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 sockeye salmon in the Fraser River

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FINAL SUBMISSIONS OF THE STÓ:LŌ TRIBAL COUNCIL AND CHEAM INDIAN BAND STANDING GROUP

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I. GENERAL POINTS

1. These are the final submissions of the Stó:lō Tribal Council and Cheam Indian Band Standing Group (STC-CIB) on the issue of Infectious Salmon Anaemia virus (ISAv).

2. The leadership of the Stó:lō Tribal Council and Cheam Indian Band consider the handling of the ISAv issue as a case study that is illustrative of the failure of the federal government to properly manage Fraser River Sockeye Salmon.

3. First of all there has been a failure to conduct the necessary structured and regular testing for pathogens, especially ISAv, in wild/indigenous salmon stocks and the effects on Fraser River Salmon stocks.

4. Secondly even when there were positive findings of ISAv in Fraser River Sockeye Salmon stocks, including the endangered Cultus Lake Sockeye Salmon, the effort focused on discrediting the positive findings and no further testing or research was mandated or conducted.

5. Thirdly the information was not shared with the Indigenous Peoples whose indigenous Fraser River Sockeye Salmon stocks were affected or potentially in danger. Furthermore the federal government failed to involve Indigenous Peoples in the decision-making to ensure appropriate steps are taken on the ground and in terms of research, testing and monitoring.

6. To date there has not been an appropriate response to the issue of ISAv and generally addressing the effects of pathogens on indigenous salmon stocks. Those scientists who have collected data and studied indigenous salmon stocks are actively discouraged from studying disease related issues. On the other hand DFO fish pathologists have failed to develop an appropriate approach for properly testing and monitoring wild Pacific salmon stocks, especially Fraser River Sockeye Salmon.

7. To be territorial can be justified if you have the knowledge that comes with the territory, such as the necessary data and an appropriate approach to testing and data collection, which seems to be lacking in the DFO fish health departments. Therefore a territorial attitude that is entirely disconnected from the reality on the ground is not appropriate.

8. Indigenous Peoples as holders of the knowledge connected to the territory and the indigenous salmon stocks, feel more akin to a research approach where the relevant research questions are formulated based on observations on the ground and aim to address questions which have to be answered to form the basis for informed decision-making. As such the Stó:lō People support the genomics research of Dr. Kristi Miller, that has collected important data on indigenous salmon stocks, especially Fraser River Sockeye salmon and is setting out to address questions regarding pressing issues such as ISAv, pathogens and integrated fish health research.

9. The leadership of the Stó:lō Tribal Council and the Cheam Indian Band have also instructed their counsel to raise concerns about the lack of disclosure of information on ISAv by the Canadian federal government generally and within the Cohen Commission proceedings in particular. There is no justification for the failure to disclose the information on positive ISAv findings at the time they were made especially to the Indigenous Peoples in whose territories those findings were made.

10. Furthermore the failure to disclose information dating back to 2002 within the Cohen Commission proceedings, substantiates previously raised concerns that the federal government has failed to make full disclosure of relevant issues within the Cohen Commission proceedings, especially as they relate to critical issues such as ISAv and addressing Aboriginal rights and concerns.

11. The STC-CIB would have expected and still expect the Cohen Commission to take decisive action to ensure full disclosure regarding critical issues related to ISAv, disease and fish pathogens and pathways of their distribution. On the other hand, they take issue with the

implementation of even more restrictive protocols for access to documents, making it difficult for standing groups with a broad basis of membership to provide instructions.

12. It furthermore raises the question whose interests are being protected, those of the groups who violated their document disclosure obligation in the first place or the interests of the groups who have a right to this information. Rather than instituting additionally limiting document disclosure protocols which cause an additional disadvantage to those parties who should have had access to the information in the first place, negative inferences should be drawn against those who failed to disclose the information in the first place.

13. The federal government's practice to keep information on critical issues, such as presence of pathogens and/or disease in wild and farmed salmon stocks, has already caused damage to indigenous Fraser River Sockeye salmon stocks to date. The STC-CIB suggest a recommendations by the Cohen Commission making disclosure of this information mandatory. Furthermore even preliminary findings should be shared with Indigenous Peoples to form the basis of informed decision making and to implement joint management and conservation of the Fraser River Sockeye Salmon stocks. As a first step the Cohen Commission itself could send a strong signal by ensuring that the respective information collected within this public commission of inquiry is disclosed publicly.

