Commission of Inquiry into the Decline of Sockeye Salmon in the Fraser River

Commission d'enquête sur le déclin des populations de saumon rouge du fleuve Fraser

Public Hearings

Audience publique

Commissioner

L'Honorable juge /
The Honourable Justice
Bruce Cohen

Commissaire

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Morris J Wosk Centre for Dialogue
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Asia Pacific du
Morris J Wosk Centre for Dialogue
580 rue Hastings Ouest
Vancouver (C.-B.)

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APPEARANCES / COMPARUTIONS

Brock Martland	Associate Commission Counsel
Kathy L. Grant	Junior Commission Counsel
Jennifer Chan	Junior Commission Counsel
Mitchell Taylor, Q.C. Mark East Geneva Grande-McNeill Adam Taylor (Articling Student)	Government of Canada ("CAN")
Clifton Prowse, Q.C. Tara Callan	Province of British Columbia ("BCPROV")
No appearance	Pacific Salmon Commission ("PSC")
No appearance	B.C. Public Service Alliance of Canada Union of Environment Workers B.C. ("BCPSAC")
No appearance	Rio Tinto Alcan Inc. ("RTAI")
No appearance	B.C. Salmon Farmers Association ("BCSFA")
No appearance	Seafood Producers Association of B.C. ("SPABC")
Gregory McDade, Q.C.	Aquaculture Coalition: Alexandra Morton; Raincoast Research Society; Pacific Coast Wild Salmon Society ("AQUA")
Karen Campbell Judah Harrison	Conservation Coalition; Coastal Alliance for Aquaculture Reform Fraser Riverkeeper Society; Georgia Strait Alliance; Raincoast Conservation Foundation; Watershed Watch Salmon Society; Mr. Otto Langer; David Suzuki Foundation ("CONSERV")

APPEARANCES / COMPARUTIONS, cont'd.

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

APPEARANCES / COMPARUTIONS, cont'd.

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

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Vancouver, B.C. /Vancouver
(C.-B.)
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MS. PANCHUK: The hearing is now resumed.
MR. MARTLAND: Mr. Commissioner, we begin today with the continuation of the panel in the reduced form. Dr. Kibenge and Ms. Gagné will face a series of questions from participants. I expect that before the mid-day break -- and today's session is such that we run till 12:30, we have a break till 1:30 and continue through to 4:30 today. I expect that we will conclude the first panel's evidence and at least begin panel number 2 before the mid-day break.

I have counsel next for the province with a 20-minute allocation.

MS. CALLAN: Mr. Commissioner, Tara Callan on behalf of Her Majesty the Queen in Right of the Province of British Columbia.

CROSS-EXAMINATION BY MS. CALLAN, continuing:

Q My first question is for Dr. Kibenge. How long is the ISA viral sequence?
DR. KIBENGE: Okay. The virus has eight RNA segments and they range in size from about 2.3 kilobases, the longest segment, to about 970 bases in the shortest segment. So the total -- I don't have the exact size, but the total would be probably the additional (indiscernible) with the longest being 2.3 kilobases and then going down up to the smallest which is segment 8 being 970 bases.
Q So somewhere between 8,000 and 20,000 base pairs approximately?
DR. KIBENGE: Yeah, it should be. I don't have the exact number, but at least I've given you the range for each of the segments, the largest being 2.30 kilobases and the smallest being 970 bases.
Q Okay. Now, these RC-PCR (sic) tests are optimized for Atlantic salmon. Can you describe problems that may arise when using the same Atlantic salmon PCR tests and applying them to other species such as sockeye or chinook?
DR. KIBENGE: Yes. Actually, both the conventional RT-PCR and the real-time RT-PCR were developed for

detecting the virus in -- from Atlantic salmon, so the actual tests are designed to detect the presence of the virus in -- from the fish in which they developed disease, and I think they're fairly consistent in detecting the virus in those species -- in that species, Atlantic salmon.

When you apply the same test to the wild fish, we run into problems because, first of all, we don't know what is the best tissue to test, in which case the tissue that will have the most amount of virus. We also don't know how long that virus will be in that particular tissue.

But the other thing is that we really don't know the exact variation of this virus within those species, so I would say that these tests are not designed to particularly detect infection in wild fish.

Q Now, Ms. Gagné, the province also did ISAV testing on some of the fish from the chinook salmon jaundice disease outbreak as well.

MS. CALLAN: And the results are outlined at Commission counsel Tab 55, page 2, case number 2011-08-55, if we could put that up on the screen, Mr. Lunn.

MR. LUNN: Could you just give me that information a little bit more slowly, please.

MS. CALLAN: Commission counsel Tab 56, page 2, and it's the same pink section that we discussed yesterday. If you could scroll down a little bit so the titles -- so it's clear that the titles are showing so we can see which tests were conducted on these fish. Thank you.

Q Ms. Gagné, would you agree that all of the six OIE recommended primer sets were used to test these fish?

MS. GAGNE: It looks like it, although the list of assays in the OIE changes often in each of the revisions of the manual, so I'm not sure if this reflects the final list, but it looks like this is the case.

Q Now, if you look at this document, this outlines a number of reruns in all of the 2011 samples that the province had, and you'd agree as well that all of the -- well, the six OIE recommended primer sets were also tested on all of these fish?

MS. GAGNE: This is what is showing here I think.

Q Thank you. My understanding is that viruses change over time.

MS. GAGNE: Yes.
Q Now, some of the assays being discussed yesterday; for example, the Plarre ISAV-7 test and the Plarre ISAV-8 test, and the Snow ISAV-7 test outlined on provincial document 12 were developed in 2005 and 2006?
MS. CALLAN: Mr. Lunn, if you could put that document up?
MR. LUNN: If you just call me first, then I'll be able to be listening for what you need.
MS. CALLAN: Sure. It's provincial Tab 12. That's the right page.
Q Would either of the panellists agree that those three tests, the first, second and fourth tests were developed in 2005 and 2006?
MS. GAGNE: Yes.
Q Okay. And the research that went into that would have been earlier than 2005 and 2006?
MS. GAGNE: Yes.
Q Have any new ISAV sequences been developed or discovered since 2005 or 2006?
DR. KIBENGE: Yes. We have deposited a lot of sequence particularly from Chile into the GenBank, and this outbreak occurred from 2007 to probably highest rates up to 2010.
MS. GAGNE: There's also other outbreaks or cases that were submitted since then, in probably Norway, but we don't have access to information. In the Atlantic, there are.
Q So in order to stay current, to develop a proper assay, it's necessary to keep it updated.
MS. GAGNE: Yes.
Q And then once you -- and one way to do that is by regularly using GenBank and appropriate software to develop one that targets all known strains or variance?
MS. GAGNE: I would say mostly by reviewing the assay you're using with additional sequences as they become available.
Q Would you agree that that's the proper way to keep current, Dr. Kibenge?
DR. KIBENGE: That is correct and actually in fact that's what the OIE manual recommends.
Q So then once you do that procedure, then you must conduct validation tests to ensure that what you're picking up is actually ISAV; is that correct?

DR. KIBENGE: Yes.
Q Now, this is what your labs do?
MS. GAGNE: Yes.
Q Dr. Kibenge as well?
DR. KIBENGE: Yes.
MS. CALLAN: Now, if we could turn to provincial Tab 10, Mr. Lunn. Yes, please.
MS. PANCHUK: Tab 12 is now marked as 2086.

EXHIBIT 2086: (See Exhibit 2041)

MS. CALLAN:
Q Would you agree based on a review of the document that this is what the province does as well?
MS. GAGNE: That's what the document says.
MS. CALLAN: Okay. If we could have this marked as the next exhibit.
MS. PANCHUK: Exhibit 2087.

EXHIBIT 2087: (See Exhibit 2048)

MS. CALLAN:
Q Now, I understand that you were asked by Dr. Klotins to review the provincial primers in May as a result of Ms. Morton's report of infectious salmon anaemia; is that correct?
MS. GAGNE: May sounds correct, yes.
Q And are you of the opinion that the primer that the province designed is designed to detect all current known strains of ISAV?
MS. GAGNE: I can't remember exactly what was my response. I don't remember seeing any big problem in the assay, however. If you have -- I can't remember exactly. There might be some mismatches with some rarely detected strains of ISA, but I can't exactly remember except I didn't see any huge problems.
Q So you'd agree, then, that the provincial primer set is a good primer set?
MS. GAGNE: It looks like it, and I can add that based on Dr. Miller sequencing information provided during this inquiry, it's showing on the parts of -- the sequences that she has obtained that these primers should detect ISA.
Q Now, I also understand that the province has done some more follow-up ISAV testing so now there are 7002 negative tests for ISA?

MS. CALLAN: Mr. Lunn, if you could turn to provincial Tab 1.

MR. MARTLAND: Mr. Commissioner, I just rise to make sure our record accurately reflects things. The last two marked exhibits are already exhibits to our understanding. Mr. Lunn is nodding yes. My notes is that 2086 was marked as 2041, and 2087 I haven't yet been able to -- 2048. So my suggestion, respectfully, would be we might cancel the last two exhibit numbers and the record can reflect the proper numbers. Thank you.

MS. PANCHUK: They've been cancelled.

EXHIBIT 2086: Withdrawn as previously marked

EXHIBIT 2087: Withdrawn as previously marked

MR. McDADE: Sorry, I just rise in relation to the exhibit on the screen. I just want to object to any admissibility of this unless it's established in evidence.

MS. CALLAN: Well, Mr. McDade, I have just shown the documents that show all the 2011 retests, so if you want to start counting them up, but that's what this document is going to summarize.

MR. McDADE: Well, that last document hasn't been substantiated in evidence either. No witness has identified that document as having any validity at all.

MS. CALLAN: They were marked as exhibits yesterday and obviously the province doesn't have any witnesses on this panel or for the next three days, so I submit that I just move on.

MR. MARTLAND: Mr. Commissioner, for our part, I think it's fair, to put it mildly, that we've taken a relaxed approach to the marking of exhibits. My respectful suggestion would be it's more a question of ultimately what use and what a document can speak to. Those may be matters of weight in submissions as opposed to receptibility or admissibility.

I say that in the context of the way documents have been marked here including, in many situations, where obviously the author or someone is unable specifically to speak to it.

THE COMMISSIONER: I was just going to say we've had objections in the past, not unlike the one that

Mr. McDade has just addressed. My suggestion would be, Mr. Martland, that we mark this for identification purposes and counsel can make their submissions accordingly following the evidence.

MR. McDADE: Mr. Commissioner, I think that's fair enough in terms of marking the actual exhibit, but my friend then goes on and says, "Well, the exhibit says this, so you agree that there has been that number of tests." That's a step too far.

THE COMMISSIONER: What is the next exhibit letter? Triple EEE? Triple EEE, thank you. Triple III.

MARKED III FOR IDENTIFICATION: (See Exhibit QQQ for identification)

MS. CALLAN:

Q My understanding, would you agree that EEE (sic) would indicate that 7002 ISAV tests were conducted by the province?

MS. GAGNE: This is what the documents indicates.

Q Now, were these documents ever provided to yourself in regards to any of the investigation that you did on behalf of the federal government?

MS. GAGNE: No. No.

MS. CALLAN: If we could turn now to provincial Tab 7.

Q Dr. Kibenge, is this a report that you did?

DR. KIBENGE: Yes.

MS. CALLAN: Could we mark this as the next exhibit?

MS. PANCHUK: Exhibit 2086.

EXHIBIT 2086: Confidential report by Dr. Kibenge

MS. CALLAN:

Q Now, Dr. Kibenge, would you agree that the lesions SSC and HEM (sic) that were discussed in that report are not evidence of ISA in Pacific salmon and are non-specific symptoms otherwise?

DR. KIBENGE: Well, the lesions of ISA have only been documented in Atlantic salmon, so as far as I know, the Pacific salmon are not known to develop ISA, so those would be not lesions of ISA in Pacific salmon.

Q And you'd agree that if an Atlantic salmon was shown to be having the SSC or the Heem lesion, a PCR test would then indicate, if it were a

negative, that ISA wasn't present in that fish.
DR. KIBENGE: That is correct, but I'll qualify that that depends on the specificity of that test.
Q Okay. Now, Dr. Kibenge, your wife, Mrs. Dr. Kibenge (sic), Mrs. Molly Kibenge, she did a paper which is in draft form and is at Commission counsel Tab 29?
DR. KIBENGE: That's correct.
Q Okay. If we could turn to page 11 of the paper? Now, would you agree that this paper discusses the Cultus Lake sockeye samples and that it indicates at the bottom of the first paragraph that the nucleotide sequence of these inserts had identity to ISAV only in the primer sequence?
DR. KIBENGE: Yes.
Q Now, what's the significance of that?
DR. KIBENGE: Well, you can look at it in several ways, but in my view, for the primers to anneal, they have to be homologous to the target. So clearly they annealed to a target in these samples and the sequence was amplified. The internal sequences that we amplified were probably not identical to those that had been deposited in the GenBank. That's why only the primer sequences were identical to the ISA virus.
The ISA virus stated here would be corresponding to all those sequences that are available in the GenBank at that time.
Q So it wasn't a match, then, for ISAV?
DR. KIBENGE: It wasn't.
Q Now, if we could turn to Commission counsel Tab 136 and there's three documents. I believe it's either Exhibit 2054 or 2055, but it'll be the third document that outlines a number of testing results and has shaded results in it.
MR. LUNN: Before we go there, do you want to mark the document on the screen? Oh, pardon me, it's been marked. Thank you. I'm going to Tab 136. Is that the tab you're looking for?
MS. CALLAN: It is the tab, but it's the last page, so I think it's -- there's three documents that were marked as separate exhibits in this one, so it's not this one but the one after it.
MR. LUNN: I have three documents for this exhibit. The first is an email, the second was Creative Salmon ISA test results which is here.
MS. CALLAN: And what's the next one?

MR. LUNN: The next one is ISAV prevalence in the 1980s which here on screen. There are two tabs there. That's the second, the graph is the first tab. That's all we have for this exhibit.
MS. CALLAN: Okay. Maybe if we could scroll over to the left-hand side of the document. There should be some shading in yellow.
MR. LUNN: I'll try the other tab. I think we're there.
MS. CALLAN: Can you scroll right?
MR. LUNN: Ah, thank you. Is this what you're looking for?
MS. CALLAN: That's what I'm looking for.
MR. LUNN: Okay. What section would you like?
MS. CALLAN: This is fine.
MR. LUNN: Okay.
MS. CALLAN:
Q Now, would you agree that if you look at these test results, that some of the fish were positive with one set of primers, other fish were positive with another set of primers, and still other fish were positive -- I think there's only one with both sets of primers. Would you agree with that?
MS. GAGNE: Yes.
Q Now, would you agree that this supports the conclusion that at least three different forms of ISA were present among the population of fish?
MS. GAGNE: I wouldn't -- I don't think this necessarily means that there's three different forms of ISA. You have just PCR results with weak signals. I wouldn't conclude what you said.
Q That's good. Would you then question these results because the finding of three different strains of ISAV in a single pen --
MS. GAGNE: With these results, we can't even say that these are different strains of ISA we're finding. We're finding signal using different pairs of primers from different segments, and in one fish you seem to be able only to detect one part of one segment, and the other fish it's a different one. This is difficult right now as it is to interpret properly.
Q Would you agree that these tests showing all these kind of conflicting and contrasting results decrease the confidence that these results are true positives?
MS. GAGNE: It certainly warrants more testing.

