

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:

Hearing Room, 12th Floor
BC Securities Commission
701 West Georgia Street
Vancouver, B.C.

Monday, November 7, 2011

Tenue à :

Salle d'audience du 12^e étage
BC Securities Commission
701, rue West Georgia
Vancouver (C.-B.)

le lundi 7 novembre 2011



Errata for the Transcript of Hearings on November 7, 2011

Page	Line	Error	Correction
ii		Appearance for BCSFA	Shane Hopkins-Utter
67	33 – 35	“Shifting the balance that most aquaculture companies	“Shifting the Balance” that most

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APPEARANCES / COMPARUTIONS

Brian Wallace, Q.C. Wendy Baker, Q.C. Patrick McGowan	Senior Commission Counsel Associate Commission Counsel Associate Commission Counsel
Mitchell Taylor, Q.C. Tim Timberg	Government of Canada ("CAN")
Clifton Prowse, Q.C. Boris Tyzuk, Q.C. Tara Callan	Province of British Columbia ("BCPROV")
No appearance	Pacific Salmon Commission ("PSC")
Chris Buchanan	B.C. Public Service Alliance of Canada Union of Environment Workers B.C. ("BCPSAC")
David Bursey Matt Keen	Rio Tinto Alcan Inc. ("RTAI")
Alan Blair	B.C. Salmon Farmers Association ("BCSFA")
No appearance	Seafood Producers Association of B.C. ("SPABC")
Gregory McDade, Q.C. Lisa Glowacki	Aquaculture Coalition: Alexandra Morton; Raincoast Research Society; Pacific Coast Wild Salmon Society ("AQUA")
Tim Leadem, Q.C.	Conservation Coalition; Coastal Alliance for Aquaculture Reform Fraser Riverkeeper Society; Georgia Strait Alliance; Raincoast Conservation Foundation; Watershed Watch Salmon Society; Mr. Otto Langer; David Suzuki Foundation ("CONSERV")
Don Rosenbloom 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")
Christopher Harvey, Q.C.	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")
John Gailus	Western Central Coast Salish First Nations: Cowichan Tribes and Chemainus First Nation Hwlitsum First Nation and Penelakut Tribe Te'mexw Treaty Association ("WCCSFN")
Brenda Gaertner Crystal Reeves	First Nations Coalition: First Nations Fisheries Council; Aboriginal Caucus of the Fraser River; Aboriginal Fisheries Secretariat; Fraser Valley Aboriginal Fisheries Society; Northern Shuswap Tribal Council; Chehalis Indian Band; Secwepemc Fisheries Commission of the Shuswap Nation Tribal Council; Upper Fraser Fisheries Conservation Alliance; Other Douglas Treaty First Nations who applied together (the Snuneymuxw, Tsartlip and Tsawout); Adams Lake Indian Band; Carrier Sekani Tribal Council; Council of Haida Nation ("FNC")
Joseph Gereluk	Métis Nation British Columbia ("MNBC")

APPEARANCES / COMPARUTIONS, cont'd.

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

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Vancouver, B.C. /Vancouver
(C.-B.)
November 7, 2011/le 7 novembre
2011

1
2
3
4
5
6 THE REGISTRAR: The hearing is now resumed.

7 THE COMMISSIONER: Good morning. Just before the
8 Province gets underway, I wanted to deal with the
9 ruling on the motion by Canada dated November 4th,
10 2011.

11 On Friday, November the 4th, 2011, counsel
12 for Canada, supported by counsel for the Province
13 and counsel for the B.C. Salmon Farmers
14 Association, asked me to rule that the following
15 paragraphs be struck out of the written reply
16 submissions made by the Conservation Coalition,
17 the Aquaculture Coalition, and the Heiltsuk Tribal
18 Council:

19
20 (1) Conservation Coalition, paragraphs 19,
21 33, 34, 35, 40, 41 and Recommendation J;

22
23 (2) Aquaculture Coalition, first two
24 sentences of the second paragraph on page 4;
25 and

26
27 (3) the Heiltsuk Tribal Council, paragraphs
28 23, 24, 25 and 26.

29
30 Counsel for Canada challenged these
31 paragraphs on the basis that they referred to
32 facts not in evidence relating to the possible
33 presence of the infectious salmon anaemia (ISA)
34 virus, in several Pacific salmon. The paragraphs
35 were said to be prejudicial in that the
36 submissions would be posted on the Commission's
37 website and would therefore be available to the
38 public.

39 I have now reviewed the challenged
40 paragraphs.

41 Some of the identified paragraphs in the
42 submissions do make reference to media releases on
43 the ISAV issue, which are not in evidence.

44 The submissions of the Conservation Coalition
45 and the Heiltsuk Tribal Council expressly refer to
46 the fact that these media releases are not in
47 evidence and urge the Commission to take steps to

1 put the supporting documents and information into
2 evidence.

3 Reply submissions were due by 4:00 p.m. on
4 November 3, 2011.

5 At the end of the day on November 3, 2011,
6 Commission counsel advised all participants that
7 the Commission plans to convene a two-day hearing
8 in mid-December to put new information about the
9 possible presence of the ISA virus in British
10 Columbia on the Commission's record. As such, the
11 Commission's intention with respect to the
12 treatment of the new information on the possible
13 presence of the ISA virus in British Columbia was
14 not known to the participants at the time they
15 submitted their reply submissions.

16 To the extent that statements in the
17 submissions make reference to facts not already in
18 evidence, these statements appear to be based on
19 information already in the public domain. As
20 such, I see no harm in allowing the submissions to
21 be placed on the Commission's website in their
22 present form.

23 The submissions themselves are not evidence,
24 and to the extent the submissions rely on facts
25 not in evidence before this Commission, such
26 submissions will not be entitled to weight.

27 Participants will be able to further address
28 the ISAV issue when hearings on the issue are
29 convened in the future, at which time evidence
30 will be brought into the Commission's record.

31 Therefore, the reply submissions of the
32 Conservation Coalition, the Aquaculture Coalition
33 and the Heiltsuk Tribal Council may be posted on
34 the Commission's website in their current form.

35 And now I will ask the Province to step
36 forward.

37 MR. TYZUK: Good morning, Commissioner. Boris Tyzuk
38 appearing for the Province of British Columbia.
39 With me are Clifton Prowse and Tara Callan. We
40 have 90 minutes.

41
42 SUBMISSIONS FOR THE PROVINCE OF BRITISH COLUMBIA BY MR.
43 TYZUK:

44
45 MR. TYZUK: The three of us will be making submissions
46 this morning. I will focus on the Terms of
47 Reference, the Aboriginal right to fish, and

1 related issues, and recommendations. Ms. Callan
2 will deal with aquaculture and diseases. Mr.
3 Prowse will deal with related evidentiary topics
4 and concluding remarks.

5 Initially, I will refer to our written
6 submission of October 17, 2011, pages 12 to 17.
7 Thereafter, I will turn to our reply submission of
8 November 3, paragraphs 2 to 35, to deal with the
9 Aboriginal right to fish and related issues, and
10 conclude with our written submissions at pages 20
11 to 26. And, Mr. Lunn, if you could bring up the
12 written submission of October 17th at page 12,
13 please.

14 First of all, the Province would like to
15 thank the Commissioner for granting the Province
16 standing and the opportunity to participate in
17 this federal inquiry established pursuant to the
18 ***Inquiries Act.***

19 The Province has cooperated with Commission
20 counsel throughout these hearings. A number of
21 present and former provincial employees were
22 interviewed, and a total of 12 present and former
23 provincial employees testified before you. In
24 addition, the Province has disclosed a significant
25 amount of relevant documentation, as requested by
26 Commission counsel, or pursuant to your rulings.

27 We think that the Commissioner has succeeded
28 in conducting an inquiry that has in most respects
29 encouraged broad cooperation amongst the
30 stakeholders. To that end we commend the
31 Commissioner, Commission counsel and the various
32 participants.

33 The evidence shows that the sockeye fishery
34 contributes to the provincial economy. The
35 preliminary estimates from the 2010 run indicated
36 that the landed value of the sockeye fishery was
37 approximately \$90 million, and the Fraser River
38 sockeye fishery contributed significantly to that
39 total.

40 Mr. Commissioner, I will be using the term
41 "interest" or "interests" in my submissions, and I
42 use this term in the broadest sense. We are not
43 equating one interest necessarily with another.

44 Many groups, often with varying interests,
45 are involved in the Fraser River sockeye fishery,
46 including First Nations, commercial fishers,
47 recreational fisheries, and environmental groups.

1 The federal government, and more particularly the
2 Department of Fisheries and Oceans, is charged
3 constitutionally with managing the fishery. All
4 of this makes the management of the fishery more
5 challenging, yet this points to the need for all
6 parties who have an interest in the Fraser River
7 sockeye fishery to work together for the common
8 goal of having a sustainable fishery now and for
9 future generations. This theme of an inclusive
10 fishery and the involvement of all interested
11 parties in the management of the fishery with the
12 federal government as the central authority
13 managing the fishery, will be expanded upon in the
14 Province's discussion of suggested
15 recommendations.

16 I'll now turn to the first point, which is
17 the mandate issue at page 12. Actually, Mr. Lunn,
18 if you go to page 14.

19 MR. LUNN: Thank you.

20 MR. TYZUK: The Province's first main point is that
21 this is a federal Inquiry and the Terms of
22 Reference clearly focus on the policies, practices
23 and procedures of DFO. Therefore any
24 recommendations from the Commissioner should focus
25 on DFO and other federal Departments, as required.

26 At pages 15 and 16 we have the Terms of
27 Reference, and Item "B" notes that the
28 Commissioner is to consider the policies and
29 practices of the Department of Fisheries and
30 Oceans with respect to various aspects of the
31 sockeye salmon fishery.

32 Item "C" requires you to investigate and make
33 independent findings of fact, and Mr. Prowse will
34 deal with that matter in his submissions.

35 And "D" directs you to develop
36 recommendations for proving the future
37 sustainability of the sockeye salmon fishery in
38 the Fraser River, including, as required, any
39 changes to the policies, practices and procedures
40 of the Department. Clearly a focus on DFO.

41 That the focus of the inquiry is the federal
42 government was evidenced in the habitat and
43 management hearings where on April 4, 2011,
44 Commission counsel stated the following at pages
45 44, lines 40 to 46:

46
47 As you appreciate, Mr. Commissioner, this is

1 a federal Commission of Inquiry and the terms
2 of reference obviously focus, and in
3 particular, on DFO and the federal
4 government. As will be apparent, in
5 particular in this PPR [number 8], the focus
6 is very much on DFO and the federal
7 government
8

9 The Terms of Reference do not ask you to make
10 any -- to consider the policies, practices and
11 programs of the provincial government, or to make
12 any comments on that. It's not surprising. This
13 is a federal Inquiry, commissioned by the Governor
14 in Council. Therefore, we submit, that given the
15 Terms of Reference and their focus on DFO
16 policies, practices and procedures, your
17 recommendations should be directed at DFO and, as
18 necessary, other federal Departments.

19 Our second point deals with the Aboriginal
20 right to fish. Mr. Lunn, if you could turn our
21 reply submission and paragraphs 2 to 35.

22 Our second point concerning the Aboriginal
23 right to fish, concerns the various
24 recommendations made by First Nations participants
25 that in effect ask you to make findings with
26 respect to Aboriginal rights and title, or the
27 scope of the Aboriginal right to fish or
28 recommendations in relation to that. Our position
29 is as follows.

30 There is no mention of Aboriginal rights and
31 title in your Terms of Reference.

32 Secondly, this is a very complex and
33 controversial area of the law, and this commission
34 is not the proper forum to make any findings or
35 rulings concerning Aboriginal rights and title, or
36 make recommendations that Aboriginal rights and
37 title be recognized.

38 Thirdly, we say that there is settled law
39 which the Commissioner can turn to with respect to
40 considering the Aboriginal right to fish.

41 At paragraph 3 of our submission, we refer to
42 your interim report of October 2010 at page 10,
43 wherein the following is stated:
44

45 The legal landscape within which this
46 Commission operates has changed as well.
47 This change will require a consideration of

1 the Aboriginal right to fish under section 35
2 of the **Constitution Act, 1982,...**
3

4 As well as other things.

5 The Province submits that this consideration
6 of the Aboriginal right to fish should not go so
7 far as to include making any specific rulings or
8 findings with respect to the scope of Aboriginal
9 title or the Aboriginal right to fish or with
10 respect to treaty rights, or with respect to any
11 particular First Nation.

12 We refer to paragraph 4 of our written
13 submission of October 17 -- sorry, page 18, at
14 paragraph 4, where we comment on the fact that the
15 Terms of Reference do not include any reference to
16 Aboriginal rights and title, and the fact that
17 this is not the forum to do so.

18 We would also note that in submissions of
19 Commission counsel on October 25, 2010, when we
20 were considering PPR1, the following was stated:
21

22 Commission counsel agreed that although your
23 terms of reference do not direct you to make
24 any findings of Aboriginal rights and title,
25 that an overview of this area of the law may
26 be helpful in providing contextual background
27 for the factual information yet to come.
28

29 In paragraphs 5 and 6 of our reply
30 submission, we also submit that you should not
31 make any recommendations with respect to requiring
32 DFO or the federal government to recognize
33 Aboriginal rights and title. Because in our view,
34 in doing so, you would be making implied findings
35 of fact that there is indeed Aboriginal rights and
36 title, or on the scope of that.

37 And we say at paragraph 7 that it would be
38 inappropriate for you to do so, given the nature
39 of the forum and the fact that the testimony has
40 come solely from witnesses chosen by Commission
41 counsel or exhibits, including the paper, Exhibit
42 1135, submitted by Dr. Harris, and we will refer
43 to that in more detail later in our submissions.

44 At paragraphs 9 to 13, we note certain
45 general observations about the law concerning the
46 Aboriginal right to fish and fisheries in general.

47 Paragraph 9 we refer to the **Nikal** case and

1 note the need there for a balanced approach. As
2 the court said in referring to the decision of the
3 Ontario Court of Appeal in **R. v. Agawa**:

4
5 The exercise of rights by an individual or
6 group is limited by the rights of others.
7 Rights do not exist in a vacuum and the
8 exercise of any right involves the balancing
9 with the interests and values involved in the
10 rights of others.

11
12 On this theme of balance, in a number of the
13 submissions, reference was made to the Aboriginal
14 perspective. We note the comments of Chief
15 Justice McLachlin in the **Mitchell** case where she
16 said:

17
18 ...placing due weight on the aboriginal
19 perspective means that such evidence be given
20 equal and due treatment and further that
21 evidence from aboriginal claimants should not
22 be artificially strained to carry more weight
23 than it can reasonably support.

24
25 At paragraph 11, in dealing with fisheries in
26 general, we note the comments of the Supreme Court
27 of Canada in the **Comeau's Sea Foods** case which
28 PPR1 alludes to at paragraphs 31 and 32, where
29 this is stated:

30
31 Canada's fisheries are a common property
32 resource belonging to all the people of
33 Canada.

34
35 And this is a theme which we incorporate in our
36 recommendations, Commissioner, where we suggest
37 that the fishery be inclusive, and that all
38 interested parties be involved in the management
39 of the fishery.

40 Finally, with respect to the management, we
41 note this comment about the central need -- about
42 the need for a central authority to manage the
43 fishery, and in the **Nikal** case the court said
44 this:

45
46 If the salmon fishery is to survive, there
47 must be some control exercised by a central

1 authority. It is the federal government
2 which will be required to manage the fishery
3 and see to the improvement and the increase
4 of the...

5
6 Stock of that fishery.

7 At paragraphs 14 to 17, we refer to the state
8 of the law, and take issue with various
9 submissions of the First Nations participants. We
10 identify some of those aspects in paragraph 16 and
11 we ask that you consider those later.

12 In paragraph 17 we set out our view that the
13 various First Nations submissions provide little
14 authority for many of the positions put forward as
15 to the state of the law, especially on the scope
16 of the Aboriginal right to fish.

17 Having said that there is a lot of
18 controversy in the area, we just say at page 18,
19 Commissioner, that there is settled law which you
20 can use to consider the Aboriginal right to fish.
21 That settled law includes the following:

22
23 1. Aboriginal rights are fact specific and
24 First Nation specific.

25
26 2. The Aboriginal right to fish is not a
27 property resource, nor does it convey any
28 ownership of the resource.

29
30 And again cases are cited for this.

31
32 3. There has been no recognition of
33 quantifiable levels of harvesting or sale.

34
35 4. There has been no recognition of
36 jurisdiction over or a right to manage a
37 fishery in the context of limiting or
38 determining the actions of others, including
39 non-Aboriginal fishers.

40
41 5. There has been recognition of aspects of
42 internal self-regulation of fishing by
43 Aboriginal communities, as described in the
44 **Nikal** case.

45
46 And:
47

1 6. The components of the test for Aboriginal
2 rights...

3
4 Are clearly defined. I refer to the **Van der Peet**
5 case, and there are others.

6 I would note the recent Court of Appeal
7 decision in the **Ahousaht** case when dealing with
8 the issue of costs where our Court of Appeal
9 commented that there were established legal
10 principles in regard to Aboriginal rights, and
11 that cases were fact driven. The Court referred
12 to the "trilogy" of cases, **Van der Peet**,
13 **Gladstone**, and **N.T.C. Smokehouse** as providing the
14 legal framework for trial decisions in both the
15 **Lax Kw'alaams** case, which is waiting a decision in
16 the Supreme Court of Canada, and the **Ahousaht** case
17 where the leave has been sought to the Supreme
18 Court of Canada. It is interesting to note that
19 in the **Lax Kw'alaams** case, the court found that
20 there was no commercial right to fish, whereas in
21 the **Ahousaht** case the court did find that there
22 was a right to sale, albeit not on an industrial
23 scale.

24 At paragraph 21 we submit that PPR1, the
25 Aboriginal and treaty rights framework underlying
26 the Fraser River sockeye salmon fishery, subject
27 to the caveats the Province set out in its written
28 submissions of October 19, 2010, and our oral
29 submission of October 26, 2010, sets out in
30 general a fair, accurate and balanced description
31 of the existing law, and we submit that can be
32 used by the Commissioner to consider the
33 Aboriginal right to fish.

34 We do have some concerns about the more
35 speculative aspects of PPR1, and we mention those
36 in paragraph 22 of our reply submission.

37 In paragraphs 23 to 26 we highlights aspects
38 of PPR1, including paragraph 36, which refers to
39 the fact that Aboriginal rights are held by
40 specific groups and can vary amongst the groups
41 and are highly fact specific.

42 We also note paragraph 43 of the PPR which
43 states as follows:

44
45 An Aboriginal right to fish, for example, is
46 the right to the practice, custom or
47 tradition of fishing (verb) as opposed to the

1 right to fish (noun). This interpretation is
2 supported by the Court's finding that
3 although an Aboriginal right to fish may
4 protect a traditional means of substance or
5 pre-contact practice that was relied upon for
6 survival, "there is no such thing as an
7 Aboriginal right to sustenance or right to
8 the fish themselves".
9

10 In paragraph 27 we set out examples of
11 specific concerns we have to the various
12 submissions of a number of the First Nations
13 participants, and we leave those to you to review.

14 We next turn at paragraphs 27 and onward to
15 the Dr. Harris paper. Because a number of the
16 First Nations submissions, including those of the
17 First Nations Coalition, the West Central Coast
18 Salish First Nations, the Sto:lo Tribal Council
19 and Cheam Indian Band, and the Heiltsuk, refer to
20 Dr. Harris's paper and use it as evidence to
21 support their claims for Aboriginal rights and
22 title, or as a basis to make recommendations, we
23 have set out our concerns about the paper.

24 Our main point is that the paper should not
25 be used as a basis for any findings of fact or
26 rulings.

27 We note that Dr. Harris is a respected
28 academic and his paper does provide useful
29 background on the various aspects of regulation of
30 Aboriginal fisheries. However, the Dr. Harris
31 paper was prepared at the behest of Commission
32 counsel. It was not tendered as a legal opinion,
33 nor did Commission counsel tender the paper as an
34 opinion or an interpretation or application of
35 domestic law to the facts discussed in the paper.

36 We refer to our objections with respect to
37 the Dr. Harris paper concerning Indian Reserves,
38 in particular, in our written submission of
39 October 17th at page 18, and our cross-examination
40 of Dr. Harris on June 27th at pages 23 to 33. Dr.
41 Harris did not make any reference to the leading
42 Supreme Court of Canada cases in **Nikal** and **Lewis**
43 and we feel that this is a serious if not fatal
44 flaw to his evidence.

45 Therefore, Commissioner, getting back to the
46 comment in your interim report that you needed to
47 consider the Aboriginal right to fish, we feel

1 that PPR1, subject to the reservations that we
2 have noted, provides you with a basis to do that.

3 Having said that, it is clear from the
4 evidence that First Nations witnesses provided
5 that First Nations have a long history and an
6 interest and connection with the Fraser River
7 sockeye fishery. Further, DFO is involved in many
8 consultations with First Nations with respect to
9 fisheries and fisheries management.

10 How First Nations should be involved in the
11 management of the Fraser River sockeye fishery is
12 a matter for which there has been considerable
13 testimony.

14 One of the issues that DFO faces, we submit,
15 is how to have effective and efficient
16 consultation with First Nations and involve First
17 Nations in fisheries management, given the
18 complexity of the fishery, the number of First
19 Nations involved in the Fraser River sockeye
20 fishery. We have heard estimates of 130 or more,
21 and those have varying interests, be they the
22 intercept fisheries, the Lower Fraser fisheries,
23 or those further upriver.

