

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

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

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**REPLY SUBMISSION OF THE PROVINCE OF BRITISH COLUMBIA**

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## **INTRODUCTION**

1. The Province's reply submission focuses on these major areas: a reply to the submissions from First Nation participants, Aquaculture and Related Evidentiary Hearing Topics.

## **ABORIGINAL RIGHT TO FISH – LEGAL FRAMEWORK**

### **Introduction**

2. The Province has reviewed all of the Participants' Submissions with respect to issues concerning Aboriginal rights and title and the involvement of First Nations in the management of the Fraser River fishery. Insofar as the points raised by other Participants have already been addressed in the Province's previous submissions, including the written submission of October 19, 2010, oral submissions on October 25, 2010 and the Province's written submissions of October 17, 2011, those previous Provincial submissions are relied upon and will not be repeated except to emphasize certain points.

### **General**

3. The Commissioner's Interim Report, October 2010, Page 9, states the following with respect to the Aboriginal right to fish:

"The legal landscape within which this commission operates has changed as well. This change will require a consideration of the Aboriginal right to fish under section 35 of the *Constitution Act, 1982*, . . ."

4. The Province submits that this consideration of the Aboriginal right to fish should not include making any specific rulings or findings with respect to the scope of Aboriginal title or the Aboriginal right to fish or with respect to treaty rights to fish. Further the Commissioner should not make any specific rulings or findings about the Aboriginal title or the Aboriginal right to fish of any particular First Nation. To that end the Province refers to its written submission of October 17, 2011 at page 18 as follows:

i. “Notwithstanding the numerous days of hearing on Aboriginal fisheries issues, the Commissioner’s Terms of Reference do not contain any reference to Aboriginal rights and title. The province refers to its written submission on this matter dated October 19, 2010 (Exhibit C for Identification) , and the province’s oral submissions of October 26, 2010 at pages 13 -19. The province reiterates that the Commissioner is not required to, nor should he, make findings with respect to the state of the law concerning Aboriginal rights and title with respect to fisheries, given the evolving state of the law, the various cases before the Supreme Court of Canada, as well as differences in opinion as to the state of the existing law. This Commission of Inquiry is not the forum to rule on such issues; those matters are better left to the courts.” (emphasis added) (Written Submission of the Province of October 17, 2010, page 18)

5. In addition, for the reasons referred to above, we submit that the Commissioner should not recommend that DFO recognize First Nations Aboriginal and treaty rights along the Fraser River and with respect to the Fraser River Sockeye fishery.
6. In making any such recommendations, the Commissioner would, we submit, be acknowledging (really making an implicit finding of fact) that the specific First Nations had Aboriginal rights and title along the Fraser River or to the Fraser River sockeye fishery.
7. Given that most Aboriginal rights cases take up many weeks of court time (Ahousaht - approximately 110 days) it would be inappropriate, we submit, for the Commissioner to make findings of fact and/or rulings on Aboriginal rights and title and treaty rights or on specific matters relating to consultation solely based on testimony from witnesses chosen by Commission counsel or a paper commissioned by Commission counsel (Dr. Harris paper - Exhibit 1135).
8. We note the submissions of Commission counsel, Patrick McGowan, on this point on October 25, 2010, where in addressing the Commissioner he stated at page 1 lines 34 – 39:

“ Commission counsel agreed that although your terms of reference do not direct you to make any findings of aboriginal rights and title (emphasis added) that an overview of this area of the law may be helpful in providing contextual background for the factual information yet to come.”  
(Commission Counsel, October 25, 2010, page 1, lines 34-39)

9. The Province submits that the following passage from the Supreme Court of Canada in *R. v. Nikal* [1996] 1 S.C.R. 1013 at para 42 is instructive:

“ ...It has been frequently said that rights do not exist in a vacuum, and that the rights of one individual or group are necessarily limited by the rights of another. The ability to exercise personal or group rights is necessarily limited by the rights of others. The government must ultimately be able to determine and direct the way in which these rights should interact. Absolute freedom in the exercise of even a Charter right or constitutionally guaranteed aboriginal right has never been accepted, nor was it intended. Section 1 of the Canadian Charter of Rights and Freedoms is perhaps the prime example of this principle. Absolute freedom without any restriction necessarily infers a freedom to live without any laws. Such a concept is unacceptable in our society. On this issue the reasons of Blair J.A. in *R. v. Agawa* (1988), 65 O.R. (2d) 505 (C.A.) at p. 524 are persuasive and convincing. He recognized the need for a balanced approach to limitations on treaty rights, stating:

...Indian treaty rights are like all other rights recognized by our legal system. The exercise of rights by an individual or group is limited by the rights of others. Rights do not exist in a vacuum and the exercise of any right involves the balancing with the interests and values involved in the rights of others. This is recognized in s. 1 of the *Canadian Charter of Rights and Freedoms* which provides that limitation of Charter rights must be justified as reasonable in a free and democratic society.”

10. With respect to the First Nations Coalition submission, paragraph 31, wherein reference is made to the Aboriginal perspective, we would note the comments of Chief Justice McLachlin in *Mitchell v. M.N.R.* [2001] S.C.R. 911 at paragraphs 36 – 40, wherein she states that a “consciousness of the special nature of aboriginal claims does not negate the operation of general evidentiary principles...” (para 38) and further in paragraph 39 she stated that “placing due weight” on the aboriginal

perspective means that such evidence be given "equal and due treatment" and further that evidence from aboriginal claimants "should not be artificially strained to carry more weight than it can reasonably support".

11. In respect to fisheries in general, we note the references in PPR 1 – The Aboriginal and Treaty Rights Framework Underlying the Fraser River Sockeye Fishery - paragraphs 31 and 32 as to the state of the law in relation to the common property nature of the fishery, including Major J's statement in *Comeau's Sea Foods Ltd. v. Canada (Minister of Fisheries and Oceans)*, [1997] 1 S.C.R. 12 in paragraph 31, as follows:

"Canada's fisheries are a "common property resource" belonging to all the people of Canada."

12. The Court has stressed the need for a central authority to manage the fishery and for the federal government to fulfill that role pursuant to its constitutional authority as set out in the *Constitution Act, 1867*. In *Nikal*, the Court stated:

"If the salmon fishery is to survive, there must be some control exercised by a central authority. It is the federal government which will be required to manage the fishery and see to the improvement and the increase of the users who are entitled to partake of the salmon harvest have the opportunity to obtain an allotment pursuant to the scheme of priorities set out in *Sparrow*." (*Nikal*, *Supra*, page 1061)

13. Further, in *R. v. Sparrow* the Court stated:

"Since 1867 and subject to the limitations thereon imposed by the Constitution, which of course now includes s. 35 of the Constitution Act, 1982, the constitutional authority and responsibility to make laws in relation to the fisheries has rested with Parliament. Central to Parliament's responsibility has been, and continues to be, the need to provide for the proper management and conservation of our fish stocks, and the need to ensure that they are not depleted or imperilled by deleterious practices or methods of fishing." (*R. v. Sparrow*, [1990] 1 SCR 1075)

**State of the Law**

14. As can be seen by the various submissions from the Participants there are differing interpretations on the state of the law, with respect to Aboriginal rights and title.
15. The Province takes issue with many of the assertions and interpretations of the law, as they relate to Aboriginal rights and title, treaty rights and the scope of the Aboriginal right to fish, as set out in the submissions of the various First Nations participants, including the First Nations Coalition (FNC), the Sto:lo Tribal Council/Cheam Indian Band (Sto:lo), West Central Coast Salish First Nations (WCCSFN), and the Heiltsuk Tribal Council (Heiltsuk). Further, the fact that the Province does not specifically address any particular submission of a First Nations participant does not mean that the Province agrees with or accepts any or all of the content of that particular submission.
16. We note that various submissions from First Nation Participants have indicated that the Aboriginal right to fish includes a right to manage the fishery and some have suggested that it includes ownership of property rights. (e.g. FNC - paras 14, 15, 17, 27, 29, 30, 31, 32, 62; Sto:lo - paras 62, 86-91,100,144,187, 212; WCCSFN - paras 17, 22, 37,163; Heiltsuk- paras 56, 70.)
17. The Province takes issue with these submissions and suggests that they do not represent the state of the existing law. The Province submits that while there are aspects of internal self-regulation of fishing by Aboriginal communities, as described in the *Nikal* case, there is no case law that ascribes to Aboriginal groups an authority or jurisdiction to "manage" a fishery in the context of limiting or determining the actions of others.
18. It is our view that the various First Nations submissions provide little authority for many of the positions put forward as to the state of the law, especially on the

scope of the aboriginal right to fish; rather they are, in our view, suggesting what they believe the law should be, as opposed to what it presently is.