DR. KIBENGE: Could I comment? I think that the results, in terms of the tests that were done, I would consider them valid. My only concern here would be that the test we are using probably is not designed for the virus in these samples, and therefore you may find that you are picking up segment 8 in one fish, segment 7 in another. You can't pick up both of them in the same fish, and that's because probably the virus is not the same as what these tests were designed to detect.

If you were to use this test in -- from Atlantic salmon, I believe that segment 7 and segment 8 would be in the same sample in the same fish.

MS. CALLAN: Thank you. Those are my questions.

MS. PANCHUK: Province tab number 1 should be marked as ID letter QQQ.

MARKED QQQ for Identification: Summary of Animal Health Care Centre

MR. MARTLAND: Mr. Commissioner, there was a quiet donation of time over to the province there, and I think it leaves Mr. Blair with 18 minutes for his allocation for the B.C. Salmon Farmers Association next.

MR. BLAIR: Good morning, Mr. Commissioner. Alan Blair appearing for the B.C. Salmon Farmers Association and with my associate, Shane Hopkins-Utter.

Before I commence, I just want to put on the record my sincere thanks to Mr. Lunn, who I think we've all thanked from time to time, but as we sit here in this august chamber where I think we should be signing strategic arms limitation treaties, I'm reminded every time I look at Mr. Lunn going through these documents, that we've given him a very tall order which he performs admirably every day. So thank you, sir.

CROSS-EXAMINATION BY MR. BLAIR, continuing:

MR. BLAIR: On that count, might we go to Commission document number 24. It's a bit of a test. Once again, you succeed.

Q This was described in the Commission's documents that were prepared as an untitled chart, comparing AVC and DFO methods for ISAV testing. My

questions are really to both panel members. Firstly, have either of you seen this document? Ms. Gagné?
MS. GAGNE: Yes.
Q Yes?
DR. KIBENGE: Yes.
Q And I think it's fairly self-explanatory on the face of it, but just for the record, this was an audit prepared and I'm going to ask by whom, but it was an audit prepared of your operation under the heading "AVC", correct, Dr. Kibenge?
DR. KIBENGE: Would you repeat the question?
Q Yes. The references to AVC refer to your lab, the Atlantic Veterinarian College?
DR. KIBENGE: That's correct.
Q And this was an audit of your facilities? That column is an audit of your facilities?
DR. KIBENGE: Of my lab, yes, that's right.
Q Yes. And where it says "DFO", do we know, Ms. Gagné, whether this is your lab or DFO labs generally, because it's not clear to me.
MS. GAGNE: No, this is our lab.
Q All right. Thank you for that clarification. And there's an audit done but we don't know -- I don't know from this document exactly by whom. Was it done by DFO, by CFIA or -- can one of you shed light on that?
MS. GAGNE: I'm tempted to say that it was done by the Commission's counsel. No?
Q I hope not.
MS. GAGNE: I saw this document and I couldn't figure who had done that. It's a review of our procedures, but it was never authored, so...
MR. BLAIR: Commission counsel just wanted to know if he was unclear who prepared it. I should ask my junior. He might actually know. We can cover off who the author was perhaps by the next panel or even before this panel closes. The document was from Canada, so perhaps before the end of the day Canada can also add some light to it.
Q But you've both seen the document and you both recognize the columns. Dr. Kibenge, the AVC reference is an audit of your lab, and the DFO references, Ms. Gagne, is an audit of your lab, correct?
MS. GAGNE: Yes.
Q And this conclusion under the word "Significance"

-- and it's a two-page document, correct? You see the two pages?

MR. BLAIR: Perhaps you just scroll to the second page. I've just been handed a note which tells me it's a CFIA audit, so we'll try to establish that in *viva voce* evidence before the end of Monday.

MR. TAYLOR: (Microphone not on)...microphone but I can still confirm that there is a witness upcoming that can identify this.

MR. BLAIR: Thank you. I'm in the Commissioner's hands. I'd prefer to have it marked as an exhibit and identify it more fully later, if we may. Thank you.

MS. PANCHUK: Exhibit 2087.

EXHIBIT 2087: Untitled chart comparing AVC and DFO methods for ISAV testing

MR. BLAIR: Thank you.

Q Now, I want to direct your attention, panel members, and to the participants, to three specific sections. Others may direct you elsewhere, but section number 2, number 7 and eventually number 11. And as it relates to section number 2, the heading is "RNA Extraction", and my question for you, Dr. Kibenge, is there's a reference in the "Significance" column - that's the column on the far right - for potential of cross-contamination existing at your lab. Just take a moment, please, to review that section. I'd ask you, in fairness, to comment on those conclusions, please.

DR. KIBENGE: Yeah, that was the comment. That was the opinion of the people who were on the site visit. But, in my view, that statement was made based on what they were looking for. We don't have any cross-contamination in our practices as we are processing these samples. So they could -- potential for cross-contamination, but I believe that though we handled those samples, there was no cross-contamination.

Q So the findings of the CFIA audit refer to the potential of cross-contamination and you rule that out as an impossibility, or just you feel that the samples in question, they weren't cross-contaminated.

DR. KIBENGE: We ruled it out, and that's why we put

the results we got. We were confident that the results we got were not as a result of cross-contamination.

Q So do you disagree with the finding of the audit?

DR. KIBENGE: Well, I have some disagreements in some sections, yes.

Q And down in section 11 where it says "Internal Controls" and, to be fair, there's a reference under both headings describing how -- what internal controls both labs have. And, Ms. Gagné, section 7 under DFO, it ends with -- it says:

> Results indicated RNA degradation in the samples received by DFO.

And I note no similar description under the AVC, but the conclusion, Dr. Kibenge, is:

> This could be significant since we have no indication of the quality of the samples that AVC got positive results for.

So taking us through those three boxes again, there's a comment on the RNA degradation potentially received by DFO. Ms. Gagné, you see that? Box 7.

MS. GAGNE: Box 7, yes.

Q Under your column, you see that notation?

MS. GAGNE: Yes.

Q And, Dr. Kibenge, you see no similar notation, in other words, no knowledge of, I gather. The quality of the samples received by AVC, I'm correct, there's no acknowledgement of the quality of the samples, no acknowledgement of the quality here in this table?

DR. KIBENGE: Well, yeah, that's --

Q In the table.

DR. KIBENGE: That's the opinion of the site visit, but in our processing, when we receive the samples, we are confident that they're fairly fresh and we process them on that condition.

The samples that were received by Ms. Gagné were actually from our lab. So they were at a different stage from where the samples came to our lab.

MR. MARTLAND: Mr. Commissioner, I'm not objecting to the question formally, but I do just want to place

on record I don't think the evidence to this point established this to be findings of the CFIA audit. Maybe we'll get that evidence or maybe not, we're not there yet. So perhaps as Mr. Blair -- I don't have a difficulty with him putting these points to Dr. Kibenge, but perhaps the question can be tempered with that in mind.

MR. TAYLOR: I'm going to rise to clarify without a microphone, that Mr. Martland said it's a CFIA audit. It's a CFIA commissioned audit. We'll hear more, I think, in the upcoming panel what it is and who did it.

MR. BLAIR: Thanks to both counsel for your comments. I just really want to be on record, both Dr. Kibenge and Ms. Gagné's counsel are required to be fair to a witness, and if we're going to ask other people to comment on a document, then we are to put it to the two of you since it really relates to your operations, and I'm going through that procedure. So it's important and instructive for all of us to hear what your views are on what's written here. Perhaps through Mr. Taylor's examination of witnesses in the next day-and-a-half or so will determine who exactly did it. But that's the purpose for this inquiry on this particular document, just for your clarity.

Flipping the page electronically and otherwise, Mr. Lunn, to "Positive Controls". You'll see the "Significance" box.

> ISAV RNA is a potential source of cross-contamination. Furthermore it makes it distinguishing between true positives and contamination with positive control difficult.

Dr. Kibenge, do you see that last box in the far right column? Firstly, do you agree with that statement?

DR. KIBENGE: I see the box and I do not agree with that statement.

Q Ms. Gagné, do you see the box and do you agree with the statement?

MS. GAGNE: I see it, and I agree with the statement.

Q Now, just to be clear, Dr. Kibenge, you disagree with the statement generally? And I want to be fair to you; I'm not suggesting this is a finding

of your lab. I'm asking you fundamentally do you disagree with that statement in total?
DR. KIBENGE: Completely. Based on the work we've done and through my experience with other labs, I wouldn't accept that statement as being a true fact.
Q All right, thank you.
DR. KIBENGE: What was stated.
Q This may have been covered by you earlier or by other panel members, but I'm not sure that I had it clear in my mind. But the tests that were done did not confirm the presence of ISA, and you both agree that further tests are needed to draw that conclusion, Dr. Kibenge?
DR. KIBENGE: The tests that we did and the positive results we obtained were for the presence of ISA virus sequences and not for the disease ISA. The disease ISA can only be found in farmed Atlantic salmon. We never got any farmed Atlantic salmon samples. We tested wild Pacific salmon samples, and those species are not known to have ISA as far as I know.
Q So you agree with the statement that I put to you.
DR. KIBENGE: Can you please repeat that statement?
Q Certainly. Nothing you did -- your tests did not confirm the presence of ISA and further tests are needed to draw that conclusion. You agree with that?
DR. KIBENGE: We didn't test for ISA. We tested for ISA virus sequences.
Q You agree.
DR. KIBENGE: Yes.
Q I keep wanting to call you "Doctor", if you don't mind. We're using that term liberally here, Doctor. Ms. Gagné --
MS. GAGNE: Yes, I --
Q -- do you agree with that?
MS. GAGNE: Repeat the statement again?
Q Certainly. Are you aware of tests either done by yourself or by Dr. Kibenge's lab which confirmed the presence of ISA?
MS. GAGNE: Of ISA, the disease?
Q ISA, the disease.
MS. GAGNE: Oh, no.
Q And do you agree that further tests are necessary to draw that conclusion?
MS. GAGNE: Yes.

Q I believe we heard evidence that there was a culturing of a new strain of ISA, or perhaps it was ISAV, but is there some work being done on the east coast and an east coast strain -- I want to be clear that no one's suggesting there's been a culturing of a new strain of whatever's been found related to British Columbia waters and British Columbia fish. Dr. Kibenge?
DR. KIBENGE: The culturing of the new strain on the east coast you're referring to?
Q I just want to be clear that there's no culturing of a new strain on the west coast, correct?
DR. KIBENGE: I don't think right now we have any information on that.
Q Ms. Gagné?
MS. GAGNE: You were mentioning culture of new strain on...?
Q My note is that there's some reference in the evidence of a culturing of a new strain, and perhaps our notes are --
MS. GAGNE: On the east coast?
Q You tell us. We just want to be clear whether it's east or west and maybe it's neither.
MS. GAGNE: You may be referring to cases from PEI, or...?
Q If you're not familiar with it, we'll just --
MS. GAGNE: No.
Q -- move to the next question.
MS. GAGNE: No.
DR. KIBENGE: Can I just clarify?
Q Please.
DR. KIBENGE: We cultured a new strain of ISA virus out of samples in PEI in 2009.
Q Yes.
DR. KIBENGE: That information was shared here yesterday --
Q Yes.
DR. KIBENGE: -- where we showed that the new strain had actually a mutation of nine amino acids in the hemagglutinin as there is (indiscernible).
Q And is that -- was that related to east coast fish?
DR. KIBENGE: Yes, to fish in PEI, Prince Edward Island.
Q Thank you. Ms. Gagné, these are always difficult questions when you're sitting on a panel next to somebody we're going to ask you questions about

their lab, but I'm afraid I must. You've had an opportunity to look at this CFIA-commissioned audit that is exhibit before you, and I have to ask you, based on the audit and the findings in the "Significance" columns, would you be concerned for the testing quality and the possibility of cross-contamination at the AVC lab?

MS. GAGNE: There's several indications that tells us that the samples submitted after the first notification of ISA were compromised. There was other sockeye salmon collected after the -- similar to the -- the same source as the 40 first ones sent to Dr. Kibenge. These sockeye were probably collected at the same time and kept in the same manner. When they reached our lab, they were degraded. We had to test first almost 300 hearts from those fish. The rev gene assay we do looks for genes in the salmon tissue. This is how we determine the quality of the sample.

That rev gene normally shows up, and now I think people are getting familiar with Ct values and stuff. That rev gene shows up before 20 cycles usually, 20 Ct around. In these samples, there was no Ct, and then we were questioning even ourselves because we have never seen that. Usually our program sample fish and they are preserved in the proper manner.

So we tested them on an additional machine that we don't use routinely, and we showed that there were -- there were degradation of RNA to a point where there was no detectable rev gene in those sample.

Based on that, the ISA testing was done and found to be negative, and we had to report them as inconclusive. All the samples submitted after that, even samples that came directly from Kibenge's lab and that were tested in his lab and reported as PCR positive had the same level of degradation. So, for us, it is hard to imagine that if there was traces of ISA viral genome in there, that it has survived due to that degradation. This is also an RNA virus that degrades like the RNA of the fished.

So based on the rev gene showing extensive RNA degradation, the RNA from the virus must have degraded also. Since we're talking of very minute amounts in well-preserved sample right now, I

don't see how it can be detected in degraded sample.
Q Thank you.
DR. KIBENGE: Could I comment on...?
Q Certainly.
DR. KIBENGE: I just want to comment on the rest of the internal control gene that is used to verify the quality of the samples. The internal control gene that I am aware of that is in the OIE manual, which is the internal elongation factor, I believe that that fact actually -- the gene is based on the gene that is found in Atlantic salmon. I'm not sure whether you can use the same gene when you're working with samples from the Pacific salmon.
MS. GAGNE: May I respond?
DR. KIBENGE: And I thought that probably Dr. Are Nylund endorse or made some reference to that sometime. But -- so we have to keep in mind that actually the tests that we are using, we had developed for farmed Atlantic salmon and all those controls worked very well.

When we did samples from other species, we have to be careful that we are not ruling out important results.

MS. GAGNE: The rev gene assay we do is developed for each of the species submitted, so in this case, our control was a properly preserved sockeye sample from the same type of tissue, a heart sockeye properly preserved. So that's why I say the rev gene was tested and developed for this specie and we showed that it was producing a value of about 20 Cts in a normal sample. In these samples, there was no Ct, showing extensive degradation as I said.
Q But for the fact that these samples came to you as a result of all of the discussion around this inquiry and ISAV, what would you have done in the normal course, Ms. Gagné, had you received samples of --
MS. GAGNE: Normally, we would have --
Q -- samples of this quality. What would you have done?
MS. GAGNE: We would reject them because they don't meet criterias for testing. We can test them, and if there was something positive in there, we would not dismiss a positive result, and we would follow

procedures. But negative results are reported as inconclusive based on the quality of the tissues.
Q So you would not have tested these fish because --
MS. GAGNE: Normally they would be -- we would rather start from properly preserved samples instead of working and having to always report "inconclusive" which is partly not producive (sic) or --
Q Productive.
MS. GAGNE: Yeah, productive.
MR. BLAIR: Okay. Thank you both --
DR. KIBENGE: Could I also add on that?
MR. BLAIR: Certainly. I think I have three minutes.
DR. KIBENGE: Yeah, I'll be brief. Dr. Are Nylund, I think, was of that view that samples were degraded and he tested them anyway. But the point to make is that the test is looking for the template of the virus in the sample. If that template is degraded because the sample is degraded, the most likely result you will get is a negative, not a positive. So that should be kept in mind.
MS. GAGNE: Except if you have cross-contamination from something that is -- you can detect a cross-contaminant in a degraded sample.
MR. BLAIR:
Q Which of course was the "Significant" column that I referred you both to in the audit; is that correct, Ms. Gagné?
MS. GAGNE: Yes.
DR. KIBENGE: Yeah, but again, in the results we reported, we had ruled out cross-contamination. If you have cross-contamination in your practices, you cannot actually report the results.
MS. GAGNE: You have to run several blanks along the sample to show if there is cross-contamination.
MR. BLAIR: Thank you both for your thoughts. We haven't had a ping-pong match like this in a couple of months. Thank you.
MR. MARTLAND: I think that excludes objections. The next counsel is counsel for the Aquaculture Coalition, 20 minutes.
MR. McDADE: Thank you. Witnesses, again, my name is Gregory McDade. I'm counsel for the Aquaculture Coalition. I'll have a few questions for each of you.