II. THE FINDINGS

14. Following the Cohen Commission hearings on ISAv, it can no longer be denied that there have been positive findings of ISAv in wild and farmed salmon stocks in British Columbia.

15. Leading researchers and laboratories on ISAv, such as Dr. Kibenge's OIE reference laboratory on ISAv[1] and Dr. Nyland's laboratory at the University of Bergen in Norway, that has conducted some of the most long term and intensive research on ISAv, have reported positive findings of ISAv in wild salmon in the Fraser River system. Dr. Gagné's experience, especially in regard to proper testing for ISAv, pales in comparison to Drs. Nyland and Kibenge. In addition serious concerns regarding her testing methodology, the segments targeted, the broad spectrum of testing, the hard and software used in the testing at the Moncton laboratory etc. have been raised and should be further investigated.

16. Even more disconcerting is the fact that Dr. Gagné and the Moncton laboratory do not have any experience to speak of testing wild Pacific salmon stocks, nor have they conducted any research or structured testing to ascertain the presence of ISAv in Fraser River Sockeye Salmon stocks.

17. Dr. Fred Kibenge in his testimony confirmed that he was one of the co-authors of the draft article[2] from 2004 reporting on positive ISAv findings in wild Northwest Pacific Salmon and that he had reviewed the respective research underlying it. He confirmed that in 2002/03 all or 100% of the 64 samples from Cultus Lake Sockeye Salmon tested positive for ISAv in Segment 8 primers[3].

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[1] Transcript, December 19, 2011 page 58 lines 29-46

[2] Exhibit 2045, draft article attached to the email

[3] Transcript, December 16, 2011, page 59 line 1 to page 60 line 46

18. Dr. Kibenge further testified that this was an important and significant finding, since it was a very large number of positives, which in turn would militate and call for further research, especially regarding what is going on with the Cultus Lake sockeye salmon and wild salmon stocks in relation to ISAv[4]. Yet no such additional research was conducted since 2004, the article has not been approved for publication and the findings were not shared with the Stó:lō People in whose territory the findings occurred and who have been working hard to restore Cultus Lake Sockeye Salmon.

19. This clearly constitutes a failure to take necessary action to further investigate issues related to ISAv and wild Fraser River Sockeye Salmon stocks, on part of the Fish Health laboratory at Pacific Biological Station (PBS) and the National Aquatic Animal Health Programme (NAAHP) laboratories. Furthermore they generally have not focused on testing and researching pathogens in wild Pacific salmon stocks and therefore lack experience and appropriate methods.

20. The DFO laboratory that has conducted the most detailed research and testing on wild/indigenous Pacific Salmon stocks is Dr. Miller's Genomics Laboratory at PBS. The laboratory has accumulated a collection of samples of indigenous Pacific salmon stocks over decades and as such they have a very good resource available to them as the basis for future research[5]. In addition Dr. Miller pointed out that the laboratory had already conducted substantive research[6]:

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[4] Transcript, December 16, 2011, page 61 lines 1-30

[5] Transcript December 15, 2011, page 138 lines 10-19

[6] Transcript December 15, 2011, page 136 lines 11-19

> 11 DR. MILLER: Yes, and we have now a very valuable
> 12 resource in over 3,000 arrays that have been run
> 13 on migrating fish over multiple years and multiple
> 14 species that we can go back to and start asking
> 15 these kind of questions. We call it retrospective
> 16 genomics. So we didn't start out with this as an
> 17 idea, but we gain new information about those same
> 18 very fish that we ran, and retrospectively we can
> 19 go back and analyze our microarray data.

21. This constitutes the most comprehensive data and research on indigenous Pacific salmon stocks, especially Fraser River Sockeye Salmon. It further provides a basis for conducting retrospective genomics and immediate testing for pathogens, including ISAv, which the fish health laboratories have to date failed to conduct in a comprehensive testing on wild stocks. Dr. Miller further confirmed that her laboratory can conduct this work providing a much needed head start when it comes to studying disease and wild salmon[7]:

> 24 DR. MILLER: I believe that we can add a layer to our
> 25 knowledge of fish disease and wild fish by using
> 26 the genomic, and by using the microarray data that
> 27 we already have, yes.
> 28 Q And you have a head start on everybody else
> 29 because they actually don't have that information
> 30 in hand.
> 31 DR. MILLER: That is correct.