19. However the Province submits that there is settled law on the Aboriginal right to fish that can form the basis of the Commissioner's consideration of this area of the law. That settled law includes the following:

- a. Aboriginal rights are fact specific and First Nation specific - *R. v. Gladstone* [1996] 2 S.C.R. 723 (PPR 1 paras 36, 37)
- b. The Aboriginal right to fish is not a property right nor does it convey any ownership of the resource - *R. v. Sappier; R. v. Gray* [2006] S.C.R. 686 (PPR 1 paras 42, 43)
- c. There has been no recognition of quantifiable levels of harvesting or sale
- d. There has been no recognition of jurisdiction over or a right to "manage" a fishery in the context of limiting or determining the actions of others, including non aboriginal fishers
- e. There has been recognition of aspects of internal self-regulation of fishing by Aboriginal communities, as described in the *Nikal* case - *R. v. Nikal* [1996] 1 S.C.R. 1013 (PPR 1 para 61)
- f. The components of the test for Aboriginal rights - *R. v. Van der Peet* [1996] 2 S.C.R. 507 (PPR 1 paras 38 – 52)

20. Recently in *Ahousaht Indian Band and Nation v. Canada (Attorney General)*, (*Ahousaht Indian Band and Nation v. Canada (Attorney General)* 2011 B.C.C.A. 425, paras 35 – 38) the British Columbia Court of Appeal commented that there were established legal principles in regard to Aboriginal rights, and that cases



were fact driven. The Court referred to the “trilogy” of cases, *Van der Peet*, *R. v. Gladstone*, and *R. v. N.T.C. Smokehouse* as providing the legal framework for the trial decisions in both the *Lax Kw'alaams* case (before the Supreme Court of Canada) and the *Ahousaht* case (leave to appeal sought before SCC).

21. The Province submits that PPR 1, subject to the Provincial caveats set out in its written submissions dated October 19, 2010, and its oral submissions of October 26, 2010, sets out, in general, a fairly accurate and balanced description of the existing law, and can be used by the Commissioner as a guide to consider the Aboriginal right to fish.
22. However, as referred to in those earlier submissions the Province does have concerns about the more speculative statements in PPR 1, including paragraphs 22 – 31 and the fact that in the Aboriginal title section, paragraphs 7 – 32, no mention was made to the Supreme Court of Canada decisions in *Bernard* and *Marshall*, and paragraph 147. We note that Commission counsel on October 25, 2010 at page 3 - lines 21 - 28 did clarify that their use of the term “commercial”, in paragraphs 64 - 73 in particular, was not intended to necessarily refer to sale on an industrial level but rather to connote fishing for the purpose of sale or profit.
23. With respect to various aspects of the Aboriginal right to fish we would direct the Commissioner to PPR 1, paragraphs 33 through 63, including paragraph 36 which refers to the fact that Aboriginal rights are held by specific groups, can vary amongst the groups and are highly fact specific.
24. PPR 1, paragraph 42, notes that in *R. v. Sappier* and *R. v. Grey*, the Supreme Court of Canada held that Aboriginal rights are founded upon practices, traditions or customs. They are not founded upon property or the importance of a particular resource to the people. Further paragraph 21 of that decision states:

“Aboriginal rights are founded upon practices, customs, or traditions which were integral to the distinctive pre-contact culture of an aboriginal people.

They are not generally founded upon the importance of a particular resource. In fact, an aboriginal right cannot be characterized as a right to a particular resource because to do so would be to treat it as akin to a common law property right . . ." (*R. v. Sappier* and *R. v. Grey*)

25. PPR 1, paragraph 43 states:

"An Aboriginal right to fish, for example, is the right to the practice, custom or tradition of fishing (verb) as opposed to the right to fish (noun). This interpretation is supported by the Court's finding that although an Aboriginal right to fish may protect a traditional means of subsistence or precontact practice that was relied upon for survival, there is no such thing as an Aboriginal right to sustenance" or right to the fish themselves." (PPR 1 para 43)

26. Paragraph 73 of PPR 1 comments that the Court in *Gladstone* noted that the public's common law right to access the fishery was not extinguished by virtue of finding an aboriginal right to fish for commercial purposes. The court indicated that while, as a common law right, the right of the public to access the fishery was clearly second in priority to Aboriginal rights; the recognition of Aboriginal rights should not be interpreted as extinguishing the right of the public to access the fishery.

**Other comments regarding First Nations Participants' submissions**

27. The Province also makes the following points (again this is not an exhaustive list of provincial concerns or comments):

a. First Nations Coalition

- i. Recommendations 35 -54 do not make any mention of others who have an interest in the fishery such as commercial or recreational fishers
- ii. para 14 - refers to Dr. Harris' paper (Exhibit 1135) and specifically to Indian Reserve Commissioners "reserve allotments". In cross

examination on June 27, 2011, page 232, lines 30-47 and page 33, lines 1 – 20, Dr. Harris acknowledged that Indian Reserve Commissioners could only make “recommendations” not “allotments”

- iii. para 33 - asserts that the Douglas Treaty right to “fisheries as formerly” includes being involved in the business of harvesting and a power to “manage the fishery” based on *Snuneymuxw First Nation v. British Columbia* 2004 B.C.S.C. 205. However, the FNC did not include the subsequent comments of Groberman, J. (as he then was) regarding the interpretation of treaty rights:

“In my view, the court would be ill advised to come by any definitive view of the rights incidental to “carry on fish as formerly” on this interlocutory application.” (*Snuneymuxw First Nation v. British Columbia* 2004 B.C.S.C. 205, para 23)

- iv. para 683 - there is no reference to “steamrolling” in the citation given
- v. para 689 - the cited testimony of Mr. Huber does not support the statement that he hopes for co-management agreements in the “next short while”. (Note submissions of the WCCSFN para 181 and LKTS pages 9 and 10, also challenge this statement.)
- vi. para 787 - there is no mention of the lack of complete information from First Nations on the Upper Fraser as indicated by Mr. Jantz (May 11/11 page 37 lines 19 -24)
- vii. para 544 - FNC distinguishes the First Nations Fisheries Council from First Nations thus the FNC must be referring to all 150 First Nations who fish Fraser River sockeye in its various recommendations

b. Sto:lo Tribal Council/Cheam Indian Band

- i. the Sto:lo equate co-management with joint management (e.g. paras 59, 170) and further that each First Nation must be involved in this joint decision making (e.g. para 128), which arguably means all 150 First Nations who fish Fraser River sockeye
- ii. para 167 - UNDRIP is not part of domestic law
- iii. para 216 - it is our understanding that 20 or 21 Tribes are involved in the Northwest Indian Fisheries Commission; and that it has taken some time and litigation to arrive at the present situation (Russ Jones and Neil Todd testimony June 28/11; see also Exhibit 1202 pages 3 – 8)
- iv. paras 223 - 232 it is our understanding that there is no general priority for the Tribal fishing allocation under the Boldt decision, and that the language with respect to the fishing right in the Stevens Treaties differs from the language in Douglas treaties (The Boldt Decision in Canada (Exhibit 1163 page 129) so therefore parallels cannot be made. We also note that the interpretation of the Douglas Treaties is controversial and submit that this is an area of the law where the Commissioner need not, and should not, make any findings or rulings.

c. West Central Coast Salish First Nations

- i. para 21 – we do not agree with this characterization of the paragraph cited from the *West Moberly* case

d. Heiltsuk Tribal Council

- i. para 61- Mr Huber's testimony does not support the statement for which it is cited in that paragraph
  - ii. para 86 - the PNCIMA MOU (Exhibits 1201 and 1203) makes no mention of First Nations as "resource owners" contrary to the assertion in para 86 and in the recommendation summary on page 9 that First Nations are treated as owners of the resource
  - iii. paras 92 - 97- this list of cases or the analysis is not necessarily complete, and further we would note that *Haida* also stands for the proposition that First Nations do not have a veto
- e. Others
- i Tsawwassen – page 13 paragraph 4 misstates the priority of laws in the Tsawwassen Final Agreement in that there are instances where a Tsawwassen law prevails to the extent of a conflict with a Federal or Provincial law (e.g. Fisheries Chapter para 51), but there are other instances where the Federal or Provincial law will prevail over a Tsawwassen law to the extent of the conflict (e.g. Fisheries Chapter paras 53 and 54).