CROSS-EXAMINATION BY MR. McDADE, continuing:

MR. McDADE: Could we have Aquaculture document 6 on the screen, please, page 2. Can we scroll down a bit there? Yes, thank you.

Q So, Ms. Gagné, I just want to confirm. Prior to October 25th, 2011, after all this issue arose, you'd never had sockeye tissues in the lab before?

MS. GAGNE: This email says that -- I think the sockeye tissues were in the process of being tested for the rev gene assay we use. Prior to this notification, because we don't work on Pacific salmon normally, we didn't have the tissue so we had to acquire fresh tissue from the source.

Q So your lab has no experience at all in testing Pacific salmon.

MS. GAGNE: We don't test Pacific salmon. This is done at the PBS lab and the Fish Health group.

Q All right. Would you agree with me that Dr. Kibenge's credentials and his experience and his training is at least equal to or greater than yours?

MS. GAGNE: I agree.

Q And he's an OIE referenced lab, and that is a significant qualification.

MS. GAGNE: It is.

Q You don't question the competence of his lab in any way, do you?

MS. GAGNE: I don't question the competence of the lab, but it was mentioned, I think yesterday, you can have a very, very good assay and you need to run it properly. This is where maybe -- and I don't assume this is a typical incident, but we know ourselves because we use these assays and we've developed these assays. We know how sensitive they are and how relatively easy it is to get false positives. That's why I am cautious with results I have seen.

Q But you don't -- you wouldn't call what he did to be unsound science, would you?

MS. GAGNE: I would have taken additional precautions. I would have liked to see blanks introduced alongside the sample so you can detect cross-contamination during the extraction, not just a PCR water blank. There are several steps during the PCR process from the extraction to the actual final result, and in all these steps, there are

chances to introduce contamination and you have to control that. I haven't seen that in all the procedures they use.

Q So are you in agreement -- are you going to sit here in front of the Commission and say that you agree -- or you would suggest that Dr. Kibenge's lab was exercising unsound science?

MS. GAGNE: There are several things in the audit that shows deviation from what should be done in a diagnostic lab using PCR assays.

Q Dr. Miller's credentials and experience and knowledge are greater than yours as well, aren't they?

MS. GAGNE: In what field?

Q Molecular genomics.

MS. GAGNE: In molecular genomics, certainly.

Q Her experience and skill in running a laboratory -- her laboratory would be equal to or greater than yours?

MS. GAGNE: A diagnostic lab or a research lab for genomics? Be precise, please.

Q All right. Well, either one.

MS. GAGNE: For a diagnostic lab, certainly not. For research and genomics, yes.

Q You -- would you say your lab is superior to hers or equal?

MS. GAGNE: It's not what I'm saying. I'm saying that we are running a diagnostic lab using procedures validated for diagnostic diseases. It's different.

Q So are you saying that the Moncton Lab is superior to the Nanaimo Lab?

MS. GAGNE: That's not what I'm saying.

Q All right. You've heard the evidence that the machines she uses are more sensitive for the detection if ISA than your machine?

MS. GAGNE: I don't think we have seen that. We have seen different primers, we have seen different pre-amplification, we have seen various things. We have not seen everything.

Q The through-put of her lab is far superior to yours?

MS. GAGNE: For what she does, yes.

Q Would you say that her lab does unsound science?

MS. GAGNE: No.

Q You'd agree that the DFO Lab in Nanaimo is sound science. You're not being critical of them.

MS. GAGNE: I'm not critical of that.
Q But you're critical of Dr. Kibenge's lab?
MS. GAGNE: I'm critical probably just of the lack of precautions that are -- should be in place in a diagnostic lab. But apart from that, there is several very good research done at the AVC lab.
Q Now, I think I heard yesterday and again today that your findings on the original 48 samples were inconclusive.
MS. GAGNE: Mm-hmm, that's what we said.
Q You couldn't say they were negative, as I understand it, because they were just too degraded to be able to say that.
MS. GAGNE: They were negative, but they were so degraded that this is not usually what we would require for testing to be confident in the result we report.
Q Yes. Under your protocols, your reports were inconclusive.
MS. GAGNE: Yes.
Q It would be wrong to say they were negative.
MS. GAGNE: They were negative, but the quality of the tissue was such that reporting a negative in this case means if there was something there, it's degraded now.
Q Right. By the time you got the samples, they were in far worse shape than they were for Dr. Kibenge, weren't they?
MS. GAGNE: I wouldn't say that. I haven't seen any proof of that.
Q You don't know, do you?
MS. GAGNE: They were -- we received parallel samples. That's one indication that the degradation was in all the samples sent at this part of the notification. We received also samples preserved in -- samples processed in his lab, homogenates, and these usually -- you take your sample, you freeze the rest. There is no degradation time during the process. So we received them frozen and they were degraded. So these are -- the only samples that were exactly the same as those processed in his lab are these homogenates.
Q In sample 38 you found a weak positive.
MS. GAGNE: Yes.
Q But you rejected it because Dr. Kibenges (sic) found a negative.
MS. GAGNE: No, it's not the reason why we rejected it.

It's because we couldn't repeat it. We tried many times. We always do so. We never reject a positive signal from the machine, but remember that the machine just reports a fluorescent signal. A fluorescent signal is not much at that stage unless we keep confirming that is really an ISA signal.

Q But you did receive a positive.

MS. GAGNE: A positive fluorescent signal in one replicate at the very end of the method that could never have been reproduced. The company itself, if you look into their documentations, and even if you call technical services, will confirm what I'm saying. There are occasional signals produced that are just fluorescence from the probe, and that's the reason why you should have always your duplicate well showing a result, because a single signal like that could just be non-specific fluorescence.

Q Did you advise your superiors that you received a positive sample in the group of 48?

MS. GAGNE: I did, but at that stage I said -- like usually I wouldn't even, at that stage, because we're not finished testing. But, at that point, I just mentioned that, and that we would, as usual, continue testing that sample to make sure this signal was true or not.

Q But it would be wrong, in your view, to say that the samples were all negative.

MS. GAGNE: This was not a positive sample based on our policy. We have a policy that we apply systematically, and this was not a positive sample.

Q Well, on your policy it was an inconclusive sample.

MS. GAGNE: It's like the others, yes.

Q Well, it's not like the others in that it had a weak positive.

MS. GAGNE: It's a signal, a fluorescent signal. It's not even at that point an ISA confirmed positive result.

Q My question, though, again to you is did you tell your superiors that you had found a positive?

MS. GAGNE: I told them that we had a signal in one well, not replicated, close to 38 Ct. This is the limit of the detection. And that we would follow normal procedures to try to repeat that signal and

it didn't happen, so...
MR. McDADE: Can I have Aquaculture document 7 on the screen? This may have been an exhibit.
MR. MARTLAND: I think the last document wasn't marked.
MR. McDADE: Oh, the last document was marked?
MR. MARTLAND: Was not.
MR. McDADE: Oh, could we mark that?
MS. PANCHUK: Exhibit 2088.

EXHIBIT 2088: Email from Anne-Margaret MacKinnon to Ms. Gagné and others dated October 25th, 2011

MR. McDADE: And next, then, Aquaculture 7. I think, Mr. Martland, this has been marked before but I don't have the number.
MR. MARTLAND: It has been marked by consent. We'll try and find you your exhibit.
MR. McDADE: Okay.
Q So this is a statement from the Minister, your Minister in conjunction with the B.C. Minister of Agriculture on November 9th. You've seen this before?
MS. GAGNE: I may have seen it, but there have been several of those, so I don't have -- I don't think I've read this one.
Q If you would look at the second-last paragraph, the statement in the first line about policy decisions of -- based on sound science, and in the fourth line:

...reckless allegations based on incomplete science.

Would you agree with those statements in reference to the findings of the PEI lab, Dr. Kibenge's lab?
MS. GAGNE: We ourself have published papers, and we are always -- my first reaction when we start working on a new project, on a new disease or something, is to have total confidence in the results we obtain. In this situation, I think that results were produced quickly without the proper time to verify them, confirm them. And I think it's in the sense that, for me, that's how I interpret "reckless allegations" in the sense that just -- just a few precautions to confirm things properly before making a detection like that

public would have been a better route.
Q Would you have made statements of this kind as a scientist?
MS. GAGNE: Reckless allegations? Or what statement?
Q "Incomplete science."
MS. GAGNE: I don't know if I may have worded that differently myself, but incomplete science, yes.
Q Were you consulted about these statements?
MS. GAGNE: No.
MR. TAYLOR: This isn't a federal Minister.
MR. McDADE: Minister Ashfield?
MR. TAYLOR: I thought you were looking at the second-to-last paragraph?
MR. McDADE: This is a joint statement as I understood it.
MR. TAYLOR: Well, the paragraph begins:

Minister McRae noted...

MR. McDADE: Yes, I understand this was approved by the federal government.
Q The question was, was (sic) you consulted and I think the answer was no.
MS. GAGNE: I am not approving those statements, no.
MR. McDADE: All right. Can we go to Tab 43 of Aquaculture documents?
MR. MARTLAND: And, Mr. Commissioner, if I can just assist on documents, we thought that the last document was marked. We thought -- it's quite similar to something which is Exhibit 2021, but it is different, so I'd suggest that the last document Mr. McDade was referring to ought to be marked as an exhibit.
MS. PANCHUK: Exhibit 2089.

EXHIBIT 2089: Statement of federal Minister Ashfield and provincial Minister McRae on ISA in British Columbia

MR. McDADE: Tab 43. I'll just ask to mark that before I forget.
MS. PANCHUK: Exhibit 2090.

EXHIBIT 2090: (See Exhibit 2021)

MR. McDADE: If we could zoom in on the third paragraph there, this is a document from the Canadian Food

Inspection Agency.
Q Have you seen this document before?
MS. GAGNE: I may have.
Q And you'll see in the third paragraph [as read]:

> DFO has tested all 48 samples received as part of the original reports and the results are all negative for the virus.

MS. GAGNE: Mm-hmm, yes.
Q That's not your finding. Your finding was they were inconclusive, wasn't it?
MS. GAGNE: There may be a line in the bottom about the quality statement, I'm not sure.
Q This statement is misleading and contrary to your policy, isn't it?
MS. GAGNE: There was no virus found, definitely, so it's not misleading in the sense they were negative for the virus.
Q Your findings were inconclusive. Your findings were you couldn't possibly find virus in these because of the --
MS. GAGNE: I have seen -- what's the word -- I have seen qualifying statements in some of these reports regarding the quality, so if you read below or -- you will find probably something about -- maybe not in this document, but later on it was clarified.
Q You need to clarify it, you're right. In other documents, there are clarifying statements because otherwise that statement is very misleading, isn't it?
MS. GAGNE: It says "negative for the virus". I don't see anything untrue for that. However, as -- you're right, there's an inconclusive result because of the quality. We didn't find the virus, still it's true, so...
Q Well, you found one positive, didn't you?
MS. GAGNE: We didn't find a positive. We found a signal, a fluorescent signal that we couldn't repeat.
Q Would you agree with me without the qualification, this is misleading to the Canadian public, isn't it?
MS. GAGNE: You will see if you read further in this communication or further communications that the qualifying statement is there.

Q Well, the qualifying statement isn't here. I'm wondering what qualifying statement you mean. This is the document that's on the website.
MS. GAGNE: This is a document from November 9. There has been several documents. The qualifying statement has appeared several times. I have seen it myself. I don't know if it's in the bottom of this one somewhere, but it's been -- it's been showing up several times for sure.
Q And the qualifying statement would be what?
MS. GAGNE: That the quality of the test, in this case, we report them as inconclusive in the sense that there is such degradation of the materials submitted that --
Q As a responsible scientist, you would have insisted upon that qualifying statement, wouldn't you?
MS. GAGNE: Sorry, repeat?
Q As a responsible scientist, you would have insisted on that qualifying statement, wouldn't you?
MS. GAGNE: Probably, but the date -- the problem is that the date -- this is kind of early in the response. We may have added the qualifiers soon after that, but I cannot answer to that. This is November 9. There were so many statements produced later on, so...
MR. McDADE: I'm advised, Mr. Commissioner, that the last document was already Exhibit 2021, so can we just withdraw the 2090?

EXHIBIT 2090: Withdrawn as formerly marked.

MR. McDADE: Can I go to Tab 41? Has that been marked? It's the statement of the Ministers from December 2nd.
MR. MARTLAND: Exhibit 2004.
MR. McDADE: Thank you.
Q In the third paragraph -- well, the first actual quote from the federal Minister is:

...because of speculation and unfounded science...

Do you agree with that statement or is that an overstatement? "Unfounded science".
MS. GAGNE: I'm not a communication expert so

"unfounded" is probably -- we could have a debate over the word.
Q You were aware by December 2nd, weren't you, that your PBS lab was finding ISA virus?
MS. GAGNE: I don't remember exactly when I became aware of that. What date did you say?
Q By the date of this document, December 2nd.
MS. GAGNE: Honestly I'm not sure when exactly. It's the beginning of the month probably that I became aware of it, but I'm not sure when exactly.
Q This document would be misleading if you were aware of that, wouldn't you -- wouldn't it?
MS. GAGNE: I don't think so.
MR. McDADE: Can we go to document -- I think it's 12.
MS. GAGNE: Just remember that we have repeated several times there is a difference between an ISA segment and an ISAV, a virus.
MR. McDADE:
Q Did you ever, at any time, speak up to your communications people and say they were misleading the people based on your results? Did you ever say anything about that?
MS. GAGNE: There is a -- I work, I am busy, I don't read all the communication statements, and no, I have not -- repeat again your question?
Q Did you ever speak up to your communications people suggesting that DFO was misleading people based on your inconclusive results?
MS. GAGNE: No, I have not.
MR. McDADE: Is this 12? Yes, thank you.
Q This is a report posted by the Canadian Food Inspection Agency dated December 2nd. It says in the first paragraph [as read]:

> There are no confirmed cases of the disease in wild or farmed salmon in B.C.

Given that your Pacific Biological Station had found ISA, isn't that a misleading statement?
MS. GAGNE: Absolutely not. There is still no disease, and it was said clearly yesterday, even by Dr. Miller.
Q You're distinguishing between the virus and the disease?
MS. GAGNE: Naturally.
Q You think the general public would understand that distinction in this document?