24 However, we say that there are other groups
25 who also have interests in the Fraser River
26 sockeye fishery, including commercial fishers,
27 recreational fishers, and non-governmental
28 organizations, and we feel that these should be
29 involved in the management of the fishery. Our
30 recommendations 2, 3 and 4, are based on this
31 theme that the fishery be inclusive and the
32 management of it include all interested parties.

33 Mr. Lunn, if you can turn to pages 21 to 26
34 of --

35 MR. LUNN: Thank you.

36 MR. TYZUK: -- our October 17 written submission.

37 Recommendation number 2 we have is that the
38 DFO continue supports for the ISDF process.
39 Exhibit 392 that was put in provides the Framework
40 for the Integrated Salmon Dialogue Forum. It's a
41 multi-party process involving representatives from
42 First Nations, commercial fishers, recreational
43 fishers, NGOs, DFO and the Province had some
44 representatives there.

45 Wayne Saito on February 3rd commented on the
46 value of the ISDF process, and indicated it was an
47 opportunity to hear from all interested parties

1 and attempt to reach consensus before making
2 policy decisions.

3 The witnesses on the May 12th panel,
4 including Grand Chief Ken Malloway, Peter Sakich,
5 the chair of the Commercial Salmon Advisory Board,
6 and Colin Masson of DFO, all expressed support for
7 the continuation of that process.

8 We would be at pages 20 to 26.

9 MR. LUNN: Of the final submissions.

10 MR. TYZUK: Of the final submissions.

11 MR. LUNN: All right, thank you.

12 MR. TYZUK: There, yes.

13 MR. LUNN: Okay, thank you.

14 MR. TYZUK: Thanks, Mr. Lunn.

15 Grand Chief Malloway, Mr. Sakich, and Mr.
16 Masson also agreed with the description of the
17 ISDF process at paragraph 18 of PPR12, where as a:

18
19 ...collaborative and inclusive opportunity
20 for all interested to work together towards a
21 fully integrated sustainable salmon fishery.
22

23 Another recommendation we have deals with the
24 Monitoring and Compliance Panel, which was one of
25 the panels that was formed out of the ISDF
26 process.

27 On a number of occasions we have heard
28 various witnesses talk about trust in each other's
29 numbers, and this is a key part of what the
30 Monitoring and Compliance Panel was aiming to
31 achieve.

32 There was support on the May 12th, from the
33 panel members again, Grand Chief Malloway, Mr.
34 Sakich and Mr. Masson, for the continuing work of
35 the Monitoring and Compliance Panel. Mr. Masson
36 specifically said this at page 73, lines 5 to 12:
37

38 ...I am a full supporter of the Monitoring
39 and Compliance Panel. I think it's only
40 really begun to scratch the surface. I think
41 that I have vision this group could do more
42 than we have touched on today. I think it's
43 really useful for the department and for the
44 resources and for the participants.
45

46 And we note that Exhibit 429, which was DFO's
47 Strategic Framework for Fisheries Monitoring and

1 Catch Reporting, was based on the work of the
2 Monitoring and Compliance Panel.

3 And Exhibit 855 we refer you, Commissioner,
4 to that exhibit, and the Strategic Approach at
5 page 12 and the Summary at page 14.

6 Our third point on this is that the fisheries
7 management process for the Fraser River should be
8 inclusive and include all parties who have an
9 interest in that fishery.

10 We would adopt the comments of Joseph Becker,
11 a member of the Musqueam Fisheries Commission in
12 his testimony of December 13, 2010, when he
13 stated:

14
15 Fish are the responsibility of everyone who
16 participates in the fishery.

17
18 He went on to say that all user groups should be
19 involved in a management regime so that:

20
21 ...there will be fish for the future, for our
22 grandchildren.

23
24 And later we note, going on, at pages 24 and
25 some examples of third-party processes.

26 The fourth submission we have, Mr.
27 Commissioner, is that DFO carry out its Action
28 Plan with respect to certification of -- pursuant
29 to the MSC process. The testimony of Rob Morley
30 emphasized the importance of MSC certification to
31 Fraser River sockeye. That's number 1, Mr. Lunn.

32 The draft surveillance report, Exhibit 1993,
33 reported on the status of --

34 MR. LUNN: It's okay, I'm just trying to find the page.

35 MR. TYZUK: Okay. It will be on page 20, Mr. Lunn.

36 MR. LUNN: Thank you.

37 MR. TYZUK: In general, that the MSC, that surveillance
38 report stated that some conditions have been met.
39 Others are expected to be met within two years.
40 The analysis of some conditions is deferred, and
41 that some additional action of DFO is required for
42 other conditions.

43 Given the importance of MSC certification to
44 the economic viability of the sockeye fishery,
45 it's crucial that DFO fulfil these commitments as
46 set out in the Action Plan, and therefore the
47 Commissioner should include in his

Submissions by Mr. Tyzuk (BCPROV)
Submissions by Ms. Callan (BCPROV)

1 recommendations the need for DFO to fulfill its
2 commitments under the Action Plan.

3 Our last recommendation, and Mr. Lunn, if now
4 you'd go to page 26, this is number 5.

5 MR. LUNN: Thank you.

6 MR. TYZUK: Is that the federal government should
7 consider new fisheries legislation. This is a
8 matter which is included as part of Canada's
9 Business Plan, which is Exhibit 1930 at page 11,
10 which says "Bring forward a new **Fisheries Act**".

11 PPR3 sets out an outline of what happened
12 with the last three bills that went forward. No
13 doubt the federal government would consider
14 recommendations from this Commission with respect
15 to proposed legislative or regulatory change.

16 Finally, Mr. Commissioner. any
17 recommendations you make, we submit, should be
18 practical and implementable.

19 Thank you. Now Ms. Callan will make
20 submissions on aquaculture and diseases.

21 THE COMMISSIONER: Thank you, Mr. Tyzuk.

22

23 SUBMISSIONS FOR THE PROVINCE OF BRITISH COLUMBIA BY MS.

24 CALLAN:

25

26 MS. CALLAN: Mr. Commissioner, I will be addressing the
27 topics of aquaculture and disease on behalf of the
28 Province.

29 The Province will start its submission with
30 the description of the former program, will
31 outline the inspections conducted and the programs
32 that were funded by the Province. I will then
33 discuss the diseases that Dr. Kent considered high
34 risk. I will then rebut the issues raised by the
35 Aquaculture Coalition, including their disputes
36 with the disease incident numbers, infectious
37 salmon anaemia, plasmacytoid leukemia, and Dr.
38 Miller's genomic signature. I will set out that
39 the evidence in these proceedings does not support
40 the Aquaculture Coalition's position on any of
41 these issues.

42 Farmed salmon comprises 39 percent of the
43 total value of seafood exports from British
44 Columbia. It's worth approximately \$348.1 million
45 in 2009, and directly and indirectly creates 6,000
46 jobs, and this reference is from page 18 of the
47 Aquaculture PPR, so paragraph 18, page 12.

1 Prior to the transfer to the federal regime,
2 the Province regulated aquaculture and conducted
3 frequent inspections. It conducted between 110
4 and 120 fish health inspections per year. It
5 conducted sea lice audits of 25 percent of all
6 active farms per quarter, and 50 percent of all
7 farms during the period of outmigration, and also
8 conducted an annual compliance audit of each farm
9 per year.

10 The Province was also interested in improving
11 the program where it could. And in doing so,
12 conducted regular reviews of its program. Some of
13 these programs included the Gillespie Report, the
14 Salmon Aquaculture Review, and the Special
15 Committee for Sustainable Aquaculture.

16 The Province also looked at ways to make the
17 industry more sustainable. One of these was
18 closed containment systems. In supporting it, it
19 funded several projects to do so. And if we could
20 turn to page 87 of my submissions, it will set out
21 the number of projects that the Province ran. And
22 specifically the Future Sea program, the Agri-
23 Marine/Cedar pump ashore system, Marine Harvest
24 Salt Spring Pilot, and the Namgis First Nations
25 Land-Based Atlantic Salmon Re-circulating
26 Aquaculture System Pilot Program, which is still
27 ongoing.

28 While it's too early to tell if closed-
29 containment is going to be viable or not, the
30 funding and the work conducted by the Province
31 materially moved the state of the art forward.

32 I will now move on to the subject of
33 diseases.

34 Dr. Kent provided a report on diseases that
35 he thought could impact sockeye salmon. As a
36 result, he subjectively identified six diseases he
37 thought posed a potential high risk to sockeye
38 salmon.

39 The incident levels of these six diseases at
40 salmon farms were reviewed by Dr. Noakes. Dr.
41 Noakes noted that the farms vaccinate against most
42 of these diseases. In places where the fish are
43 not vaccinated, the incident levels along the
44 outmigration route were low, and were unlikely the
45 cause of the long-term decline in productivity and
46 were unlikely the cause of the poor 2009 run.

47 The Aquaculture Coalition takes issue with

1 the number of mortalities from disease. At page 6
2 of their submissions, the Aquaculture Coalition
3 submits that approximately ten percent of salmon
4 in the net pens die, and most of that is from
5 disease. The Province disagrees with this
6 characterization.

7 The Province does agree with the Aquaculture
8 Coalition in that the number of fresh silver
9 mortalities should not be used as the calculation
10 for the numbers of fish which died from disease.
11 Fresh silver fish are simply normal sized fish
12 that recently died. There are many causes of
13 death that could have occurred that have nothing
14 to do with disease, although they are of the
15 various categories more likely to have disease
16 than the other categories or groups of fish.

17 This issue was raised with the Project 5
18 panel. All of the panel members agreed that the
19 category of fresh silvers does not properly
20 identify fish that died from disease, and that
21 there could be many other causes for their death.

22 There were other categories, as well, that
23 the Aquaculture Coalition thought should be
24 included in the disease mortality calculations.
25 Those were older fish mortalities and poor
26 performers, as well as environmental or predator
27 deaths.

28 With respect to the older fish mortalities
29 and poor performers, Dr. Korman gave evidence that
30 he didn't think it was fair to say that all old
31 fish or poor performers died of disease. And that
32 would be from page 19 of the August 29th, 2011
33 transcript.

34 With respect to environmental or predator
35 deaths, they should not be included in the total,
36 as well, because the cause of death was presumably
37 identified, so death should be established to be
38 from either predation or environmental conditions,
39 and therefore would unlikely be from disease.

40 One of the complaints that has been levied
41 against or by the Aquaculture Coalition is that
42 the Province is only measuring mortality. It is
43 of import to mention that the farm veterinarians
44 were monitoring diseases on a daily basis. Dr.
45 McKenzie, in particular, testified that he looked
46 at behavioural changes in performance, and this
47 would be from the August 31st transcript at pages

1 17 to 18. Mr. Lunn, if we could turn to that.

2 MR. LUNN: Page 17?

3 MS. CALLAN: That's right, starting at line 44, and Dr.
4 McKenzie testified:

5
6 On top, as a strictly pure veterinarian, my
7 role, again, is to manage disease. So I do a
8 lot of analysis of disease, monitoring
9 disease on all our farms and hatcheries,
10 looking for changes, looking for trends,
11 looking for identifications of deviations
12 from what I consider the normal --

13
14 - and then he says "normal" again -

15
16 -- fish health.

17
18 And then if we go on to line 8, last two words:

19
20 ...and I would add that...my clinical
21 experience, which is how the fish are
22 behaving, how the fish are performing, what
23 I'm seeing grossly during a necropsy and
24 other tests that we may take in house, other
25 laboratories, other steps.

26
27 This is clearly not just looking at mortality.
28 He's looking at behavioural changes as well.

29 I'll now move on to the topic of infectious
30 salmon anaemia.

31 The Aquaculture Coalition has raised
32 infectious salmon anaemia as a potential cause of
33 decline, and relies upon non-specific symptoms as
34 sinusoidal congestion in Dr. Marty's pathology
35 reports to implicate the fish farms. It however,
36 ignores the PCR tests that were conducted on each
37 of these farmed fish, which were all negative for
38 infectious salmon anaemia. These results are
39 summarized at Exhibit 1471, if Mr. Lunn could turn
40 to that.

41 First off, it shows that 4,726 PCR tests were
42 conducted on B.C. farmed fish and all were
43 negative for infectious salmon anaemia.

44 The Aquaculture Coalition's position also
45 ignores the fact that the province also looked at
46 the recent mortality patterns on the farms and
47 conducted histopathology to look for lesions as

1 well.

2 And Dr. McWilliams, who is an expert on
3 infections salmon anaemia, says it does not cause
4 disease in sockeye salmon.

5 The Aquaculture Coalition denies that
6 infectious salmon anaemia testing is sufficient,
7 saying at page 22 of their report, or of their
8 submissions that:

9
10 There is currently no formal testing program
11 for ISA on BC fish farms.

12
13 In the reference footnote it says:

14
15 Proper testing requires 60 fish per facility
16 - that is not done.

17
18 The Province disputes that while they had
19 conduct of the program that the testing was
20 inadequate. It says that the difference of
21 numbers of fish required for testing goes to the
22 type of sampling that's being conducted. The
23 Aquaculture Coalition was referring to a random
24 sampling of 60 live fish. The Province used a
25 different methodology that increases the chances
26 of finding diseased fish. Rather than a random
27 sampling of 60 live fish, most of which would be
28 expected to be healthy, the Province sampled the
29 dead fresh silver fish.

30 In Exhibit 1567, the document on which the
31 Aquaculture Coalition relies for its assertions,
32 this type of testing is also considered an
33 appropriate method.

34 Dr. McKenzie on the August 31st date of
35 testimony testified on this point, and opined that
36 it is a robust program, and specifically it's page
37 56 of the August 31st transcript, and I won't go
38 through the entire section, if you can do that,
39 Commissioner, at a later time.

40 Mr. Lunn, if we could now turn to page 25 of
41 the Province's reply argument.

42 MR. LUNN: Page 25 you said?

43 MS. CALLAN: Page 25 of the reply argument. Do you
44 have the colour version? It would have been the
45 one that was emailed to you on Friday.

46 So at this point we're going to be moving on
47 to the haemorrhage, and this is one of the two

1 lesions that the Aquaculture Coalition says is one
2 of the symptoms of infectious salmon anaemia.

3 One of the two lesions that they listed was
4 haemorrhage or congestion of the kidney. And in
5 Dr. Marty's records, it's described as the HEM
6 lesion.

7 The Province says this lesion is a non-
8 specific lesion that can occur with post-mortem
9 change. Specifically, as fish decompose, pooling
10 of the blood or congestion occurs in the kidney.
11 The graph on page 25 of the Province's reply
12 argument looks at Latly Autolysis, which is liver
13 decomposition and is found at column 5 of Exhibit
14 167, and graphed it against the severity of the
15 HEM lesion from Dr. Marty's records.

16 As decomposition after death increases, or
17 the time increases, the severity of the HEM score
18 also increases, and that's what this graph is
19 trying to show. As such, one must be careful not
20 to attribute microscopic findings or concrete
21 findings of disease without first considering how
22 long the fish has been dead.

23 And my last point on infectious salmon
24 anaemia is with respect to a comment that the
25 First Nations Coalition said in their reply
26 argument, page 33. They seem to say that Dr.
27 Dill's opinion regarding what is a suspect case of
28 ISA should be given weight.

29 The Province repeats its position that Dr.
30 Dill is not qualified, nor did he purport to be
31 qualified on diagnosis of fish disease for what's
32 considered to be a suspect case of infectious
33 salmon anaemia. He did say that he has expertise
34 in ecological considerations that the Province
35 submits is different from what we were trying to
36 say in our argument with respect to what is a
37 suspect case of infectious salmon anaemia.

38 I will now move on to the topic of
39 plasmacytoid leukemia or marine anaemia. These
40 are the same disease.

41 The Aquaculture Coalition raises plasmacytoid
42 leukemia as a possible cause of the poor 2009 run,
43 relying upon what they say is one diagnosis of
44 plasmacytoid leukemia along the migration route.
45 The Province says that it is not plasmacytoid
46 leukemia that was found at all, but it was rather
47 another disorder called *Loma salmonae*. And this

1 is based on a correct interpretation of the
2 records.

3 Even so, with respect to sockeye salmon,
4 plasmacytoid leukemia has not been shown to cause
5 mortalities in lab studies. And Exhibit 1488 is
6 the record for that. In that they noted that the
7 sockeye at the end of the study appeared
8 clinically normal, had histological lesions but no
9 mortalities.

10 The Aquaculture Coalition says that
11 plasmacytoid leukemia should be diagnosed any time
12 the ISH lesion, which is another acronym, as well,
13 from Dr. Marty's records, is identified in a
14 salmon. However, the scientific paper that they
15 cited for this position, which is Exhibit 1491,
16 page 421, which is the first paragraph under the
17 materials and methods, lists four requirements for
18 the diagnosis of marine anaemia. Of these four
19 lesions, or requirements to support the disease,
20 only the first one, which is hyperplasia of the
21 interstitial cells of the caudal kidney, is
22 tracked in Dr. Marty's database. And this is the
23 ISH lesion.

24 Because the provincial database only contains
25 one of the four requirements for diagnosis,
26 further diagnostic evidence must be considered
27 before plasmacytoid leukemia can be diagnosed.
28 Accordingly, tracking the ISH lesion is not an
29 accurate measure of whether or not any particular
30 fish has plasmacytoid leukemia.

31 The Province also submits that the ISH lesion
32 is also associated with bacterial kidney disease
33 and *Rickettsia*, which are common diseases found in
34 wild Pacific salmon.

35 Counsel for the Province in the last ten
36 minutes of time asked Dr. Marty to do a sort on
37 his spreadsheet on Atlantic salmon to show
38 bacterial kidney disease prevalence with the ISH
39 lesion. On page 20 of the Aquaculture Coalition's
40 submissions, they indicated that the sorting on
41 Pacifics creates an obvious and dramatic
42 difference, and that there's no other reason for
43 why ISH is severe in combination, other than the
44 relative difference in susceptibility.

45 The reason why the sort wasn't done during
46 evidence is simple. Cross-examination was very
47 limited and I was not permitted to ask the

1 question as time had run out. Regardless, one
2 answer regarding why interstitial cell hyperplasia
3 of the caudal kidney is often more severe in
4 chinook salmon, is that they are more susceptible
5 to BKD.

6 Additionally, in Appendix B of the
7 Aquaculture Coalition's submission, the ISH lesion
8 is rarely the most significant lesion noted on the
9 files, and likely therefore was not the cause of
10 death. As a result, this line of submissions is
11 without merit.

12 I'll now move on to Dr. Miller's work.

13 Dr. Miller has identified a novel genomic
14 signature associated with mortality in certain
15 conditions. This is preliminary work, and it's
16 important work. The genomic signature, however,
17 has been identified in smolts, so it's likely not
18 caused by the salmon farms along the outmigration
19 routes, as the smolts are infected before they
20 actually pass through any of the salmon farms.

21 The Aquaculture Coalition has also argued
22 that there are four additional exotic viruses
23 apparent in Dr. Marty's records. Their argument
24 says that Dr. Marty reported the lesions
25 associated with salmon alphavirus, heart and
26 skeletal muscle inflammation, cardiomyopathy and a
27 Chilean coho farm virus.

28 As with all of the other diseases mentioned
29 in my submission, the Aquaculture Coalition failed
30 to distinguish between symptoms and disease. The
31 Province again says this is the wrong approach to
32 take, and is contrary to the evidence at the
33 hearing by the fish health experts.

34 Dr. Kent testified on one of the salmon
35 alphaviruses called pancreas disease and noted
36 that it's never been confirmed in British
37 Columbia.

38 Dr. Marty testified on page 57 of the August
39 31st transcript and said that infectious
40 pancreatic necrosis virus has not been diagnosed,
41 and all test results have been negative for that
42 disease. And if we could turn to the transcript.
43 At line 17 it starts:

44
45 Then we have exotic diseases that we don't
46 have in British Columbia. One of them is
47 infectious pancreatic necrosis virus, and all

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Submissions by Mr. Prowse (BCPROV)

1 tests have been negative for that, and
2 they're listed here. The other virus is
3 infectious salmon anaemia virus. It has had
4 the most interest in these proceedings. And
5 again, all these tests are negative for that.
6

7 Now, with respect to heart and skeletal
8 muscle inflammation, cardiomyopathy syndrome and
9 the Chilean coho farm virus, there's no evidence
10 regarding diagnosis of these diseases.

11 So in conclusion on the issues of aquaculture
12 and disease, the Province submits the role that
13 salmon aquaculture's practice in British Columbia,
14 with the addition of the regulatory regime that
15 was implemented by the Province, and now is
16 implemented by the federal government, it creates
17 a low overall risk to the environment and the
18 disease incident data from the audits, as well as
19 the Salmon Farmers Association database, shows
20 that it's unlikely that aquaculture caused the
21 long-term decline of productivity in Fraser River
22 sockeye salmon, or the poor run in 2009.

23 At this point I will turn over to Mr. Prowse.

24 THE COMMISSIONER: Thank you, Ms. Callan.

25 MR. PROWSE: Yes, Mr. Commissioner, Clif Prowse, for
26 the record.
27

28 SUBMISSIONS FOR THE PROVINCE OF BRITISH COLUMBIA BY MR.
29 PROWSE:
30

31 MR. PROWSE: In my submissions, I am going to continue
32 on, then. I will be going to deal with an
33 overview of the issues from the Province's point
34 of view, a brief discussion of the other science
35 issues, apart from the disease and aquaculture
36 issues that my colleague, Ms. Callan, just used,
37 and then I will turn to a brief summary of some
38 points from the area where provincial witnesses
39 were called. And finally I am going to make some
40 concluding remarks, including some analysis of the
41 fish management tool, which was put into evidence
42 very close to the end of the hearings, as a result
43 of some remarks made by Hwang during the hydro and
44 water hearings, when he referred to this tool as
45 being something that had helped fish.

