has happened  
4 in real time, so to speak, in New Brunswick,  
5 specifically with a chemical known as -- a  
6 pesticide known as AlfaMax --

7 Q And is this where you would bathe the fish --  
8 MR. SWERDFAGER: Yeah, yeah, it's a topical treatment  
9 as opposed to an in-feed, hence the difference  
10 between pesticide and drug.

11 So this is used -- there are a number of  
12 others -- and it's used elsewhere in the world,  
13 and so on, but the Pesticide Management Regulatory  
14 Agency has granted approval, or had, rather, a few  
15 years ago, granted approval for the use of that.  
16 But it became apparent that we had a bit of a  
17 left-hand and right-hand problem in the federal  
18 government. You could get an approval to use it  
19 via Health Canada, but s. 36, as administered by  
20 Environment Canada, potentially would block that,  
21 and so we had a perverse outcome.

22 So the regulation here would be designed, in  
23 essence, to say we want to remove the conflict  
24 between these two pieces of legislation.

25 Q So that's in process then. DFO is undecided on  
26 that. We have to --

27 MR. SWERDFAGER: DFO is experiencing quite a bit of  
28 difficulty in terms of figuring out an appropriate  
29 legal structure for dealing with this issue, and  
30 we have found that as we peel away the layers of  
31 the onion, it becomes more and more complicated.  
32 Not so much from a policy perspective, but from a  
33 legal structure and drafting perspective.

34 **Fisheries Act** occasionally, for the purposes of  
35 activity such as this one, is very difficult to  
36 work with.

37 MS. ROBERTSON: All right, then. That's my time,  
38 thanks.

39 MR. MARTLAND: Thank you. Mr. Commissioner, just to  
40 state it on the record, this is Exhibit 1688. Mr.  
41 Lunn had passed a note with respect to First  
42 Nations Coalition. What's now Exhibit 1703, I  
43 take it there may be a question mark over what the  
44 exhibit number affiliates with. I wonder if  
45 that's been clarified or if that's --

46 MR. LUNN: It has now been clarified.

47 MR. MARTLAND: It has been clarified, thank you. Mr.

1 Commissioner, as Commission counsel, we don't have  
2 re-examination. Canada and the Salmon Farmers  
3 don't. Ms. Callan, I believe, was seeking to ask  
4 one question in re-examination.

5 MR. COMMISSIONER: I would like to adjourn. If there's  
6 just one question, I'll accept it.

7 MR. MARTLAND: Thank you, Mr. Commissioner.

8 MS. CALLAN: Tara Callan for Her Majesty the Queen in  
9 Right of the Province of British Columbia.

10

11 CROSS-EXAMINATION BY MS. CALLAN, continuing:  
12

13

14 Q This is a question for the veterinarians. Mr.  
15 McDade had asked a number of questions about ISH  
16 lesions and marine anaemia. Would you agree with  
17 the proposition that ISH lesions does not equate  
18 with a diagnosis of marine anaemia?

19 DR. SHEPPARD: I agree.

20 MS. CALLAN: Those are my questions.

21 MR. MARTLAND: Mr. Commissioner, I believe that  
22 concludes the evidence from this panel. Thank you  
23 to you and to all counsel for working within these  
24 constraints of today.

25 THE COMMISSIONER: Thank you very much, Mr. Martland.  
26 Yes, thank you, Mr. Swerdfager and Dr. Sheppard,  
27 Dr. McKenzie, Dr. Marty. Thank you for your  
28 attendance, and you, sir, for being here an extra  
29 day. Thank you very much.

30 We'll now adjourn until 10:00 a.m. tomorrow  
31 morning. Thank you.

32

33 (PROCEEDINGS ADJOURNED AT 4:01 P.M. TO  
34 SEPTEMBER 1, 2011 AT 10:00 A.M.)  
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1 I HEREBY CERTIFY the foregoing to be a true  
2 and accurate transcript of the evidence  
3 recorded on a sound recording apparatus,  
4 transcribed to the best of my skill and  
5 ability, and in accordance with applicable  
6 standards.

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42 standards.

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47 Diane Rochfort