MS. GAGNE: Unfortunately, there is the scientific community that understand things. Probably it's easy for the public, and I can understand based on all of what was said here, it's easy to get confused in all this.
Q Well, what I want to ask you is do you feel any responsibility, personally, when misleading statements are put out about your work?
MS. GAGNE: Definitely I would.
Q And did you raise any objections to this?
MS. GAGNE: On what statement?
Q To this document here.
MS. GAGNE: I haven't raised any objection to it, and I'm reading it right now again.
Q So you, as a scientist, were fully aware by December 2nd, that this biological station was finding ISA virus, and you don't think this is misleading?
MR. TAYLOR: I'm going to rise and object to this question.
MS. GAGNE: I said -- I said I don't know exactly when I became aware.
MR. TAYLOR: Mr. --
MS. GAGNE: December 2nd is a date that I cannot confirm.
MR. TAYLOR: Mr. Commissioner, Mr. McDade repeatedly misstates what the evidence is. He keeps saying a finding of ISA. The witness keeps saying something different, and he keeps putting it back. The witness is answering well, as she understands things and her opinion, but it's not fair to the witness to keep putting that ISA has been found when the evidence is contrary to that.
MR. McDADE: I'll try and be clear. The ISA virus, then.
MR. TAYLOR: That's not what the evidence is. The evidence is that there's been some positive results indicating something, and the scientists seem to be all in agreement that more work needs to be done to figure this out.
MS. GAGNE: And no one has seen the virus, and no one has seen more than faint signals up to now. We have not seen anything that confirms the virus, and I will add further that yesterday there was evidences that were -- well, I didn't have time to analyze my assay of this, and when I'm back home, this is the first thing I'm going to do.

But the sequencing, some of the sequencing information provided seemed to imply important facts that should be -- you should be aware, probably, but the stop codon that Dr. Nylund was referring to, and that seemed to be seen in all the segment 7 sequences which are the sequences that seem to be more prevalent right now, and that stop codon is in a crucial protein for the virus, meaning that the virus cannot function without that protein. It's hard to explain as it is right now.

Q I understand all the technical arguments.

MS. GAGNE: Very good.

Q But the issue is you were aware, and DFO was aware of positive findings that the public was never told about. All of the media, up till today, has been about reassuring the public that nothing has been found, and that isn't correct, is it. And the question is, did you ever raise your voice about that?

MS. GAGNE: I said that I am not sure exactly when I became aware of the work of Dr. Miller. It sounds that I became aware of it at the beginning of December, from my recollection, and this statement is dated December the 2nd. So I'm not sure I -- I would not lie purposely, but I don't think I was aware of it at the time.

Q All right. Let me go to the next paragraph:

> ...the Government of Canada and the Province of BC have tested over 5000 wild and farmed salmon in BC...

Had you -- your lab was the lab for DFO that was supposed to test for the federal government for ISA, right?

MS. GAGNE: It doesn't work like that. If you mean -- no, we have nothing to do with the testing done in the Province of B.C. right now. We would confirm if they had something positive.

Q Well, I suggest to you you'd never tested wild salmon before Dr. Kibenge's findings.

MS. GAGNE: We had tested wild salmon in our region, yes.

Q Sorry, wild Pacific salmon.

MS. GAGNE: No.

Q So as far as that statement goes, that the federal

government was testing for wild salmon, as far as you know, that's false, isn't it?

MS. GAGNE: Not our lab. Other labs, yes, in the federal government in our equivalent sections.

Q And third -- the last line of that sentence:

None have ever tested positive.

If you were -- if you -- I'll make this hypothetical. If you were aware of the findings from Dr. Miller at that time, that would have been a false statement, wouldn't it?

MS. GAGNE: Infectious salmon anaemia -- if I was aware of it? I guess, but (indiscernible - reading under breath). This refers to the test done by the provincial lab. This is still true, I think. They've never found anything. This doesn't refer to any other testing than the Province of B.C. lab.

Q You read that as referring only to provincial testing, not to federal testing?

MS. GAGNE: Well, I kind of understand that is not my -- but I think the testing has moved under the responsibility of DFO but still done by the province. So I think this statement refers to that testing that's done at the provincial lab.

MR. McDADE: All right. Can we have Aquaculture document 1 on the screen, please?

MR. MARTLAND: The last document wasn't -- hasn't been --

MR. McDADE: Oh, sorry. Can we mark it, please? Thank you.

MS. PANCHUK: Exhibit 2090.

EXHIBIT 2090: Canadian Food Inspection Agency Document titled "Canada Completes Salmon Anaemia Testing: No Confirmed Cases in B.C. Salmon"

MR. McDADE:

Q Now, this is not a DFO document. This is a BCSFA letter to a newspaper. Can I just ask you to look at the second paragraph?

Some samples collected as part of the follow up investigation were too degraded to be tested - but many were not, and the testing

has shown that those initial results were in fact, false.

Now, that's not what you found, is it?

MS. GAGNE: That's not our statement, so I won't comment on that.

Q Well, it's an incorrect statement, isn't it? It's referring to your testing.

MS. GAGNE: It's referring to our testing, but the final statement is a fact that the results were false. I haven't said that, not myself.

Q No. You can't said that, can you?

MS. GAGNE: I haven't said that.

Q So whoever said was making a vast over-statement of your findings. They were wrong.

MS. GAGNE: Do you know how many things that were wrong and that were published up to now? I think this is just a drop in the bucket, so...

MR. McDADE: Fair enough. Can we have document 47 up on the screen, please? Oh, can we mark that last document, please?

MS. PANCHUK: Exhibit 2091.

EXHIBIT 2091: Article by Walling, BCSFA, *Vancouver Sun*, November 24, 2011

MR. McDADE: Forty-seven, please.

Q Dr. Kibenge, I'm just going to move to you for a minute, and then I have, I think, just two points and then I'm going to sit down.

This is an email from you to Kim Klotins, CFIA, I believe, and your -- it attaches an excerpt from *Hansard* on page -- can we go to page 3 of that document? Your request in the email is [as read]:

Is this true about the information that CFIA is putting out?

If we can go to page 3, you'll see the excerpt from the Honourable D. McRae answering on behalf of the government. What was your concern -- can you tell us about what your concern about that information was?

MR. MARTLAND: Mr. Commissioner, Mr. McDade and I in a different context some months ago had a back and forth on the question of parliamentary privilege

that may attach to certainly parliamentary documents, things that are said in the context of Parliament. It's an email, I think, that attaches something out of *Hansard*. This may raise an equivalent concern. I'd be also interested to put Mr. Taylor on the spot and hear his position on that. It may be equally that Mr. McDade is able to formulate a question that doesn't require him to move to the *Hansard* specifically and yet gets him to the substance of the inquiry.

MR. McDADE: Well, I think what I'm asking about is the email and what his concern was.

MR. TAYLOR: Well, Mr. Martland refers to me. This is a provincial legislative extract, but the point about a parliamentary privilege applies whether it's federal or provincial. Parliamentary privilege did come up before. I recall that Mr. Commissioner made a ruling on it, but however it happened, the stuff didn't go in before.

The same kind of result should apply here in terms of both the law and consistency, it seems to me. There's an email in the front. That's not what we're talking about. It's the *Hansard* that is being spoken of here.

MS. CALLAN: And Callan, C-a-l-l-a-n, initials T., appearing on behalf of Her Majesty The Queen in Right of the Province of British Columbia. The province supports and adopts the federal government's position on this. Parliamentary privilege is a clearly well-defined doctrine and therefore any statements made in *Hansard* should not be admissible.

MR. McDADE: I don't need to have the statements admissible, Mr. Commissioner, to ask the question. So perhaps the email can go in, in the end, without attaching the document. But I think I can ask Dr. Kibenge what his concern was, and it relates to information being put out by CFIA.

Q So, Dr. Kibenge, do you recall this email and what was your concern about the information that CFIA was putting out?

DR. KIBENGE: I recall this email and I was forced to write it after I read the information that you've just shown, specifically because that information said that the CFIA was contacted, and they said that the test results were destroyed and the samples were destroyed. Those statements were

made a day after I had spoken with Dr. Kim Klotins and I was concerned that what we had talked about is not what was being attributed to -- for the CFIA. And that's why I sent an email to Dr. Klotins.

I also copied it to the vice-president of CFIA, Dr. Dubuc, and Dr. Brannivans (phonetic), because I'd also spoken to them in the same context before, and I wanted them to know that I didn't agree with what they were putting out about my lab.

Q As a result of your making a simple scientific finding of ISA virus, you've been really quite attacked haven't you since then?

DR. KIBENGE: Well, yeah, I would say that, but I can't understand where the government is coming from. I mean, that's my view.

Q There's a lot of pressure been put on you and your university about this, hasn't there?

DR. KIBENGE: Yes.

Q And I'm going to give you a chance to say what you want to say about that, if there's anything you'd like to say.

DR. KIBENGE: Well, I think we -- there has been a lot of information that has been out there, and it hasn't been easy. But I believe that I'm very fortunate that I'm at a university that is very supportive. My dean in the vet school has been very supportive and I think because of that support we've been able to sort of deal with the other issues that have come our way. I really appreciate that support of the university and the vet college in this matter.

MR. McDADE: I'm going to speculate that if you'd made a negative finding, you wouldn't have been exposed to the same kind of pressure. Do you agree with that?

DR. KIBENGE: I agree, yeah. Negative findings --

MR. TAYLOR: The question invites speculation.

MR. McDADE:

Q Why -- do you have any explanation for why all this pressure comes from a simple scientific finding?

DR. KIBENGE: Yeah, but I would like to go back to your question about a negative finding, because we've reported negative findings before. I remember in 2007 I got a sample from B.C. and I reported it

negative. Negative findings are very easy to deal with because those are the default. Once you report a negative, there's no question, people move on. It's the positive findings that are difficult to accept and in this sense, the sort of question that goes forward is very difficult, particularly when you feel that your science is above question as was in this case.

Q Thank you, Dr. Kibenge, and I do agree that your testing should be above question, but this is a very political matter.

Can I just ask you to identify a document for me that I think you prepared at Tab 34?

MS. PANCHUK: Would you like the email marked?

MR. McDADE: Oh, yes, thank you.

MR. TAYLOR: Well, just on that, that document is an email with a string of *Hansard* attached to it. So based on what we've submitted before, I think the document cannot be marked. Someone might find another document that doesn't have the *Hansard*.

THE COMMISSIONER: We'll mark the email only for identification purposes. The *Hansard* will not be part of that exhibit. If there is a copy that doesn't attach the *Hansard* records, that will be substituted and marked as an exhibit but, for now, it'll be marked for identification purposes.

MR. TAYLOR: Well, the simplest thing probably would be to mark it for identification as you say. I can't find it in my binder now, but at some point, and maybe counsel could identify that point, we can take a pair of scissors and cut it off and create a new document and it can be put in using the old-fashioned cut-and-paste.

MR. MARTLAND: Mr. Commissioner, my suggestion would be to, on that premise, mark this as a document on the understanding that at the break or lunch, we can simply excise the *Hansard* reference which is actually cut-and-pasted into the exchange of emails. We can take that out.

MR. TAYLOR: The difficulty with that is as soon as it's an exhibit, it can go on the web.

MR. MARTLAND: Well, it won't go on the web until we've done that.

MS. CALLAN: And the province supports the federal government's position on that, and it should not -- the *Hansard* shouldn't be attached and marked as an exhibit. I suggest that it's marked as an

exhibit for identification purposes and once it's excised, then it can be marked as the -- the email can be marked as an exhibit.

THE COMMISSIONER: I agree with that proposal.

MS. PANCHUK: Document for ID, RRR.

MARKED RRR FOR IDENTIFICATION: Email from Dr. Kibenge to CFIA with *Hansard* references attached

MR. McDADE: So Tab 34.

Q Dr. Kibenge, I think this is a -- no, whoops. Yes, this is a Powerpoint that you prepared?

DR. KIBENGE: Yes.

MR. McDADE: Can we have that marked as an exhibit, please?

MS. PANCHUK: Exhibit 2090 (sic).

EXHIBIT 2092: Powerpoint prepared by Dr. Kibenge, "Laboratory Issues, Aquatic Animal Diseases"

MR. McDADE:

Q And I just want to -- my last question will just be to turn to page 5 of that, I think it is, under the heading "Aquatic Animal Diseases".

MS. PANCHUK: Just to clarify, that was Exhibit 2092.

MR. McDADE: Sorry, the next page, Mr. Lunn.

Q Now, Dr. Kibenge, the opening line of that, that you've outlined in red on this document:

> The spread of disease is the most feared threat to aquaculture.

Can you say a bit more about how aquaculture can adopt diseases from the wild?

DR. KIBENGE: Well, by the term "aquaculture", we made the framing for fish species or culture species in the water, so they are -- it's the farmed species and that was the observation by the owners. But in a sense, it's an intensive production such that ideally I would term it like a sentinel system in that because it's there. If virus is present in those waters, it allows for people to identify that virus because the virus will manifest, it will kill fish, and you can go in and take out the fish and determine the cause of their disease. So

it's like a sentinel animal.

But because aquaculture is a business, you know, of course the virus or the pathogen that would damage that is a problem. As far as I know, the spread of diseases is actually the most feared threat to aquaculture.

Q And this is equally true in British Columbia as it is all over the world.

DR. KIBENGE: Oh, that is the uniform statement wherever aquaculture is performed.

MR. McDADE: Thank you to both the witnesses.

MR. MARTLAND: I have next counsel for the Conservation Coalition for 15 minutes, and if it wasn't obvious, there was time trading that has gone into these.

Oh, I'm sorry, with the break? Mr. Commissioner, I have been reminded of that. If we could take a break now? Thank you.

MS. PANCHUK: The hearing will now adjourn for 15 minutes. Please remain standing in place while the Commissioner exits the room. Thank you.

(PROCEEDINGS ADJOURNED FOR MORNING RECESS)
(PROCEEDINGS RECONVENED)

MS. PANCHUK: The hearing is now resumed.

MR. MARTLAND: Mr. Commissioner, counsel for the Conservation Coalition with 15 minutes now. Thank you.

MS. CAMPBELL: Good morning, Mr. Commissioner. My name is Karen Campbell and I am here with my colleague Judah Harrison, on behalf of the Conservation Coalition.

CROSS-EXAMINATION BY MS. CAMPBELL, continuing:

Q I'm wondering if we can start by going to Exhibit number 2034, which is the *Journal of Aquaculture Research and Development*. And the title of the paper is "Infectious Salmon Anaemia Virus (ISAV) Ringtest: Validation of the ISAV Diagnostic Process using Virus-spiked Fish Tissues". Dr. Kibenge -- and I'd like to take us to page 2 of that, which I think is page 3, PDF, and there's a chart, and if you could just enlarge the chart, in particular on the right hand side, the second table on the right-hand side, it speaks to --

there's a column called the number of cycles. I'd like to ask Dr. Kibenge a broad question about, in your opinion, Dr. Kibenge, what do you think may explain the variations in your conclusions regarding ISA testing between your lab and the DFO Moncton lab? And the reason I've brought this document up is that my understanding is there's a difference in the number of cycles that are run for each of the tests, and that might be one of the contributing reasons.