46 So, Mr. Commissioner, Mr. Tyzuk has
47 highlighted the Province's recommendations on the

1 need for an inclusive approach to DFO consultation
2 and management, reflecting the fact that fisheries
3 continue to play an important socioeconomic role
4 affecting all persons in the Province. He's also
5 referred to case law, which amongst other things
6 stresses the need for effective decision making.

7 The reliance on good science in making
8 fisheries management decisions and other
9 environmental decisions has occupied much
10 testimony. The scientists have come from DFO,
11 other governmental agencies, NGOs, consultants and
12 private entities working in the environment and
13 academia. This is related, in our submission, to
14 the importance of what I would broadly call
15 professional reliance, including professional
16 reliance on third parties and their professional
17 consultants.

18 Ms. Callan, during the hearing and in her
19 submissions, has dealt with the details of disease
20 and fish health management in the aquaculture
21 context. She has referred to the evidence that
22 Dr. Kent and Dr. Korman, for example, relied on
23 the disease specialists in their reports.

24 Aquaculture has grown into a significant
25 socioeconomic industry in its own right, but it's
26 one that must be sustainable. To use David
27 Bevan's term, it must demonstrate that it has
28 earned a social licence to active participation in
29 monitoring for risks of disease and damage to wild
30 salmon and the environment.

31 My submission will continue to demonstrate
32 that the evidence likewise shows that it's not
33 likely that any of the provincial topics
34 contributed to either the 20-year decline on a
35 population basis, or the 2009 collapse of the
36 Fraser River sockeye fishery.

37 It will also demonstrate the importance of
38 professionals in preventing damage to the
39 environment, a topic dealt with by provincial
40 witnesses in the forestry hearing, and also the
41 **Riparian Areas Regulation** hearing.

42 I will be highlighting in many areas the
43 Province's submissions, as well.

44 Mr. Commissioner, in one of the participant's
45 submissions, some -- in effect a straw man was set
46 up saying that in the Province's submissions that
47 we are claiming that the Fraser Basin is pristine,

1 and of course the Fraser Basin covers
2 approximately 40 percent of the Province of
3 British Columbia. And so it houses a lot of the
4 socioeconomic activity in the Province, and the
5 place where we're speaking as we speak. So I
6 don't think one could fairly call the City of
7 Vancouver a pristine environment, and we don't do
8 that.

9 I think that somehow to say what the Province
10 does do, and so I'm going to utilize here some
11 language which I'll just read to you, if I may.

12 The provincial government uses ecosystem and
13 watershed approaches to manage the land and water
14 base for the sustainability of all natural
15 resource components. So this goes broader than
16 salmon, and includes salmon, and to some extent
17 one of the themes I think emerging from DFO side
18 for some time, has been that when you're looking
19 at salmon, you also have to go broader to an
20 ecosystem-based approach. So the Province does
21 not take a salmon-centric approach, and of course
22 this Inquiry by its mandate is directed to take
23 that approach.

24 So the Province focuses on the sustainability
25 of all natural resource components, including
26 salmon, and our strategies, policy and legislation
27 are focused on the whole environment, not just a
28 single species. In the long term these broad
29 approaches are hoped to prove effective mechanisms
30 for protecting and sustaining salmon, and to
31 service the basis for interaction of federal
32 policy and program frameworks.

33 The provincial focus has principally been on
34 freshwater fish and freshwater habitat, and salmon
35 considerations were and are taken into account as
36 an important component of the freshwater
37 ecosystem.

38 The people of the Province clearly have a
39 vested interest in the wild salmon as an economic
40 and socioeconomic basis, and that includes clearly
41 the First Nations with the interests that have
42 been referred to throughout, and that Mr. Tyzuk
43 acknowledged, as well as the other people of the
44 Province, including the various participants that
45 are before you.

46 B.C. has never had a direct role in managing
47 salmon per se, where management incurs

1 responsibility for establishing production goals
2 and allocations.

3 No single piece of legislation has been
4 developed to protect salmon as such, but there are
5 different provisions to protect fish and their
6 habitats, and these exist in a number of
7 provincial resource management statutes, including
8 the **Water Act**, the **Forest and Range Practices Act**,
9 the **Fish Protection Act**, and the **Environmental**
10 **Management Act**, formerly the **Waste Management Act**.

11 Federal Departments, particularly DFO, have
12 been actively engaged in the development and
13 review of this legislation, and associated
14 regulations to ensure consistency in the intent
15 and equivalency of provincial measures with the
16 provisions of the **Fisheries Act** and other federal
17 legislation.

18 So that's the framework that brings the
19 Province to this hearing, and also the perspective
20 that the Province takes with respect to its
21 legislation. And of course there was evidence
22 from Lynn Kriwoken and DFO witnesses about the
23 current Water Act Modernization initiative, where
24 DFO has certainly taken an advocacy role and has
25 interacted with the Province and others in the
26 broad-based consultation process that Ms. Kriwoken
27 discussed in evidence before you.

28 To continue the overview of the Province's
29 evidence, Mr. Lunn, I would ask you to turn to
30 paragraphs 30 to 42 of the Province's final
31 submissions of October the 17th.

32 So I'm going to read paragraph 30 slowly, and
33 say, Mr. Commissioner, that this is taken from the
34 provincial response to the PPR, I think it's PPR3,
35 which dealt with the legislative framework, and
36 basically takes the role that I've just read to
37 you and puts into the constitutional framework.

38 So the environment is a diffuse subject that
39 cuts across many different areas of constitutional
40 responsibility, some federal, some provincial. It
41 is a constitutionally abstruse matter, which
42 involves considerable overlap and uncertainty.
43 And I guess one can pause to note that the **Morton**
44 decision was one that dealt with one of the
45 overlaps and uncertainties. The principles of
46 federalism and cooperative federalism include
47 recognition that there is an inevitable overlap in

1 rules made, and the task of maintaining the
2 balance in practice falls primarily to
3 governments. So there is the task of the
4 governments is to minimize the extent to which
5 federal and provincial regulations are saying
6 different people to do, on the same topic, and
7 that's where difficulties will ensue.

8 So the evidence that you've heard, I
9 summarize in paragraphs 31 and 32, and reflects
10 the number of broad areas where the Province is
11 involved in regulating on the land and water base,
12 in ways that result in impacts on water, and
13 obviously if we get into impacts on water, then it
14 raises issues with respect to impacts on fish.

15 The provincial witnesses came from different
16 ministries, and one of the things that happened
17 during the inquiry is that several of the
18 different ministries were tied into a new
19 ministry, the -- I referred to as FLNRO and
20 mercifully we have never really explored what
21 exactly FLNRO is. But we've had witnesses from
22 that ministry and other ministries before you.

23 So the witnesses include a riparian areas
24 coordinator, and her work has involved both the
25 federal and local governments and professional
26 associations, as well as the public and their
27 professionals. Two biologists with expertise on
28 effluent monitoring, a water regulator working on
29 a joint committee dealing with sediment removal
30 applications, where a provincial agency charged
31 with public safety is the proponent. So in that
32 case, and Emergency Management BC, so a different
33 Ministry from the witness who was from FLNRO. A
34 forestry scientist with broad experience including
35 the important long-running Carnation Creek
36 project, a professional forester with an extensive
37 history of work on forest planning and
38 professional responsibility, a long time water
39 manager who is a professional engineer, and the
40 director of the Environmental Sustainability and
41 Strategic Policy Division for the Ministry of
42 Environment who has led public consultation on the
43 Water Act Modernization process.

44 And Mr. Tyzuk has referred to the evidence of
45 Wayne Saito, who is somebody who gave testimony on
46 the Integrated Planning Processes and has a huge
47 history in fish management, and Ms. Callan has

1 also told you about the provincial witnesses, Dr.
2 Marty and Dr. Sheppard, who has in fact
3 transferred from the provincial government to the
4 federal government, following the **Morton** decision.

5 Mr. Commissioner, none of the provincial
6 topics, individually or collectively, is
7 responsible for the 20-year decline of Fraser
8 River sockeye salmon or the collapse in 2009.

9 And accordingly, the Province generally does
10 not make extensive discussions or submissions on
11 the evidence, nor does it make recommendations,
12 either with respect to matters of provincial
13 jurisdiction, which we submit that on the facts
14 before you are really outside of the Commission's
15 mandate in terms of recommendations, nor, in the
16 circumstances, of matters within federal
17 jurisdiction, particularly matters of DFO budgets,
18 policies and practices. And in particular we
19 recognize that you and the other participants
20 making recommendations to you are faced with the
21 unenviable task of trying to sift through the huge
22 amount of science evidence and the huge number of
23 recommendations before you about expenditures on
24 science and research, but we consider that it's
25 appropriate for us not to participate in that
26 discussion, given the role of the Province in this
27 Commission, and its role as a different
28 government.

29 Mr. Commissioner, at paragraphs 37 to 41,
30 again in terms of overview, we attempt to develop
31 some themes, or reflections.

32 The first one is that the Commission hearings
33 reflect a snapshot in time. As we've heard in
34 your ruling this morning, obviously one additional
35 matter will have that snapshot taken at a slightly
36 different period, but all of these matters are and
37 should be ongoing. So we're dealing with a
38 snapshot in time, there's work to be done in all
39 areas, and the work needs to be ongoing, and
40 that's part of an adaptive management framework,
41 is in fact to continue to work to reflect back.
42 And that's part of what the Province does within
43 the matters of provincial jurisdiction.

44 The second thing that I think emerges from
45 the evidence is that the 1990s were a time of
46 active engagement and improvement in environmental
47 matters generally, and there were key critical

1 results in such areas as pulp mill effluents and
2 forest practices. And the evidence before you
3 establishes that those improvements in fact were
4 improvements, and did improve the environment and
5 did improve the sockeye salmon habitat with
6 respect to those things.

7 The third thing that's evident from the
8 evidence is that the 21st Century has seen moves
9 by all governments, but I suppose particularly the
10 federal and provincial governments, towards a more
11 streamlined results based approach to regulation.
12 And I then say that this seems unlikely to change
13 any time soon, and that probably is something that
14 the Commissioner will have to consider with
15 respect to the ongoing work of the work of the
16 recommendations of the Commission with respect to
17 the future, and the Commissioner and the
18 participants will have to grapple with the
19 practicalities of what is likely to be
20 implemented.

21 It may be helpful for the Commission to
22 reflect on the framework that Mr. Taylor for
23 Canada mentioned on Friday, which was that on the
24 one hand work needs to be done and is being done
25 and will be done on an incremental basis on the
26 one hand, but Mr. Taylor on the other hand said
27 that we also should be looking at the big picture
28 or the long view, and it may be that
29 recommendations that take those two different
30 approaches may bear fruit, if not immediately,
31 then in the longer term.

32 The fourth thing I submit that follows, is a
33 theme from the different areas, is that inter-
34 governmental cooperation may not always work
35 smoothly, and governments may not always see eye
36 to eye, but in fact on the hearing panels that we
37 had, my submission is that the federal and
38 provincial witnesses on these topics generated
39 good models of respectful cooperation. So I think
40 you saw that in the evidence before you.

41 And the last theme that I refer to is that in
42 terms of the topics and the hearings, we tend as
43 lawyers to focus on problem-solving, and address
44 ourselves to problems, and to look at that sort of
45 historic negative analysis, and look back, but you
46 are tasked with looking forward. And in our
47 submission, we hope that it will be helpful for

1 you to look at some of the success stories. And
2 so I refer in paragraph 41 to the enthusiasm about
3 -- Paul Higgins, about a particular dealing with,
4 I think, a client of Ms. Gaertner, anyway, it made
5 a marked impression on me, the enthusiasm that he
6 talked about those dealings and that it was in
7 effect transformative for him. I'll refer here to
8 the SLIPP project, which I'll briefly reference
9 later, and I refer to the fish water management
10 tool, where there's ongoing work being done, and
11 dividends are being paid where there's cooperation
12 by First Nations and different levels of
13 government, and industry. And so all, really, all
14 of the participants do have, in our submission, a
15 role in the future sustainability of Fraser River
16 sockeye salmon.

17 Mr. Commissioner, I then want to turn briefly
18 to focus on climate change, and I think my
19 submissions on this topic and the interweaving
20 topic really of marine effects can be brief,
21 because there is a significant amount of
22 consensus, I think, that these are important
23 factors. Some of the submissions point out that
24 there are implications that need to be considered
25 with respect to future sustainability, but I'm
26 dealing with these primarily as a matter of the
27 causal questions that you've imposed, and it seems
28 to me that there is a consensus that climate
29 change is an important part of that.

30 So move, Mr. Commissioner, the subject was
31 well summarized in the testimony led by Commission
32 counsel in direct, on March 8th, and I won't take
33 you to the references, but basically at pages 6
34 and 7, Dr. Hinch summarized the background
35 information on climate change and our perspective
36 on it, including of the importance of variability
37 as an aspect of climate change, evidence about a
38 general increase in air and water temperatures and
39 marine oscillations.

40 At lines 13 to 15 he notes that 13 of the
41 past 20 years were record temperatures as part of
42 the historical consensus about climate change, and
43 at lines 20 to 26 he concludes that all the
44 literature and modelling predicts these trends
45 will continue, and I think in the broader public
46 and the broader discussion, there's ongoing
47 questions about it, but that was his evidence and

1 I don't think it was challenged in these hearings.

2 At pages 10 and 11 on March the 8th, he
3 explains the sensitivity of sockeye salmon to
4 temperature, the master biological factor for
5 fish, and the First Nations Coalition has pointed
6 you to those same words in their submission.

7 And the subject was also well summarized in
8 cross-examination by Mr. Blair, particularly at
9 pages 11 and 12 of the transcript on March 9.

10 Mr. Commissioner, the Province's submission
11 on the Healy article, Exhibit 1320, are found at
12 pages 55 to 58 of the Province's report, and this
13 morning I will simply say to you that, and submit
14 that, the report does an excellent job of relating
15 climate change issues to sockeye in particular,
16 and independently arrives at very similar
17 conclusions to Exhibit 553.

18 The outlook for sockeye is challenging. On
19 the other hand, we know from the record returns in
20 2010 and the returns that in 2011, which are
21 better, I think, even possibly than the record as
22 it stood in the exhibits showing the new graph, or
23 including 2011, that there are grounds for hope in
24 that sockeye obviously is an animal that has a
25 resilience. And so there is much to be done, but
26 we submit that the evidence shows that the climate
27 change is very important with respect to sockeye
28 salmon.

29 And secondly, the evidence from -- that's
30 been summarized in the -- by Mr. Marmorek in his
31 report, when taken with the evidence summarized by
32 Ms. Callan, leads to the conclusion that the cause
33 of the decline are not aquaculture and disease,
34 regulated by the Province in conjunction with
35 DFO's regulatory powers under the **Fisheries Act** up
36 to December 2010, and are not the freshwater
37 ecology issues. Rather the evidence points to
38 global features, including marine ecology and
39 climate change.

40 So, Mr. Commissioner, I now turn to the
41 individual topics of provincial jurisdiction, and
42 these are dealt with in the concise summary at
43 paragraphs 43 to 70.

44 The Province's recommendations about an
45 inclusive approach emanate from the recognition of
46 the benefits of a sustainable fishery that
47 benefits all residents and starts with

1 conservation of the resource. The Commission has
2 called evidence on a wide variety of topics,
3 including a wide variety of provincial topics.
4 The Province regulates activities on the land, but
5 deals with DFO on many different areas.
6 Protecting stream health and aquatic environment
7 is a key policy direction for the Province, which
8 recognizes that water must be considered in land
9 use directions.

10 In the modern era, the Province relies on
11 results based regulation, and relies on
12 professionals, including third-party professionals
13 to achieve these ends.

14 The Province obviously has an interest with
15 the people of the Province in the socioeconomic
16 benefits and it's recognized that sustainability
17 is important to that.

18 So I'm going to make a few points about two
19 areas, logging on the one hand, and water on the
20 other. But before I do that, Mr. Commissioner, I
21 don't know whether you wish to take the break now.

22 THE COMMISSIONER: Thank you very much.

23 THE REGISTRAR: The hearing will recess for 15 minutes.

24
25 (PROCEEDINGS ADJOURNED FOR MORNING RECESS)

26 (PROCEEDINGS RECONVENED)

27
28 THE REGISTRAR: Order. The hearing is now resumed.

29
30 SUBMISSIONS FOR THE PROVINCE OF BRITISH COLUMBIA BY MR.
31 PROWSE, continuing:

32
33 MR. PROWSE: Yes, Mr. Commissioner.

34 THE COMMISSIONER: Mr. Prowse?

35 MR. PROWSE: So I'm going to highlight a few points now
36 from the provincial evidence, and the details of
37 that are in the original provincial submissions
38 for the most part.

39 The first point, then, Mr. Commissioner, is
40 that the Commission selected the riparian area
41 regulation as a topic within the overarching theme
42 of freshwater urbanization effects. So you heard
43 evidence from a panel that included Stacey
44 Wilkerson, the riparian area regulation
45 coordinator for the Province in 2007. The panel,
46 as a group, including the two federal DFO
47 witnesses agreed that professional reliance can

1 work, this being in a context of a discretion
2 about professional reliance difficulties with --
3 that had been encountered and that have been
4 voiced. So there have been ongoing discussions
5 there, but the panel all agreed that professional
6 reliance can work.

7 A second point that arose at that hearing,
8 which I'm not going to go into any detail on, but
9 after the hearing, actually, the **Yanke** case was
10 decided by our Court of Appeal and that was a case
11 where, amongst other things, the Court of Appeal,
12 I guess, on the one hand, it interpreted the
13 provincial regulation. The Department of
14 Fisheries was not a party to the case, and the
15 Department of Justice was not counsel on the case.
16 Nonetheless, the court does get into how the
17 riparian area regulation works as a regulation
18 within the provincial framework and raises some
19 difficulties where, in effect, parts of the
20 framework were not imported into law.

21 It also made comments, again, without the
22 benefits of submissions from the Federal
23 Government, about the reactive nature of the
24 **Fisheries Act**. And so the point I draw from that
25 **Yanke** case that may be of interest in the future
26 sustainability section of the court is that
27 amendments to the **Fisheries Act** may be important
28 with respect to the riparian area, and some of the
29 changes to the **Fisheries Act** will benefit both
30 provincial and federal regulators because the
31 provincial regulators looking at riparian area,
32 looking to enforcement questions are driven to the
33 **Fisheries Act** and, again, that's an area of
34 overlap and cooperation and challenges. So the
35 fact that the Province took that to the Court of
36 Appeal shows that the Province takes this area and
37 tries to make it work as best it can, and it shows
38 the lengths that the Province will go to utilize
39 the riparian area regulation, as well as the
40 difficulties of doing so and we suggest that
41 amendments to the **Fisheries Act**, when you look at
42 that, implications that amendments to the
43 **Fisheries Act** may well be an important thing to
44 do.

45 The panel on pulp and paper and mining
46 effluents demonstrated cooperative federalism
47 inaction with overlapping federal and provincial

1 regulations.

2 Our fourth point is that there have been
3 major improvement in pulp mill effluents since
4 1992. And with respect to mining, the case is
5 that with one exception, there are no mines in
6 proximity to juvenile sockeye habitat on the
7 Fraser River.

8 Our fifth point deals with Municipal
9 wastewater and the witnesses on that topic were
10 from the Federal Government and Metro Vancouver
11 and so those witnesses stressed that both the
12 approval of the Liquid Waste Management plan and
13 the forthcoming Federal regulations are major
14 milestones. So again, we're looking at a
15 snapshot. Things are taking place. Much is still
16 to be done.

17 Consistent with the Technical Reports, in my
18 submission, the witness from Metro Vancouver said
19 that the impact on sockeye was negligible given
20 the detailed standards and process that it meets,
21 and there was some cross-examination on that.

22 Gravel removal is a topic that we simply
23 submit is not a significant issue for sockeye
24 salmon and we dealt with it in more detail in our
25 submissions, but it's an issue that the process
26 directed towards you, but we submit, in the end,
27 that it's not a significant issue for sockeye
28 salmon.

29 There was no evidence that the existing water
30 licensing scheme has caused long-term decline of
31 Fraser River sockeye productivity, or the collapse
32 in 2009. The Province is undertaking a **Water Act**
33 modernization process, which proposes, among other
34 things, to contain instream flow requirements and
35 to require licensing of groundwater extractions of
36 large volumes and all extractions in priority
37 areas. So that's an ongoing development where
38 it's a provincial legislative process that's being
39 undertaken and there, we submit that as a federal
40 commissioner, it would not be appropriate for you
41 to delve in depth into that process or as such.

42 And with respect to forest and logging, the
43 overview point is that they have not had a major
44 impact on sockeye salmon populations.

45 Turning to logging and forestry, that was the
46 subject of a one-day hearing and in some respects,
47 it's startling that the hearing was one day and

1 that, I think, is something that, on the one hand,
2 I think, reflects the Science point of view
3 through the technical report that logging is not
4 where the industry needs to go. It also posed
5 challenges in advocacy as the participants, and
6 counsel, and Commission counsel focussed very
7 intensely a huge amount of evidence into a one-day
8 hearing.

9 So the first point is that one of the
10 provincial witnesses, Dr. Peter Tschaplinski has
11 done extensive scientific work over the last 20
12 years and beyond and so his evidence was important
13 in putting before you evidence of the reports that
14 he's done showing that on-the-ground work confirms
15 that things are being done better now than they
16 were in 1995.