22. In light of the disclosure of positive findings of ISAv in wild Pacific Salmon, the Genomics Laboratory at PBS used their extensive collection of samples to test for the presence of ISAv

[7] Transcript December 15, 2011, page 138, lines 20-31

and was also able to make positive ISAv findings in many of its samples and was even able to partially sequence an ISAv strain.

23. The positive findings of ISAv and the genomics work done in that regard is significant in that it has not only detected and partially sequenced a virus but it also has identified a host response. Dr. Miller explained this during examination by Counsel for Canada[8]:

> DR. MILLER: The fish are still responding to something
> 39 being present, okay? So there's a lot of studies
> 40 on multiple different species that show that
> 41 organisms, when infected with a pathogen, their
> 42 level of host response to that pathogen will
> 43 largely be coincident with the level of damage
> 44 being done, and the level of virulence of that
> 45 pathogen. So if you contrast pathogens, I know
> 46 this has been done in IHN, but in a variety of
> 47 different pathogens of low virulence and high
> 1 virulence, you will find the strongest immune
> 2 response and the strongest basic host
> 3 transcriptional response to a pathogen that is
> 4 causing disease and damage, rather than one that
> 5 is not. And I only showed you one pathogen, and
> 6 we're doing this on a variety of different
> 7 pathogens, but the only point from that wasn't
> 8 necessarily that we have evidence of disease and
> 9 mortality by any stretch, but that it's clear that
> 10 salmon that are carrying the CT values for ISA7,
> 11 there is a change in the transcription of those
> 12 fish. They are responding in some way and really
> 13 interestingly, they are responding similarly to
> 14 the response that has already been shown to exist
> 15 in response to influenza infection in mammals
> 16 because those pathways are curated from mammals.

[8] Transcript, December 15, 2011, page 87 line 38 to page 88 line 21

24. The STC-CIB stress that immediate research on ISAv and other pathogens in indigenous salmon stocks, especially Fraser River Sockeye Salmon has to be conducted, including retrospective genomics. They take issue with the manner in which the DFO and Canadian Food Administration Agency (CFIA) staff responsible for dealing with ISAv have been handling the issue. Further research on and sequencing of the ISA virus, should be encouraged, rather than discouraging researchers and laboratories (other than the respective NAAHP laboratories) from testing for ISAv and even threatening seizure of samples.

III. THE FAILURES

A. THE FAILURE OF CURRENT APPROACHES

25. The latter illustrates an inappropriate response on the part of the authorities, clearly the situation requires a comprehensive and integrated response.

26. In that regard it is important to point out that fish health laboratories, including the one at PBS until recently, never focused on disease in wild stocks, apart from some research on IHN[9]. There is no justification for the territorial/adversarial attitude of the fish health laboratory at PBS vis-à-vis the Genomics laboratory and their research in regard to the decline of Fraser River Sockeye Salmon stocks that has been pinpointing pathogens.

27. Already during the first round of fish health hearings it became clear that the current methodology of DFO fish pathologists is ill equipped to test for pathogens and research effects on wild pacific salmon stocks. While all the panellists agreed that there was a need for more integrated fish health research, the current approach employed by the DFO fish health

[9] Transcript December 15, 2011, page 138, lines 32- 48

laboratories did not provide such an integrated approach or for that matter any approach appropriate for systematic testing for pathogens and disease in wild stocks and clearly no such testing was in place then, nor has it been put in place since.

28. The failure of the fish health laboratories to take decisive and necessary action to test for such pathogens has become even more apparent since the last round of hearings, following the disclosure of positive findings of ISAv in indigenous Pacific Salmon stocks, including Fraser River Sockeye Salmon. The focus of the NAAHP laboratories seems to have been on disproving positive findings rather than instituting the necessary research and testing plan for ISAv and other pathogens with the appropriate testing and research methodology and questions.

29. The official DFO response to requests by First Nations regarding sampling was also inappropriate. For example an email was submitted by a First Nations fisheries manager indicating readiness to collect samples for ISAv testing. The response received from the Program Head for Fraser River Sockeye Salmon stock assessment indicated that: "At this point in time we do not believe that additional sampling of salmon for ISAV is necessary." The response further followed the official and media line by DFO and the CFIA that, the disease had not been detected through systematic sampling conducted b the CFIA and extensive testing. Dr. Stephen in his testimony acknowledged that the response provided information based on the published documents and news releases[10]. This can be taken as an indication that there was a systematic response following official lines and discouraging sampling, rather than sharing information about positive findings of ISAv with First Nations and involving them in the respective decision making and response action.