DR. KIBENGE: Well, yeah, we run 45 cycles. DFO, from what I heard yesterday, they run 40 cycles. So that's one difference. But there are other differences that I came to learn of yesterday, and in my view some of those may even be more of the reason why there are differences in the two labs.

Q Would you be able to elaborate a couple of those, please.

DR. KIBENGE: Well, the first one which is demonstrated in this paper is the fact that we use -- the real time PCR machine we use is different from what is used in DFO in Moncton. We used a Roche LightCycler 480 machine with a different software for reading the Ct values, which is different from the DFO lab in Moncton uses. They use a Stratagene with again a different software.

In the paper that you are referring to here, we did a Ringtest that involved I think it was 14 labs from South America, Europe and Asia, and these labs were using a wide range of machines, as you can see on the table, including the LightCycler 480, and the Stratagene with the software indicated. And the samples that were distributed again we have different concentrations of virus, but what we found was that there were seven labs that we flagged as more or less reporting what we would call false negatives. And one of the labs was actually a very high profile lab in Europe, which had impeccable protocols, if you like to call them.

We had a little debate in terms of the variation in the results, and I worked with them and what we found actually the reason for the difference was that they were using a Stratagene machine which was different from the machine we are using, which was LightCycler. And all the seven labs that we had flagged, some were in South

America, were also using the same Stratagene machine. And what we found was that if you use that machine, you are likely to come up with very high Ct values for the same samples that will give you lower Ct values on a LightCycler or on an ABI machine. And in our view the difference was ranged probably from three to seven Ct values. Now, a difference of three Ct values is equivalent to a tenfold difference in the amount of starting template, so it's significant.

Okay. So we established that if you're using that machine, you are most likely to miss positive samples that have low virus amounts, and the seven labs that were flagged for that were actually having that machine. But another --

Q And is the DFO Moncton lab one of those labs?

DR. KIBENGE: No, the DFO Moncton lab was not part of this Ringtest.

Q Thank you.

DR. KIBENGE: Yes. The third reason that I again learned yesterday that I probably think would explain some of these differences, particularly when you also consider the differences with the Dr. Miller's lab in Nanaimo, is that the Moncton lab is using a different primer probe method than what we used in this test, and also what probably some of the assays that Dr. Miller was using. The probe we use is the Mike Snow probe, which with the paired primers, actually it targets a region over 104 base pairs. From what I heard yesterday, the probe primer set that is being used in the Moncton lab actually targets a region over 169 base pairs. The two primers are quite different from what we use. But that alone would explain that actually the probe primer set that is used in Moncton would give you less sensitivity. You know, the key to the real time is the length of the target.

Q Thank you.

DR. KIBENGE: The smaller the target, the more sensitive the test.

Q Thank you for that.

MS. GAGNE: May I respond to that?

Q Can I just put my next question and perhaps you can respond in that context.

MS. GAGNE: Okay.

Q So my question is to Dr. Kibenge. Given all of

these concerns about quality, cross-contamination, and different primers and protocols, would you agree that an abundance of caution is required going forward with respect to next steps on this issue?

DR. KIBENGE: I would agree. But I would also suggest that some of the labs, the result we are putting should not be taken lightly and excused off as being either cross-contamination or something else. Because we don't report false positives or false negatives. The results we report, we would have ruled out all those issues.

Q Thank you. And, Ms. Gagné, would you agree that going forward we need to have an abundance of caution in the next steps that government is going to take on these issues?

MS. GAGNE: Yes, I agree. And if I can comment on the first, the issue of our machine. This --

Q I'd like to keep it -- please keep it brief, because I'm under a time constraint, but please comment.

MS. GAGNE: Okay. This came up yesterday, too, a surprise to me. But just remember that recently we had confirmed a case of ISA and the sample we received was tested and found positive with a value of -- a Ct value of 35, exactly like the original lab reporting this sample, which uses one of these ABI machines. So I don't think the machine is in -- is the problem. Because also we have our validation data showing the sensitivity of the assay using this machine we have.

We have set the machine to work properly, though. You don't use the machine out of the box as it is. You set the gain, you use different coordinates. We have done all the proper work I think to make the machine work properly.

Regarding Kibenge's sample, we have tested them with the same primers and probes as they are using, using the chemistry prescribed by the Snow assay, and found them negative again. So it's not that we didn't try also this assay, as prescribed by Snow. In Dr. Kibenge's lab the primers and probes are the same, but the rest is different.

Q But there is also one of the changes is that you run the test for a fewer number of cycles; is that correct?

MS. GAGNE: We run them at 40 because we have -- we

used to run 45 for a long time, but we know that above 40 it's -- there's nothing showing up usually.

Q Thank you. Do you run at a fewer number of cycles, then.

MS. GAGNE: In this case, anyway --

Q It's a yes or no answer.

MS. GAGNE: Everything was reported below 40, so --

Q Thank you.

MS. GAGNE: -- it's not a factor.

Q I'd like to bring back the issue of the 2004 study, which I know was made an exhibit, and I'm not sure I need to turn to it, but it's the -- it's the Molly Kibenge work that was done back in 2004. And just to confirm, Ms. Gagne, the results of that study were known to DFO back in 2004; is that correct?

MS. GAGNE: Yes.

Q I'd like to turn to Conservation Coalition document number 34, which is a DFO document from 2007 and 2008 entitled "Wild Sampling in support of the National Aquatic Animal Health Program". Could we please have that document marked as an exhibit.

So this is a three-page document, it's a CFIA-DFO document where they identify the diseases they plan to survey for in the years 2007 and 2008. And if we -- it's going to be difficult to go through this, but if we go through on page 2, we see that in the Gulf/Maritimes Region they identify that they plan to test for ISAV and MSX. And if you go to the third page, we see that with respect to the Pacific Region they plan to test for IHNV and MSX, but they do not plan to test for ISAV.

And, Dr. Kibenge, in light of the 2004 findings, which had indications of ISAV that were not necessarily confirmed, would you agree that it would have been prudent for DFO to have started testing for ISAV back at this time?

DR. KIBENGE: I would agree. But I would also add that regardless of that data, I think given the importance of ISA virus, these should be part of the screening wherever you are raising farmed Atlantic salmon.

MS. CAMPBELL: Thank you. I'd like to now turn to Conservation Coalition -- actually, it's now

Exhibit 2085.
MS. PANCHUK: The previous document was Exhibit 2093.

EXHIBIT 2093: Wild Sampling in Support of the National Aquatic Animal Health Program (NAAHP): Proposed Department of Fisheries and Oceans Activities for 2007-08

MS. CAMPBELL: Thank you, Ms. Panchuk.
Q We talked about this yesterday, and I put a question to the panel about the agreement and the need for coordinated research going forward, and this is the reference to the U.S. Bill before the U.S. Congress. Near the bottom of the document, one of the things, and again we don't we don't need to look at it directly, but it does -- there's a statement in the bill that it's calling for the results of the research that's been done to be reported to Congress in six months. And the reason I bring this up is because I'd like to get to the timeliness of the need for action on this. And I'd like to ask you, Dr. Kibenge, what you think is an optimal timeline to get further clarity on the issue of the extent to which this ISA virus may be in B.C. waters. And I ask you that as a scientist, knowing that things take time, but time is of the essence.
DR. KIBENGE: Well, I would suggest that given the information that we know today, and the technology as we have it today, I think one needs to move very fast and I wouldn't wait for six months.
Q Thank you for that.
DR. KIBENGE: I mean, as you can see from the work that Dr. Miller has done, this information just came out within a week or so. So there is an opportunity where you can actually generate a little data very, very quickly.
Q Ms. Gagné, do you believe that time is of the essence and what do you think would be the optimal time for getting to the -- the bottom of this?
MS. GAGNE: As soon as possible.
Q And I'd like to go now to Conservation Coalition document number 37. And this is "Speaking for the Salmon". Thank you. It's a think tank of scientists has recently issued the following set of recommendations, which I would like to put to you and ask you whether you agree or disagree with

these recommendations. The first recommendation -- and this think tank took place quite recently. The first recommendation is that we need to establish a transparent monitoring system of wild and farmed salmon in B.C. to determine both the presence and prevalence of a broad range of disease organisms. Ms. Gagné, do you agree?

MS. GAGNE: Yes.

Q Dr. Kibenge, would you agree?

DR. KIBENGE: Yes.

Q The second recommendation is that:

> We must better incorporate current scientific information into salmon farm policy and regulations.

And have more focus on resolving the ecological and economic viability of the transition to land-based salmon aquaculture, and to explicitly manage salmon farms as a disease risk, where they're located on major migratory routes. Ms. Gagné, do you agree?

MS. GAGNE: This starts to be outside my field.

Q Dr. Kibenge?

DR. KIBENGE: Well, I agree with some of the statements, but there are some statements there that I may not agree with, not because they are wrong, but simply because I think they may be very difficult to implement and make them viable.

Q The third statement is that Canada needs to create a separate entity to facilitate scientific research related to aquaculture. This entity must be totally separate from the promotion of economic activities. And some of the models that are mentioned are the now defunct Fisheries Research Board of Canada. Ms. Gagné, would you agree?

MS. GAGNE: Is it in the third statement? I cannot read that.

MR. MARTLAND: I don't know -- Mr. Commissioner, I don't know that what was read reflects what the document writes as.

MS. CAMPBELL: I can -- I can read directly from the statement, if that's easier.

Q So the third statement reads:

> Canada urgently needs to create a separate entity for facilitating scientific research

to provide for better management of our wild fish and their habitat. Possible partial models for such an entity might include the former Fisheries Research Board of Canada, the Committee on the Status of Endangered Wildlife in Canada..., Australia's Commonwealth Scientific and Industrial Research Organization..., and several research organizations focusing on fish and wildlife in the United States. Of prime importance is that this entity is thoroughly separated from initiatives that promote economic activity.

It's particularly that point, that last point, the independence and the economic activity point I'd ask if you agree with.

MS. GAGNE: It's true that economic activities should be separated from research, yes.

Q Dr. Kibenge?

DR. KIBENGE: From what I understand, is the recommendation calling for a government sort of setup to do the scientific research? I'm not clear whether it's just some sort of a research --

Q It says a separate entity, so --

DR. KIBENGE: Within the government, within the government laws. Because I know there's CFIA labs, there's DFO labs, are you talking about another government lab?

Q Perhaps you could let me know whether you think it should be independent of government, or whether such -- if you agree that such an entity is a good idea, do you have a view on whether it should be in government or out of government?

DR. KIBENGE: You know, personally, given the experience I've seen in the last few months, I would suggest that there needs to be a separation between policy and science. So that should drive the creation of another scientific research program that is being suggested.

MS. GAGNE: Where the science/policy separation is not necessarily -- if this is -- this is not clear. I won't comment, but...

MS. CAMPBELL: Those are my questions, thank you very much.

MR. MARTLAND: Thank you. Mr. Commissioner, counsel for Areas D and B with 15 minutes. Oh, and I'm

sorry, the last document wasn't marked. We should give it an exhibit number, I think.

MS. PANCHUK: Exhibit 2094.

EXHIBIT 2094: Speaking for the Salmon, SFU Invitational Scientists' Think Thank, Managing for Uncertainty: Pathogens and Diseases in Pacific Salmon, November 30 and December 1, 2011

MR. ROSENBLOOM: Thank you very much. Again, panel, I represent Area B and D that are part of the commercial fleet out here on the West Coast.

CROSS-EXAMINATION BY MR. ROSENBLOOM, continuing:

Q Firstly, I have given notice to the Commission, I have given notice to all parties, but I've given notice today to the Commission and to the Government of Canada, the documents out of our list that I wish to have marked and I want to do this quickly, so I don't use up a lot of my time. Mr. Lunn has been so informed of the documents that I wish to put forward.

The first one is from our list, document 5B as in Boston, and that is one of the Situation Reports, report number 3. I ask that that be marked as an exhibit.

MS. PANCHUK: Exhibit 2095.

EXHIBIT 2095: ISAV Situation Report (Internal) Update #3, October 20, 2011

MR. ROSENBLOOM: Thank you. The next one being document --

MS. PANCHUK: Oh, 2096.

MR. ROSENBLOOM: Sorry, the initial document is 2096, Madam Clerk?

MS. PANCHUK: The initial document is 2095.

MR. ROSENBLOOM: Okay, it is. Okay. The second document which is from our list, document 6D, as in Donald, is document 2097, is it?

MS. PANCHUK: 2096.

EXHIBIT 2096: Draft Backgrounder Infectious Salmon Anemia (ISA) Virus - Accepted Testing Methods (DFO)

MR. ROSENBLOOM: Document 6E.
MS. PANCHUK: 2097.

EXHIBIT 2097: Draft Media Lines & Qs and As ISAv interim results - Ongoing Investigation (DFO)

MR. ROSENBLOOM: Document 6T as in Thomas.
MS. PANCHUK: 2098.

EXHIBIT 2098: News Conference November 8, 2011

MR. ROSENBLOOM: Document 6F as in Frank.
MS. PANCHUK: 2099.

EXHIBIT 2099: Inconclusive: Infectious Salmon Anaemia Virus in BC Salmon (DFO)

MR. ROSENBLOOM: Document 13 I wanted to put in, but I'm informed by Mr. Lunn that's Exhibit 2002. We'll forget that. And lastly, document number 7.
MS. PANCHUK: Is 2100.

EXHIBIT 2100: Statement from Dr. Fred Kibenge, OIE Expert for ISA, November 17, 2011

MR. ROSENBLOOM: Thank you very much. I'll try to be brief.
Q Firstly, Dr. Kibenge, in your response to Mr. McDade at one point in time during your cross-examination, he was exploring with you some of the repercussions that may have fallen upon you and your lab as a result of the positive findings that you came up with from Charlottetown and from PEI. My question to you is this. You then responded to my learned friend, and you said you sort of understood, you said you understand where the government is coming from. You used that very term. I'm interested in you exploring with us where do you believe the government is coming from in respect to this controversy?
DR. KIBENGE: When I mentioned government, I mean the Canadian Food Inspection Agency, and I think ultimately they are responsible for, you know, the health status of animals in Canada. And so with a

result like this, I would expect them to sort of get on the case, to understand where is it coming from, how they can control it, and so on. So the way they came at it is quite understandable to me. It may not have been acceptable to me, but given the situation, if I was in CFIA, probably I would have done the same thing. So that's what I mean that I understood where they were coming from.

Q Well, you have made very clear before this Commission, and you've made clear in documents which I'll come to in a moment, that your initial work that is now before us in terms of your lab results are preliminary in the sense there are phased processes that have to be pursued beyond this point; is that not correct?

DR. KIBENGE: That is correct.

Q Yes. And to show your measured approach to this, I want to draw to your -- ask for your identification of what I have just marked as an exhibit. It's Exhibit 2100, it's the last of the documents, and it is something written by you dated November the 17th of this year, a statement of Dr. Fred Kibenge, OIE Expert on ISA. And it's now before us, and I want to go down to the third paragraph and I want to go to the four lines from the bottom. You say, if you have it in front of you there, Doctor:

> In order to confirm whether an infectious viral disease is present, further testing is required. The OIE definition (confirmation) of ISAv infection requires that the virus be successfully grown in cell culture. Thus, the PCR test should be viewed as a highly sensitive screening test that, if positive, is only the first diagnostic step in documenting an ISAv infection should one exist.

And I assume you obviously adopt those remarks?

DR. KIBENGE: That's correct.