**Dr. Harris Paper (Exhibit 1135)**

28. The Dr. Harris paper was prepared at the behest of Commission counsel. Dr. Harris' paper was not tendered as a legal opinion nor did Commission Counsel tender the paper as an opinion on the interpretation or application of domestic law to the facts discussed in the paper (Commission Counsel, June 27, 2011, page 4, lines 35-41). There was some objection to the paper being entered into evidence. We note that, unlike the various Technical Reports, Dr. Harris' paper was not peer

reviewed. The paper does provide background information on various aspects of regulation of Aboriginal fisheries.

29. The Province submits, however, that the Dr. Harris paper should not be used to make any findings of fact concerning Aboriginal rights or title or as the basis for recommendations to suggest that DFO recognize Aboriginal rights and title along the Fraser River or elsewhere. Nor should the paper be used to make rulings or interpretations or findings with respect to the nature of treaty rights. We repeat our earlier submissions that this Commission is not the proper forum for such findings or rulings.
30. We refer to our objections with respect to Dr. Harris' paper concerning Indian Reserves and to our written Submission of October 17, 2011 at page 18 and our cross examination of Dr. Harris – June 27, 2011 pages 23 - 33. Dr. Harris did not make reference to the leading Supreme Court of Canada cases in Nikal and Lewis in his discussion of Indian Reserves (apart from a footnote in a subsequent section of his paper). We submit this is a serious, if not a fatal, flaw with respect to his evidence on this point.
31. In regard to the Supreme Court of Canada's decision in Nikal, Dr. Harris stated that he disagreed with the unanimous finding of the Court (on this point) that ". . . there was a clear and specific Crown policy of refusing to grant, in perpetuity, exclusive rights to fishing grounds . . ." (Dr. Harris, June 27, 2011, page 13, lines 33-47, page 13, lines 1-21)
32. When asked about why he did not refer to either Nikal or Lewis Dr. Harris stated the following (June 27, 2011 page 23 lines 33 – 47 and page 24 lines 1 and 2):

"Because this is not intended as an analysis of contemporary Canadian case law, but rather a historical analysis of Aboriginal regulation – or at least regulation of the Aboriginal fisheries." (Dr. Harris, June 27, 2011 page 23 lines 33 – 47 and page 24 lines 1 and 2)

33. A paper prepared as a historical analysis of the regulation of Aboriginal fisheries is not, it is submitted, sufficient basis to make any findings, specific or general, about Aboriginal rights and title or the extent of those rights or title or the extent of historical treaty rights.
34. As Dr. Harris paid very little attention to *Nikal* and *Lewis* in his paper, there is a question whether or to the extent to which he reviewed or relied on the documents that the Supreme Court of Canada did in those cases, including the historical documents filed by the intervener, Canadian National Railway Company.
35. Dr. Harris acknowledged that the law concerning the allocation of Indian Reserves is a controversial area and that there are views which differ from his views. (June 27, 2011, page 23 lines 24 - 32)

## **AQUACULTURE AND DISEASES**

### **Introduction**

36. The Province has reviewed all of the participant's submissions with respect to aquaculture and disease. In so far as the points raised by the other parties have already been addressed in the Province's original submissions they will not be repeated, but are still relied upon.
37. Any outstanding issues with respect to ongoing CFIA issues will be addressed in further submissions once the official reports are available.

### **The Aquaculture Coalition's Argument**

38. The Aquaculture Coalition submitted a lengthy submission, almost all of which the Province disagrees with. Many of the issues raised were anticipated in the Province's submission and will not be readdressed in this document.
39. The Province notes that throughout the Aquaculture Coalition's submission and Exhibit 1976 there are unfair and unprofessional criticisms of the various fish health professionals who work both with the Province, the federal government and the various aquaculture facilities. The Province disagrees with the tenor of these statements, and says these professionals work diligently and professionally to ensure fish health and food safety, but rather than attend to each and every of these criticisms, it instead denies them all on a global basis.

### **Rate of Mortality**

40. The Aquaculture Coalition takes issue with the number of mortalities from infectious disease. At page 6 of their submission the Aquaculture Coalition submits that 10% of salmon in the net pens die, and that most of it is from infectious disease. The Province disagrees.



41. The Province agrees with the Aquaculture Coalition in that the total of fresh silver's should not be used as a calculation for the total number of salmon which died from infectious disease. Fresh silver fish are simply fish of a normal size that recently died. It is possible that these fish did die from infectious disease (and are more likely than living fish to have disease), but there are many other possible causes of death that could have occurred that have nothing to do with infectious disease.
  
42. This issue was raised by Mr. Taylor to the Project 5 panel. All of the panel members agreed that the category of "fresh silvers" does not properly identify all fish that died from infectious disease, and that there could be many other causes for their death. The salient testimony was set out on pages 19-20 of the August 26, 2011 transcript.

18 Q All right. On page (ii), or two little "i's", the  
19 next page there, in the first sentence, you refer  
20 to fresh silvers. We've heard of that before.  
21 You refer to them as having potentially died of  
22 disease. I think I may, like Mr. Martland, have  
23 looked at a slightly different printed version  
24 when I was making questions than I've got in front  
25 of me now, so I regret this, but I may be a little  
26 off in my page numbers.

27 But there is a reference in and around that  
28 area to fresh silvers and potentially dying of  
29 disease, and you spoke of that yesterday and  
30 you're familiar with that in your report.

31 DR. KORMAN: Yes.

32 Q Now, in the next paragraph, though, you clarify  
33 what I think otherwise might be left as a wrong  
34 impression, from what I just said, and you say  
35 later - and speak to this - you say that, in  
36 effect, in fact -- or let me put this to you. **In  
37 fact, is it correct that most fresh silver show no  
38 sign of disease or infection?**

39 DR. KORMAN: Yes.

40 Q And, Dr. Noakes, do you agree with that?

41 DR. NOAKES: Yes.

42 Q And Dr. Dill?

43 DR. DILL: My understanding is that a large percentage  
44 of them are not found diagnostically to have an

**45 infection.**

46 Q Thank you. And, in fact, there's many causes of  
47 death other than disease or pathogens, aren't

20

PANEL NO. 57

Cross-exam by Mr. Taylor (CAN)

August 26, 2011

1 there, Dr. Korman?

2 DR. KORMAN: I'm no veterinarian.

3 Q All right. Well --

4 DR. KORMAN: But, yes, it makes sense to me  
5 intuitively.

6 Q Okay. Dr. Noakes and Dill, you agree with that,  
7 do you?

**8 DR. NOAKES: Again, given the limitation of my  
9 expertise, yes, I would agree that there's many  
10 causes of death other than disease.**

11 Q Dr. Dill?

**12 DR. DILL: Yes. Predators, for example, poor water  
13 conditions.**

**14 Q But in terms of fresh silvers, they could have  
15 been trapped, they could have suffocated, they  
16 could have had metabolic problems and so on?**

**17 DR. DILL: I'm sure some of them fit that category.**

*August 26, 2011 transcript, page 19, line 18 – page 20, line 17*

43. The Aquaculture Coalition submits that older mortalities, poor performers and environmental deaths should be included in the disease mortalities calculations. The Province disagrees for the same reasons that "fresh silvers" should not be used to calculate the numbers.
44. These categories are not meant to measure infectious disease mortalities; they simply categorize deaths into quantifiable predator deaths, environmental condition deaths, fresh silvers and other (including poor performers and older deaths). To use this as the basis for the calculation of disease mortalities would simply be inaccurate and misleading.

45. With respect to older fish mortalities and poor performers Dr. Korman gave evidence that it's not appropriate to say that all older mortalities or poor performers died of disease. Specifically at page 19 of the August 29, 2011 transcript Dr. Korman stated:

25 Q So what I'm suggesting to you is that is -- that  
 26 this assumption that you and Dr. Noakes made, the  
 27 fresh silvers are the only fish that are dying  
 28 from disease, it's a mistaken assumption, isn't  
 29 it.