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[10] Transcript, December 19, 2011, page 91, lines 11-41

B. THE FAILURE TO DISCLOSE THE NECESSARY INFORMATION

30. Again some of the sampling resulting in positive findings of ISAv had taken place in Stó:lō territory, where people were concerned about fish health issues, decline in indigenous stocks and most recently findings of many dead salmon in the Harrison River.

31. This issue arose in the evidentiary hearings of the Cohen Commission of Inquiry at the DFO priority hearings, where standing groups who had previously engaged in finger-pointing against Aboriginal Fisheries, wanted to table pictures of dead fish floating in the Fraser River by the mouth of the Harrison River. Fingers were pointed at the Stó:lō People and still DFO did not indicate that there were explanations related to fish health, despite positive findings for ISAv in a number of the Harrison River samples.

32. Dr. Jones in his testimony acknowledged that he was not aware of any alternative explanation being provided by DFO raising fish health related issues in regard to the floating fish, but he indicated that it would not be unexpected that such this issue would now be considered[11]. It is unacceptable that while DFO is aware of fish-health related concerns regarding the specific finding of a number of dead salmon from the Harrison River, they do not go public and provide this alternative explanation, instead letting finger-pointing against the Sto:lo People continue. As a result the Stó:lō people are victimized twice: firstly they are the ones to suffer the immediate effects of decline of their indigenous salmon stocks due to a failure to address fish health concerns in their territory over at least a decade in an appropriate manner; and secondly they have fingers pointed at them in regard to the decline, and DFO fails to disclose relevant information to counter these wrongful allegations.

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[11] Transcript December 19, 2011, page 99 lines 22-42

33. It adds further insult to injury to hear the CFIA and DFO officials tasked with dealing with the ISAv issue downplay not only the positive findings. To hear Dr. Stephen state that "I do not know why people are calling it a crisis", elicits the following response from the STC-CIB, that this is clearly a crisis - in addition to the crisis on the ground in properly handling the ISAv issue, it is illustrative of the crisis in regard to how to properly deal with Fraser River Sockeye Salmon Management and First Nations. The information about positive ISAv findings should have been shared with First Nations in the first place, they should have been involved in formulating an appropriate response. Instead the Canadian federal government withheld clearly relevant information dating back almost a decade in regard to fish health from First Nations and the Cohen Commission - this is nothing short of a very serious crisis.

34. As such the STC-CIB leadership have instructed their counsel to express their outrage over the failure of the federal government to share the information about testing and positive findings of ISAv in their territory, including in the endangered Cultus Lake and Harrison Sockeye Salmon stocks.

35. The failure to make full disclosure of materials relating to findings of pathogens and information regarding overall fish health and disease to the Cohen Commission has impaired its tasks is to make independent findings of fact regarding “the causes for the decline of Fraser River sockeye salmon”; as well as to make recommendations in regard to overall fish health related issues, pathogens and their effects and ISAv in particular.

36. The failure to make full disclosure of fish health related information, including ISAv and pathogens, also impaired the ability to complete comprehensive expert reports such as reports on projects 1 and 1 A relating to diseases, but also in assessing cumulative effects and how Fraser River Sockeye Salmon react to multiple stressors as the effects of climate change, increased temperatures and pathogens.

37. The STC-CIB reiterate their above requests that the Cohen Commission ensure complete document disclosure in regard to fish health related issues and recommend that this information be made public.

C. THE FAILURE TO PROPERLY INVOLVE FIRST NATIONS

38. The failure to date of the CFIA and DFO in properly informing and involving First Nations in decision making and properly addressing the ISAv issue in their territories is best illustrated by the fact that at the time of the hearing the CFIA decision-makers did not know in the territories of which First Nations the positive ISAv findings had been made. Even more disconcerting is that the DFO staff also tasked with addressing the ISAv issue and the DFO leadership did not ensure that the respective First Nations were contacted, informed and involved in developing an appropriate response. It turns out that the CFIA had to rely on DIAND to identify the respective First Nations and no information has been shared to date[12].

39. A further indication why the CFIA/DFO team tasked with developing a response to ISAv lacks the necessary competence and knowledge is that they were not aware that Cultus Lake Sockeye Salmon is endangered[13]. This indicates that they lack knowledge about local circumstances and wild salmon stocks generally. Instead there is a bias towards farmed salmon and to a more limited extent commercially viable stocks, and a failure to take into account the necessary conservation considerations, which should be the first priority as per DFO's mandate and priority resource allocation. This is yet one more reason why First Nations should be at the table as equal, joint decision makers in developing an appropriate response, since they have the necessary local knowledge and for them conservation of their indigenous salmon stocks remains the first priority.