17 The Science evidence has looked into the
18 problems, and the evidence on the ground is that
19 neither the Mountain Pine Beetle, nor issues with
20 respect to logging in riparian areas has led to
21 that decline. There have been gains made in the
22 1990s and the evidence shows that that has
23 translated into gains on the ground, that is that
24 the regulatory work done in the 1990s has
25 demonstrated gains on the ground up to the current
26 research, and these gains are inconsistent with
27 the question of whether the forestry and logging
28 issues caused the 20-year decline. In fact, the
29 evidence shows there's been a marked improvement
30 in the post-harvest stream levels and fish habitat
31 protection compared with pre-1995 forestry
32 management outcomes.

33 With respect to water and instream flows, we
34 submit that instream flows are important for
35 sockeye and with climate change, temperature is of
36 key importance. We rely on Mr. Bursey's
37 submission on the summer temperature system on the
38 Kemano.

39 Glen Davidson testified there were a variety
40 of tools now used to deal with instream flows and
41 DFO witnesses acknowledged the important advances
42 with the drought response plan in recent years.
43 Although groundwater has not been a problem to
44 date in terms of causal mechanisms or impacts on
45 sockeye, since groundwater can relate to instream
46 flows and temperature, it is a topic of increasing
47 concern, groundwater is monitored now, and

1 addressing groundwater and other concerns is part
2 of the **Water Act** modernization process.

3 With respect to positive developments that
4 are important, we submit, when we look to the
5 future, we refer briefly to the Thompson River
6 partnership monitoring process in Exhibit 1040.
7 Again, there's involvement of Federal Government,
8 local government, provincial government, First
9 Nations and industry, and they coordinated both
10 required and voluntary monitoring.

11 The Okanagan Fish Water Management tool that
12 was referred to as an exam of something we call a
13 fish water management tool that's been very
14 beneficial for fish, as well as for other uses of
15 water, and the reference there is September 16th,
16 2011, page 29 and 30.

17 That tool is a computer model developed
18 specifically to help authorities to manage water
19 flows in the Okanagan River in a fresh fish-
20 friendly manner. The model benefits kokanee, as
21 well as sockeye salmon, since water levels in
22 Okanagan Lake are fine tuned at the same time as
23 the Okanagan river flows. So it's a computer
24 model that balances between needs, uses real-time
25 data, incorporates biophysical models and is
26 developed collaboratively by a working group based
27 on historical data intensive fieldwork.

28 The predictions allow a multi-disciplinary
29 team of decision makers to choose the best option
30 for releasing flows in a manner which will benefit
31 fish while respecting the needs of other water
32 uses. It utilizes the most current data on
33 potential impacts from various water supply
34 release scenarios on a full range of water users,
35 fish, domestic irrigation and recreation. The
36 tools result in a much more balanced approach in
37 managing water, fully recognizes ecosystem values
38 and needs and has resulted in significant gains
39 for both kokanee in the lake, more stable water
40 levels during the kokanee shore spawning period,
41 as well as sockeye and kokanee in the river and
42 the lake, improve spawning incubation and rearing
43 conditions.

44 So Mr. Commissioner, this is a positive
45 example of input and I think I'm out of time, but
46 I'll simply refer you to the Acknowledgements
47 page, Exhibit 1969, which, in itself, is

Submissions by Mr. Prowse (BCPROV)

Submissions by Mr. Buchanan (BCPSAC)

1 inspiring.

2 So Mr. Commissioner, we wish to thank you,
3 our client and the other participants and their
4 counsel for the opportunity to participate in this
5 fascinating inquiry into the iconic sockeye salmon
6 and its cultural, environmental, and social and
7 economic importance to the people and the Province
8 of British Columbia.

9 The Province's recommendations and evidence
10 focus on the importance of an inclusive fishery
11 that involves all of the participants in the
12 fishery and fosters relationships of trust and
13 respect.

14 We have focussed on examples of success
15 integrated processes where professionals and
16 others are collaborating for the greater good of
17 the fish and the people. The Province's witnesses
18 have included dedicated professionals with a wide
19 variety of different backgrounds and experience.
20 Other dedicated professionals have been called by
21 other participants. We live in an area where fish
22 habitat and the environment are necessarily
23 reliant on professionals with integrity and good
24 judgment.

25 And in conclusion, Mr. Commissioner, I'd like
26 to specifically thank the different teams of
27 Commission counsel. Because of the wide variety
28 of topics we've dealt with, we've dealt with quite
29 a few of them, some of whom have played a
30 prominent role in the hearings, and others of whom
31 have more commonly been in the background, but all
32 of them we have found dedicated, very cooperative,
33 and very good to deal with and we appreciate them
34 for that. So those are my submissions, Mr.
35 Commissioner.

36 THE COMMISSIONER: Thank you very much, Mr. Prowse.

37

38 SUBMISSIONS FOR THE B.C. PUBLIC SERVICE ALLIANCE OF
39 CANADA, UNION OF ENVIRONMENT WORKERS B.C. BY MR.
40 BUCHANAN:

41

42 MR. BUCHANAN: Sorry, I'll try again. Good morning,
43 Mr. Commissioner, it's Chris Buchanan on behalf of
44 the Public Service Alliance of Canada, B.C.
45 Region, and the Union of Environmental Workers,
46 B.C. component. We've been allotted 20 minutes,
47 which we intend to use most, if not all of that

1 time. Unfortunately, such a short time does not
2 allow us to go in any detail over our written
3 submissions, both our initial submissions and our
4 reply. Undoubtedly, you will have an opportunity
5 to review those in detail, as you will with the
6 other participants.

7 It will allow us to focus on three primary
8 issues of importance to our clients and that is,
9 first, the financial issues and the budget of the
10 DFO in the Pacific Region, two, the issue of
11 devolution of Federal authority and capacity, by
12 which we mean co-management and those related
13 issues. And three, it will allow us to deal with
14 the Wild Salmon Policy and, in particular, the
15 draft report on the performance of the Federal
16 Government with respect to the WSP.

17 Before going into the first of those three
18 areas, it may be helpful to give just a little bit
19 of background of my client and who it represents,
20 since we haven't been too active a participant.
21 The PSAC represents the majority of workers in the
22 DFO, both nationally and within the Pacific
23 Region. They are the ones that day-in, day-out
24 work on behalf of Canadians to conserve and
25 protect the gift of the Fraser River sockeye
26 salmon. They essentially, include all of the
27 employees, except for the managers and some of the
28 professionals, such as the scientists. They are
29 the individuals who work in the dozens of offices
30 throughout the region. They work in the
31 laboratories and they work in the field. To many
32 Canadians, they are the face of the Department,
33 they are the ones that they call to ask for
34 assistance and seek information.

35 With that in mind, we would ask that you be
36 careful in drafting your report that you do not
37 inadvertently place blame or criticism at the feet
38 of the workers of the Department. Undoubtedly,
39 there will be many people arguing that DFO has
40 fallen short of its obligations and commitments,
41 but we say that that criticism lies at the feet at
42 the top officials who direct policy and are
43 responsible for the implementation of the policy,
44 and not at the individual workers who are
45 following their direction. And in fact, the
46 evidence before you was fairly clear that there
47 are no current problems with respect to individual

1 employees and how they perform their duties.

2 We are seeking, in our standing, a very
3 limited basis, and that was to deal with DFO
4 policies and procedures. The PSAC has made
5 limited recommendations and it has not weighed in
6 on some of the more contentious areas, such as
7 aquaculture. And it's done so intentionally, not
8 because these areas aren't important, and not
9 because the PSAC doesn't have something to
10 contribute to them, it did so expressly so as not
11 to place its members in perceived conflict when
12 they enforce the regulations and deal with the
13 participants who they deal with on a daily basis.
14 We didn't want to have any of the participants
15 feel that the PSAC had a horse in the race and was
16 somehow prejudice to its members on how they were
17 to carry out their duties.

18 We turn now to the first of the three issues,
19 and that is the financial and budgeting issues.
20 Those are found at pages 9 to 21 of our written
21 submissions, and we say that there is an imminent
22 financial crisis that will befall the DFO unless
23 there's a change in government priorities, whether
24 that comes about through this report or through
25 public pressure, and that there is presently a 25-
26 percent reduction in anticipated expenditures and
27 depending on the outcome of the strategic review
28 and operating initiative, that could be as high as
29 33 percent. And as a necessary corollary of that,
30 we say that you cannot take for granted that the
31 existing programs and services that you've heard
32 so much about over the past year and, in fact,
33 over the past two years, will remain in place
34 without some change in priorities.

35 Turning to the budget, and Mr. Lunn has put
36 up my written submissions. Before I go to those,
37 I'd ask that you put up Exhibit 1922 and,
38 specifically, page 17. Now, this is the 2011/2012
39 Planning and Priorities of the DFO.

40 And if you could just focus in on the bottom
41 chart, you'll see that the forecasted spending of
42 the last fiscal year was slightly over \$2 billion,
43 and the forecasted spending over the next several
44 years diminishes to \$1.587 billion by 2013/2014.

45 Now, this is the document that's tabled in
46 Parliament and which forms the basis of the supply
47 and estimates and is the budget unless something

1 is changed, unless there's a political will or
2 political party to increase funds or to reallocate
3 funds away.

4 We're very careful in our written submissions
5 to not suggest that these numbers are cemented in
6 concrete. They can change and they may change,
7 and we hope that they do change, but they can
8 change down as much as they can change up. You
9 heard that shortly after this was tabled, the
10 government tabled the Strategic Review which
11 resulted in a three-percent reduction over the
12 same period of time, resulting in, by 2013, a \$56
13 million reduction to the DFO. And if you can pull
14 up our submission now, at the bottom of the page,
15 I've reproduced Exhibit 1922, as it's stated, and
16 then at the top of the next page, I've taken the
17 document marked for identification PPP, which set
18 out the various reductions per year and have added
19 them into the overall Department numbers. And so
20 you'll see, once you take into account the
21 Strategic Review, that the number goes down to
22 1.530 billion.

23 Now, there's a suggestion from Canada in its
24 written submissions, and you'll see this in pages
25 8 and 9 of its reply submissions, that we have our
26 numbers wrong and that there isn't this at least
27 presently-scheduled significant reduction.

28 Now, with the greatest of respect to my
29 friend, we've reviewed the numbers and the
30 evidence and, unfortunately, the Government of
31 Canada is wrong, that these are the projected
32 numbers that currently exist.

33 Ms. Dansereau, when I put to her the 25-
34 percent reduction, indicated some desire and hope
35 that the Government would reallocate funds from
36 sunset programs in other departments to the
37 DFO. And so I asked her the following question,
38 which is, "Has Treasury Board assured you that you
39 would get more money," and the transcripts will
40 show, it's September 26th, page 30, lines 11 to
41 17, that her answer was no, the Government hasn't
42 provided such assurances. So while we're all
43 hopeful that the numbers may go up, we cannot rely
44 on that.

45 We now also know about the strategic and
46 operating review initiative, and I put to Ms.
47 Dansereau, and you'll see this in the transcript

1 at page 29, lines 14 to 17, whether the strategic
2 and operating review numbers would be based upon
3 what's in the Planning and Priorities document and
4 she said that they would be. And that, of course,
5 is the review by which the Department had prepared
6 by just based on a five percent and a 10-percent
7 reduction.

8 And so we've put in, and this is at page 10,
9 a chart that reflects, if you keep going down, Mr.
10 Lunn, a 10-percent reduction that may result from
11 the strategic and operating review. And we see
12 that there can be no assurances that the present
13 \$2 billion or \$1.8 billion will continue in the
14 foreseeable future.

15 We submit that this budget review process is
16 not an idle process. The Government doesn't do
17 these types of activities without some
18 anticipation that they may act on some of the
19 initiatives. And in fact, when the Government
20 hives off a large portion of its budget from
21 reduction, such as it has here with health and
22 education, it means there's a disproportionate
23 amount of reductions that have to come from other
24 departments like the DFO.

25 So this is a troubling picture and cause for
26 some concern, but we are optimistic that your
27 report can influence in the future. I feel a bit
28 like the third ghost in "A Christmas Carol." I'm
29 showing you the future as it will be unless
30 there's a different decision made. And that is
31 the role that we would urge upon this Commission,
32 to recommend stable funding for the DFO, to
33 recommend that there be no decrease in existing
34 Federal capacity and resources, and, in fact, to
35 recommend some specific additions to specific
36 areas as we've set out in our submission.

37 And this is a particularly beneficial time
38 because unlike the prior commissions who have had
39 to dissect the harmful impact of budgetary
40 reductions, this Commission has an opportunity to
41 stop and, in fact, influence the change.

42 So the other element of the finances that
43 I'll deal with just briefly is we've made a
44 recommendation that the budget reductions dealing
45 with Environment Canada not touch upon the DFO
46 and, specifically, Pacific Region.

47 The Government of Canada, in its written

1 submissions, says that the basis of our
2 recommendations is without evidentiary foundation
3 and to that, we say simply this, is when we put
4 the question of the 11-percent reduction of
5 positions in Environment Canada, the Government of
6 Canada did not object to a lack of evidentiary
7 basis for our question. We're now prejudiced by
8 the late objection, but you don't need to decide
9 whether the reduction is 11 percent, five percent,
10 all we are asking, and you'll find this in our
11 recommendations, is that any reductions by
12 Environment Canada not touch upon the federal
13 capacity with respect to the Pacific Region.

14 We turn to the second issue, and that's of
15 co-management, and this is an area of significant
16 disagreement among the participants over the issue
17 of devolution of Federal authority. The present
18 model has the Federal government undertaking
19 considerable consultation and collaboration with
20 First Nations and other groups.

21 Some parties before you suggest that the
22 funds used for such consultations are wasteful,
23 and we don't share that view, but more
24 importantly, some participants before you are
25 taking the position that the present model doesn't
26 adequately account for their right to be involved
27 in decision making.

28 What we say to this, Mr. Commissioner, is
29 that the extent of aboriginal rights is of great
30 debate among the participants, as is whether or
31 not you ought to entertain that debate. The PSAC
32 takes no position on either of those points, but
33 what we do say is that the participants who have
34 advocated for co-management have not put forward
35 an actual model and explain how that model would
36 work in theory and in practice before suggesting
37 such a dramatic paradigm shift. And the First
38 Nations Coalition expressly refers to what they're
39 advocating as a paradigm shift.

40 One would have thought that somebody would
41 have explained what the body would be, who would
42 be on that body, what the decision-making process
43 would be, what the dispute mechanism for resolving
44 disputes would be, and how the body could make
45 timely decisions as fish habitat and fish
46 management decisions must be made, for example,
47 in-season decisions that need to be made in a

1 matter of hours. And none of them say how the
2 model would fulfil Canada's obligations to
3 international treaties, as well as its provincial
4 obligations.

5 We further say that it does not make sense
6 that one should experiment with new paradigm
7 shifts with the Fraser River sockeye salmon, that
8 that is too important of a resource and too
9 complex, and too delicate to allow for kind of a
10 laboratory experiment to see whether the new model
11 would be better.

12 Finally, there's a suggestion that there
13 needs to be a new model in order for better buy-
14 in. And what we say in our written closings on
15 this point is that the problem doesn't seem to be
16 that the present model doesn't account for
17 appropriate buy-in. The difficulty is is that
18 some of the participants believe they have better
19 rights than the present model presently provides,
20 that they believe they have the rights to co-
21 manage or jointly decide and it's then not
22 surprising that the present model is
23 unsatisfactory and may lead to some concern about
24 whether or not it's an appropriate model. But
25 once you step back, once everybody has a common
26 understanding of the rights and responsibilities
27 of the various parties, that we say the present
28 model should provide for adequate buy-in for all.

29 And finally, on the co-management, we say
30 that none of the proposals demonstrates that the
31 new systems are as effective, efficient, reliable
32 and trustworthy as the system as it presently is.
33 I guess I'm reminded of the phrase that, you know,
34 "Democracy is the worst form of government, except
35 for all the others." It may be that the present
36 system is the worst form, except for all the
37 others. We are, of course, hopeful that your
38 recommendations will help improve the present
39 model.

40 The third are is the Wild Salmon Policy and
41 we submit in our written closings that there was
42 not a sufficient political will and resources
43 developed to the implementation of the Wild Salmon
44 Policy. The believe that such a transformative
45 policy could be implemented without increasing
46 resources and without designating a specific
47 person ensuring for the implementation essentially

1 made it so that the policy could not be
2 accomplished.

3 And we expressly adopt the findings,
4 recognizing that they're still in draft form, of
5 Exhibit 1992, which was entered in on Friday. And
6 we particularly adopt the main findings, at (i) to
7 (ii), in which they indicate that the progress has
8 been slow, the region lacks resources and there's
9 a lack of plan that led to a compromised progress.

10 And we specifically adopt the recommendations
11 found at (iii) to (iv), in particular,
12 recommendations (i), (ii), (iii), and (iv). And
13 recommendations (i) is you'll see, Mr.
14 Commissioner, is that the WSP needs a firm
15 commitment and funding. Recommendation number
16 (ii) is that they need to identify priorities,
17 action steps and target resources strategically.
18 Number (iii), that there needs to be a formal
19 implementation plan. And number (iv), that they
20 make a senior manager accountable for the
21 implementation.

22 Simply put, the evidence has demonstrated
23 that the RDG has too much on her plate to
24 specifically ensure the implementation of the WSP.

25 With the minute or two I have left, Mr.
26 Commissioner, we go back again to the finances and
27 say we adopt the submissions of Mr. Rosenbloom and
28 Ms. Pacey, that most of the problems identified in
29 these proceedings with respect to the DFO are
30 attributable to one source, and that's the lack of
31 funding. And we recognize that money alone cannot
32 solve the problem, but we know that this problem
33 cannot be solved without more money.

34 One point of clarification, if I can just
35 take you to page 4 of our recommendations? And
36 clearly, late at night, grammar was not my strong
37 suit and I simply want to correct for the record
38 what that recommendation is.

39 Given the incredible demand on the department
40 and its employees, no additional responsibilities
41 or duties ought to be imposed without a
42 correlating increase in the department's
43 resources. So just again, given the incredible
44 demand on the department and its employees, no
45 additional responsibilities or duties ought to be
46 imposed without a correlating increase in the
47 department's resources.

Submissions by Mr. Buchanan (BCPSAC)

Submissions by Mr. Bursey (RTAI)

1 So to conclude, Mr. Commissioner, I'd like to
2 thank you for your time and your attention and
3 your due consideration for our submissions. I'd
4 like the thank the Commission staff, both lawyers
5 and particularly non-lawyers who have worked very
6 hard and have been very punctual in getting back
7 to the parties, and they've been of great
8 assistance to us all. Thank you.

9 THE COMMISSIONER: Thank you very much, Mr. Buchanan.

10
11 SUBMISSIONS FOR RIO TINTO ALCAN INC. BY MR. BURSEY:

12
13 MR. BURSEY: Thank you, Mr. Commissioner, my name is
14 David Bursey, I'm counsel for Rio Tinto Alcan.
15 I'll be brief, which is probably wise, given that
16 I'm probably the last person standing before the
17 people in the room and lunch.

18 So Rio Tinto Alcan filed a written submission
19 on October 17th, and we rely on that submission.
20 I only have a couple of brief comments this
21 morning which arise out of the reply submissions.

22 Rio Tinto Alcan did not file a reply
23 submission because there was nothing in the main
24 submissions to reply to, but in the reply
25 submissions, Canada filed some comments on what we
26 had filed in our main submissions, and there's a
27 couple points of clarification that they wish to
28 make, and this is on page 11 of their reply
29 submission.

30 Rather than get into the details, I'll just
31 say that we've gone back and looked at the
32 transcript references that we referred to and
33 we're both referring to the same transcript
34 references from the testimony of Dr. Macdonald on
35 September 15th. We think what we said in our
36 original submission on October 17th is fair and
37 accurate and we ask that the Commission just
38 review those transcript references which we have
39 provided and we think you'll come to the same
40 conclusion. And that's all we have to say, rather
41 than get into the details, because they are rather
42 small points.

43 We'd also like to thank the Commission staff
44 for their assistance throughout this process.
45 There was an awful lot of work behind the scenes
46 that have made this process much more efficient
47 than it would have been otherwise. And also,

1 thank you for your time.

2 THE COMMISSIONER: Thank you very much, Mr. Bursey.
3 Mr. Blair?

4
5 SUBMISSIONS FOR B.C. SALMON FARMERS ASSOCIATION BY
6 MR. BLAIR:

7
8 MR. BLAIR: Mr. Commissioner, for the record, Alan
9 Blair, appearing with my co-counsel, Shane
10 Hopkins-Utter for the B.C. Salmon Farmers
11 Association. I will echo the remarks that you've
12 heard from some of the previous counsel with
13 respect to the courtesies that we've all been
14 extended from Commission staff, the lawyers and
15 the staff who have helped managed the vast
16 resources that have been required, including the
17 hundreds of thousands of pages of documents, much
18 of it technical in nature. So we certainly echo
19 those remarks of appreciation.

20 My client appears before this Commission in a
21 somewhat unique position. Mr. Prowse for the
22 Province was remarking how one day was adequate
23 for logging, and I heard the hesitation in his
24 voice and heard the remarks about an endeavour in
25 British Columbia which has been going on for so
26 long as logging has been with its obvious impact
27 on water ecosystems up and down the coast received
28 today. That's not a criticism, but that's just to
29 remark that the scope of this inquiry is indeed
30 very, very large.

31 Somewhat more topical, apparently, are the
32 activities of my client and that certainly,
33 they've received and continue to receive attention
34 both within the Commission and outside the
35 Commission.

36 I do want to, at the outset, just remark
37 about what an opportunity all British Columbians
38 and, indeed, Canadians have to be able to
39 participate in such a forum as this commission of
40 inquiry on as contentious an industry as the
41 aquaculture industry has become and, in
42 particular, and this has been evident to my client
43 from the beginning of this process, the industry
44 groups have a difficult time winning the wars in
45 the blogs, and web pages, and newspaper columns
46 where fact and fiction merge seamlessly.
47 Courtrooms and inquiries, where witnesses are

1 required to take the stand and affirm or swear to
2 tell the truth provide an entirely different
3 quality of evidence and my client has had the
4 great benefit, indeed, British Columbians have had
5 the great benefit of taking some of the mystery
6 around this industry and pushing it back into the
7 shadows. And we thank the Commission for
8 providing that opportunity.