30 DR. KORMAN: Well, I think, like any assumption, it  
 31 should be looked at and questioned and that's  
 32 legitimate that you're doing that. **I don't think**  
**33 it's fair to say that all old fish or all poor**  
**34 performers died of disease at all.** But I do agree  
 35 with your argument that the percentage could be  
 36 larger than what's in the report. That's a  
 37 possibility. There's also some of those fresh  
 38 silvers that could have died due to other reasons  
 39 due to disease, though, right?

40 Q Fair enough.

41 DR. KORMAN: So they're all estimates.

*August 29, 2011 transcript, page 19, lines 25-41*

46. Similarly with respect to environmental conditions and predators, it is of course possible that they did have disease, but including it in the calculation would be erroneous as the cause of disease was identified so presumably death is established to be from either predation or environmental conditions, and is less likely to be disease.

### **The Rate of Disease on the Farms**

47. The Aquaculture Coalition complains that the Province was not measuring disease levels only mortalities. It is of import to mention that the farm veterinarians are monitoring diseases on a daily basis. Dr. McKenzie gave evidence on page 17-18 on August 31, 2011 and specifically said:

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

18

PANEL NO. 59

In chief by Mr. Martland

August 31, 2011

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

*August 31, 2011 transcript, page 17, line 44 – page 18, line 20*

### **Symptoms v. Disease**

48. At page 17 of the Aquaculture Coalition's submissions they opined that distinguishing symptoms from disease was a carefully "contrived practice." The Province disagrees and says further that "distinguishing symptoms from disease" is a standard and important practice in veterinary medicine. It is also important to distinguish a symptom which affects one fish and an infectious disease affecting a group of fish.

**Plasmacytoid Leukemia**

49. The Aquaculture Coalition says that plasmacytoid leukemia should be diagnosed anytime the ISH lesion is identified in a salmon. However, the scientific paper cited by the Aquaculture Coalition to support their argument (Exhibit 1491 page 421) lists four requirements for the diagnosis of plasmacytoid leukemia:

- a) Hyperplasia of the interstitial cells of the caudal kidney;
- b) greater than 15% of cells in the caudal renal interstitium to be large mononuclear cells, blast cells and mitotic figures
- c) The presence of mononuclear cell infiltrates composed primarily of large mononuclear cells and blast cells, in at least one organ other than the spleen or kidney; and
- d) No significant signs of granuloma formation or necrosis in the organs examined.

50. Only one of these requirements is recorded in the provincial database -- "hyperplasia of the interstitial cells of the caudal kidney"—abbreviated ISH. Because the provincial database only contains one of the four requirements for diagnosis, further diagnostic evidence must be considered before plasmacytoid leukemia can be diagnosed.

**Bacterial Kidney Disease and the ISH Lesion**

51. The Province also submits the ISH Lesion not pathognomonic for plasmacytoid leukemia. It is often associated with BKD (which is a common disease found in wild Pacific salmon.)

26 DR. MARTY: No, I said that interstitial cell  
27 hyperplasia, the ISH, is often associated with  
28 BKD.

52. The ISH lesion also found with *Piscirickettsia*.

12 MS. CALLAN:

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

16 DR. MARTY: Marine anaemia I see as a clinic syndrome,  
17 and so it's not something that I would diagnose.  
18 And maybe Dr. Sheppard might just give a little  
19 idea of what the clinical syndrome is, what  
20 science he sees when he's out on the field.

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

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

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PANEL NO. 59

Cross-exam by Ms. Callan (BCPROV)

August 31, 2011

***Piscirickettsia* infection. And 1 so there are some**

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

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

14 Q Okay.

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

19 DR. SHEPPARD: That's correct.

*August 31, 2011 transcript, page 62, line 12 – page 63, line 19*

53. To illustrate this point counsel for the Province (in the last two minutes of time) asked Dr. Marty to do a sort on his spreadsheet in Atlantic Salmon to show BKD prevalence with the ISH lesion. On page 20 of the Aquaculture Coalition's submissions they stated:

Dr. Marty adopted a sorting methodology for the Atlantic salmon, but did not apply it to the the [sic] Pacific salmon tab. However, a comparison of the ISH column for the Atlantics with the ISH column in the Pacifics produces an obvious and dramatic difference. The same 'sorting' applied to this tab can be seen at Appendix B Table 1. There is no explanation on the record for why interstitial cell hyperplasia of the kidney is so much more severe and more common in the Chinook salmon than Atlantics other than the relative difference in susceptibility to Plasmacytoid Leukemia.

54. The reason the sort was not done during evidence was simple—cross examination was limited and counsel for the Province was not permitted to ask the question as time had run out. Regardless, one answer regarding why interstitial cell hyperplasia of the kidney is often more severe in Chinook salmon is that they are

more susceptible to BKD. Dr. McKenzie addressed this at page 73 lines 4-6 of the transcript of August 31, 2011 as follows: "BKD ... occurs mostly in chinook and coho salmon."

55. In Appendix B of the Aquaculture Coalition's submissions, the ISH lesion is rarely the most significant lesion noted on the file, and likely was not the cause of death. Accordingly, this line of submissions is without merit.

### **Infectious Salmon Anaemia (ISA)**

56. On page 22 of the Aquaculture Coalition's argument it says "There is currently no formal testing program for ISA on BC fish farms". In the referenced footnote it says "Proper testing requires 60 fish per facility – that is not done."
57. The Province disputes the claim that there is no formal testing program for ISA on BC fish farms. Specifically when the Province ran the program, there was a formal testing program where several samples were taken from the farm and analyzed.
58. The difference in numbers of fish required for testing however goes to the types of sampling that is being conducted. The Aquaculture Coalition is referring to random sampling of 60 live fish. The Province used a different methodology that increases the chances of finding diseased fish. Rather than random sampling of 60 live fish, most of which would be expected to be healthy, the Province sampled dead fresh silver fish rather than living fish. In Exhibit 1567 (the document on which the Aquaculture Coalition relies upon for their assertion), this type of testing was also considered an appropriate method. Fresh silver fish are recent mortalities, and thus a higher percentage would be thought to have disease than live fish in the pens. Dr. McKenzie testified on this point, and opined that it was an effective program:

6 Q Dr. McKenzie?

7 DR. McKENZIE: I'd just like to add to that a little



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

18 In addition to that, when you're evaluating  
 19 other countries for their import controls and the  
 20 disease control mechanisms they have in place, you  
 21 have to look at the whole picture of the disease  
 22 mechanism that you have in place. So the  
 23 Provincial program does not stand alone as a  
 24 sampling program. It is an additive program. It  
 25 is essentially a quality control system for the  
 26 day to day farming observation and surveillance  
 27 that occurs every day on farms. So every day  
 28 we're looking at clinical signs of disease. We're  
 29 doing tests, we're doing evaluations. **The numbers**  
**30 and the support of information the Provincial**  
**31 program has adds onto that confidence by selecting**  
**32 onto a bias sample where your mortality in your**  
**33 silver fish are going to have a higher percentage**  
**34 of disease than your healthy fish swimming in the**  
**35 population.** You further strengthen your numbers.  
**36 So by adding all these mechanisms together,**  
**37 you end up with a very robust system,** and this is  
 38 why evaluations of the program have been, as Dr.  
 39 Parmley mentioned in the assessment of the  
 40 program, meet and exceed international standards,  
 41 because there's so many layers of confidence.