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[12] Transcript, December 19, 2011, page 104, lines 4-24

[13] Transcript, December 19, 2011, page 93 line 38 to page 94 line 2

40. Only Dr. Jones, who was not responsible for the current CFIA/DFO response to the positive ISAv findings, but responsible for the failure to disclose previous positive ISAv findings, knew that Cultus Lake Sockeye Salmon were endangered. He was also aware that there has been a significant effort in restoring and rebuilding Cultus Sockeye stocks, and that there is strong First Nations participation in these projects on the ground[14].

41. Dr. Jones served as supervisor for Dr. Molly Kibenge's post-doctoral research at PBS, which included access to samples from spawning Cultus Lake sockeye salmon. He agreed that in order to collect those samples they had to work with DFO and the First Nations staff on the ground. This makes it all the more unacceptable that once the samples collected under the recovery project tested positive for ISAv, neither he nor anyone else from DFO advised Soowahlie First Nation and the Stó:lō People.

D. THE FAILURE TO CONDUCT ADDITIONAL RESERACH AND TESTING

42. Equally disconcerting is the fact that they also failed to notify DFO's own Cultus Lake Recovery team, that has been mandated to study and address the decline in Cultus Lake salmon including considering disease/fish health as a factor. Thereby precluding, rather than inviting further research into the possible presence of ISAv in Cultus Lake sockeye salmon stocks. Clearly there was ongoing research on Cultus Lake Sockeye Salmon stocks which could have taken into account the issue and constituted an important opportunity to consider ISAv and fish health related issues over the past seven years. The lost opportunity, caused by his own failure to disclose the positive findings, is acknowledged by Dr. Jones himself when he now stresses that it is very important to conduct further research on the issue. He

[14] Transcript, December 19, 2011 page 94 line 3 onwards

acknowledged that they failed to use ongoing work and research to do some more testing following a precautionary approach. No testing for ISAv in Cultus Lake Salmon was conducted since 2004[15].

43. Dr. Jones further testified that he would have liked to have seen his collaborators conduct further research into what was going on with the different assays in 2003 and 2004. He testified that as a scientist he would have liked to have seen this then and that he thought it was very important, but he did not follow-up on this[16].

44. As a result over seven critical years with ongoing declines in Cultus Lake and other Fraser River Sockeye salmon stocks went by without developing appropriate assays and conducting specific research for these stocks. Even more disconcerting, no lesson seems to have been learned from the failure to share the information about positive ISAv findings then, since fast forwarding to the fall of 2011 - once again positive ISAv findings in wild stocks were not shared with Indigenous Peoples. Specifically there have been positive ISAv findings in Stó:lō territory yet again and the Stó:lō people were not informed, nor involved in the resulting decision making and response actions being taken since. Dr. Klotins in her testimony acknowledged that they had not involved the Stó:lō people in their decision making and response activities to date. She acknowledged that the respective First Nations in whose territory there have been positive findings, should be involved. But there has been no disclosure of information or involvement to date[17].

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[15] Transcript, December 19, 2011, page 96 lines 2-10, page 98 lines 1-10

[16] Transcript, December 19, 2011, page 97 line 10-37

[17] Transcript December 19, 2011, page 98 line 33 to page 99 line 32

45. The formulation of the research objective in regard to ISAv in the DFO Pacific Region ISAv, IHNv and IPNv survey goals, demonstrates a certain bias, namely it sets out to[18]: "confirm that ISAv is not present in BC waters." This question was formulated following discussions that had already revealed positive findings of ISAv in wild sockeye salmon stocks including by laboratories at PBS. No further testing protocols were formulated to address possible positive findings of ISAv. The STC-CIB agree with the assessment of Dr. Miller of the research question and approach[19]:

> 15 DR. MILLER: I think you've picked up on a very
> 16 important philosophical approach, and the
> 17 difference between what my lab does and what
> 18 people studying fish health do. At least, again,
> 19 this is my view.
> 20 Their approach is to make sure it's not
> 21 there. My approach is to ask if there's any way
> 22 that it is there. So I might take a different
> 23 approach to it than they would on that basis.
> 24 Q And you'd agree that it's important to continue
> 25 research into the field and into dealing with ISAV
> 26 potentially being present in B.C. waters.
> 27 DR. MILLER: I would say so, yes.
> 28 MS. SCHABUS: Thank you.