9 We are at the end of a very long inquiry, and
10 aquaculture's been a thread which has woven its
11 way through much of it, including its own special
12 section. And we believe, and you'll hear from our
13 submissions, both oral and written, that we think
14 the evidence really establishes quite clearly that
15 aquaculture plays a very low, if any, impact on
16 the terms of reference, question, central question
17 regarding whether or not it contributed to the
18 decline of the Fraser River sockeye salmon.

19 I owe a great debt of gratitude to my
20 associate who I've mentioned, Mr. Shane Hopkins-
21 Utter, who was fundamentally instructive in
22 helping produce the submissions that we've
23 prepared with the assistance of some technical
24 people that we had in the background. And as I
25 believe counsel for Rio Tinto Alcan just said, we
26 rely on our submissions, although I will go into
27 them in somewhat greater detail given that more
28 central responsibility that this industry has
29 before this Commission.

30 I don't require Mr. Lunn to put up on the
31 screen, although I'm certainly happy to do so if
32 the Commissioner wishes to see it, the particular
33 passage that I'm referring to, but I don't need to
34 have him go onto the screen and that's because I
35 intend to proceed with some speed through the 150
36 pages of written final submissions and a lengthy,
37 almost 80-page, written argument in reply. But I
38 will just outline, again, what we intend to cover
39 today orally.

40 We will spend a very brief period of time
41 talking about the factors which we think are most
42 likely to have caused the decline, overall
43 declines and, in particular, the event of 2009.
44 And again, I think it's fair to say that most of
45 the parties here do recognize that the factors
46 that we've listed in our written argument,
47 including climate change in the marine

1 environment, food abundance, harmful algal blooms
2 and predation certainly rank right up there
3 amongst the evidence that the Commission had heard
4 with respect to factors which are most likely to
5 have contributed to the overall decline. And
6 you'll recall the evidence when Dr. Beamish and
7 others were on the stand, they were talking about
8 the double whammy or the triple whammy, and it
9 seems fairly central that the effects in the
10 marine environment in 2007 for the out-migrating
11 salmon which returned in such low numbers in 2009
12 really presented a very unique and challenging set
13 of circumstances for the young coho, or rather
14 sockeye, and perhaps coho, sockeye that were
15 migrating out to the North Pacific so we'll touch
16 on these very briefly because I think there's very
17 large agreement that they were most relevant to
18 your inquiry.

19 We'll discuss in somewhat greater detail, Mr.
20 Commissioner, the precautionary approach to
21 regulation and management of our industry, and we
22 will describe it, as we have in our written
23 submissions, as informing the debate on the
24 precautionary approach.

25 The precautionary approach with adaptive
26 management is the way in which this industry and,
27 indeed, most industries in Canada are, in fact,
28 regulated and people often confuse the
29 precautionary approach in adaptive management with
30 a precautionary principle, seeming to believe that
31 precautionary principle means anything which can
32 impact an environmental ecosystem must be stopped
33 at all costs, and that is not what aquaculture is,
34 that is not how aquaculture is managed and
35 regulated, nor other industries. There's a
36 precautionary approach in adaptive management, and
37 I'll get into that in some detail in what we've
38 described as defining the precautionary approach.
39 We'll discuss that specifically with respect to
40 aquaculture from a management and regulation
41 perspective, the effect of the transition between
42 the Province and the Federal Government, and some
43 other areas.

44 We then will speak about the reliability of
45 the farm data and the provincial audit program,
46 which has been underway now for many, many years.
47 Without getting into it in too great of detail,

1 Mr. Commissioner will recall the order for 120
2 farms of data going back a number of years and
3 that that data was described by Dr. Korman as
4 impressive and robust. And indeed, I submit to
5 you, given the information that the Commission
6 staff, and yourself, and the participants had an
7 opportunity to review, one can conclude that that
8 characterization by Dr. Korman was fair.

9 Of course, DFO Science and Management has
10 touched on every issue that you've heard pretty
11 well, and it certainly touches on our issue, more
12 so now because of the **Morton** decision and the
13 increased role that DFO plays, and so we'll
14 discuss that relationship between DFO Science,
15 Management and our industry.

16 We'll discuss briefly the issue around closed
17 containment and coordinated fallowing, in part
18 because I think it's fairly clear that closed
19 containment is an idea that has not yet reached
20 fruition. It's not economically feasible. You've
21 heard that in terms of viva voce evidence from
22 some of the witnesses and some of the reports that
23 were produced. Coordinated fallowing has also
24 been experimented with in certain areas, really,
25 commencing back in the Broughton Archipelago when
26 there was some sensational claims that the pink
27 salmon were declining to extinction in the early
28 2000, a claim which has proven out to be
29 sensational and false, but it did provide an
30 opportunity for looking at the idea of coordinated
31 fallowing, and we have references in our written
32 submissions from Dr. Saksida, in particular, who
33 can discuss the effect of that.

34 Of course, many people are wanting to know
35 about the central issue of protection of wild
36 salmon on the migration route and centrally what,
37 if any, role the B.C. aquaculture industry plays
38 in that regard. It would be a useful place to
39 start and we'll go in some detail, but we commend
40 to your reading our summary of the overview of
41 Project 5 reports.

42 I think perhaps one of the most startling
43 parts of this long journey for all of us was that
44 Drug Section. Noakes and Dill, who certainly
45 approach aquaculture and even the science around
46 aquaculture from different points of view, that's
47 perhaps being polite in terms of the scientific

1 disagreement that they may share, they were
2 certainly polite to each other in the stand and
3 they ought to have been, but they approach that
4 issue from two very different positions and yet,
5 they were large in agreement with respect to many
6 of the impacts or lack thereof of aquaculture, and
7 we'll address that in some brief detail.

8 There was what I think Mr. Martland referred
9 to as the tennis match or the ping-pong match of
10 the Noakes/Connors back and forth as they both
11 looked at each other's assessment, and I will
12 strip that down in some detail as to why it is
13 that we say Dr. Noakes' evidence ought to be
14 preferred over the conclusions reached by Dr.
15 Connors.

16 The farm siting and the protection of the
17 migratory route is, of course, central to how the
18 B.C. aquaculture industry operates. Each farm is
19 selected by way of a site application which is
20 thorough, it's expensive. The aquaculture
21 industry provides lots of opportunity for public
22 input. There's a Federal/Provincial role, CEA
23 screenings. It's really a very, very complex
24 arrangement to get a farm sited and permitted and
25 when we'll discuss briefly how, once it's in
26 place, there's a continuing monitoring by various
27 parties, Federal and Provincial governments, the
28 industry, itself, and indeed, we'll touch briefly
29 on the ISO certification, which was described by
30 Mr. Backman as a third tier of monitoring.

31 You've heard, perhaps all of us who are not
32 scientists in the room have heard about fish
33 health management plans, or FHMPs, their purpose
34 and their central role in managing the industry.
35 I'm going to make a couple of anecdotal references
36 to the evidence and, really, one is related to the
37 panel that you heard. On the panel was Mr.
38 Swerdfager and then three fish professionals, Dr.
39 Sheppard for the Federal Government, Dr. Marty for
40 the Province, and Dr. MacKenzie from the industry
41 and they were discussing fish health management
42 plans and fish health generally. These are
43 generally recognized, those latter three, as the
44 three veterinarians, fish health professionals who
45 are most closely able to discuss and relate to the
46 disease profile, or the fish health database from
47 their perspectives of government and within

1 industry.

2 I don't recall exactly the amount of time
3 that each participant was given, but it was
4 striking to me that with these three individuals
5 on the stand, and with the fish health database
6 which was before all counsel, the cross-
7 examination by some of our vigorous opponents
8 hardly touched those central issues.

9 One needs to go back into the transcript and
10 just see how little actual hard questioning on the
11 fish health data plan was put to those individuals
12 by our vigorous opponents, and why was that?
13 Well, because the fish health data plan and
14 according to -- fish health database according to
15 Dr. Korman was impressive and robust and when
16 faced with evidence under oath and questions which
17 we'd be here in answers forever, our opponents
18 steered well clear of challenging those witnesses
19 on the hard numbers.

20 There was an idea floated that marine anaemia
21 might have played some role, and we saw the
22 fictitious eight-quarter graph table that Ms.
23 Morton produced and, of course, that was just a
24 mere typing error, but it speaks to the issue of
25 just how fanciful the attacks were with respect to
26 Conville Bay and marine anaemia. And putting up
27 on the slide some reference that marine anaemia
28 was the smoking gun and here we found it on
29 Discovery Island was really put to rest completely
30 when those witnesses explained to the Commission
31 the harvesting profile of those particular sites.
32 And you may recall, certainly, in the evidence
33 that the site was harvested by the time the
34 migrating sockeye salmon were going out in the
35 spring of 2007, that the Conville Bay chinook site
36 harvesting commenced in the late fall, November of
37 2006, and that the site, I'm going from memory,
38 had approximately 3,000 tonnes and the very last
39 harvesting was in May and there was a mere 87
40 tonnes left in the sites in May, about the time
41 the fish were migrating out. And yet, the
42 suggestion put to the witnesses other than the
43 ones most able to answer those questions were
44 that, "Aha, we have it, we've got marine anaemia
45 in chinook in Discovery Passage."

46 So that was the one anecdotal reference to
47 when you've got the right experts on the right

1 topics in front of you, why don't you ask the
2 right questions. Well, because you don't want the
3 wrong answers.

4 The other example I'm going to speak of was
5 when we had Dr. Saksida and others on the sea lice
6 panel, that sea lice may have started it all.
7 When you stop and think about the notoriety that
8 this industry has received at the activists, not
9 academics, but the activists pronounced, and
10 sensational press conferences, it was all about
11 sea lice and the pinks in the Broughton. And yet,
12 when we finally get, now, today, to 2011 and we
13 hear Noakes and Dill agreeing that sea lice plays
14 a minor, if any, role at all, other than Dill has
15 a little caveat about whether it might possibly
16 act as a vector, and I'll speak on that if I have
17 time, but we had Dr. Saksida who was an expert, an
18 internationally-recognized expert and counsel for
19 the aquaculture coalition, who had 30 minutes to
20 talk to Dr. Saksida about sea lice, about the
21 reason why aquaculture might be receiving as much
22 attention as it is 10 years after it first
23 received that fame in 2001, or thereabouts. 20 of
24 the 30 minutes were spent on wondering who was on
25 her board of directors at her Canadian Aquatic
26 Health Sciences Centre, 20 of the 30 minutes, and
27 she kept indicating to the Commission that she had
28 directors from industry and directors from
29 government, and there were even some NGOs who were
30 there. And rather than asking Dr. Saksida the
31 tough questions about sea lice, a world-recognized
32 expert, we debated whether or not she had a
33 balanced board. And I note it's 12:30 so perhaps
34 it's a reasonable time to break.

35 THE COMMISSIONER: Thank you, Mr. Blair.

36 THE REGISTRAR: The hearing is now adjourned until 2:00
37 p.m.

38
39 (PROCEEDINGS ADJOURNED FOR NOON RECESS)

40 (PROCEEDINGS RECONVENED)

41
42 THE REGISTRAR: The hearing is now resumed.

43 THE COMMISSIONER: Mr. Blair.

44
45 SUBMISSIONS FOR B.C. SALMON FARMERS ASSOCIATION BY MR.
46 BLAIR, continuing:
47

1 MR. BLAIR: Thank you, Mr. Commissioner. Just before I
2 commence back to my remarks, I wanted to pick up
3 on a topic mentioned briefly by Mr. Taylor in his
4 remarks on Friday, and it deals with the
5 consideration of both the Conservation Coalition
6 and Aquaculture Coalition asked in their
7 submissions for you to consider, and that was the
8 release of all of the documents in ringtail be
9 made public, in the words of the Aquaculture
10 Coalition, so that they're not secret and so that
11 they're not lost to the public.

12 I would support the position taken by Canada
13 which is that if the Commission is thinking of
14 doing that, we'd be provided an opportunity to
15 make submissions on that. I won't spend much more
16 time on it other than to say that hundreds of
17 thousands of documents were produced. There's a
18 rigour around why they become exhibits and why
19 they aren't, and for them to be released into the
20 public I think would provide a chilling effect on
21 future inquiries. That's not the least of my
22 concerns.

23 In addition, some of the opponents of
24 aquaculture have a propensity of using half a
25 document or a quote out of order, and we don't
26 need to have that battle again and again. The
27 suggestion by the Conservation Coalition that
28 they'd be useful in a future audit by DFO is
29 easily handled. DFO can simply make available to
30 an audit the many hundreds of thousands of
31 documents that they produced.

32 So I would be opposed to making a ruling on
33 that without us provided an opportunity to make
34 further submissions.

35 I'd like to drill into some of the topics
36 that I discussed in a cursory way before the lunch
37 break. I'm going to start, if I may, with the
38 precautionary approach to regulation and
39 management of the aquaculture industry, since
40 clearly this is the way in which the aquaculture
41 industry is managed in this day and age. We
42 indicate that the Canadian law recognizes the
43 precautionary principle can be tempered with
44 adaptive management, and it's not considered to be
45 a zero risk approach.

46 We say that in British Columbia, the
47 precautionary approach and adaptive management

1 together has been a hallmark of how the industry's
2 been regulated, both by the Province and by
3 Canada, and that a number of precautionary
4 measures are taken on by the industry itself to
5 minimize any risks.

6 First and foremost, among that precautionary
7 approach and adaptive management is the whole
8 issue of the farm fish health data, and the
9 database that, Mr. Commissioner, you've had the
10 opportunity to review with your counsel and the
11 participants have as well. That database is
12 there. It demonstrates to the regulators the
13 status of the fish health and provides an ongoing,
14 sort of in real time, check and balance to
15 demonstrate the health of the fish in the pens.
16 As you know, it's supplemented by the external
17 auditing by the -- traditionally been done by the
18 Province.

19 As I indicated earlier, I'm not going to ask
20 Mr. Lunn to pull documents up on the screen, but I
21 can, just for the purpose of the record, direct,
22 from time to time, the Commission to a reference
23 that I'm making, and that last reference with
24 respect to monitoring fish health, you can read in
25 greater detail at Exhibit 1668, which is a review
26 of the British Columbia Ministry of Agriculture
27 and Lands, Fish Health Audit and Surveillance
28 Program.

29 Again, I'll also quote some paragraphs from
30 our submissions, and in all cases, it will be from
31 our final submission as opposed to our reply
32 unless I indicate otherwise. So at paragraph 86
33 of our submission, we comment on the robust and
34 reliable nature of the fish health data, and the
35 evidence that points in that direction including
36 from most of the fish health professionals who
37 gave evidence.

38 Dr. McKenzie indicated that there was an
39 audit program in addition to the daily farm
40 sampling program which helped give greater
41 confidence to the results. Similarly, Dr. Korman
42 suggested the problems on farms in terms of fish
43 health data would be easily found in the data.

44 In our submissions between pages 49 and 62,
45 we discuss resource management decision-making and
46 sustainable development and we cite Exhibit 8,
47 Wild Salmon Policy, and the references there to

1 the precautionary approach and point out that, in
2 addition to the sort of traditional environmental
3 considerations, it requires a consideration of
4 reliable and credible scientific research, but in
5 conjunction with socioeconomic considerations and
6 management decisions where any uncertainty exists.

7 It's important to understand it is
8 socioeconomic issue as well as pure science. I
9 won't spend much time, but you've heard evidence,
10 and I'm sure it's fresh from some of the
11 submissions even this morning, that the
12 aquaculture industry provides a significant
13 benefit to the local coastal communities. You may
14 recall the evidence where it was indicated that an
15 annual minimum wage of 32,000 is doubled by
16 aboriginal persons working -- and others, but
17 aboriginal persons as well working in the farm
18 sites -- I'm sorry, doubled for those working in
19 the fish processing plants, and tripled by those
20 working in farm sites to 32,000 and 48,000
21 respectively.

22 The Aboriginal Aquaculture Association
23 produced a document which indicated that about 108
24 aboriginal persons employed in salmon farming
25 operations earned about 5.5 million annually and
26 another 178 aboriginal persons employed in the
27 processing side of the operations, almost another
28 6 million annually.

29 We also say that when one examines Exhibit
30 216, the Aquaculture Policy Framework, that
31 discusses in part the effect of fish farming on
32 reducing pressure on wild fish stocks. Dr. Hyatt
33 agreed that aquaculture, if properly assessed and
34 rigorously managed, could reduce pressures on wild
35 fish stocks in aggregate.

36 At our paragraph 100, we quote Exhibit 8,
37 Wild Salmon Policy, and note that the DFO has:

38
39 ...a role to "manage aquaculture so that it's
40 environmentally sustainable, socially
41 responsible and economically viable" in a
42 manner "consistent with other human
43 activities...".
44

45 So, really, it's a very broad sweep of
46 considerations that DFO manages in managing the
47 industry.

1 You heard from a number of witnesses, Mr.
2 Commissioner, about biosecurity. It's found in
3 the evidence, the transcript of August the 29th,
4 Korman, Connors, Noakes and Dill, and later on
5 September the 6th, Dr. Saksida, describing
6 biosecurity and best management practices in
7 place. You may recall that questions were posed
8 to a number of witnesses who indicated that, in
9 their view, salmon farms could co-exist with wild
10 salmon. It was the Aboriginal Aquaculture
11 Coalition who framed their question quite simply
12 and we finally just -- several different panels
13 and our scorecard has Drs. Kent, Stephen, Noakes,
14 Dill, Korman, Connors, Saksida and Jones agreeing
15 with the proposition that they could co-exist,
16 that is, salmon farms, with the wild salmon.

17 In addition, there were papers that are
18 previously published including ones by Dr.
19 Beamish, Dr. Marty and Dr. Saksida that expressed
20 that same opinion.

21 It's important to understand the nature of
22 the business. The nature of the business is to
23 have live fish swimming in open pens in the ocean,
24 and so in order to manage that, that physical
25 plant, fish health professionals agreed
26 universally that biosecurity and fish health
27 management plans are an effective way to reduce
28 the risk of pathogen transfer from salmon farms
29 and to minimize that.

30 It was agreed on August the 31st, when you
31 heard from Drs. Marty, McKenzie and Sheppard that,
32 as experts in the area of management of fish
33 health and aquaculture, they had a high confidence
34 that the risk of disease in salmon farms is
35 managed with appropriate care and attention. You
36 might recall that Mr. Swerdfager, who was on that
37 panel, threw in a management viewpoint briefly at
38 the end of that exchange where he agreed with that
39 proposition from a management perspective. Again,
40 I'd commend to the reading of the transcript of
41 August 31st to review that information.

42 At our paragraph 110, we cite a paper that
43 was co-authored by Dr. Marty and Dr. Saksida and
44 entered as Exhibit 1555 which dealt with the
45 coordinated fallowing in closed containment and
46 concluded that they're not necessary to protect
47 wild salmon from salmon farms. Dr. Saksida, in

1 her evidence September 6th, commented that on a
2 recent paper by Morton and others, Exhibit 1557,
3 showed that fallowing a farm did not make a
4 difference to the salmon population. In fact,
5 there were poorer returns in areas that had been
6 fallowed.

7 We discussed closed containment in a variety
8 of different parts of our submissions, Mr.
9 Commissioner, and at our paragraph 111, we discuss
10 that the evidence requiring drastic action such as
11 shutting down all salmon farms along the migratory
12 route and moving to closed containment is not
13 supported by the evidence in terms of the risk
14 management approach, nor is it viable.

15 We heard from evidence reports filed by the
16 B.C. Salmon Farmers Association and verbal
17 evidence from Clare Backman of Marine Harvest who
18 spoke to one of those papers indicating that it's
19 not commercially viable and while they're
20 undertaking joint studies, in some cases in
21 conjunction with and in cooperation with some of
22 the environmental groups, they're not yet there.
23 Closed containment does not work in terms of an
24 economic model at this point.

25 Then we heard from Mr. David Marmorek, and he
26 was asked the question with respect to the
27 precautionary principle or the precautionary
28 approach, and the question whether salmon farms
29 should be relocated, his answer - and you can go
30 to the transcript references sited at paragraph
31 111 referring to his evidence in September the
32 20th - says that he recommended continuing
33 collecting data from wild fish prior to making any
34 management decisions in that regard.

35 Dr. Noakes, in his evidence on August the
36 29th, indicated that the data does not support
37 closing salmon farms and that husbandry and health
38 management minimize risks to wild salmon.

39 We discussed the issue of protection of wild
40 salmon on migration routes in our pages -- it says
41 63 to 138. That sounds a little long. We'll say
42 commencing on page 63. We say that the evidence
43 demonstrates that properly managed aquaculture can
44 co-exist in the marine environment, and that the
45 government industry are aware of the need to
46 protect any impact with migration routes of wild
47 salmon, and do so through siting criteria and

1 environmental assessments and through the fish
2 health management plans, biosecurity and an area-
3 wide approach to siting and monitoring salmon
4 farms.

5 It's interesting to note that there's
6 evidence that salmon stocks such as Fraser River
7 pink salmon are increasing in abundance and that
8 those stocks migrate past salmon farms, so while
9 this Commission's been convened to determine
10 what's been the reason for the drastic decline in
11 Fraser River sockeye and fingers have been pointed
12 towards the aquaculture industry, pinks from the
13 Fraser River have been increasing in abundance at
14 the same time. So it seems that there are
15 different factors at play.