*August 31, 2011 transcript, page 56, lines 6 - 41*

59. On page 23 the Aquaculture Coalition again refers non specific symptoms and says that symptoms consistent with ISA were found 1100 times. It however ignores the PCR test results for every one of these fish, which were all negative and summarized in Exhibit 1471.
60. On page 25 of the Aquaculture Coalition's submissions they state:

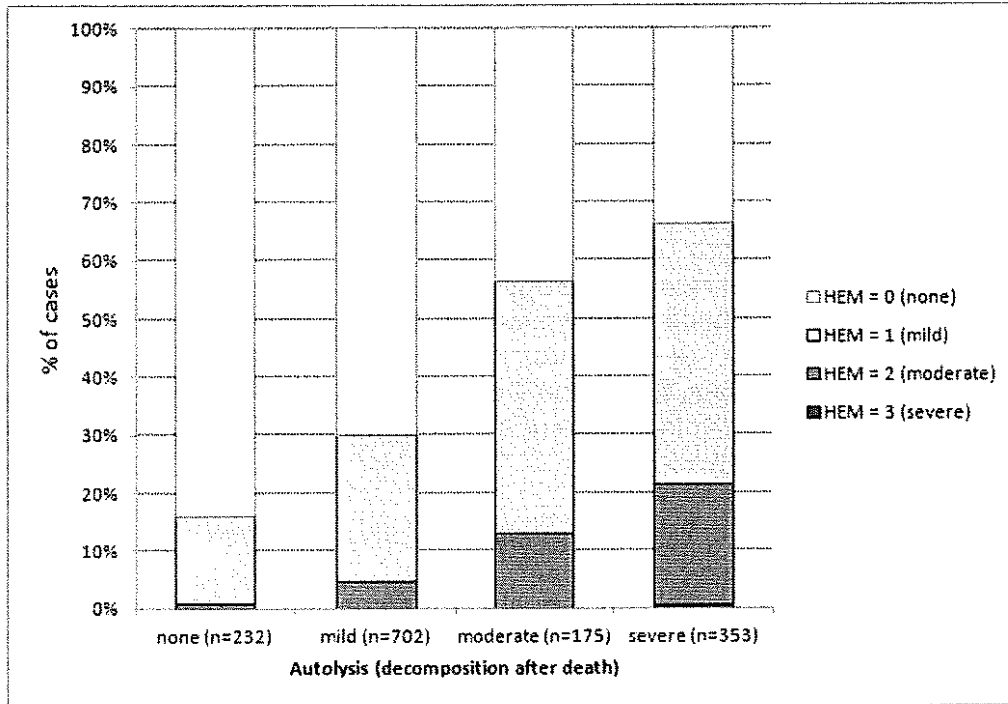
If a single PCR test was all that was required to detect all strains of Infectious Salmon Anemia virus the OIE would clearly state this. But they don't, they say, "There is no gold standard test for ISAV, and the confirmation of an infection depends on a combination of test results...This highly contagious disease can be insidious, with an initially low mortality rate."

61. The Province notes, that the OIE did not write this quote from the argument, but it is rather a quote from a document written by an unknown author at Iowa State University. Additionally the Province notes, in each fish health audit conducted by the Province three tests were included to look for evidence of ISA. Specifically the Province assessed recently mortality patterns on the farm, conducted histopathology to look for lesions, and conducted PCR tests to determine if ISAV was present in the issues.

#### HEM Lesion

62. One of the two lesions that Aquaculture Coalition lists as a symptom for ISA is haemorrhage/congestion in the kidney (HEM, column AY in exhibit 1678). The Province says that this lesion is a non specific lesion and can occur with a number of patho-physiological conditions including post-mortem change. Specifically as the fish decompose pooling of blood (congestion) occurs in the kidney.
63. The following graph of Latly autolysis (liver decomposition; column V in Exhibit 1678) against severity of HEM illustrates this point. As decomposition after death increases, the severity of HEM scores also increases. As such one must be careful to not attribute microscopic findings to a concrete finding of disease without considering how long the fish has been dead.

Figure 1: Chart of tissue decomposition (Lately Autolysis) contrasted with severity of Haemorrhage/Congestion (HEM) in the kidney



### Other Exotic Diseases

64. The Aquaculture Coalition argued that there are four additional exotic viruses apparent in Dr. Marty's reports. Their argument says Dr. Marty reported the lesions associated with Salmon Alphavirus, Heart and Skeletal Muscle Inflammation, Cardiomyopathy and a Chilean Coho farm virus.
65. As with other diseases mentioned previously, the Aquaculture Coalition fails to distinguish between symptoms and disease. The Province again says this is the wrong approach to take and is contrary to the evidence at the hearing of the fish health experts.
66. Dr. Kent testified on one of the salmon alpha viruses called "pancreas disease," and noted that it has never been confirmed in British Columbia

*August 23, 2011 transcript, page 7, lines 2-17*

67. Dr. Marty testified on page 57 of August 31, 2011 transcript that “infectious pancreatic necrosis virus” has not been diagnosed and all test results have been negative for this disease.

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

*August 31, 2011 transcript, page 57, lines 17-24*

68. With respect to heart and skeletal muscle inflammation, cardiomyopathy syndrome and the Chilean Coho farm virus there is no evidence regarding diagnosis of these diseases.

**Area D Salmon Gillnet Association and Area B Harvest Committee (Seiners)**

69. Area D Salmon Gillnet Association in their submissions at page 64 submitted that Dr. Dill's conclusion that “the relationship between farm production and Fraser sockeye survival in the long-term data set suggests that the farms are having some sort of negative impact on wild salmon productivity most likely in concert with other factors in the marine environment” should be accepted.
70. The Province says that farm production is not an appropriate proxy for disease or lice and should not be used, since the incidence levels of disease and lice do not correlate with farm production. Dr. Noakes addressed this point in this evidence at pages 97-99 and opined that it should not be used because it is not proportional. The salient testimony on this point is as follows:

2 Q So sticking with you just for a second, and then  
3 we'll get to Dr. Connors, you're saying that using  
4 farm production numbers, increasing farm  
5 production numbers can't be looked at without --  
6 in terms of a proxy. or some -- some determinant  
7 for disease, for disease potential, transfer. You  
8 can't look at that generally when you can  
9 specifically take the actual diseases out of the  
10 migration pathway. So, Dr. Noakes, you took them  
11 out of the migration pathway, which is why you say  
12 farm production can't just be looked at as a -- as  
13 a straight line.

14 DR. NOAKES: That's certainly one reason. There are a  
15 lot of other reasons why you can't use it as a  
16 proxy. And I don't know how much time you want me  
17 to spend on this.

18 Q Go ahead.

19 DR. NOAKES: Okay. So, for instance, let's use an  
20 example of a consumer price index. **When you're**  
21 **using a proxy, there are certain things that you**  
22 **need to look at in terms of the properties of that**  
23 **proxy and what you're using. It has to basically**  
24 **be representative of the time series, or the -- or**  
25 **what you're trying to represent.** So there's been  
26 a lot of work go into identifying what products  
27 they'll put in to calculate a consumer product  
28 index.

29 Well, the same thing in terms of the Connors'  
30 analysis, in terms of using farmed salmon  
31 production as a proxy in disease. First of all,  
32 it has to match up with the disease evidence,  
33 because we do have some disease evidence. **There's**  
34 **a certain number of years that we have, and at**  
35 **least if you're going to use it as a proxy, it has**  
36 **to match up with the evidence that you do have.**  
37 The other thing that it should do, is it should be  
38 in the way that this model is being formulated, it  
39 should be proportional to. **So, for instance,**  
40 **whatever proxy you're using should be proportional**  
41 **to the disease or the pathogen exposure, as Dr.**  
42 **Connors puts it. So that proxy should be**  
43 **proportional to that value.** And the last thing  
44 is, it needs to be consistent over time, because  
45 there's no sense using a proxy that's only good  
46 for five years and then it changes.

47 So I go through in my comments to Dr.

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PANEL NO. 57

Cross-exam by Mr. Blair (BCSFA)

August 26, 2011

Connors, **basically I go through 1 the four high-risk  
2 diseases that Mike Kent provided, and the sea  
3 lice, and what I do is I demonstrate how they're  
4 simply not proportional.**

5 So, for instance, we have the IHN, and if you  
6 go to the B.C. Government site you'll see on there  
7 they document outbreaks of IHN. And they're  
8 sporadic over time and they have occurred over --  
9 since the 1990s. But one of the things we see is  
10 that there's been no IHN detected on farms since  
11 2003. So using farm salmon production for IHN  
12 isn't consistent in terms of over time, because  
13 you have the sporadic nature and, of course,  
14 there's no IHN since 2003.

15 For BKD, BKD is primarily a disease which  
16 impacts Pacific salmon, chinook and coho. And if  
17 you look at the production numbers, that there's a  
18 graph in Connors' -- or, sorry, Korman's, Dr.  
19 Korman's report, breaking down the percentage of  
20 Atlantic and Pacific salmon that are farmed. It  
21 varies widely over time, and since about the last  
22 several years, it's gone from about 30 percent  
23 down to about 10 percent. So there's not a  
24 consistency, and it's certainly not proportional  
25 to overall farmed salmon production.

26 The other thing, of course, is because it  
27 only affects a small portion of the farmed salmon  
28 production, it's not reasonable to use it as a  
29 proxy for the total salmon production in terms of  
30 Atlantic salmon.