IV. ALTERNATIVE APPROACH REQUIRED

46. The STC-CIB support a research approach that has an open research question addressing the issue of the presence of ISAv in BC waters and the effect it has on wild salmon stocks,

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[18] Exhibit 2065, DFO Pacific Region ISAv, IHNV and IPNV Survey Goals

[19] Transcript, December 15, 2011, page 140 lines 1-26

especially Fraser River Sockeye Salmon. It has to be remembered that the recent samples collected in October 2011, that led to the disclosure of positive ISAv findings, were collected in the Harrison River in Stó:lō territory. They were collected following observations and concerns being raised regarding a large number of dead fish floating down the Harrison River.

47. Similar to indigenous traditional knowledge that is based on observation and investigation of phenomena, the STC-CIB believe in a research approach that addresses questions arising out of such observations, such as a large number of dead fish, en route mortality and pre-spawn mortality, taking into account all the possible causative factors, including cumulative effects.

48. Indigenous Peoples in the Fraser River System have long been noting and raising concerns regarding an overall decline in fish health, which has to be investigated, including by using novel technologies, as explained by Dr. Miller[20]:

> 30 DR. MILLER: My view is that I recognize that we can't
> 31 -- it's very difficult to study disease 'cause we
> 32 don't see wild fish die. If we can not only
> 33 understand what pathogens that wild fish are
> 34 exposed to and are carrying as they're migrating,
> 35 look at the loads of those pathogens, and then
> 36 look at the degree of the host response that they
> 37 have to those pathogens, it's one way that one
> 38 might be able to rank which, among the various
> 39 pathogens, they carry might be causing harm. So
> 40 that is the approach we're taking.
> 41 I only show the data for ISA. We've done
> 42 this with other pathogens as well. It is a novel
> 43 approach. We do a lot of development of novel
> 44 approaches.

[20] Transcript, December 15, 2011, page 135 lines 30-44

49. The STC-CIB support such integrated fish health research and testing for multiple pathogens, which should be conducted in a broad and systemic manner. The STC-CIB support the ongoing research approach that focuses on wild fish that looks at the whole organismal health with pathogens being one aspect of it[21].

50. Stó:lō People often submit samples of fish that they locate or catch that do not look normal, carrying indicators of disease, such as jaundice and lesions, for testing to DFO, but they usually do not receive any response. They have repeatedly expressed their readiness to participate in sample collection, testing and research programmes to address their observations and increasing indicators that the Fraser River Sockeye Salmon are facing serious fish health related challenges.

51. Implementation of Joint Management of Fraser River Sockeye Salmon that incorporates the knowledge and observations of Indigenous Peoples in their respective territories, has a distinctive advantage over the current management regime under the jealously guarded exclusive authority of DFO. While DFO has less and less resources and staff on the ground who monitor habitat and fish health; Indigenous Peoples are a permanent presence in their territories that make ongoing observations which can play a key role in regard to quickly addressing fish health issues and collecting samples. Joint management and decision-making will therefore have an overall positive effect on conservation of Fraser River Sockeye Salmon including by accessing indigenous knowledge and observations regarding fish health.

52. Leading researchers, like Dr. Miller have recognized the important role Indigenous Peoples can play in terms of conducting research and sharing information with them as the basis for

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[21] Transcript, December 15, 2011, page 139, lines 15-18

decision-making. In the context of the ISAv hearing and in regard to working with First Nations she stated[22]:

> 11 DR. MILLER: I absolutely do, because they are actually
> 12 on the ground and they are seeking the salmon in
> 13 their natural environment. If we -- like, for
> 14 instance, with the jaundice work that we're doing
> 15 with Creative Salmon, when some of this came out
> 16 in the Cohen, there was a surge of people finding
> 17 these yellow fish out in streams throughout
> 18 British Columbia. Having those people on the
> 19 ground making those observations is
> 20 extraordinarily value.

53. Following up on the issue of working with First Nations to conduct sampling regarding ISAv sampling and in response to a question about whether she would invite and welcome samples by First Nations. Dr. Miller answered the following question[23]:

> 21 Q And, for example, if you got an email now from an
> 22 aboriginal fisheries manager saying, look, in
> 23 light of everything that we are hearing about ISA
> 24 virus, should we get samples to you, you wouldn't
> 25 actively discourage them from sending samples and
> 26 saying, you know, this is not really an issue?
> 27 DR. MILLER: I've been pretty open about receiving
> 28 those kind of samples.