16 Often when one refers to the migration route,
17 the topic of Harrison River sockeye comes up and
18 it seems conclusive proof for some that because
19 the Harrison stock appear to migrate through the
20 Strait of Juan de Fuca, that must be the evidence.
21 But we note in our paragraph 130, citing Exhibit
22 748, the Drs. Peterman and Dorner report,
23 Technical Report 10, that although the Harrison
24 River sockeye have different life cycles,
25 Washington Lake sockeye, with a similar migration
26 route, are also decreasing in productivity,
27 suggesting that the different migration route is
28 not the sole reason for Harrison River salmon
29 increasing in productivity.

30 They go on to discuss some notable
31 differences in the life cycle of Harrison River
32 sockeye. I won't go into them in detail, but
33 fundamentally, Mr. Commissioner, you'll recall the
34 Harrison fish migrate to sea in the first year of
35 life as fry instead of over-wintering in fresh
36 water. Then their resident time in the Strait of
37 Georgia is also different.

38 So we say, in conclusion - and this is
39 adopted actually. These are the remarks of Drs.
40 Peterman and Dorner. They say:

41
42 Thus, the reason for the Harrison's
43 exceptional trend is probably not
44 attributable simply to its different
45 migration route.

46
47 I note further that there's really very

1 little evidence in terms of the Harrison River
2 migration route and Dr. Peterman speaks to that
3 point when he says:

4
5 ...there was only one study, which is "very
6 limited evidence" --

7
8 They're his words.

9
10 -- that suggested they may exit through the
11 Strait of Juan de Fuca and up the West coast
12 of Vancouver Island...Dr. Peterman instead
13 suggested that due to their different life
14 history, [in particular] their body size
15 "might make them less vulnerable to whatever
16 stressor... [is] causing mortality for the
17 other fish."

18
19 So we've taken it almost as accepted truth
20 that the Fraser River sockeye -- sorry, the
21 Harrison River sockeye, migrate in a certain
22 pattern, but it bears -- it bears recalling the
23 evidence of Dr. Peterman that there's one study
24 which he says is very limited evidence to that
25 effect.

26 I need to spend some considerable time on the
27 Project 5, the salmon farming report, the
28 technical reports commissioned by the Commission.
29 It'll be our submission that the four advisors to
30 the Commission, Drs. -- led by Drs. Dill and
31 Noakes concluded there was no significant
32 relationship between salmon farms and Fraser River
33 sockeye decline. Dr. Noakes and Dr. Dill
34 generally agreed that most aquaculture factors
35 critics usually say contribute to the decline,
36 actually don't pose risks.

37 I won't go through them in great detail but
38 you'll recall that they agreed that waste, escapes
39 of Atlantics from the farms, and sea lice are
40 unlikely to have made a significant contribution.
41 Dr. Noakes went a little further and said that
42 escaped Atlantics and waste discharges from farms
43 moved the risk from miniscule to approaching zero.

44 The references I've just made, you can find
45 in Exhibits 1575, the David Marmorek addendum to
46 Technical Report 6, as well as both the Noakes and
47 Dill reports, Noakes at 1536 and Dill at 1540.

1 Another observation, and this seemed to be
2 glossed over by people when they were discussing
3 the potential impact of sea lice is the different
4 types of sea lice which might affect Atlantics or,
5 indeed, a variety of Pacific species. But less
6 thoroughly covered, I suggest, during the
7 Commission, were the pathogenomic (sic) risks of
8 -- pathogenomic differences between the Atlantic
9 **Lep. Salmonis** and the Pacific version of the **Lep.**
10 **Salmonis**.

11 At paragraph 146, we discuss that in some
12 detail, that the Pacific are genetically different
13 than the Atlantic and appear to be "less
14 pathogenic and more sensitive to environmental
15 conditions."

16 Drs. Jones and Saksida co-authored a paper
17 which showed that differences of pathology by way
18 of examining the frequency of treatments in B.C.,
19 that salmon farms compared to Norway and Scotland,
20 and we refer to that in our paragraph 146, and
21 their transcript evidence is cited at the bottom
22 of that paragraph.

23 So proof of the differences are found in the
24 treatment regimes that the salmon farms use on the
25 farms, and of course you heard several times - and
26 this seemed to be a surprise to some participants
27 - that the salmon farms are not treating the lice
28 for the benefit of the Atlantics. They're
29 treating the lice on the Atlantics at a time and
30 place and at an intensity to meet with their
31 obligations and to favour any -- minimize any risk
32 and place the migrating wilds in a favourable
33 position, vis-à-vis the lice which the salmon
34 farms might otherwise be shedding.

35 There was a discussion about whether sea lice
36 could be acting as a disease vector, and at our
37 paragraph 170, we've summarized part of the
38 evidence of Dr. Jones that he gave on September
39 the 6th where he says:

40
41 My sense is that from what we've heard and
42 what we've described today, that the spread
43 of disease that's specifically due to sea
44 lice is not a significant issue as it relates
45 to the health of wild salmon populations.
46

47 They go on to dispute that it does not act as a

1 disease vector.

2 Time for the ping-pong match -- or the tennis
3 match. I really must get into the Dr. Noakes, Dr.
4 Connors' controversy because fundamentally, Noakes
5 and Dill, as the two principal authors, approached
6 their task differently. Noakes, his background is
7 different than Dill, and he did a fine-scale farm-
8 by-farm analysis looking at all the fish health
9 data. Tellingly, Dill, in his report, refers to
10 the fish -- the farm data being aggregated
11 because, of course, Connors aggregated it. So
12 Dill, in his report, seems to suggest he didn't
13 know that there was 120 farms on a farm-by-farm
14 basis. He refers specifically to the aggregated
15 data, that that wasn't as good.

16 So he's clearly relying on Connors who did
17 aggregate it for his reasons of showing
18 correlations, which I'll speak to in a minute. So
19 the fact that Dill comes to different conclusions
20 than Noakes is hardly surprising, both by the way
21 they approached the data, their apparent working
22 knowledge of the data, and their two different
23 scientific disciplines in examining the data.
24 Perhaps the explanation for Dill, as well by
25 Connors, so Connors did for me what Noakes was
26 able to do on his own. It's not that simple, and
27 hence the ping-pong match. Clearly Connors and
28 Noakes approach this differently.

29 Now, I remind you, Mr. Commissioner, that
30 Connors was the graduate student of Dill and
31 there's a very close association there. Perhaps
32 that's why Dr. Dill was quite comfortable in
33 relying on Dr. Connors' assessment, but he made
34 some fundamental flaws which I really must get
35 into in some detail. We're not asking you to
36 prefer Dr. Noakes because we like his evidence
37 better. We're saying that when you look at Dr.
38 Noakes' evidence and assessment on a fine-scale
39 farm-by-farm analysis, and you look at the way in
40 which Dr. Connors aggregated it, and the
41 assumptions that he made and the flaws in those
42 assumptions, one is drawn to the fact that you
43 must disregard much of the Connors evaluation, and
44 when you do, you must disregard much of the
45 comments that Dr. Dill makes, since they flow from
46 it.

47 One of the points that Dr. Noakes made -- and

1 I'm referring to our paragraph 135. That would be
2 the Noakes transcript of August the 26th and also
3 David Marmorek, transcript of September 19th,
4 which the page and lines are footnoted of course,
5 in our -- in our submissions.

6 While Dr. Noakes commented that the fish
7 health data time series was relatively short, he
8 commented that:

9
10 ...the Fraser River sockeye salmon: data
11 included historic high returns of 2010, and
12 historic low returns of 2009, which provides
13 data includes the historic high return of
14 2010 and the historic low return of 2009,
15 which provides the contrast which Mr.
16 Marmorek explained is necessary to determine
17 the likelihood of relationships.

18
19 As Dr. Noakes put it to us, and perhaps like
20 many of us I listened to him and I tried to
21 understand what he was saying but I don't recall
22 doing very well in my second year business
23 statistics class 35 years ago, but he did say that
24 when he had a chance to look at the length of why
25 the short-term analysis had failed to detect a
26 significant relationship, he said that when you
27 put in the '09 and the '10 returns, they had more
28 statistical power.

29 Now, you will recall that Dr. Connors didn't
30 look at 2010. So again, Dill wasn't qualified to
31 and/or didn't look at it on a farm-by-farm basis.
32 Connors didn't look at the relevant piece of
33 information that -- Connors didn't look at the
34 relevant piece of information that Noakes looked
35 at which included the 2010 historic highs which
36 gave it the statistical power.

37 Dr. Korman described it this way in our
38 paragraph 136. Dr. Korman said:

39
40 ..."[n]egative effects of salmon farms on
41 returns of Fraser River sockeye between 2002
42 and 2010 were not apparent" --

43
44 From the data.

45
46 -- the Fraser River salmon demonstrated
47 "exceptionally low and high returns in 2009

1 and 2010, respectively", and that the number
2 of mortalities on farms potentially caused by
3 disease remained constant while high risk
4 diseases and sea lice levels declined. Given
5 the reliability of the fish health data from
6 the industry and the rigour of the audit
7 program, it is significant that the
8 Commission's Project 5 experts agreed that
9 there was no "strong signal" in the data...

10
11 So here we have an ability to look at the
12 highs and lows. Noakes took it to a fish farm
13 level which Connors didn't do, and it's not
14 surprising that, with that assessment and with his
15 skill set, he reached slightly different
16 conclusions.

17 Connors testified -- and I'm at paragraph
18 137:

19
20 Dr. Connors testified that he aggregated the
21 data, and did not assume migration routes.
22 Dr. Dill's report, Exhibit 1540, criticised
23 the farm data for being aggregated by fish
24 health zone, which precluded "a breakdown
25 according to proximity of the farms to the
26 presumed migration route of the majority of
27 juvenile Fraser sockeye".
28

29 That's a quote. Well, that's not true. It was
30 broken down on a farm-by-farm basis, and
31 apparently, even at the writing of his report, he
32 seemed unaware of that.

33 However, Drs. Korman, Connors and Noakes all
34 testified the data was not aggregated, as we well
35 know, and was available on a farm-by-farm basis.
36 This shows that Dill not only relied exclusively
37 on Connors' report, but he didn't even look at all
38 the available data and the transcript references
39 the cover (sic) part of this, Mr. Commissioner, on
40 August the 26th. The references to Dill are found
41 in his report at page 16.

42 We go on, on this detail, at our paragraph
43 138 where Noakes indicated that he did in fact:

44
45 ...a fine-scale farm-by-farm analysis of the
46 data that he said could have been done --
47 should have been done in order to determine

1 where high-risk disease events occurred and
2 whether there was a risk of pathogen
3 transfer. Not only did this action increase
4 the power of the Noakes analysis, it led him
5 to conclude:

6
7 The evidence suggests that disease
8 originating from salmon farms has not
9 contributed to the decline of Fraser River
10 sockeye salmon.

11
12 Dr. Noakes furthermore testified this
13 analysis showed farms are "very unlikely to
14 contribute any exposure to pathogens".

15
16 So there's a reason why they have
17 differences, and this reference that I've made,
18 and this portion of our written submissions gets
19 into this in further detail.

20 On the question of expertise, we comment, in
21 paragraph 174, that:

22
23 Dr. Connors is not an expert in the areas
24 which Dr. Noakes had significant criticisms.

25
26 Now, Dr. Connors is not qualified as a fisheries
27 climate interaction or time/series analyst. Dr.
28 Connors long-term analysis was dependent upon
29 fisheries climate interactions and specifically
30 sea surface temperatures and time series analysis,
31 so we say that he's out of his depth, and that Dr.
32 Noakes is an expert in these areas.

33 Another aspect of Dr. Noakes' report which he
34 looked at is Exhibit 1536. He says:

35
36 ...it is much more reasonable to consider the
37 relationship between sockeye, pink, and chum
38 abundance in the North Pacific and Fraser
39 River sockeye productivity. ['Cause] there
40 is strong evidence that sockeye, pink, and
41 chum salmon have a very high overlap at the
42 trophic level and there is likely to be
43 negative interactions among these species
44 through competition.

45
46 He said, and it's covered in his transcript on
47 August the 26th [as read]:

1 There is evidence that pink and chum
2 production (as indexed by catch) in the North
3 Pacific has responded to shifts in ocean
4 conditions in a synchronous fashion with the
5 reverse pattern of changes (shifts) being
6 observed for sockeye salmon --
7

8 Citing a Noakes and Beamish 2009 report. He said:
9

10 It does not make sense to consider pink
11 salmon abundance only given the significant
12 trophic overlap for the three species
13 (sockeye, pink, and chum salmon) and
14 particularly when no significant relationship
15 was found between the abundance of pink
16 salmon in the North Pacific and Fraser River
17 sockeye salmon production when they were
18 considered independently.
19

20 Noakes went on, in the ping-pong match - and
21 I'm nearly done - to say that Connors also failed
22 to take a certain number of pre-analytical steps,
23 and he did not perform the necessary analytical
24 diagnostics to the data. I don't know what that
25 means exactly, but that's why we have Dr. Noakes,
26 who's the statistician, who indicates that in his
27 opinion Dr. Connors failed to take the necessary
28 pre-analytical steps.

29 Noakes went on to explain why it was
30 inappropriate for Connors to simply look at salmon
31 farm production data, specifically when farm
32 production was increasing while high-risk disease
33 events were not. So let's think about this. We
34 have Connors looking merely at the salmon numbers,
35 farm production, and it's increasing. But disease
36 is going down, but he doesn't look at it from that
37 perspective.

38 You'll also recall that Noakes actually
39 identified farm by farm in a handful of high-risk
40 events that he found. I think, overwhelmingly,
41 maybe six for six or five for six, we're off of
42 what we had described as the main migration
43 pattern for Fraser River sockeye somewhere in the
44 Sechelt Inlet as I recall, going from memory, and
45 some I believe were external to the main migration
46 route, perhaps on the west coast. In any event,
47 when he looked at it and he took these high-risk

1 events and placed them on a farm-by-farm basis,
2 something that Connors didn't do and couldn't do,
3 or didn't have the skill sets to do, partially
4 describes the differences in their conclusions.

5 There's also the question, frankly, of bias.
6 I won't get into it in any great detail, but at
7 paragraph 183 in our submissions, we describe what
8 we say to be the bias of Dr. Connors in the way in
9 which he used silvers in his analysis in a way to
10 increase the likelihood of finding a relationship.

11 So, in summary, we say Noakes ought to be
12 accorded more weight than Dill, and where Noakes
13 and Connors disagreed, there's a reason for that
14 disagreement. The diligence and skill sets that
15 are different provides Dr. Noakes in a better
16 position to advise the Commission of the matters
17 that he spoke of and wrote of.

18 I want to speak now, if I may, on farm
19 siting, the process for siting farms and
20 protection of the migratory route of wild salmon
21 through that process. Generally speaking, I'm
22 between pages 87 and 96 in our submissions.

23 At our paragraph 186, we talk about siting
24 criteria used by salmon farmers under the Province
25 that were put in place as far back as March of
26 2000, and we note that the list has been adopted
27 by Canada in applications for aquaculture sites
28 that they're now handling.

29 It's important to note that the way our
30 process unfolds, and we describe that in the next
31 several paragraphs, including at paragraph 187.

32
33 ...the company will collect the information
34 necessary to satisfy a site application,
35 including for the **CEAA** screening.

36
37 That information is the responsibility of the
38 applicant for completing and submitting it to both
39 Canada and to the Province. Some of the
40 information that they have to provide deals
41 specifically with fish habitat, and that means
42 including migration areas, so these matters are
43 all taken into account.

44 You might recall the evidence, I believe it
45 was from Ms. Parker who, when asked to describe
46 the protective measures in Norway and the
47 protective measures in British Columbia as it

1 relates to migration, there was a map that was on
2 the wall one day and we saw small bright red
3 portions of the Norwegian coast which were no-go
4 zones, you know, no salmon farms. Ms. Parker
5 indicated, well, the entire B.C. coast is a
6 migration pattern 'cause the Fraser River is at
7 the bottom of our coast and the salmon are
8 migrating up the length of the coast. So the way
9 it's dealt with in British Columbia is the
10 aquaculture industry has identified numerous fish-
11 bearing streams that were never know before. In
12 other words, the database is much more refined,
13 and salmon farms are excluded from all areas where
14 there's salmon-rearing and salmon-spawning areas.

15 So we looked to the Norway experience to say,
16 well, they've got these national protected --
17 protective strategy, there's no fish farms. We
18 look at our salmon farming industry in British
19 Columbia and we say each and every single salmon
20 farm takes into account migrating salmon and where
21 they spawn. It's been a part of the application
22 process for ten years, so to say that B.C. and the
23 federal government haven't been responsive to the
24 needs of siting salmon relative to migration
25 patterns of wild salmon is just patently false.

26 Once the applicants have provided the
27 information, biologists of DFO review the
28 information. All applications undergo a detailed
29 biological and environmental review. There was
30 discussions about habitat compensation which may,
31 and commonly is required by DFO and, again, to
32 look for this in greater detail, I commend the
33 reading of Exhibit 1594, "Fish Aquaculture
34 Licence" which was filed, and the transcript
35 evidence of September the 8th on this topic.

36 We know that **Canadian Environmental**
37 **Assessment Act** receives screenings, considers a
38 wide range of valued ecosystem components. **CEAA**
39 screenings considered risks -- potential risks to
40 wild fish population, and mitigation measures to
41 deal with and assess each risk.

42 A quote from Ms. Parker on September the 8th
43 was:

44
45 I can say with some confidence that salmon
46 habitat, fish habitat and fish population
47 level effects are considered in **CEAA**

1 screenings.
2

3 This really came about as part of the cross-
4 examination of Ms. Parker by some of the other
5 participants indicating that that was not the
6 case, and Ms. Parker seemed to have a very good
7 working knowledge of how **CEAA** screenings unfolded
8 at the industry level.

9 Once a siting or a licensing decision has
10 been made, we commented on our paragraph 192 that
11 following approval, there's a whole range of
12 monitoring and oversight of environmental effects
13 of these operations. So these farms are sited
14 with great care. Permits are granted. Industry
15 doesn't just get to put down their farm wherever
16 they want, and then once it's there, it's
17 monitored. Who's it monitored by? Well, know
18 that it's monitored by levels of government.

19 We also heard that the industry monitors and
20 reports to regulators, and this is very common in
21 this day and age. Many industrial groups monitor
22 and self report compliance and non-compliance, and
23 it's a breach of conditional licence in many
24 industries to fail to do so, or to do so
25 inaccurately.

26 In addition, we heard from Mr. Backman, Clare
27 Backman, of Marine Harvest in his evidence of
28 September the 8th where he described a third tier
29 monitoring, that being the ISO 14000 certification
30 which he described as a further annual third party
31 audit. It was his evidence, and also the evidence
32 of Drs. Noakes and Beamish in their Exhibit 1324,
33 a document called "Shifting the balance that most
34 aquaculture companies in British Columbia are ISO
35 certified." So you've got the three different
36 levels, the industry, the government, and a third
37 party certification audit.

38 Fish health management plans, we discussed
39 them very briefly, Mr. Commissioner. Clearly
40 you've heard evidence that it's a primary tool for
41 minimizing risk of pathogen transfer. It's been
42 made a condition of licence in 2003, and what is
43 really telling was, when you look at the history
44 of fish health management plans being made a
45 condition of a licence, the industry's requiring
46 to fulfil all the various terms of the fish health
47 management plans. It's the same year that Dr.

1 Korman in his assessment notes, "Statistically
2 significant" decline in high-risk fish -- health
3 events on salmon farms.

4 So, really, if the goal was to monitor and
5 manage and reduce the risk of significant fish
6 health events, they did. Dr. Korman, hired by the
7 Commission to look into the statistical summary of
8 the fish health database, came to that conclusion,
9 but I thought the timeline was -- it's working,
10 the timeline was instructive to us in that regard.

11 I don't think with the time I have remaining
12 I'm going to spend a lot of time on what the fish
13 health management plans do. I can commend to you
14 reading paragraph 215 and onward in our
15 submissions. Describes the processes that occur
16 both in daily monitoring fish health and also the
17 steps taken if there's a fish health event that
18 triggers further responses.

19 Some of the -- in a broad brush level, some
20 of the topics covered in a fish health management
21 plan, the suite of measures as described by Dr.
22 Peter McKenzie to prevent disease and to improve
23 the health of farmed fish where the brood-stock
24 programs which are employed (sic), also
25 disinfection and biosecurity standards relative to
26 eggs, vaccines, incoming water disinfection, daily
27 monitoring, vaccines where are injected into the
28 fish prior to their being introduced into the
29 saltwater, and once they're into the marine pens,
30 daily monitoring of trends and changes, which are
31 brought to the attention of veterinarians.

32 The big three companies that you heard of
33 that make up a portion of the B.C. Salmon Farmers
34 Association all have on-site, on-staff, fish
35 health vets who are able to go to their individual
36 sites.

37 Also, nutrition, animal welfare standards,
38 predator avoidance, these are all matters which
39 are employed to help reduce stresses to farm fish
40 and a fish which is not stressed is a fish which
41 is not as likely to get diseased.

42 Just briefly, to go back to the Connors notes
43 thing, and but to cite a Dr. Korman reference, on
44 our paragraph 222, Dr. Korman, speaking about the
45 issue of moratorium on new sites, notes that farm
46 -- salmon farm production levels went up,
47 suggesting more fish per site. In spite of that

1 increased production, the Korman report concludes
2 a negative effect of salmon farms on wild salmon,
3 that they're not apparent, and that the mortality
4 is potentially caused by disease remained
5 relatively constant where high risk disease events
6 showed a declining trend.