31 For the other two diseases, the high-risk  
32 diseases, vibriosis and furunculosis, there's been  
33 vaccines for those two diseases since about the  
34 mid-1990s. That's the information I received from  
35 the vets on the farm.

36 So what you have in those cases, and also  
37 with IHN, because there's a vaccine there, is you  
38 have a discontinuity in the time series. So you  
39 don't have a consistency in the pattern of

40 diseases which is proportional to the farmed  
41 salmon production.  
42 For sea lice, since 2003 -- presumably there  
43 were sea lice on the farms before, but certainly  
44 since 2003 there's been mandatory treating of sea  
45 lice. And there's a trigger of three lice per  
46 fish, and once that trigger is reached, or once  
47 that level is reached, then there's automatic

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Cross-exam by Mr. Blair (BCSFA)

August 26, 2011

1 treatment. So again you don't have consistency  
2 over time in terms of the lice production, because  
3 it's being artificially held low, because there's  
4 treatment at three lice per fish.

5 So overall, for the four high-risk diseases  
6 and the sea lice, farmed salmon -- using farmed  
7 salmon production is not consistent with the  
8 observed disease evidence we have from the farm.  
9 It's not proportional, and there's inconsistencies  
10 over time, simply because the use of vaccines has  
11 reduced substantially the amount of disease that  
12 we found on there.

13 Now, the effectiveness of the vaccine varies  
14 by disease. But it's certainly not zero, and for  
15 IHN, it's in the high 90 percent.

16 So, for instance if you used a human example  
17 in terms of measles, before 1964, when a measles  
18 vaccine - I Googled this when I was doing the  
19 report - if you looked before 1964, there was an  
20 average of around 500,000 measles cases per year  
21 in the United States. And once they started using  
22 vaccine, you can see that it went down -- went  
23 down to essentially zero, very few cases of  
24 measles. There's certainly some, but they're  
25 certainly not in the hundreds of thousands.  
26 So that's the kind of structural change you  
27 see in the time series and the disease time  
28 series, and you're going to see exactly the same  
29 thing in -- in the farmed salmon pathogen output,  
30 as well.

31 So there's a real problem. Using farmed  
32 salmon production as a proxy is not a good

33 approximation. So essentially what -- in terms of  
34 the analysis, if it doesn't approximate disease,  
35 or it doesn't approximate pathogen exposure, then  
36 for the purposes of basically looking at a  
37 relationship between farmed salmon production and  
38 sockeye productivity, it is not a useful analysis.  
39 And that's (indiscernible - overlapping speakers).  
40 Q Thanks very much, Dr. Noakes. Dr. Connors.

*August 26, 2011 transcript, pages 9, line 2 – page 99, line 40*

71. Accordingly, this proxy should not be used, and Dr. Dill's opinion on this point should be disregarded.

**Recommendations that records be made public on a farm by farm basis**

72. A number of parties have recommended that in the future all disease records should be made available on a farm by farm basis. The Province submits that the evidence shows that this could result in a lower level of voluntary disclosure.
73. Dr. Stephens was asked whether sharing farm level disease data with the public may increase the chance that a disease outbreak would go undetected and unreported. Dr. Stephens said at page 94 line 18 of the August 22, 2011 transcript:

18 Q Okay. Would you agree that a program promising to  
19 share farm-specific disease records with the  
20 public might actually increase the chance that a  
21 disease outbreak would go undetected and possibly  
22 unreported?  
23 DR. STEPHEN: Sorry? So you're saying do I agree that  
24 if a system identifies individual farms it would  
25 increase -- decrease the likelihood of detection?  
26 It depends on how you're detecting the disease.  
27 If you're requiring individuals to report, there  
28 can be problems as we've seen with things like  
29 avian influenza. Farmers are reluctant to report  
30 because of the large penalty to being found  
31 positive and we've seen submissions for poultry  
32 drop precipitously in a situation like that. If  
33 you're doing active surveillance where you have



34 your own staff going out and looking, then it  
35 shouldn't have an effect.

*August 22, 2011 transcript, page 94, lines 18 - 35*

74. Furthermore, the Province draws the Commissioner's attention to the Code of Ethics of the College of Veterinarians of British Columbia on disclosure. The salient passages are:

86. Subject to section 91 herein, the owner of the information in a record has the sole authority to authorize the release of information in the resulting medical record to any party.

91. Notwithstanding any of the above, the records, a copy thereof or the information therein must be released forthwith to:

- a. any party that has an urgent and compelling need for the information in order to ensure the well-being of any animal(s);
- b. any party that has an urgent and compelling need for the information in order to ensure the health or safety of the public or any person(s);
- c. the BCVMA for the purpose of an inspection, investigation or inquiry;
- d. any government agency or its designate as required by law; or
- e. any party on the basis of a court order or subpoena.

*Exhibit 1669*

75. As we have seen with this commission, the pathology and veterinary records are complex, and they can be misinterpreted by non qualified persons. Accordingly, the Province also draws the Commissioner's attention to section 13 of the British

Columbia College of Veterinarian's Code of Ethics which sets out:

13. Members should make efforts to contribute to the education of the public in matters relating to and promoting the health and safety of animals and thereby the public; but members must do so in accordance with generally recognized standards of integrity and professionalism.

*Exhibit 1669*

76. If the Commission is to recommend disclosure, then the recommendation should call on those providing and commenting on disclosure to do so in manner that displays the results clearly, and is consistent with the Code of Ethics of the College of Veterinary Medicine of British Columbia.

## **RELATED EVIDENTIARY HEARING TOPICS**

### **Urbanization (Riparian Area Regulations)**

#### **SLIPP (Shuswap Lake Integrated Planning Process)**

77. The SLIPP process is a positive example of collaboration to protect the environment, freshwater, and sustainable social-economic benefit. Exhibit 1014 (Shuswap Lake Integrated Planning Process, Strategic Plan for Shuswap and Mara Lakes) is a model for collaboration, both in style and content (June 8 transcript, page 76, line 39 – page 77, line 1). It states that:

“The Shuswap Lake Integrated Planning Process (SLIPP) was launched in response to the intense pressure the surrounding area is experiencing as a result of increased development, waste water discharge and conflicting demands on recreational resources. These challenges are set against a complicated regulatory environment where public agencies from every level of government have legal jurisdiction over some aspect of the region. In early 2007, a number of government agency representatives began to explore the viability of undertaking a multi-agency strategic planning process as a means to addressing these challenges. Fundamental to the approach had to be the involvement of elected officials, First Nations and the public.

Fourteen public agencies from the four levels of government have been engaged in the development of SLIPP. Depending on their jurisdiction and expertise, agency staff were aligned to one of the three technical work streams: Foreshore Development; Water Quality and Waste Management; or Recreation Management. The efforts of the work streams were guided by a Steering Committee comprised of locally elected officials and First Nations, and by the public through a series of open public meetings and selected individual participation on one of three Public Advisory Committees (PAGs) aligned under each technical work stream.

78. In Ms. Baker's cross-examination of June 8, 2011, Michael Crowe (DFO) described the context for SLIPP:

44 In the absence of local government controls,  
45 plus at a time when the Provincial and Federal  
46 Governments were downsizing and redirecting their  
47 priorities, there was really no overall governance

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PANEL NO. 42

In chief by Ms. Baker (cont'd)

1 or management of Shuswap Lake in a fairly  
2 effective or coherent manner. And in this sort of  
3 atmosphere of, I'd say it was a bit chaotic, a  
4 Provincial colleague felt that it was time to  
5 actually implement, in the absence of strong,  
6 local or Provincial and Federal engagement and  
7 control, that we really needed to look at another  
8 way of governing Shuswap Lake. Therefore, he  
9 coordinated with representatives of the three  
10 levels of government, the Fraser Basin Council,  
11 approaches to First Nations, and tried to  
12 basically create an integrated management planning  
13 process that would step in and fill the vacuum  
14 created by the, you know, the absence of the  
15 governance.

16 So that essentially was the background to the  
17 Shuswap Lake integrated planning process. It was  
18 essentially an attempt at the local level to try  
19 to get those agencies that had some effect or  
20 authority to coordinate and be more effective in  
21 how they did their business, to try to stem the  
22 rate and location and character of much of the  
23 development of Shuswap Lake and try to, yeah, just  
24 fill basically a governance or regulatory gap.