Q Yes. Now, recognizing the preliminary state we're in, in respect to this controversy at this point in time, there are reasons, are there not, sir, why the government should take aggressive steps at this point in time to pursue further testing and to make a determination sooner or later whether

this virus may be pathogenic?
DR. KIBENGE: That is correct.
Q And why don't you explain to us, and I asked this question to Dr. Miller yesterday, and limited it to her because of her absence today, can you educate this Commission as to why it is so critical that this work be done, what is the consequence of a process that might lead to a determination that the virus is in fact pathogenic?
DR. KIBENGE: Well, first of all, based on the results we have seen so far, it's clear that we don't have -- we don't have a specific diagnostic test that is consistently detecting this virus in all samples. So there is a strong possibility that we are either having a high level of false negatives, or a high level of false positives. So it's important that we have a specific diagnostic test that will identify to us that if a sample is carrying this virus, it is positive in all the labs and all times that it is tested.
That information can only come out if more work is done to isolate this virus, sequence its genome, use those sequences to design a test that is specific for this virus in the wild fish. Without that, we are really not making any progress. And I mention this because I have heard that there are surveillance activities that are being planned or proposed, but until there is a diagnostic test that is specific for this agent, we will be in the same situation as before.
Q And I don't want to be alarmist about this, but if indeed we got to a state where there were positive findings of pathogenic virus of ISA, government would have to take aggressive remedial steps, would they not, to try --
DR. KIBENGE: Yes.
Q -- to arrest the situation?
DR. KIBENGE: Well, yeah, that's the only way you can control this type of disease, and it has been shown where ISA disease has been confirmed or reported.
Q All right. I want to come back to you, Dr. Kibenge. But, Madam Gagné, can you tell me, you know the witnesses that are slated for the second panel this afternoon, who best can answer this question; maybe yourself. Can you tell this

Commission what the Government of Canada intends to do in pursuing this issue in light of the recent findings out of the labs, both in PEI and out here in the West Coast?

MS. GAGNE: This is definitely a question for the panel of this afternoon. They have -- I know that they're working on a surveillance plan, and you have to understand that to do so with surveillance in fish that are migrating, you need to have -- there are several criteria, time of the year and et cetera. So I know that they're working on that, and they will probably have the occasion to explain it better than me.

Q And from our perspective, would you agree that the findings that are before this Commission, albeit that in terms of your lab it was inconclusive, that the findings that are before this Commission justify a very aggressive response by the Government of Canada to take this to the next levels, as Dr. Kibenge speaks about these levels, the sequencing and the culturing.

MS. GAGNE: I personally don't like the word "aggressive", we're not aggressive. But, I mean, we're going to take certainly strong measures to -- to do a proper surveillance for some -- sorry, for ISA, and ISAV.

Q From your perspective, the status quo is not acceptable, is it?

MS. GAGNE: I don't think, no.

Q Thank you. Now, Dr. Kibenge, this is my last opportunity with you and one of your last opportunities to speak to the Commission. Can you inform us from your perspective what you believe the Government of Canada should be doing to pursue this matter to the point where the public interest is well served?

DR. KIBENGE: Okay. When I came here, I came with the view that I would probably be asked in terms of what recommendations I could put forward. And I have thought about this and I have three recommendations that I would put forward right now in response to your question.

The first one is that I believe that the different labs that are working on this problem should actually try to work together for the common good and come up with more information, more knowledge, rather than the situation in where

there is a lot of discrediting of certain individuals, certain labs, and so on. That, in my view, will not serve Canada well.

I've got an example where we have worked in Chile, because Chile had the situation where, you know, they had the virus probably for a few years before the outbreak came out. And one of the reasons they were not being able to pick it up was because the labs were right not up to par. But out of that outbreak and the work I have been doing there, we got a chance to set up what we call an OIE training program, in which my lab is twinned with certain labs in Chile. And the purpose there is to bring the level of knowledge and expertise in those labs to the same level as Canada, or at least so that we are all uniform, and we can sort of improve on and get the same information on these matters.

Actually, I should also comment that when the outbreak in Chile occurred, I was getting a lot of samples to test, but since these corroborations and the trainings that we have been doing, I didn't get any sample in 2009. Not because there were no outbreaks there, but the expertise there is right now at a level that they need to send samples outside of the country to be tested for ISA virus.

So my point here is that I think labs need to work together to increase our level of knowledge, rather than discrediting each other, that's...

Q Anything else to say?

DR. KIBENGE: Yeah, the second comment or recommendation I would make is that really we need to get a hand on this virus in the wild fish. The methods we are using now and the samples we are taken -- we are taking, are based on our knowledge of the virus and the disease in farmed Atlantic salmon, and that could be part of the reasons why we are really not being consistent in what we are picking up, and being sure whether we are even detecting ISA virus. So it's important that we set up experimental infections to detect where the virus is most and when is the best time to sample so that we can actually get a hand on even the spread of this virus, wherever it may be. Without that, we really don't have a clue of what we are doing.

And the third recommendation I would suggest is that I think probably the government or someone should set up some sort of a fund or research chair, so to speak, so that we'd get some expert who focuses on aquatic virology and get to the bottom of most of these issues. We have seen and heard, you know, Canada has some expertise here. I heard from Dr. Miller, I think she is the -- a very accomplished scientist that could easily be used. But there are others, and I think this is something that we need to consider and therefore.

Q Thank you very much, I have only two minutes left. Firstly, you heard evidence from Dr. Miller yesterday that she wasn't on speaking terms with certain people. Are you in the same situation now in light of the results that came out of your lab?

DR. KIBENGE: Well, I think I'm in a better environment, because I think the University and the Vet College in PEI, they believe in the work we do, and they are very supportive. So my experiences, at least within the areas that I work in, are quite different from what I herd about what --

Q Yes.

DR. KIBENGE: -- Dr. Miller's experience.

Q Thank you. And lastly, at this inquiry we've heard repeatedly about budgetary restraints within DFO, at the directive of Treasury Board. This - program that you speak of that you believe the Government of Canada should initiate to respond to the latest controversy, that will cost money, won't it?

DR. KIBENGE: Oh, of course, yes.

Q Yes.

DR. KIBENGE: Yes.

MR. ROSENBLOOM: Thank you. No further questions.

MR. MARTLAND: Mr. Commissioner, next counsel for the First Nations Coalition for 15 minutes.

Sorry. In addition, Mr. Commissioner, there is one housekeeping matter. Unintentionally, 2098, Exhibit 2098, is in fact a document that was previously given the number 2030. They're identical. I'm not sure, Mr. Lunn, in that a situation whether we simply substitute in and renumber the exhibits that follow, or what the right approach is.

MR. LUNN: I think in this case since the exhibits have

been referred to on the record already since, we'll just leave it as a duplicate.

MR. MARTLAND: And we've left it with the indication on the record. Thank you.

MS. REEVES: Good morning, Mr. Commissioner. Crystal Reeves for the First Nations Coalition, and with me my co-counsel, Leah Pence.

CROSS-EXAMINATION BY MS. REEVES, continuing:

Q This morning my first question is for you, Ms. Gagné. We heard yesterday from Dr. Miller about the work her lab does with First Nations, particularly in terms of sampling. And I just wanted to know, does your lab in Moncton work with First Nations at all in sampling or in other issues?

MS. GAGNE: To my knowledge, no.

Q And is this something that your lab should work toward, given the concerns of First Nations around fish health and particularly in light of their use of fish for food, social and ceremonial purposes?

MS. GAGNE: If there was the need, but I never heard of that in our region, I mean.

Q But do you personally feel that there would be a need to reach out to First Nations, both in terms of collecting sampling, but also perhaps to review results that you obtain through your investigations?

MS. GAGNE: I prefer to defer. It's not really my -- in my -- my work line to do that type of a -- I'm not responsible for sampling.

MS. REEVES: I'd like to go to Exhibit 2044. Is that Commission's Tab 83?

MR. LUNN: I believe that's Tab 68 of the Commission.

MS. REEVES: Sorry, I need Commission's Tab 83, then.

MR. LUNN: One moment.

MS. REEVES: Yes, that's the right...

Q I'm not sure if this has been marked, but this refers to an email between Kim Klotins and Timothy Davis. And at the first paragraph of the email, if you could just blow that up, Mr. Lunn. And Tim Davis is describing a meeting he had with you, discussing some issues with the OIE report, and it also says you gave him a few areas that you may want to check out during inspection, and the inspection referring to Dr. Kibenge's lab. And so

that meeting did take place between you and Tim Davis?
MS. GAGNE: Yes.
MS. REEVES: And could I have this email marked as an exhibit.
MS. PANCHUK: Exhibit 2101.

EXHIBIT 2101: Email exchange between Timothy Davis and Kim Klotins and others re "PEI", October 19, 2011

MS. REEVES:
Q And these issues, with the OIE report and with the lab, were those volunteered by you, or were you asked specifically if you knew of any issues?
MS. GAGNE: I don't think they were volunteered. I was -- he was not an expert in PCR and he was touring our lab, asking how the -- how the process is done, and he was questioning me on the report. So I was trying to explain to him what I could deduct from the information we had.
Q Right. But in terms of issues with the lab itself, is -- was that discussed, with Dr. Kibenge's lab?
MS. GAGNE: There was just talking issues with the report, not with the -- the lab.
Q Okay. And then were you aware that Tim Davis had forwarded this to Kim Klotins?
MS. GAGNE: No, I don't see my name on this one. No.
Q No, but you -- do you know?
MS. GAGNE: No, I have not seen that before disclosure, no.
Q Okay. And it was ultimately obviously CFIA and Kim Klotins was aware that undertook the assessment of Dr. Kibenge's lab?
MS. GAGNE: I guess. I know I wasn't part of the assessment, no, so...
Q Okay. I'd next like to go to Commission Tab 85. And this is an email, and then the second page attaches a list of PCR issues, and the email again is Tim Davis and it's highlighting discussion that you had with him. And again, were you aware that this checklist was forwarded to Kim Klotins?
MS. GAGNE: No.
MS. REEVES: Now, I'd like to mark that exhibit, though, as an exhibit if I can, because the list was created by -- well, in conjunction with Nellie

Gagné.
MR. TAYLOR: Well, maybe the best thing is for ID at the moment. Dr. Klotins is going to be here in about -- well, on the evidence seat in about 35 minutes, I think.
MS. REEVES: I'm fine with that.
MS. PANCHUK: Document for ID SSS.

MARKED SSS FOR IDENTIFICATION: Email from Timothy Davis to Kim Klotins and others re "DFO Lab Discussion" and attached PCR Checklist dated October 20, 2011

MS. REEVES:
Q And so this checklist that was created, these are the issues that you identified for Tim Davis regarding sampling and the PCR tests; is that correct?
MS. GAGNE: I read more a list of -- these were his notes, and I have -- and he was taking a lot of notes while I was speaking. So I read part of this is not necessarily issues, but he was noting what we were doing. Like, we had a tissue prep area in a separate room. This seems more like a bunch of notes, including probably some of the issues. The title may be misleading, I would say.
Q And just -- just on a brief review of the issues, is this sort of what you had outlined in your meeting? Do you feel that what's stated here is correct in terms of what you had told him?
MS. GAGNE: I haven't read that in detail, so I see lots of -- a lot of things there. And I see things we do in our lab mostly, so...
Q Okay. In the interests of moving on. I also understand that there is a -- there is a containment checklist that labs fill out; is that correct?
MS. GAGNE: A containment...?
Q As part of standardization and assessment, they fill out a checklist for how they do containment?
MS. GAGNE: Containment is a -- it's a form of -- it's a permit to handle pathogens. So it's a checklist you have to fill.
Q Okay. I'd like to go to Commission's Tab 86, please. Now, this is an email, and I recognize that you're not on the email, but my interest is in the attachment, which is on page 3. And

apparently this is a new checklist that's been developed, it's called a Containment Level 2 Checklist from the email. Are you familiar with this checklist?

MS. GAGNE: Yes.

Q And when was it created? It's in draft form, apparently.

MS. GAGNE: I don't know. I remember that I had to -- I applied and I had that permit. About a year ago, I would say.

Q So this checklist has been in development since a year ago; is that what you're saying?

MS. GAGNE: I don't know if it's still in draft form, but it was, like, modified from the previous checklist for -- this is more specific now for the work we do.

Q Right. But you filled out this specific containment 2 level checklist that's on the screen, this particular one.

MS. GAGNE: I would need to double-check with the checklist we filled if it's the same thing, but it looks like it.

Q And the reason I ask is because in the email it talks about additional questions that are in this checklist as compared to the previous checklist, which I understand was used by both other labs, as well as Dr. Kibenge's lab. So I'm just trying to find out whether you filled out this checklist, as well, in your work.

MS. GAGNE: We filled out the most recent one that I'm aware of.

Q And when was that done?

MS. GAGNE: About a year ago, but I'm not -- precisely, I don't remember.

Q Perhaps -- perhaps during the next round of questions we can find out whether this -- when this checklist has been permitted. Now, I'd like to mark again this as an exhibit, primarily for the checklist, but I don't know if you want to wait.

MS. GAGNE: Yes.

MS. REEVES: So if we could have that marked as an exhibit.

MS. PANCHUK: 2102.

EXHIBIT 2102: Email from Victoria Pedersen to Timothy Davis and others dated October 20,

2011 and attached draft Inspection Checklist - Animal Pathogen Containment Level 2 Facilities

MS. REEVES:
Q Ms. Gagné, are you an expert on biohazard assessment, or lab protocol planning?
MS. GAGNE: I wouldn't say I'm an expert in biohazard assessment. We have -- we have this expertise within our organization and they are the ones who review these procedures.
Q Right. But when you were outlining issues that you thought you saw with Dr. Kibenge and you reiterated some of them here with containment, you're not speaking as an expert on biohazard or containment, are you?
MS. GAGNE: This was more about the PCR process itself, I believe.
Q But in your evidence today you talked about cross-contamination as a concern, so is that your expertise?
MS. GAGNE: Cross-contamination, I wouldn't classify that as a biohazard, it's more as maintaining cleanliness in your environment, or detecting if there is a problem that you're not aware of.
Q Thank you. Earlier today, Mr. Blair went through a comparison between the assessment of your lab and an assessment of Dr. Kibenge's lab. And are you aware, did someone independent from government outside of CFIA undertake the assessment of your lab?
MS. GAGNE: Yes.
Q And who was that person?
MS. GAGNE: Davor -- I forget his last name, Davor, Davor, he's from the --
DR. KIBENGE: Dr. Davor Ojkic.
MS. GAGNE: Ah, yes.
DR. KIBENGE: He's a Diagnostic Biologist at the University of Guelph.
MS. GAGNE: Mm-hmm.
Q And were there other people in the assessment of your lab, as well?
MS. GAGNE: Dr. John Pasick, and Mrs. -- I'm not good with people's names. Mrs. -- I forgot her name, but she is with CFIA.
DR. KIBENGE: Sheila McDermott (phonetic).
MS. GAGNE: Sheila McDermott.