7 So this, it gets back to the point I made a
8 few minutes ago that says -- or suggests that
9 diseases on salmon farms are not proportional to
10 salmon farm production, which is one of the
11 fundamental reasons why Dr. Noakes cautions
12 against the reliance on Dr. Connors' analysis.

13 We have to talk about Dr. Miller's research,
14 if only to say we know more about Dr. Miller's
15 research now than we all did two months ago. And
16 we all know more than we did four months ago and
17 six months ago, and Dr. Miller knows more. I'll
18 just summarize that by saying what Dr. Miller
19 first thought she had, a retrovirus, she clearly
20 has walked away from -- she's changed, she's
21 evolved, she's learned. It was very interesting
22 to watch the opponents of aquaculture embracing
23 Dr. Miller's research when they thought it worked
24 for them.

25 And having a more distant perspective on what
26 it is that Dr. Miller's research demonstrates now,
27 the focus seemed to shift from "Look what Dr.
28 Miller has found," to look what they're not
29 letting Dr. Miller tell us." Well, Dr. Miller's
30 work is ongoing. You've heard evidence of that.
31 You remember the panel of Dr. Miller and Dr.
32 Garver, and you remember that Dr. Garver, the
33 virologist, is now working more closely with Dr.
34 Miller and that work continues.

35 The aquaculture industry has been contacted
36 and is cooperating with the DFO and Dr. Miller's
37 research and it evolves. But I daresay that it's
38 important not to jump to a conclusion about what
39 Dr. Miller's research may -- where it may lead us.

40 You know, I referred back to the sea lice
41 story of Broughten Archipelago some ten years ago.
42 Much more recently we've got Dr. Miller's virus
43 and whatever it may mean and how it's evolving.
44 We had the discussion, the marine anemia storm in
45 Conville Bay and Chinook farms generally about a
46 month ago. Lately, we have an ISA story. Each
47 one of these risks is brought breathlessly to the

1 public in a sensational way, and each one so far
2 has been demonstrated to be something less than
3 advertised.

4 Those are my submissions.

5 THE COMMISSIONER: Thank you very much, Mr. Blair.

6 MR. McDADE: I can speak from here, Mr. Commissioner, I
7 think. My name is Gregory McDade. I'm counsel
8 for Dr. Morton and for the Aquaculture Commission
9 (sic).

10

11 SUBMISSIONS FOR AQUACULTURE COALITION, ALEXANDRA
12 MORTON, RAINCOAST RESEARCH SOCIETY, PACIFIC COAST
13 WILD SALMON SOCIETY BY MR. McDADE:

14

15 MR. McDADE: Mr. Commissioner, first of all, I think I
16 should express my client's strong appreciation to
17 the Canadian government for calling this
18 Commission. The survival of the Fraser River
19 salmon is clearly a matter of critical importance
20 for all Canadians. We want to extend our
21 appreciation to you, Mr. Commissioner, for taking
22 on this critical task. It must seem much more
23 monumental than it did a year and a half ago or
24 two years ago.

25 My client has repeatedly indicated in public
26 her respect for your role and her faith in you and
27 your ultimate task. She has to have that faith.
28 It is clear that left to its own devices, DFO will
29 continue to support aquaculture regardless of the
30 threats to wild fish until it's too late, until
31 the fish disappear and it's proven beyond a doubt
32 what was lost. Yours, at this time, is a
33 difficult decision. But this Commission may be
34 the last chance to take a sensible look at the
35 risks before it's too late. The decision in the
36 future of wild salmon may be in your hands in
37 terms of the outcome of this Commission.

38 I must say we also appreciate the opportunity
39 to have been participants in this Commission. We
40 know you have consistently strived to create an
41 atmosphere of civility and collaboration in this
42 Commission and have largely succeeded. To the
43 extent that our participation has occasionally
44 made that more difficult, we express our
45 apologies.

46 The decision to add, as participants, groups
47 like the commercial fishermen, the Conservation

1 Coalition, the Aquaculture Coalition was, I think
2 at the time, to most, a wise one. But, in
3 hindsight, it turns out to have been an essential
4 one. One of the most striking appearances before
5 this Commission through the 100-and some days of
6 hearings we've had, is the common front,
7 particularly in relation to the aquaculture, that
8 we've seen between the government of Canada, the
9 government of B.C. and the salmon farmers.

10 Objection after objection, legal argument
11 after legal argument, we had those three
12 participants taking common positions while the
13 commercial fishermen, the conservationists, the
14 First Nations, the recreational fishermen seemed
15 to be on the other side of these matters. If
16 those participants hadn't been here, this
17 Commission would have taken a very different
18 approach. Why is it that when one would have
19 expected the Department of Fisheries and Oceans in
20 our government to be standing up for the fish,
21 that they were on the opposite side on so many
22 issues from the fishermen and the First Nations
23 and the conservationists and the independent
24 science.

25 The only suggestion I have is it can't be a
26 matter about the fish. It's fish versus money.
27 That's the dichotomy that our government seems to
28 be in. I thought it was striking that when the
29 Province started its submissions, they talked
30 about the money involved in aquaculture. My
31 friend, Mr. Blair, spent five minutes talking
32 about the amount of money that's at stake in this
33 matter.

34 Your mandate, Mr. Commissioner, is a slightly
35 clearer one. If there is a dichotomy between fish
36 versus money, I think it's fairly clear that your
37 mandate is the protection of the fish.

38 The other thing that I want to point out that
39 makes your job somewhat difficult, and may be a
40 theme for the issue of aquaculture in this
41 Commission, is the difference between proof and
42 risk. We struggle with those questions if we're
43 scientists. We struggle differently with those
44 questions if we're lawyers, and I suppose if we
45 were on a jury using basic common sense, we'd
46 struggle again even differently.

47 It's impossible to prove, you've heard,

1 directly, that disease transfers from a fish farm
2 to a fish. Fish die, they sink to the bottom,
3 they're eaten by predators. No one is there in
4 the wild, in the ocean, at the moment of disease
5 transfer. That kind of level of proof, proof
6 beyond a balance of a doubt, or proof to a
7 scientific certainty must elude us. No one
8 expects that to be present here. In all complex
9 ecological matters, in all environmental issues,
10 that kind of proof is impossible.

11 Ecologists apply a different set of standards
12 to interpreting the natural world and causation.
13 It isn't about proof. It's about understanding
14 how systems work. It's about understanding how
15 risks take place.

16 You'll recall, Mr. Commissioner, that I
17 phrased a rhetorical question to Mr. Marmorek at
18 the latter days of the hearing. I said, "Well,
19 okay, to try and grapple with this question of
20 risk versus proof, would you send your children to
21 a school sited next to an explosives factory?" He
22 laughed and said, "Well, no, but the difference is
23 that explosive factories blow up."

24 Well, apply that question to the question of
25 fish farms and disease. There is no question on
26 the evidence before you, it's absolutely proven
27 that fish farms are full of disease. The high
28 density environment of a fish farm is an incubator
29 of disease. Yes, fish farms fight it. On an
30 economic basis, they do the very best job they can
31 to reduce disease. Disease is rampant in fish
32 farms. We've heard from Dr. Korman that there are
33 30 fish health events that are in the high risk
34 category every year out of a population of about
35 100 fish farms. Thirty events a year.

36 We know that there is something like three
37 million mortalities of fish every year on fish
38 farms from unexplained causes. These are fish
39 that are protected from predation, well fed.
40 They're not dying of old age. They're dying of
41 unknown causes, but they're rampant with disease.

42 We looked at the disease databases,
43 particularly Exhibits 1549, 217. Of the fish
44 health audits, of the thousands of fish that were
45 taken over those years, almost every single fish
46 had symptoms of disease. Half or more of those
47 were given open diagnoses by the veterinarians.

1 In other words, they're not okay like the Monty
2 Python sketch, we have a dead parrot; we have a
3 dead fish. And they had symptoms of disease, but
4 if they couldn't fit them neatly into a particular
5 disease category, they were given an open
6 diagnosis.

7 We saw -- Mr. Lunn, can we have Exhibit 1564
8 up, the database involving the fish health audits
9 at the farm level. We saw that -- you'll recall,
10 Mr. Commissioner, the statements that are in that
11 document about -- let me just remind you if we can
12 go to fish health audit, and over the column to --
13 further over, please. Yes, all the way over to
14 the next, to column S, "Active Disease at the
15 Population Level". On this particular document,
16 you'll find that I think twelve times in just --
17 this document deals only with -- this page deals
18 only with 2008 and 2009. Over and over and over
19 again, active disease at the population level.

20 We saw in the other disease database records
21 that even though almost every single audit
22 identified fish with a disease, that diagnoses of
23 fish -- of disease at a population level was only
24 given where there were a certain number of fish
25 dying that exceeded normal levels. So it's only
26 when you have epidemics you get that designation.
27 But disease is part of the everyday life of fish
28 farms.

29 Can I have Exhibit 1983 up on the screen,
30 please? We looked at the fish health database and
31 what Dr. Morton said about ISH and SSC and HEM, I
32 think, has been grossly distorted by my learned
33 friends in terms of critiquing what she said.
34 What she said is here symptoms identified by the
35 actual veterinarian in charge of this matter,
36 let's just graph them accordingly. No one is
37 pretending that there's a diagnosis of ISA or a
38 diagnosis of salmon cancer, salmon leukemia. What
39 this is suggesting is there are the symptoms of
40 those matters and they are unexplained, but they
41 are present, and they are present in large
42 numbers, and that if you graph them, as is done
43 here, you get a very interesting set of numbers.

44 Go down the page to the next graph. Here are
45 those - as you'll recall, Mr. Commissioner - these
46 are the graphs of just the symptoms that Dr. Marty
47 referred to as classic ISA lesions versus the

1 symptoms that Dr. Marty referred to as classic
2 marine anaemia lesions, symptoms. There's a
3 strong correlation between those two sets of
4 symptoms.

5 Now, no one on our side of the table has
6 drawn conclusions about what that means. That's
7 for the scientists. But those are -- there's a
8 significant correlation that requires some
9 explanation and the suggestion that somehow these
10 fish are all healthy in these fish farms just
11 doesn't stand up to the facts. The correlation is
12 remarkable in terms of the 2009 salmon and the
13 time that the smolts were swimming past the fish
14 farms.

15 Mr. Lunn, can you put up page 33 of our
16 argument? That's the same chart, Mr.
17 Commissioner, with just the ISA classic lesions
18 removed and just the marine anaemia symptoms.
19 That's corrected in terms of the chart below in
20 terms of the dates. That peaked, as you'll see,
21 in late -- the last quarter of 2006 and the first
22 quarter in 2007 just prior to the smolts swimming
23 past the farms.

24 If we could have page 46 of the argument, Mr.
25 Lunn? This is another chart that you've seen, Mr.
26 Commissioner. This, again -- these are not just
27 invented numbers. They come straight off Dr.
28 Korman and Dr. Marty's charts. This is a straight
29 summary of mortalities showing a very similar
30 spike in mortalities at exactly the same time
31 around the marine harvest farms which are in the
32 Inside Passage along the migration route.

33 Now, just before I leave that point, I just
34 want to address something that one of my learned
35 friends had some question about. In fact, I think
36 the term was "fanciful". That's the question of
37 the rearing of the Chinooks in the Discovery
38 Passage. If we could go to the chart at page 20
39 of the argument. There's no chart there? Oh,
40 well, let me ask you to bring up Exhibit 1562.

41 Mr. Commissioner, this is the document
42 prepared by Dr. Korman from fish farm data itself.
43 It lists the stocking of every single fish farm in
44 every single month. It includes when they were
45 stocked and when they were harvested. Is it
46 possible, Mr. Lunn, to sort by column G, or is
47 that asking too much?

1 MR. LUNN: I'll see what I can do.

2 MR. McDADE: Column G is simply the name of the
3 facilities. Mr. Commissioner, if you sort by that
4 name just alphabetically, one ends up with a
5 document where every single fish farm has a --
6 from 2002 down to 2010 -- history of when they
7 were stocked and what fish they were carrying. If
8 one takes the ten farms that are present in the
9 wild salmon narrows that you've seen the photo
10 about and that I'll take you to in short order,
11 one can look at each of those farms and get the
12 history. Conville Bay was the one that we focused
13 on during the hearings, and if one goes down to
14 Conville Bay, one finds that it had Pacific
15 salmon, it had chinooks up until June of 2007.
16 After that, it didn't.

17 Dr. Martin, in her report, sets out a chart
18 where she did that for each of the farms in the
19 wild salmon narrows, and when one does that for
20 each of the farms, what one gets is a chart with
21 how many chinooks were being reared in the
22 Discovery -- in the wild salmon narrows from year
23 to year. That chart shows no chinook salmon in
24 2000 -- after the spring of 2007 into 2008.
25 That's what this is coming from. It's not
26 fanciful. It simply comes straight from the data
27 produced by the Commission. I won't take up any
28 more of your time but say that that's a very
29 simple task that's done and it's shown in her
30 report.

31 So, in other words, in 2007 when the smolts
32 were swimming past chinook farms, full of disease,
33 we suggest, they were in a very different place
34 than in 2008 when they were swimming past those
35 same farms which were either fallow or had
36 converted over to Atlantics and would have a
37 different set of diseases.

38 The next point I want to make, the suggestion
39 that I'm troubled by in some of my learned
40 friends' arguments, that somehow endemic diseases
41 are of lesser risk than exotic ones. There is a
42 suggestion both -- especially in Dr. Noakes'
43 report -- that somehow if a disease is endemic,
44 because it's present in some proportion in wild
45 salmon, it's not something you have to worry
46 about, and that if you can just control for egg
47 importation and prevent the introduction of exotic

1 disease, then somehow the wild salmon will be
2 fine. Mr. Commissioner, I strongly suggest that
3 that is a completely mistaken view and ignores the
4 science.

5 If I can have Exhibit 1484 up on the screen,
6 please. You recall, Mr. Commissioner, that we
7 addressed a number of these studies during the
8 hearing. Endemic diseases -- let me just look at
9 the first paragraph, the first abstract there, Mr.
10 Lunn.

11
12 Intensive farming creates conditions for
13 parasite growth and transmission drastically
14 different from what parasites experience in
15 wild host populations...

16
17 The abstract talks about emerging diseases or
18 re-emerging diseases, sometimes in highly virulent
19 forms. That's the real flaw in fish farms. They
20 take diseases and they evolve them. They take
21 endemic diseases that are harmless, and they turn
22 them into diseases that are killers. Even ISA,
23 which you'll hear more about, I suppose, in
24 December, but is a disease that, in Norway, is
25 hypothesized to have existed in the wild in a
26 completely harmless form until the coming of fish
27 farming.

28 If you just go to the next, the column
29 across, the second column in the same place, Mr.
30 Lunn.

31
32 ...intensive farming conditions increase
33 parasite virulence.

34
35 They turn ordinary diseases into killers.

36 If you can go across -- go to the next page,
37 if I could, the second paragraph on the left
38 column. Sorry, just a little higher. There we
39 are.

40
41 Intensive farming of plants and animals
42 creates conditions for parasite transmission
43 and growth that are drastically different
44 from conditions experienced by parasites in
45 wild host populations.

46
47 That's pure science, proven science. The question

1 of which particular disease and when is not the
2 issue. The fact is, is we're creating a
3 dramatically-changed environment every time we
4 create a fish farm.

5 If I could ask you to go three pages forward,
6 Mr. Lunn, page 62, on the second column. You'll
7 see the heading, "Parasite Life History and
8 Virulence". If I look about ten lines further
9 down that column:

10
11 Therefore, very high host densities on
12 intensive farms are likely to favour higher
13 levels of virulence because the constraints
14 due to the cost of virulence are relaxed.

15
16 Use of vaccines, of course, increase
17 virulence. They work for the fish that are
18 vaccinated, but they create new strains that are
19 immune. You'll see about ten lines further down
20 from there.

21
22 ...selection for early transmission results
23 in increased virulence.

24
25 The other point, if we could go to the next
26 page, Mr. Lunn, page 63, under "Fish Farming and
27 Parasite Evolution", there's another point that is
28 uncontested. If you could just highlight that
29 first paragraph, Mr. Lunn, about eight or nine
30 lines into there, Mr. Commissioner, you'll see:

31
32 For migrating marine fish species, this
33 enormous increase in population size is
34 associated with another change: year-round
35 presence of fish in coastal seawater, which
36 provides a highly predictable resource for
37 parasites.

38
39 Fish farms change the way in which parasites work.
40 We've heard that about sea lice. They create a
41 year-long environment. It works the same for
42 viruses.

43 If I could have Exhibit 1482 up on the
44 screen? There's another document we looked at
45 with, I believe, Dr. Kent. If I could go to the
46 second column, Mr. Lunn, about ten lines up from
47 the bottom.

1 Properties of the virus like virulence,
2 infectious dose and routes of transmission
3 are factors that are important determinants
4 of whether a disease will emerge or remain
5 sporadic.
6

7 The rest of this paper deals with pancreas
8 disease, with HSMI, with ISA, with a number of
9 emerging diseases that are a problem in Norway.

10 Our point here, Mr. Commissioner is this: It
11 isn't plasmacytoid leukemia or IHN or ISA that is
12 what we require proof of. If it isn't one of
13 those diseases, it'll be one of these. It's not a
14 question of which disease. It's only a matter of
15 when. The whole experience of fish farming in
16 every country, everywhere it's been, is that
17 sooner or later, a disease emerges that is
18 devastating. Do we have to wait for that to occur
19 before we do something about it? That's the
20 question before this Commission.

21 The next point I'd like to address you on is
22 the question of disclosure. These fish health
23 databases through your good efforts, were made
24 available to the public and available to this
25 Commission, and from which we learned so much
26 about what's going on, on fish farms, compared to
27 what we were being told, which is basically, don't
28 worry, there's absolutely no problem whatsoever,
29 will never re-occur. I heard the evidence from
30 senior bureaucrats at DFO who told you that the
31 watchword now is going to be transparency and
32 disclosure. The public will get full information.

33 I'd like to go to the terms of the licence,
34 so can I ask that Exhibit 1594 be put up. Now,
35 you heard debate, Mr. Commissioner, between me and
36 a number of witnesses on this. Given the time
37 limits, we were never able to fully get to the
38 bottom of this. If we could go to page 12. We're
39 told, I think, in the reply of the Province - but
40 I might be wrong, it might be Canada's reply -
41 there's a suggestion that somehow we've been
42 misleading, that there are all these sections of
43 the licence that require this disclosure. Section
44 9 is the one that's pointed out to you. If we
45 could just pull up section 9.3. Let's just see
46 how the licence works.

47 Section 9.3 is, I suggest, the only real

1 requirement to report fish health and mortality
2 event information to the government of Canada.
3 It's only that information that is reported to the
4 government of Canada that's going to ever be
5 present on the website. Section 9.3 is not what I
6 overlooked in cross-examination, it's exactly the
7 foundation of it. Nine-point-three says it shall
8 be reported as per Appendix VIII, the Fish Health
9 and Fish Mortality Event Report, which I'm going
10 to take you to in a second. But if I could just
11 turn back a page.

12 Section 7 -- maybe just another half page
13 there to get to the start of section 7. Yes,
14 thank you. Section 7 doesn't require reporting to
15 the government of Canada. Section 7 says the
16 licence holder shall keep:

17
18 ...an accurate record of stocking activity
19 and fish health for the facility including
20 the following...

21
22 And then there's a list of things that the company
23 must keep on site. They must make that available
24 to the government on request, but there's no
25 requirement to report it regularly and no ability
26 to ever collect that data in a way in which it
27 will be made available to the public.

28 Can you scroll down to section 8? Now, this
29 section 8 is the whole section of the licence
30 dealing with fish health event response. This is
31 what our government expects of licence holders:

32
33 Should a fish health event occur, the licence
34 holder shall:

- 35
36 (a) take action to manage the event;
37
38 (b) undertake follow up measures to
39 determine the cause of the outbreak and
40 the efficacy of the management measures;
41 and
42
43 (c) implement a response plan to contain an
44 infectious disease if suspected or
45 diagnosed.

46
47 This has all been privatized over to the company.

1 The company gets to choose what action to take to
2 manage the event, the company gets to undertake
3 what follow up measures, and the company gets to
4 implement a response plan.

5 I pause here to say this only applies to what
6 is determined to be a fish health event. The
7 evidence you've heard is that fish health events
8 are defined as, in effect, an abnormal outbreak of
9 disease. Normal, daily disease, which we've heard
10 can be up to ten percent of the fish farm, if
11 there's three million mortalities to 30 million
12 fish, that doesn't produce this.

13 In the Province's argument, they say about
14 plasmacytoid leukemia - I think it's at page 131 -
15 they say that that wouldn't even constitute a fish
16 health event because there's no treatment known
17 for plasmacytoid leukemia. So a fish health event
18 is a very limited subset of all of the disease
19 epidemics. The database that I put up on the
20 screen, Exhibit 1565, only those twelve active
21 diseases at the population level, where there's
22 treatment, would be determined to be fish health
23 events. That's what section 8 refers to.

24 Now, if we could go to Appendix VIII at page
25 35, this is the sum total, Mr. Commissioner, if
26 the government of Canada has their way, and if you
27 make no recommendations to the contrary, of what
28 would be reported for fish health events and fish
29 mortalities. If we could just highlight Part C.
30 This is what is to be completed for each
31 individual health event. So on those 30 or so
32 outbreaks of disease or a dozen outbreaks of
33 disease - I don't know which one is right - that
34 occur each year on fish farms that are really
35 epidemics, this is the level of detail that our
36 government is asking for: diagnosis. One word.
37 One little box.

38
39 Were treated fish mixed with non-treated
40 fish?

41
42 Yes or no.

43
44 Estimated mortalities (number).