79. He described DFO's role:

25 Q And what was the Department of Fisheries and  
26 Oceans role in this project?

27 MR. CROWE: Well, the SLIPP process had a number of key  
28 objectives. There was an attempt to manage for  
29 water quality, an attempt to direct and manage  
30 recreation, and an attempt to manage foreshore  
31 development, with some overarching strategies or  
32 objectives with regards to improved education,  
33 better enforcement, coordinated enforcement on the  
34 lake, and a few other strategies. I can't quite

35 remember them, though, they're in the document.  
 36 The Department of Fisheries and Oceans joined  
 37 the Steering Committee, became a member of the  
 38 Foreshore Development Technical Review Committee,  
 39 became a member of the Compliance and Enforcement  
 40 Coordinated Enforcement -- Compliance and  
 41 Enforcement Group, and took a role with regards to  
 42 helping basically hold a number of public meetings  
 43 and so on to try to determine if there was public  
 44 interest and if we could garner support for this  
 45 type of initiative.

*June 8 transcript, page 62, line 44 – page 63, line 45*

80. Asked by Commission counsel if SLIPP was successful, Crowe replied:

33 MR. CROWE: I think it's been a very good process. I  
 34 think it has refocused agencies on the importance  
 35 of the management of Shuswap Lake. I think it has  
 36 done a good job of bringing agencies with possibly  
 37 divergent interests to the table to figure out  
 38 ways to coordinate and cooperate, reach mutual  
 39 objectives, and I think it has brought a degree of  
 40 understanding amongst all sectors, including the  
 41 development sector, to help development should it  
 42 occur on Shuswap Lake. And I think it has been a  
 43 motivation to the Columbia Shuswap Regional  
 44 District to continue moving forward with the  
 45 development of bylaws and other local governance  
 46 tools to control Shuswap Lake into the future.  
 47 You know, I think the Provincial staff

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PANEL NO. 42

In chief by Ms. Baker (cont'd)

1 deserve full credit for coming up with this idea

2 and having driven it from its inception.

*June 8 transcript, page 64, line 29 – page 65, line 2*

81. In a cross-examination by Provincial counsel, Crowe agreed that the role of DFO was very critical to the process (June 8 transcript, page 76, lines 11-18). He also

noted the transformation of local government as reflected in their vigilance and endorsement of the process”

19 Q And likewise, one of the good parts of what I  
20 think is a very good news story, is that the CSRD  
21 over the years has had a somewhat miraculous  
22 transformation as well, has become quite vigilant  
23 on these issues; is that not correct as something  
24 you've observed over the last few years,  
25 particularly with respect to the SLIPP process,  
26 they've firmly endorsed it?

27 MR. CROWE: Yes, I -- as I said, I think that the SLIPP  
28 process has helped motivate the Columbia Shuswap  
29 Regional Directors to become far more supportive  
30 and engaged in moving towards coordinating and  
31 cooperating with SLIPP as well as starting to make  
32 the changes within the CSRD with regards to their  
33 authorities to, I think, make -- set the Columbia  
34 Shuswap Regional District up for a more  
35 sustainable future in terms of conservation  
36 protection of foreshore values, habitat and  
37 meeting water quality and other recreational and  
38 societal objectives.

*June 8 transcript, page 76, lines 19-38*

82. The lakes are critical to the environmental, social, recreational, and economic life of the year-round population and seasonal visitors. The Shuswap watershed supports jobs, a tax base, and economic growth through residential and commercial development, local industry, and tourism. The lakes are a source of economically and ecologically significant fish stocks and are home to diverse wildlife and fish species, some of which are at risk. Shuswap and Mara provide drinking water for many residents and visitors in the area and downstream, including the city of Kamloops. Recreational opportunities are prolific, ranging from quiet pursuits such as fishing and hiking, to houseboating, and the more adventurous jetskiing. For First Nations, the lakes are home to culturally and archaeologically important sites.

83. Protecting riparian areas – and the environment generally – is everybody's job. The SLIPP project exemplified public participation. Ken Ashley testified a huge amount of public support was necessary to moving it forward.

9 Q One question, Mr. Ashley. Last week we had some  
10 evidence about the SLIPP Project, which you played  
11 a very prominent role in. But are you aware of  
12 the extent to which there was public outreach and  
13 public participation in the SLIPP Project that  
14 contributed to its success?

15 DR. ASHLEY: Yes, the SLIPP Project is the Shuswap Lake  
16 Integrated Planning Process, it had a huge  
17 frontend component of public consultation because  
18 basically it was a public upwelling of being very  
19 unhappy with the rate and pace of development in  
20 Shuswap and Mara Lakes, both on the shoreline and  
21 the upland region. And so that was a multiagency  
22 effort between the Ministry of Forests, Lands and  
23 Natural Resource Operations, what it's called now,  
24 and DFO, and the Columbia Shuswap Regional  
25 District. And they had a series of town hall  
26 meetings in Salmon Arm and Chase, and various fire  
27 halls around there, too, had the public come out  
28 and express what their concerns were about what  
29 was going on in Shuswap and Mara Lakes. So that  
30 it was realized that because there was -- it was  
31 to be a new approach, it was to be a multiagency  
32 to sort of fill the gaps in how Shuswap Lake was  
33 being managed, it had to have a huge amount of  
34 public support in order to make it move forward.

*June 14 transcript, page 95, lines 9–34*

**Municipal wastewater**

84. Dr. van Roodselaar made a few points about Contaminants of Potential Concerns (“CPCs”) in his testimony. First, there is a limited ability to deal with CPCs, given the lack of conclusive science about their effects, the lack of benchmarks for CPC levels (whether in water quality objectives or guidelines), and the limited utility of wastewater treatment processes on CPCs:

11 ...wastewater treatment plants are not absolutes. I  
12 mean, they cannot deal with everything. And  
13 consequently again if you're looking at the design  
14 and the upgrade of a wastewater treatment plant, I  
15 think you have to put it in context, and you have  
16 to say, well, you know, there are some of the  
17 chemicals that are recalcitrant that are not  
18 necessarily going to be effectively dealt with by  
19 a wastewater treatment plant, regardless of some  
20 of the types of technologies that might be  
21 available. And so that, you know, they have to be  
22 dealt with by other means. And some of the things  
23 that we're seeing out there, well, there's the  
24 historic one of PCBs, and currently there's quite  
25 a bit of concern with respect to flame retardants,  
26 or PBDEs with respect to their effect on the  
27 environment. But again, these are chemicals that  
28 themselves are not well dealt with in the context  
29 of a wastewater treatment plant.

*June 15, 2011 transcript, page 32, lines 11-29*

85. The effectiveness of “source control” is overstated. Some CPCs like hormone disruptors and other pharmaceuticals come from humans, so their introduction into the environment cannot necessarily be curbed, and toilets can't be stopped from flushing, in the same way that a pulp mill can be ordered to stop (p.39, ln 7-14)

7 But then you also have to realize in the case  
8 of those kind of things, that when people are  
9 taking their medication, and certainly very  
10 difficult to say you can't have your medication,  
11 when that medication is taken a certain proportion  
12 of that medication will pass through and be



13 excreted from that individual into the sewer system.

*June 15, 2011 transcript, page 39, lines 7-14*

86. Also, at p. 65, line 42 to p. 66, line 9:

42 Okay. If I can take them sort of  
43 in order there, as far as the PBDEs, the flame  
44 retardants, this is a substance that does not lend  
45 itself well to wastewater treatment plant  
46 treatment. In fact, what we did there, and I  
47 believe others did as well, communicated to the  
1 federal government that this was a material that,  
2 like the PCB material of past, was the kind of  
3 material that was best managed by prohibition.  
4 In fact, that has now happened where the  
5 federal government has put in that prohibition to  
6 come into effect over a period of time, but that  
7 action has been taken. So the recognition was  
8 there that this was a substance that was not best  
9 managed at a wastewater treatment plant location...

*June 15, 2011 transcript, page 65, line 42 – page 66, line 9*

87. One also has to take into account the legacy of divided jurisdictional authority over sewers. The municipalities (who are responsible for storm sewers, household sewer connections, and whose electors bear the financial burden of sewer upgrades) and the regional government (who receives wastewater delivered to the plants, and whose Board is controlled by the elected officials of its member municipalities):

37 Combined sewers are located in Vancouver,  
38 part of Burnaby, and New Westminster, and those  
39 have required and are being carried out on a  
40 regular basis to separate those sewers. Because  
41 what's required there is in fact taking the one  
42 sewer, which is currently carrying storm water and  
43 sanitary wastewater, separating those into two  
44 pipes, and conveying those separately, the  
45 sanitary wastewater going to the wastewater  
46 treatment plant.  
47 This is an extremely complex process where  
1 you have to go into every street in, let's say,

2 Vancouver, separate those. As you move through  
3 and do a portion, you then have to subdivide that  
4 portion so you can convey that separately to the  
5 wastewater treatment plant, with respect to the  
6 wastewater, and carry the storm water out.