Q And those two people are from CFIA, though?
MS. GAGNE: Yes.
Q Thank you. Dr. Kibenge, were you aware that Ms. Gagné had been consulted about issues with your PCR tests prior to the assessment of your lab?
DR. KIBENGE: No, I'm just seeing this right now. I am quite surprised, actually.
Q And have you ever had any issues raised with respect to your lab by CFIA prior to these latest testing results?
DR. KIBENGE: No.
Q In fact, yesterday it's correct that Dr. Nylund, who was qualified as an expert and is probably considered a world expert on ISAV, stated that your results were correct.
DR. KIBENGE: That's correct.
Q Do you believe, Dr. Kibenge, that the CFIA was honestly concerned about conditions of your lab, or do you feel this was more a form of damage control focusing the problem away from potentially -- or positive ISAV results and more going to issues with your lab?
MR. TAYLOR: Well, just before the witness answers, I think the better question would be does he know whether, as opposed to does he think or speculate. I took the Commissioner's nod to be a ruling.
MS. REEVES: I'll rephrase the question.
Q Do you have a concern, Dr. Kibenge, that the focus was placed on your lab because you had an ISAV result?
DR. KIBENGE: Yes, and I'll probably expand on that in two ways.
Q Okay.
DR. KIBENGE: Before I was made aware of the actual lab assessment, we had spoken with the several senior people in CFIA, and they had told me that they may want to compare our methods to the lab in Moncton, but for the purposes of understanding how best we can move forward with what we are doing. When the lab assessment was presented to me, it was presented as an assessment between two labs, the DFO Moncton lab and the AVC lab. And at that point my view was that it's, you know, being done fairly. I was not aware that actually they first consulted the DFO Moncton lab for what issues to look for, and then set up this assessment. So --
MS. GAGNE: There's a difference here.

Q Excuse me. If we can just let Dr. Kibenge finish his answer.
DR. KIBENGE: Yes. So, and then I got a list of documents to provide before the site visit, which were actually a list of documents that you could get a sense of what is done in the labs. At the time of the site visit, I quickly got aware that actually the purpose of the site visit itself was not to do the things that I had been made to understand from the conversation with the senior officials in CFIA, and the collection of the lab documents, it was actually, in my view, to confirm a hypothesis that had already been communicated in the media. I expressed that very strongly to people I was working with. And when we got the report, I think a draft report a few days ago, I had to respond, and I think I made that aware to the person who was in charge of this lab assessment.
Q Thank you. Did the team that came and assessed your lab ask you for any of your views, given that you are an OIE reference lab, and considered an expert on ISAV, about your views of the Moncton lab?
DR. KIBENGE: No.
Q Earlier today when you were talking about ways moving forward and recommendations, you stated that labs should be working together, rather than spending time, you know, going through and I guess mischaracterizing each other's lab. And I'm just wondering, do you have a concern that -- or do you think that CFIA is going to take that recommendation and consider having labs work together and going forward? Do you think that's a concern that you have, or do you think that they'll just not take up that recommendation?
DR. KIBENGE: Well, actually, I believe they will do it, because in fact in my initial conversations with the senior people in CFIA, that is the understanding that they meant when they wanted to look at my lab and the lab of DFO Moncton. The problem was that the outcome appeared to be to collect evidence to support a certain set of thinking of the issues at hand.
Q Thank you, Dr. Kibenge. And my one last question is for you, Ms. Gagné. As a scientist, you review peer-reviewed journals on probably a fairly

consistent basis to understand new research and new techniques, would you say that's fair?
MS. GAGNE: Yes.
Q And if you were to get new scientific information from a peer-reviewed journal about issues with testing, such as the one that Dr. Kibenge's studies showed with the Stratagene machine, would you -- would it be fair to say as a scientist you might want to take that into account and consider that study, and what it means for your own lab?
MS. GAGNE: The paper focus was definitely not comparing machines. It was comparing assays. I haven't seen myself the machines and how they are run, so I can't say.
Q So despite the findings of the study, though, that talked about some problems with the Stratagene machine, you're not open to considering the possibility --
MS. GAGNE: I think that there's just -- it's just pointing to a coincidence, not a problem with the machine probably.
MS. REEVES: Thank you. Those are all my questions.
MR. MARTLAND: Next, Mr. Commissioner, counsel for the Sto:lo and Cheam with five minutes.
MS. SCHABUS: Mr. Commissioner.

CROSS-EXAMINATION BY MS. SCHABUS, continuing:

Q Dr. Kibenge, your lab is an OIE reference lab for Infectious Salmon Anaemia viruses and you told us only one of two in the world, right?
DR. KIBENGE: That's correct.
Q And you'd agree with me that's quite a prestigious accreditation in recognition of your international level of expertise in the field?
DR. KIBENGE: That is correct.
Q Now, you are bound by the highest international standards to conduct state of the art testing, especially for ISAV, and also to ensure biosecurity and avoid cross-contamination, right?
DR. KIBENGE: That's correct.
Q And if you wouldn't enforce those, and it's in your own interest and in the lab's interest to enforce those, because otherwise you could lose your prestigious accreditation, right?
DR. KIBENGE: I suppose, yeah, that's correct.
Q Now, if Mr. Lunn could -- could bring up, and

sorry, I didn't give him upfront warning, Exhibit 2045, so 2045. It was Commission counsel's Tab 29. And that is -- it starts off with an email that's actually directed to you, and you previously identified that exhibit. And then it also includes the 2004 paper, right, of which you are a co-author?

DR. KIBENGE: That's correct.

Q Along with Simon Jones, is the head of Aquatic Animal Health Section, and I think also Kyle Garver, right? You were one of the co-authors of the paper and such as you reviewed all the research in that regard, right?

DR. KIBENGE: Yeah, I'm a co-author on the paper.

Q And the underlying research was done by your wife, who at the time was doing her post-doctoral research at Pacific Biological Station with an NSERC -- NSERC grant, right?

DR. KIBENGE: That's correct.

Q And again that is also a prestigious grant in recognition of the expertise she has in the field and she was doing work on fish health-related issues and testing for pathogens at the time, right?

DR. KIBENGE: That's correct.

Q Now, you therefore, you've reviewed this article that was written in 2004, correct?

DR. KIBENGE: That's correct.

Q And do you agree with the contents of the article?

DR. KIBENGE: I agree with the contents of the article, that's true.

Q You've also reviewed the research and the testing that happened in 2002-2003 right?

DR. KIBENGE: I'm aware of the work that was being done, yes.

Q And the positive findings of ISAV at Pacific Biological Station, correct?

DR. KIBENGE: That's correct.

Q And nobody at -- there was no testing done at Pacific Biological Station that would have contradicted those results, correct?

MR. TAYLOR: Well, my friend has to first establish this witness would know if -- the facts to enable her to ask the question and get that through an answer.

MS. SCHABUS:

Q You're not aware, Dr. Kibenge, of any testing that

was done at Pacific Biological Station to counter those --
MR. TAYLOR: No, I said she needs to establish factual basis to ask the question. Does he know what testing was done, what research was done?
MS. SCHABUS: In my submission, I already addressed that.
Q But you were aware and you reviewed the research that was done as the basis of this article, correct?
DR. KIBENGE: I know the research that was done as described in this article, yes.
Q Okay. If we could go to page 15 of the article, please. I think it's PDF page 15, Mr. Lunn, hopefully. Yes. And that table actually shows the positives that were found at PBS, correct?
DR. KIBENGE: Yes.
Q The positive test results --
DR. KIBENGE: Yes.
Q -- that were found at PBS. And there's a column there that says "Sockeye", right? Do you see that column? If we could zoom -- we don't really need to zoom in on the column.
DR. KIBENGE: Oh, yes. Yes.
Q We can see it quite well.
DR. KIBENGE: Yes. Yes.
Q And if you go across to the -- and actually, I was wrong. It's the line that says "Sockeye" and the column that I'd like to take you to is Cultus Lake; "CL" standing for Cultus Lake.
DR. KIBENGE: Yes.
Q And there were 64 samples of Cultus Lake sockeye that were examined in the course of the study, correct?
DR. KIBENGE: Yes, as recorded in the paper.
Q And 64 positives.
DR. KIBENGE: That's the result that is tabulated.
Q Meaning 100 percent positive findings of ISA virus in Cultus Lake sockeye confirmed in 2002-2003, correct?
DR. KIBENGE: Yeah, ISA virus sequences of segment 8.
Q Eight, correct, of segment 8. Let's just be really correct about that.
DR. KIBENGE: Yes. Yes.
Q As it states and on the top of the Table 1: --
DR. KIBENGE: Exactly, yes.
Q

Pacific salmon species analyses for the presence of ISAV segment 8 primers.

Correct?
DR. KIBENGE: Yes.
Q You would consider that a very significant finding and an important finding?
DR. KIBENGE: Yes.
Q That would necessitate and call for further research, especially regarding what is going on with the Cultus Lake salmon and wild salmon in relation to Infectious Salmon Anaemia virus.
DR. KIBENGE: You mean right now, or then?
Q Well, at the time, too.
DR. KIBENGE: At the time. Well, I would, yes, because that's a lot of positives.
Q Those are a lot of positives, and at the time your recommendation would have been, too, that this militates to have further research done in the field, and it is the same recommendation you would have now, right?
DR. KIBENGE: I would expect that, yes. I would expect that it would be followed up.
Q And you spoke previously to the importance of immediately responding and conducting further research if there is a presence of the virus found to avoid outbreaks, right, and to take immediate steps so that we don't have a catastrophic effect, right?
DR. KIBENGE: That's correct.
Q You were -- you had reviewed the article and the article was basically ready for publication in 2004. You're aware of that, right?
DR. KIBENGE: Yes.
Q And there was -- the publication was denied in -- that was followed up in 2005 and 2006 and you were also copied on correspondence in that regard, right?
DR. KIBENGE: Yes,
Q Regarding your -- your wife is the lead author alongside yourself and talking to the other authors to ensure publication of the article.
DR. KIBENGE: Yes.
Q But that did not happen.
DR. KIBENGE: No, and there was a reason for that.
Q Yes. And it was most recently again turned down, right, for publication?

DR. KIBENGE: That's correct.
Q And publication cannot proceed in light -- in light of that turning down of publication right now, correct?
DR. KIBENGE: Well, normally the senior author, in this case, Dr. Simon Jones, I think he has final say. In addition to having government for all the co-authors, I think the senior author has the right to decide how to dispose of the data.
MS. SCHABUS: Thank you, those are all my questions.
MR. MARTLAND: Mr. Commissioner, next we have counsel for the LKTS and Aboriginal Aquaculture Association with 15 minutes.
MR. KELLIHER: Dr. Kibenge and Ms. Gagné, my name is Steven Kelliher, and I represent the Aboriginal Aquaculture Association.

CROSS-EXAMINATION BY MR. KELLIHER:

Q Dr. Kibenge, can I ask how did you become involved in the Chilean outbreak of ISA?
DR. KIBENGE: Well, I should say, maybe because I am the OIE reference lab for ISA on this side of the Atlantic. But in addition, I have been working with the Chile industry for a very long time, way back from 2000 to the present. So I was well known in Chile and also as an OIE reference lab, it was natural for me to be involved.
Q All right. Now, you've mentioned that there's two main strains, if you will, of the ISA virus. What strain, if I'm using the right term, was engaged in the Chilean outbreak?
DR. KIBENGE: Okay. I think the technical term should be two genotypes of ISA virus.
Q Can I stick with strain?
DR. KIBENGE: I think strain would not -- the strain would be very specific for what involved -- was involved in Chile, but even now there are probably more than one strain in Chile.
Q All right.
DR. KIBENGE: Yeah. But to start off, two genotypes, North American, European, the virus in farms in Chile was of the European genotype and there was one predominant strain, which we typed as ISA virus HPR7b, but there have been other minor strains since then.
Q All right. And what specific steps were taken to

remediate that outbreak?
DR. KIBENGE: Okay. I think the moment that we reported it to Sernapesca and to the OIE, they started getting in mode to control the outbreak. The uptake was a bit slow I think in the first two or three months, but after that, you know, Sernapesca became engaged and they started to test and to quarantine and to take out the farms that had the disease and the virus.
Q And what was the magnitude of the outbreak, and over what period of time did it take to bring matters under control?
DR. KIBENGE: Well, that outbreak, actually we called it the Chilean ISA crisis, it was a very severe outbreak in Chile. At the time the outbreak occurred, Chile was number 2 in Atlantic salmon production and was well on its way to become number 1, because number 1 is the Norway. But as a result of that outbreak, I think it broke down -- it broke down the production, it destroyed about 75 percent of their production.
Q Over what period of time?
DR. KIBENGE: Well, in our view, I think the real outbreak started in 2005, but it went on for two years and then we checked it in 2007. So between 2005 and 2010 when probably the most of the mortalities were over, that's the duration of the (indiscernible - overlapping speakers).
Q And has production returned in 2010 to pre-outbreak levels?
DR. KIBENGE: It started going rough, because as you know in aquaculture, you know, you place the fish in the sea and then there will be elapsed period of 18 months or so before the production, before you harvest. So I think the indication in 2010 was that they were beginning, they had reached the bottom and they were on the rise.
Q Right. Was it a -- would you regard it as it naturally having run its course, the outbreak?
DR. KIBENGE: No. There was serious intervention, probably by too many groups. There was SalmonChile, the association of salmon farmers in Chile, and also the government in terms of Sernapesca, those two.
Q And what were the nature of those interventions?
DR. KIBENGE: Well, I think the SalmonChile actually took the initiative when they sort of imposed on

themselves I think 55 measures, and so those were embraced by all the people in SalmonChile, and then the government also picked up on some of those that included members that were not in SalmonChile. Yeah, but the initial effort was SalmonChile with their 55 measures.

Q All right.

DR. KIBENGE: Yes.

Q Now, did that outbreak engage any other wild stocks?

DR. KIBENGE: You know, I've read only one report on a survey of ISA in wild fish since that outbreak. Although I'm aware that Sernapesca has been sampling wild fish, I haven't seen any results. But there's a report that came out from -- they studied wild fish around salmon farms in Chile, that is published right now.

Q Right. And have there been outbreaks in Eastern Canada?

DR. KIBENGE: Of ISA?

Q Yes.

DR. KIBENGE: Yes. The first one was in New Brunswick in the Bay of Fundy in 1996/'97.

Q And it ran for how long?

DR. KIBENGE: Oh, I think that last -- last year there were -- I would venture probably 2004/2005. Gagné would probably be better to speak about that than myself.

MS. GAGNE: The last known outbreak, it's 2007, but it had decreased already by then.

MR. KELLIHER:

Q And what was the magnitude of that outbreak?

MS. GAGNE: Initially?

Q Cumulatively. How long did it last and what was the magnitude of it?

MS. GAGNE: I don't have precise numbers.

Q Ballpark.

MS. GAGNE: Millions, it cost millions of dollars due to the loss of revenue in the population, but...

Q To the salmon farming --

MS. GAGNE: Yes.

Q -- industry?

MS. GAGNE: Mm-hmm.

Q Were there other species engaged with this outbreak?

MS. GAGNE: No.