54. The STC-CIB therefore recommend that Indigenous Peoples be put in a position to conduct sampling and that the results be shared with them to form the basis of joint decision making.

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[22] Transcript, December 15, 2011, page 136, lines 11-20

[23] Transcript, December 15, 2011, page 136, lines 21-30

V. APPROPRIATE RESPONSE REQUIRED

55. It is the STC-CIB's position that all findings, including preliminary research results on pathogens such as should be immediately shared with First Nations to ensure they can be involved in developing an appropriate response to the findings.

56. They were additionally concerned when they heard about findings of other pathogens such as the discovery of virus believed to be causing Heart and skeletal muscle inflammation (HSMI) in wild and farmed salmon stocks in British Columbia waters, which Dr. Nyland, a leading researcher in the field, indicated could lead to serious effects and high mortality[24]. In addition there is also an indication of pathogenic strains of Flava bacterium in 2007 smolts associated with the low returns in 2007. In light of all these findings, in regard to numerous pathogens and the failure of the federal government to disclose this information to date, the STC-CIB support the Conservation Coalition's request to reopen the evidentiary hearings on fish disease as a whole and to take immediate steps that all disease related information is immediately disclosed to the Cohen Commission.

57. Rather than discouraging independent testing (as the CFIA and DFO have), the failures on part of the authorities to date substantiate the need for independent testing. Furthermore there is a real opportunity in collaboration with independent research laboratories, so as to benefit from their vast expertise.

[24] Transcript December 15, 2011, page 113, lines 1-47

58. The STC-CIB fully agree with the recommendation of Dr. Fred Kibenge who himself was victimized by the inappropriate response of the authorities and yet is ready to continue collaborating on the issue[25]:

> DR. KIBENGE: Okay. When I came here, I came with the
> 38 view that I would probably be asked in terms of
> 39 what recommendations I could put forward. And I
> 40 have thought about this and I have three
> 41 recommendations that I would put forward right now
> 42 in response to your question.
> 43 The first one is that I believe that the
> 44 different labs that are working on this problem
> 45 should actually try to work together for the
> 46 common good and come up with more information,
> 47 more knowledge, rather than the situation in where
> 49 there is a lot of discrediting
> 1 of certain
> 2 individuals, certain labs, and so on. That, in my
> 3 view, will not serve Canada well...
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> DR. KIBENGE: Yeah, the second comment or
> 33 recommendation I would make is that really we need
> 34 to get a hand on this virus in the wild fish. The
> 35 methods we are using now and the samples we are
> 36 taken -- we are taking, are based on our knowledge
> 37 of the virus and the disease in farmed Atlantic
> 38 salmon, and that could be part of the reasons why
> 39 we are really not being consistent in what we are
> 40 picking up, and being sure whether we are even
> 41 detecting ISA virus. So it's important that we
> 42 set up experimental infections to detect where the
> 43 virus is most and when is the best time to sample
> 44 so that we can actually get a hand on even the
> 45 spread of this virus, wherever it may be. Without

[25] Transcript, December 16, 2011, page 38 line 47 to page 40 line 11

> 46 that, we really don't have a clue of what we are
> 47 doing.
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> 1 And the third recommendation I would suggest
> 2 is that I think probably the government or someone
> 3 should set up some sort of a fund or research
> 4 chair, so to speak, so that we'd get some expert
> 5 who focuses on aquatic virology and get to the
> 6 bottom of most of these issues. We have seen and
> 7 heard, you know, Canada has some expertise here.
> 8 I heard from Dr. Miller, I think she is the -- a
> 9 very accomplished scientist that could easily be
> 10 used. But there are others, and I think this is
> 11 something that we need to consider and therefore.

59. In addition the STC-CIB want to point to the importance of directly involving Indigenous Peoples in the future research and response activities taking into account their traditional knowledge and local observations. Indigenous Peoples should play a key role in sampling and be provided with the results to form the basis of joint decision making and developing approaches to deal with this undeniable fish health issue in Fraser River Sockeye Salmon.

ALL OF WHICH IS RESPECTFULLY SUBMITTED:

Co- Counsel for the STC-CIB

December 29, 2011