45
46 Name of drug and prescription.
47

1 Date treatment commenced.

2

3 Date treatment ended.

4

5 Just over the page if you could, Mr. Lunn, just to

6 be complete. There we go.

7

8 Treatment information/Response description.

9

10 That's what the public of Canada is going to get

11 to know.

12 Now, if emerging diseases are coming forward

13 that haven't yet been diagnosed -- and we've heard

14 evidence on numerous occasions. We heard the

15 evidence of the plasmacytoid leukemia outbreaks in

16 the 1988/1991 span, and how DFO responded -- or

17 didn't respond to those examinations. We heard of

18 the IHN outbreaks that went on for three years in

19 2001 to 2003. We've heard of Dr. Miller's virus

20 and the evidence of how quickly DFO is reacting to

21 that.

22 The public won't know until it's actually

23 identified as a particular disease and identified

24 as a fish health event. Independent scientists

25 will never have the information they need to be

26 able to identify this. This is insufficient

27 amount of information, in my submission, and to

28 call that transparency, in my respectful

29 submission, is simply misleading.

30 It might be an appropriate time to take a

31 break.

32 THE COMMISSIONER: Thank you, Mr. McDade.

33 THE REGISTRAR: The hearing will recess for 15 minutes.

34

35 (PROCEEDINGS ADJOURNED FOR AFTERNOON RECESS)

36 (PROCEEDINGS RECONVENED)

37

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

39

40 SUBMISSIONS FOR AQUACULTURE COALITION, ALEXANDRA

41 MORTON, RAINCOAST RESEARCH SOCIETY, PACIFIC COAST

42 WILD SALMON SOCIETY BY MR. McDADE, continuing:

43

44 MR. McDADE: Thank you, Mr. Commissioner. I've located

45 that chart that I earlier referred to. It's page

46 20 of Dr. Morton's report, Exhibit 1976. So if

47 you can just highlight the lower chart there, Mr.

1 Lunn.

2 So I won't spend any more time on that, Mr.
3 Commissioner, but I urge upon you that that's the
4 result of simply doing the arithmetical counting
5 that is part of that exhibit that was the stocking
6 chart once you sort and separate for each of the
7 individual farms.

8 The last point I wanted to make on the
9 disclosure matter in relation to the licence, just
10 before the break is, what's the reason for not
11 giving more information? What I heard B.C., the
12 Province, say in their argument, and it replicates
13 what we heard in earlier submissions regarding the
14 disclosure of this particular -- these databases
15 is, in effect, is people will misuse this
16 information, they'll take part of it and they
17 won't be veterinarians and so they'll misuse it.

18 What I say that amounts to is they don't
19 trust the public. They don't trust people to use
20 the right amount of information. That, in this day
21 and age, is not an answer to non-disclosure. Yes,
22 partial information can always be misused, but the
23 recipe for public confidence is full disclosure;
24 let it all come out. And in this particular area,
25 because of the importance, scientifically, of
26 identifying, at the earliest possible occasion,
27 trends in various symptoms, I say it's doubly
28 important that it come out and it ought to be one
29 of your recommendations.

30 My next point, I want to spend a couple of
31 minutes on the question of testing, and this is
32 the question of whether testing four fish out of a
33 farm that has half a million or a million fish is
34 an adequate measure of disease. Could I have
35 Exhibit 1566 up on the screen, at page 16.

36 This, Mr. Commissioner, is from the manual of
37 compliance for the **Fish Health Protection**
38 **Regulations**. I'll come back to this page. If we
39 can go to the next page, the table that we
40 referred to in evidence, now, what this table
41 shows, and it really is simple mathematical sense,
42 that if you have disease present in a prevalence,
43 say, of five percent or 10 percent, how many fish
44 do you have to test just on a straight probability
45 theory before you know that you're likely to find
46 it? And the answer is, Well, if you've got
47 disease prevalent at five percent, that's one fish

1 in 20, testing four fish is not going to find it,
2 or you're going to be very lucky if you find it.

3 So the rules that have been set out
4 internationally are that you test a minimum of 60
5 fish. The Province's audit program, which has
6 been going on for 10 years, has tested roughly
7 four to five fish per audit, so that's four or
8 five hundred fish per year, and these are tested.
9 The chances of that finding, say, hypothetically,
10 ISA, if that was present at a five percent rate on
11 one farm or two farms, is very, very low.

12 Now, I think I heard my friend for the
13 Province suggest that, "Well, they didn't have to
14 follow that number, because they were testing, by
15 testing for silvers, they were somehow stacking
16 the odds in their favour so that that probability
17 theory didn't apply," and they said that according
18 to the **Fish Health Protection Regulations** that was
19 okay. So I just want to take you back to page
20 before, because I think that's a misunderstanding
21 of what the document says.

22 So if we could just highlight the paragraph
23 under, "Selecting the Sample". The first
24 sentence, Mr. Commissioner, says that to get a 95
25 percent probability of detecting something at a
26 detectable infection of five or 10 percent, you
27 have to follow that table which I just showed you.
28 But if you look four lines -- five lines from the
29 bottom of that paragraph, the direction is that to
30 take a sample from any given unit must consist of
31 as many moribund and freshly dead fish as are
32 available.

33 So this is not a question of saying we can
34 ignore the table as long as we're testing freshly
35 dead fish; this is a question where the very
36 direction upon which the table depends directs
37 that be done, that if you can't do that, the
38 numbers should go higher.

39 If we could have Exhibit 1567 up on the
40 screen. Now, this was another document that was
41 put to the witnesses during the hearings, Mr.
42 Commissioner, and this says the same, more or
43 less, the same things. But I think my friend from
44 the Province referred to this as something from an
45 unknown person at the University of Iowa. This
46 comes from the U.S. Department of Agriculture
47 manual, International Response to Infectious

1 Salmon Anaemia: Prevention, Control and
2 Eradication. This is the U.S. standard for
3 testing. This is what, when we talk in December,
4 the U.S. is going to be applying to our approach.

5 If I might have, Mr. Lunn, the transcript
6 from August 31st, at page 55. Is it possible to
7 get this?

8 MR. LUNN: Yes, it is.

9 MR. McDADE: The next point I'm going to show you, Mr.
10 Commissioner, is the cross-examination of Dr. --
11 sorry, not cross-examination, well, this was
12 examination by Ms. Callan for the Province of Dr.
13 Marty, in respect to this very question, whether
14 testing of 60 fish was adequate or not. And
15 here's what he said, if you could go to line 28
16 and below. Above that, he says that for young
17 fry, where they're testing the sort of freshly-
18 hatched eggs, they do follow that standard, but he
19 says:
20

21 The audit program is quite different. The
22 audit program, the goal of that program is to
23 audit the fish health events that are
24 reported by industry. So we are not
25 attempting to certify any individual farm
26 free from disease.
27

28 And that's quite right. Then he says, however,
29 that he thinks you can add these up, so you can
30 take -- you have a farm on the east coast of
31 Vancouver Island, and then you have a farm in the
32 Sechelt, and then you have a farm over on
33 Vancouver Island, and if you add those up to get
34 the 60 that somehow you're complying with this. I
35 say, Mr. Commissioner, in my respectful
36 submission, that's plainly wrong. Unless you
37 assume that the rate of ISA or some other disease
38 is exactly identical through every fish farm,
39 that's not going to give you any probability
40 analysis. If you assume that each fish farm is an
41 independent population, you have to test them
42 independently.

43 So this may give the Province some comfort
44 when they aggregate all of these over many years,
45 but as a matter of science, that's simply not
46 supportable. If you want to know whether a given
47 fish in the Discovery Islands has ISA, you have to

1 test 60 fish to get even to a 95 percent
2 probability.

3 If hypothetically, for instance, you were to
4 test 48 fish and find that two of them had ISA,
5 that would be a prevalence of four percent. To
6 replicate, to be lucky enough to find that same
7 sample in a fish farm, if they were -- had the
8 same amount of ISA, you'd have to test 60 fish.
9 So that what we -- when we hear that 4,000 or
10 5,000 fish were tested over the last eight or 10
11 years, that's a phony statistic. It's accurate,
12 but it's meaningless, because it doesn't tell us
13 what the probability of finding ISA or any other
14 disease on any given farm is. Testing four fish
15 per farm is completely inadequate.

16 When we ask, when the next new disease is
17 found, when we ask, "How did we not find that?"
18 there's the answer.

19 And if I could just have -- to go back to
20 page 44 in the same transcript.

21 MR. LUNN: 44, did you say?

22 MR. McDADE: Yes, please, 44, line -- again, it's Dr.
23 Marty's examination, in this case by Canada. And
24 here you'll see, Mr. Commissioner, that Dr. Marty
25 was dealing with fact of SSC, or Sinusoidal
26 congestion, and why his own document referred to
27 that as a classic lesion of ISA, and he says, at
28 line 20:

29
30 And I also include a clause after that, "but
31 ISAV has not been" -- "never been identified
32 in British Columbia."
33

34 So his entire basis of the assumption, his whole
35 project is based on, "Well, if you find these
36 symptoms, but you can say ISAV has never been
37 detected in British Columbia, then you have some
38 reliability that you don't have to go beyond
39 that." If and when that turns out to be correct,
40 we have to go back to this database and readdress
41 the entire situation.

42 And this brings me to another point. I think
43 my learned friends for the fish farmers in Canada
44 and B.C. have all, in common, said, "You have to
45 trust the experts. You have to trust
46 veterinarians to make veterinarian decisions."
47 Well, every one of these experts told you,

1 "There's no ISA in British Columbia and we're
2 highly confident there never will be."

3 I think my friend for the fish farmers used
4 that phrase in his argument, that they were highly
5 confident the disease was not a problem. That was
6 used by Dr. Marty exactly to that effect, he said,
7 "We're highly confident we have no ISAV." And
8 yet, somehow, the experts are wrong or can be
9 wrong or will be wrong. And that's not unusual.
10 That's happened in industry after industry, event
11 after event. Experts are not gods. They can give
12 you their best indication or their best opinion,
13 but somehow nature confounds them over and over
14 again.

15 So when I come back to the question of, "Why
16 don't you send your kids to school in an
17 explosives plant?" Even if the experts tell you,
18 "It's highly regulated. It'll never blow up
19 because it hasn't blown up before," that's not
20 enough. The question of risk versus proof of harm
21 is the key question for you. There is no question
22 that risk is proven here. The risk of disease is
23 real, it's definable, it's scientifically
24 provable. Will the explosives plant blow up? I
25 don't know. Will the nuclear plant blow up or get
26 a leak? Well, I don't know how many experts I've
27 heard over the years tell me that can't happen,
28 and yet we have Japan. Why don't we site nuclear
29 plants in downtown Vancouver? The experts tell us
30 there's no risk at all. The risk is
31 infinitesimal. But we still understand it makes
32 no sense to put them there, because even if
33 there's a very low risk, you put them in other
34 places where -- you don't put them in the middle
35 of a migratory route of wild sockeye.

36 So that's why I want to turn, next, to
37 siting. Could I have Exhibit 1563 on the screen?
38 And this is a map you've seen on a number of
39 occasions, Mr. Commissioner. For some reason, 10
40 years ago or more, the powers that be in the
41 Province chose to site a huge number of fish farms
42 in the most congested place on the west coast for
43 the migratory route of the wild salmon. What a
44 silly place to put it. The only possible
45 justification for putting it there would be that
46 one wasn't even thinking about this issue, and
47 that, in fact, is the case.

1 Do you have the Province's argument
2 available, page 83? Now, I bring this up, Mr.
3 Commissioner, because it's a convenient place.
4 This is a list of the siting criteria you've seen
5 on a number of occasions. It's also present in
6 the PPR20, at page 45, and it's present in a
7 number of exhibits. The evidence before you has
8 been these are the criteria that was being used to
9 site all of those fish farms, all of those
10 explosive plants, right in the middle of the wild
11 salmon migration route. Not one word in that
12 document about wild sockeye and its migration
13 route.

14 The suggestion from my friends that somehow
15 there's somehow been a detailed assessment of that
16 risk and nobody thought to write it down is, in my
17 suggestion, not responsible. The suggestion that
18 somehow when you'd put a fish farm more than a
19 kilometre away from the site of one individual
20 Coho stream, but that you put it in the middle of
21 millions of migrating wild salmon, it makes no
22 logical sense. I think, in my submission, the
23 right answer is: No one was thinking about it.
24 The science hadn't been done. The full knowledge
25 of extent of risk wasn't there.

26 Before I leave this, because I'm going to
27 move, next, to the **CEAA** assessments to show you
28 what I mean, but if you could just highlight the
29 opening words to that sentence? This is the
30 Province's position. Since the transition, the
31 Province retains jurisdiction over siting
32 decisions. Now, the only legal argument I'm going
33 to make to you all day, Mr. Commission, is that's
34 simply wrong. In terms of Mr. Justice Hinkson's
35 decision, the Province has jurisdiction over the
36 sea flow, so they need to give a lease to any fish
37 farm that is done. But the Federal Government has
38 the jurisdiction over the siting decision in terms
39 of its impact on wild salmon. But I don't believe
40 this is a typographical error. This is the way
41 the process is occurring now. The Federal
42 Government simply defers to the Province around
43 siting. That's wrong.

44 The Province isn't looking at wild salmon or
45 Fraser River sockeye, at least, that's clear and,
46 I suppose, nor should they; it's not their
47 jurisdiction. But the Federal Government should,

1 and they aren't.

2 If I could have Exhibit 1630 up on the
3 screen. Exhibit 1630 is the **CEAA** assessment for
4 Conville Bay, Mr. Commissioner. You also have
5 Exhibit 1629, which is Dunsterville, which, if you
6 look at it, you'll find is, in identical words,
7 the suggestion that somehow there's a complex
8 biological assessment by a whole host of habitat
9 biologists is not correct. This stuff is simply
10 cut and pasted into an environmental assessment.

11 If we could go to page 4, please. Under
12 "Biophysical Environment" you'll see that that
13 aspect, not one word about the fact that this is
14 part of the wild salmon migration. If we could go
15 to page 9. Here you'll see, in the third column,
16 Mr. Commissioner, that this is the sum total of
17 the assessment by Canadian authorities, and this
18 is actually the Ministry of Transport, not the
19 Department of Fisheries, but under the Ministry of
20 Transport. This is the sum total of the
21 assessment of the disease risk. And can we just
22 look at the mitigation measures? Under the Salmon
23 Importation Policy, smolts cannot be transported
24 (sic); only fertilized eggs. I say this is based
25 on the assumption that, "Well, if we can rely on
26 the expert or the import policy that we're not
27 bringing any exotic diseases in, we're fine."

28 The same with introduction and transfer
29 policies in the second paragraph. The third
30 paragraph says a Fish Health Management Plan is
31 required to address issues of fish health and
32 takes into account interactions with wild fish.
33 And the fourth paragraph says site, vessel and
34 visitor-related fish-health protocols and
35 disinfection will be followed according to the
36 industry-wide protocols.

37 Now, my submission to you, Mr. Commissioner,
38 is those -- the Fish Health Management Plan and
39 the site, vessel and visitor-related in-health
40 protocols are all fine and good. They're all
41 about making sure that diseases that exist in the
42 fish farm won't be transferred to another fish
43 farm. They're not about keeping disease from the
44 wild salmon. They do absolutely nothing for that.
45 We have a fairly bizarre structure here where if a
46 farm is experiencing a disease outbreak, there are
47 rules that say if I dip my boot in the water and I

1 have a few drops of water on my boot, I have to
2 disinfect it, it's that dangerous, before I get on
3 a boat. Meanwhile, the very water I was dipping
4 my boot into, the wild fish are fully exposed to
5 and swimming through.

6 In Norway, the papers that I put forward to
7 you, talk -- the primary way to protect from
8 disease to prevent horizontal transmission by
9 putting fish farms far enough away; four
10 kilometres or five kilometres or six kilometres
11 away, the idea being that they can't cross-
12 transfer disease if we put them that far away.
13 But the fish swimming in between them have no
14 protection at all.

15 There's simply no consideration -- can we go
16 to page 12, please? I'm sorry, page 16.

17 MR. LUNN: Thank you.

18 MR. McDADE: If I could just highlight the paragraph on
19 the bottom right. This talks about the potential
20 transmission of disease. "Pathogens that
21 originate in salmon farms" -- and this is dealing
22 -- this table is dealing with cumulative impacts,
23 so the idea that there's more than one fish farm,
24 and it says it's not likely to have significant
25 cumulative impacts.

26
27 Uncertainty exists with respect to the
28 migratory patterns of salmonids along the
29 channels/inlets in the area, and on effects
30 associated with groups of salmonids migrating
31 past multiple farm sites... Measures outlined
32 in the companies Fish Health Management Plans
33 reduce the likelihood of transmission.

34
35 That's the extent of examination that these farms
36 got back when they were passed. Uncertainty
37 exists. We don't know if there are fish migrating
38 past these farms at all. And we certainly don't
39 know what the effects are of multiple farms. And
40 that accords with all of the evidence. The
41 science on that hadn't been done and hasn't been
42 done today, and yet those farms were approved
43 without any other examination whatsoever.

44 You recall when I asked senior officials at
45 DFO, "Who, in your department, is responsible for
46 this?" the Deputy Minister referred to head of
47 Science, and the head of Science said, "Well,

1 nobody at our place." There is no one who has
2 been responsible for doing that.

3 The single most important recommendation you
4 can make, Mr. Commissioner, in my respectful
5 submission, is get those farms out of that area.
6 Those farms have been approved without any
7 scientific consideration at all. We know better
8 now. DFO has taken over in 2010. Mindless
9 grandfathering of those sites will not work. We
10 have to go back and assess them against the risk
11 that we know from disease that we didn't know at
12 the time that they were approved. Put them where
13 the wild salmon aren't migrating. If I have one
14 urgent request to you, it is that.

15 The final point I want to make, Mr.
16 Commissioner deals with the role of science at
17 DFO. I heard Canada suggest that DFO is a
18 science-based organization. I say to you that the
19 evidence of the last year proves that that is not
20 at all true. There is a lot of science at DFO,
21 but the science is determined by the politics.
22 The best example of that we had was in respect of
23 sea lice. Until Dr. Morton began raising issues
24 around sea lice, there was no studies going on.
25 Once Dr. Martin began raising those, study after
26 study after study, with scarce research dollars,
27 were designed solely to disprove the sea lice
28 theory. Meantime, there was no funding for study
29 of plasmacytoid leukemia, there's been no study at
30 all. Expert, expert, expert has told you that the
31 huge research gap is any research on disease into
32 wild salmon at all.

33 I don't say that the people at DFO suppress
34 science, what I say is if you're doing science
35 that's going to be harmful to aquaculture, you've
36 got a pretty short career. You have a difficult
37 problem. So scientists choose not to do that. If
38 you want to research disease in the wild fish,
39 good luck finding funding. And when one looks at
40 these lists of fundings, that's what one sees.

41 There is no way that anyone can look at the
42 risks of disease to wild salmon and justify the
43 failure to have studied that for 10 years or
44 longer, and yet having aquaculture grow and grow
45 and grow and put us to these risks.

46 You must make recommendations, in my
47 submission, around more science on this. But to

1 leave these farms in the water while the next five
2 to 10 years of studies are taking place would be
3 regretful.

4 If we could just go to transcript page -- on
5 September 22nd, page 78, and I just want to close
6 with a thought from the Deputy Minister. And I
7 choose this, Mr. Commissioner, because I think it
8 summarizes the entire history of DFO and
9 aquaculture. At line 29, Ms. Dansereau starts:

10
11 There are differing opinions in the
12 scientific community of those impacts. And
13 our science has always been -- the advice
14 that we have always received from our
15 scientists has always been that there is no
16 threat at this point,
17

18 but then she corrects herself:

19
20 Or there is no threat that we're completely
21 aware of.
22

23 Now, what an interesting word, "completely". Not
24 "no threat we're aware of," "no threat we're
25 completely aware of." Now, that is the exact
26 opposite of the precautionary principle. "We're
27 not going to take action until we've done every
28 possible study we can do and prove seven ways to
29 Sunday we've got ourselves a problem." "No threat
30 that we are completely aware of." That's how
31 science-based DFO is.

32 If you want to -- if DFO wants to do
33 something around habitat, around marine matters,
34 the slightest bit of scientific hypothesis seems
35 to be acceptable. But if it's something they
36 don't want to do, like protect wild fish from
37 aquaculture, then you've got to prove your case
38 forever.

39 That's why I say, Mr. Commissioner, the real
40 issue here is proof versus risk. The risk here is
41 real. Don't wait for 10 years until this is
42 proven and we have no fish left.

43 Those are my submissions, thank you.

44 THE COMMISSIONER: Thank you, Mr. McDade. Thank you
45 very much.

46 THE REGISTRAR: The hearing is now adjourned until
47 tomorrow, at 10:00 a.m.

1 (PROCEEDINGS ADJOURNED TO NOVEMBER 8, 2011,
2 AT 10:00 A.M.)
3

4 I HEREBY CERTIFY the foregoing to be a
5 true and accurate transcript of the
6 evidence recorded on a sound recording
7 apparatus, transcribed to the best of my
8 skill and ability, and in accordance
9 with applicable standards.

10
11
12
13 _____
14 Pat Neumann

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

22
23
24 _____
25 Irene Lim

26 I HEREBY CERTIFY the foregoing to be a
27 true and accurate transcript of the
28 evidence recorded on a sound recording
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30 skill and ability, and in accordance
31 with applicable standards.
32

33
34
35 _____
36 Diane Rochfort

37 I HEREBY CERTIFY the foregoing to be a
38 true and accurate transcript of the
39 evidence recorded on a sound recording
40 apparatus, transcribed to the best of my
41 skill and ability, and in accordance
42 with applicable standards.
43

44
45
46 _____
47 Karen Hefferland