*June 15, 2011 transcript, p. 22, line 37 - p. 23, line 6; see also p. 35, lines 23-42*

88. As a member of the regulated community, Metro Vancouver is obliged to meet its statutory requirements. If there is going to be some kind of regulation, it needs to be knowledgeable regulation in terms of the science, costs and practical feasibility.

## Logging

89. The Province submits that there is little controversy on this issue.
90. In reply to the First Nation Coalition submission at page 51, para. 137, the Province notes that Dr. Tschaplinski was making very general comments as requested by Commission counsel. He did say: "*The stability issue is really a dynamic one. Stream banks are not static. They change naturally over time at a natural rate.*" (Tschaplinski, June 17, 2011, p.8, ll. 2-5)
91. Accordingly, it would be more accurate to say: Stream banks and channels that are unaffected by disturbance are much more able to withstand peak flood events without radically changing their form or experiencing radical rates of erosion.
92. Likewise, in reply to the Conservation Coalition submission, the Province notes, in response to page 33, para. 125, that the term, "*ambiguous indicators*" was not used by Dr. Tschaplinski in evidence. It is true that the indicators have become more "generalized" to allow assessments to be conducted and interpreted by professionals on the particulars of an individual watershed. Each watershed will have different levels of sensitivity to disturbances, changes in hydrology, and so forth. The less specific indicators used in the second version of the Watershed Assessment Procedure recognize this, and permit the professional to draw conclusions based on the specific situation at hand. The earlier Watershed Assessment Procedure had thresholds for indicators that were recognized to have shortcomings; that is, the thresholds would actually vary from place to place and the "magic numbers" would not be exactly the same everywhere.
93. In response to the first sentence in para. 126, this was a general statement better understood to mean that Mountain Pine Beetle **may** impact salmon-bearing streams. As with all of the statements Dr. Tschaplinski made on forestry and fish,

all pathways of impact are **potential** ones. It does not follow that the occurrence of an impact, or the level of the effect, is a given outcome.

## **Hydro, water flow and temperature**

### **Groundwater and Conservation Coalition's Proposal for Federal Legislation**

94. The Province relies on its Final Submissions with respect to groundwater.
95. In reply to the CC Submission at paragraph 132, the Province refers to the evidence relied on that groundwater "is critical to maintaining water temperatures that support Fraser River sockeye". This is an overstatement of Dr. Bradford's evidence, which was specific to a specific geographic location and season: the Stuart River for the incubation of salmon eggs.
96. In reply to the submission at paragraph ix.2 that "Groundwater is a critical component of salmon habitat, and the federal government should take steps to regulate it in the face of provincial inaction", the Province submits that the evidence of Lynn Kriwoken details the process for Provincial action. In any event, there is no support in the evidence for federal regulatory action, and, as noted in PPR 21 at paragraph 7, groundwater extraction is a matter of primary provincial jurisdiction. Federal jurisdiction and action under the present federal legislation is limited to actual dangers to fish and fish habitat.

### **Groundwater and FNC's Proposal for Tripartite MOU**

97. In reply to the FNC submission at paragraph 160 that Ms. Kriwoken agreed with the "recommendation" for a "clear tripartite consultative process", the Province submits that Ms. Kriwoken's answer at p. 80, lines 39 to 46, taken in context, merely confirms that it is "useful" to engage not only with First Nations and DFO, but also others: "It doesn't stop there". She also referred to the Minister's response to the First Nations Leadership Council, including further technical workshops on some of the specific policy directions.

98. In reply to the Recommendation following paragraph 163 that “DFO should actively pursue a government-to-government MOU” with First Nations and the Province, the Province submits that Ms. Kriwoken’s answer is that the Minister has already responded to First Nations in this regard. Furthermore, the Commissioner ought not, in the Province’s submission, make recommendations that intrude into the extensive provincial legislative process on a matter of provincial jurisdiction.

### **Okanagan Fish Water Management Tool**

99. The OKFWM is a cutting-edge and innovative computer model that allows all levels of government to participate and agree on trade-offs to best meet socio-economic and environmental goals associated with water management at Okanagan Lake Dam. The tool has helped, not only improving the operation of the [Okanagan] River, but also greatly improving stakeholder and public understanding of the decisions made.
100. The FWMT is a computer model developed specifically to help authorities to manage water flows in the Okanagan River in a “fish friendly” manner. The model benefits kokanee as well as sockeye salmon since water levels in Okanagan Lake are fine tuned at the same time as Okanagan River flows. This computer model: Balances between needs (domestic, agriculture, flood control, navigation, recreation & fish protection); Uses real time data (such as, snow packs, rainfall, lake levels, water temperatures & fisheries information); Incorporates biophysical models; Is developed collaboratively by working group (based on historical data and intensive field work).
101. These predictions allow a multi-disciplinary team of decision makers to choose the best option for releasing flows in a manner which will benefit fish while respecting the needs of other water users.

102. It utilizes the most current data on the potential impacts from various water supply/release scenarios on the full range of water users - fish, domestic/irrigation, recreation. This tool has resulted in a much more balanced approach in managing water (fully recognizes ecosystem values/needs), and has resulted in significant gains for kokanee in Okanagan Lake (more stable water levels during the kokanee shore spawning/incubation period), sockeye/kokanee in Okanagan River and Osoyoos Lake (improved spawning/incubation and rearing conditions). At the same time, the tool addresses the key requirements for domestic, agricultural and recreational users, and contributes to improved flood management.
103. Exhibit 1968 sets the term of reference for the Canadian Technical Working Group: "Recognizing the desirability of ensuring the conservation of fish stocks... deemed critical to the health to the Okanagan ecosystem" (p. 1). It is signed on behalf of DFO by the RDG, the province by the Manager, and by the director of the Okanagan Nation Alliance.
104. The Principles of Operation includes making decisions by consensus, quorum, and rotating chair, and annual meeting with the Bi-lateral (U.S./Canada) Okanagan Basin Technical Working Group. Participation by the parties is without prejudice to aboriginal rights and title issues (Exhibit 1968, pp. 3-5)
105. Annex 2 sets out ecosystem principles and procedures, including:
- e) The sum of our conservation and restoration activities will not be restricted to single species resource management values and over time will reflect a balance of multi-species ecosystem concerns. (Exhibit 1968, p. 6)
2. The COBTWG will adopt an adaptive management framework for implementation of any project considered to involve moderate to high levels of risk or uncertainty to long-term sustainability of indigenous species within a healthy aquatic ecosystem. The adaptive management approach will include:

- a) adoption of a 'stepwise' approach to project implementation;
- b) a commitment to assessment and monitoring prior to, during, and after completion of the project and;
- c) a cyclical review of incoming assessment information to support a stepwise decision making process that includes the option of project termination or reversal at any point where information clearly indicates the costs are likely to outweigh the benefits. (Exhibit 1968, p. 7)

106. Exhibit 1969 (The Okanagan Fish/Water Management Tool: Guidelines for Apprentice Water Managers v.2.0.000) is a report prepared by ESSA technology for the Working Group and Douglas County Public Utility District (which provided funding for the program and the software). The Acknowledgements (p. vii) records the collaborative work involving all parties. Project division and oversight were provided under the direction of DFO's Dr. Kim Hyatt. "Suffice it to say, this work has truly been a team effort and produced many "most valuable player" awards." (p. vii). See also pages 8-11.

107. Exhibit 1970 is an assessment with authors from Okanagan Nation Alliance Fishery dept and DFO.

108. Exhibit 1971 is a quarterly report which demonstrates the breadth of the role of the Okanagan First Nation including its focus on salmon restoration feasibility and stewardship and collaborative management.

All of which is respectfully submitted,

"D.C. Prowse Q.C."  
D.C. Prowse Q.C., Boris Tyzuk Q.C. and Tara Callan, Counsel for Her Majesty the Queen in right of the Province of British Columbia