Q Was there -- to your knowledge, was there testing

done to determine if it engaged other wild stocks?
MS. GAGNE: Yes.
Q And was there any?
MS. GAGNE: No.
DR. KIBENGE: Could I answer to that. I think there was a survey that was done and it was published in 2002 by Dr. Gilles Olivier, who was at DFO Moncton at that time. And he was able to document ISA virus in the wild Atlantic salmon on a few occasions. In the report he doesn't actually give you the exact number of fish that he tested and that were positive, but he indicates that he was able to find the virus in wild Atlantic salmon.
Q And has there been a detectable loss in the numbers of wild Atlantic salmon that are attributable to ISA?
MS. GAGNE: No, usually the findings, no.
DR. KIBENGE: No.
Q Is that because it hasn't been tested, or it's been discounted?
DR. KIBENGE: Actually, from what I know, all the testing that has been done in wild fish, the report that keeps coming back is that these fish have virus without communicable disease, be they wild Atlantic salmon or sea trout, or salmon, brown trout, Arctic char --
Q Had there --
DR. KIBENGE: -- Atlantic cod.
Q -- been ISA detected in wild Atlantic salmon before these outbreaks?
DR. KIBENGE: No, the first report of ISA virus in wild Atlantic salmon was actually in 2001 by Dr. Raynard and others, and this was following the ISA outbreak in Scotland. The outbreak started in 1998, and that's when they started sampling wild salmon. And his paper came out in 2001, and he's the first one to report the presence of ISA virus in wild Atlantic salmon and the sea trout.
Q And was the outbreak -- the outbreaks in Eastern Canada, was it the North American variety, or was it the European variety of ISA?
MS. GAGNE: Seen both.
Q Pardon?
DR. KIBENGE: I think -- I think the initial outbreak was typed as North American genotype, but since then, as outbreaks continued, I think -- I remember two other isolates that were what we call

European in North America. There was also a slight ISA outbreak, probably a single outbreak in Nova Scotia, in which we typed the virus as European in North America.

Q And did you determine the origin of the outbreak, the cause of it?

DR. KIBENGE: No. As in where did the North American ISA virus come from? No.

Q There was the presence of the European variety of ISA, correct?

DR. KIBENGE: That was not detected at the beginning. We, like, in Nova Scotia this was in 2000, you know, the New Brunswick outbreak started in 1996/'97. So the European in North America was detected later on.

Q Mm-hmm.

DR. KIBENGE: But it could simply be because of the increased testing and sampling that was taking place by then.

Q And was there some determination made, some inquiry made as how the European version found its way into -- into Eastern Canadian fish farms?

DR. KIBENGE: I don't know, and I actually don't know who would be asking those questions.

MS. GAGNE: I have heard because I have questioned myself this, and I have heard this, it's all speculations. It's hard to know it.

Q It doesn't come from brood stock, or eggs?

MS. GAGNE: We don't have the information, and I don't think anyone can determine that at this stage. We're talking of introduction prior to even having the tools to detect it, so...

Q All right. Now, have either versions of the ISA been found in the Pacific Ocean off the West Coast of British Columbia?

DR. KIBENGE: Well, not until recently, when our test results showed that you have ISA virus sequences out here.

Q And those sequences most closely parallel which version of the ISA?

DR. KIBENGE: Well, in one typing of the samples we've got, we showed it was of the European genotype. But this -- this was based on the real time RT-PCR genotyping. But in the evidence we heard yesterday from Dr. Kristi Miller, I mean, she even has the sequence, and she claims, at least she showed that it's 100 percent homologous to the

European.
MS. GAGNE: In Molly's paper, her findings when she was working in PBS, the findings she had, the segment 8 was able to sequence, it was more similar to North American.
DR. KIBENGE: On the second date, yes, and (indiscernible - overlapping speakers).
Q And Dr. Miller's work, how would that square with the comments that you've just made? What does her work tell you about whether it's European or North American origin?
MS. GAGNE: We cannot say, because there is not enough sequence available.
DR. KIBENGE: Well, she had 71 nucleotides on several samples, and of them, I think, as she showed the alignment, they were all 100 percent European. I mean, that's the best we have so far in terms of her work.
Q Right. What do you think, either of you, would be the -- would be the best precautions to be taken to protect the farmed salmon here, and the wild salmon in respect to ISA contact?
DR. KIBENGE: Well, in my view I think most sampling needs to be taking place and, you know, more testing, and also trying to really have a specific test that will consistently detect this virus in all samples wherever these samples are being tested.
Q Apart from sampling and testing, are there any other steps that could be taken?
DR. KIBENGE: Well, I suppose the aquaculture farms need to increase their biosecurity to make sure that there is no --
MS. GAGNE: That they can respond rapidly if they were ever to have signs of the disease.
Q What does that mean, "increase their biosecurity"?
DR. KIBENGE: Well, I think biosecurity would probably limit the spread of the viral disease.
Q How do you do that?
MS. GAGNE: In New Brunswick, as soon as the disease is confirmed, you have to depopulate, but you have to have confirmation of the disease. In this case, if we assume, based on Dr. Miller's finding that the virus which she's detecting has been around for a long period, and it seems -- it seems that it was probably a quite long period, based on the degree of divergence in her sequences versus the

other known ISAV. You are dealing with a population of fish, then, you are dealing with a scenario where the fish have been constantly exposed to it over time and have had time to adapt to it. Our work shows that fish develop resistance after their first exposure to ISA and then they become resistant to secondary exposure. So there is in a way fish themselves have their own mechanisms to resist, to -- all the diseases or all the agents that they are exposed to, like we do ourselves.

Q Right. The fish can take steps on their own, but is there anything that we can do to assist them in that protective --

MS. GAGNE: No, it's very hard with wild fish. I cannot come up with suggestions.

Q All right. If I could just ask a different area of questions. Dr. Kibenge, you have -- you've mentioned that the Canada Food Agency came to your lab to do an audit, and did you understand that audit to be --- the intention to be an independent and objective assessment of the scientific processes that you were engaged in, or have you come to see this as targeting your lab with the intention of discrediting it as a result of the findings that you made of the ISA virus?

DR. KIBENGE: Okay. I thought I had answered this question before. But just I can repeat myself here, that the way the lab assessment was presented to me initially was along the lines of understanding my testing, my methods, comparing them to DFO Moncton, to see if we can improve our knowledge and move forward. I got a sense that I felt that probably was not the purpose at the time of the site visit. And this was based on my sense of the questions they were asking and the way they wanted the inspection to take place.

I can briefly mention that the normal process, and this again goes along the points of being a veterinarian. If you are going to inspect in a place, particularly where you suspect there is infection or something like that, you usually try to move from the cleanest area to the dirtiest area. In my view, at least the way I had been presented with this lab assessment, I assumed they were just planning to look at where I work and see how they can best improve on -- on the methods we

are sharing with the DFO Moncton.
But the first thing I was told, actually at the time of the inspection was that, no, we are not going to move from the cleanest to the dirtiest. We want to follow the sample. And in reference actually what they meant was the 48 samples that I had received from SFU. So beginning there, and then the subsequent questions, I realized that this was not about the objectives of the particular lab assessment I had been led to believe, it was actually a method to collect the information to support a hypothesis they had come with.

Q And that hypothesis was that you were wrong?

DR. KIBENGE: Well, yeah, based on actually the questioning I got, I sensed that the interest here was to confirm that my result was a result of contamination. The second point was that probably I was doing shoddy science.

Q Yes.

DR. KIBENGE: And I think there was a third thinking that I felt they wanted to confirm, and I made that very clear to --

Q Right.

DR. KIBENGE: -- CFIA in my response to them.

Q You concluded that they were there to discredit your results, correct?

DR. KIBENGE: That's the term someone else who was familiar with that inspection of -- that CFIA used, and I couldn’t disagree.

Q All right. Now, if I might just have a brief moment. Doctor, I'm sure you have colleagues in different parts of the world, as we all do, where what they say and what they do can sometimes result in dire and immediate consequences if there's an offence made to persons in power, in political power. And I'm wondering here, you're well familiar with the scientific culture surrounding salmon and the controversial aspects of that area of science. Is it your sense that, well speaking specifically, have you ever had a sense that there could be negative consequences to you professionally, financially, economically, politically, as a result of you exercising your independent professional scientific judgment?

DR. KIBENGE: You mean in relationship to this case we are talking about?

Q Yes.
DR. KIBENGE: I think so. I mean, this has been so public that my reputation and everything else is really in question. So, yeah, you can say that.
Q That there has been, would you agree with me, that there has been a politically directed attack on your professional reputation as a result of your scientific work?
DR. KIBENGE: You know, I don't know whether I would put it that way. Because if that was the case, I would feel really disappointed. So I suppose I wouldn't characterize it as a politically directed attack on me. But, you know, what has been put there and what people are reading is probably what they sense is happening.
MR. KELLIHER: All right, thank you very much, sir.
MR. MARTLAND: Mr. Commissioner, that concludes the various examinations, but not the re-examinations of this panel. There are indeed, I think, three counsel that will have questions on re-examination. I expect Canada with five questions, I understand. Dr. Kibenge has counsel, and I understand he may have questions of his witness. Equally, we expect to have a few questions. Thank you. So that's Mr. Taylor next.
MR. TAYLOR: Thank you. I'm having the same -- thank you. I was having the same difficulty Dr. Kibenge was having with mikes. Yes, I've got a little more than five questions because I was asked a little bit ago, and I've found some.

CROSS-EXAMINATION BY MR. TAYLOR, continuing:

Q My questions on redirect will be for Ms. Gagne only, and that's because, you may or may not be relieved, Dr. Kibenge, I'm not allowed to redirect you, but your lawyer may. So asking Ms. Gagné some questions.
Ms. Gagné, a few moments ago there were questions from Mr. Kelliher, the latest lawyer to ask questions, about the outbreaks in New Brunswick, and whether the strain of the ISA that was happening there was European or North American or both. And Dr. Kibenge gave some evidence, and I sensed you had something to say, but I don't think you got it out on that. Is there something that you want to add about what -- and I forget

the word that Dr. Kibenge was using, but he took issue with strain and pointed out a better word. Which of those, using Dr. Kibenge's word, was it, European or North America, or both?

MS. GAGNE: What was said, it was right. We dealt with -- we have dealt with ISA since the initial outbreaks in 1996, and at the time the first initial outbreaks were due to strains that were characterized as North Americans. And later on as screening increased, probably, and as the tools also improved, we discovered new isolates and now we have over 20 different isolates that are recognized, that have been found at some point in time. And at the moment the only one that is found, it's what we call the HPR0, the non-virulent form of ISA.

Q And so is that North American or European, or...?

MS. GAGNE: This is European of signature.

Q All right. There was some questions asked about the assessment that was done, an assessment was done on both your lab -- I don't have a microphone -- at least I don't -- do I? An assessment was done on your lab and on Dr. Kibenge's lab, and there were two broad areas that were asked about. One was the objectives of the assessment. I'm not asking you questions about that because that's really, as I understand it, you weren't setting up that assessment. But if you have anything to say, by all means. But there were also questions about whether you had some input, or some of the things you said to -- and I forget his name, I think John somebody or other?

MS. GAGNE: Yeah, there was a Timothy Davis, the --

Q Yes.

MS. GAGNE: -- evidence presented earlier. I spoke to him. He was not familiar with PCR. This was the beginning of this response to ISA. But I had no involvement in the development of the checklist that they used for the assessment. I had also the same -- the same type of questioning done in our lab. They followed -- they wanted to follow our procedures with sample from beginning to end, same type. It seems to be similar assessment process, and that's it.

Q There was a suggestion, as I heard it in the questions and then the evidence from Dr. Kibenge in this area, that you might have given some views

on the Atlantic Veterinary College as part of a discussion you were having with anyone leading up to --

MS. GAGNE: No, not on the College. I have not visited myself the College. On the report that we saw, like I remember seeing that it was a short report. That I just remember saying, for example, the -- that the controls were high, that the Cts were low, meaning the controls were not used in a diluted form. Usually we try to maintain our controls in a lower level to avoid increase the risk of cross-contamination. A few things like that, that I pointed from the report itself, but I never discussed the lab itself. I haven't seen it myself, and I don't know how the procedures are run over there.

Q All right. There was some evidence given by you earlier in response to various counsels' questions about wells and finding results in one well versus two wells. I think it would be important for the Commissioner to understand if you would explain or elaborate what is meant by "well", and what is the significance of one versus two?

MS. GAGNE: In the PCR process what we do is replicate -- the sample is processed. You extract RNA, do the RT, and when you reach the PCR, you at least make two wells of mix and inoculate two wells with the same sample. And you expect to get the same Ct values if it's positive. Usually this is always the case, except when you get to the upper 30 level, where you have very, very low signal.

Q And can you just say what a well is? I'm not sure that that's clear.

MS. GAGNE: A well is -- we work in say in plate formats, you have 96 wells in those plates, so we use two wells per sample.

Q What is a well?

MS. GAGNE: Oh, a well. A well, I don't have another word for a well. It's -- these plates are really tiny tubes actually made in a plate, so it's a tube, yeah.

Q I thought it might be -- I found that the words that sound incomprehensible to laypeople initially --

MS. GAGNE: I'm sorry.

Q -- turn out to have real meaning. Well is well, and --

MS. GAGNE: Yes.
Q -- primer is a primer, and a probe is a probe, just as they say. Thank you. Is it industry standard amongst scientists that there be two wells before finding a positive?
MS. GAGNE: No, it can happen that you have a single in one well, but, if then, we -- our process immediately that we would retest the sample.
Q All right. So if you find it in one well, would that signal -- would that indicate that there should be retesting done?
MS. GAGNE: Yes.
Q You've also given some evidence in response to one of the lawyer's questions about the process for accreditation, ISO accreditation. What is ISO, what is the accreditation, what's the significance of that, and why does it take a long time?
MS. GAGNE: ISO is International Standards Organization and it's the accreditation of a laboratory means that you have a list of requirements that you have to meet. And ISO process is basically being accountable for everything you do. So you have to write down everything you do and you have to do exactly as written. So you have to prove that if you say that I am going to do -- my method implies that I measure two microlitre of this to put in this tube, I need to show that pipette is able to measure two microlitre accurately, so I need to show that my pipettes are verified regularly. I need to -- I need to record everything I do, so I have a trace of everything from beginning to end, and that this is how the accreditation works.
Q All right. And why does it take so long? It's a multiyear process, as I understand it.
MS. GAGNE: Everything is controlled, from the shipping, reception, the custody of sample, the reporting and the maintenance of your equipment. So it's long to get to that stage, have all the procedures in place, the recording in place. You have to develop your -- you have to validate your assay. This is a huge task. You have to install proficiency testing, Ringtesting amongst the labs who participate in the testing, and regular proficiency panel of your technicians. They need to be -- you need to verify regularly with blind samples that they are producing the results you expect, et cetera. So putting all this in place

takes time.
Q Dr. Kibenge, in answer to some counsels' questions, spoke of the -- or he compared his lab processes or procedures to yours, and spoke of 45 versus 40 cycles, spoke of the machine and spoke of the probes, and you gave some evidence at that same time about your views on that. And I think you've dealt with the machine and the probes in you evidence, and you said that 40 was as good as 45. But you didn't put the "because" in that answer, and I wonder if you could elaborate or explain what you mean by 40 is as good as 45 for cycles.
MS. GAGNE: We used to have our machine set to run 45 cycles, but you rarely have a signal over 40 and that signal is used, it's usually one well and not reproducible. So basically we made a decision to set the machine to stop at 40, which is quite common. But also, in theory, if you start with one single target while doing your assay, one piece of DNA, the process of PCR doubles every cycle that piece. By 40 you should have detected that piece already. You should have the signal for it. So in theory there is also no need to go beyond the 40 cycles.
Q And you say should have detected it. How confident are you in that, and why?
MS. GAGNE: We are, in our validation, we have determined that we are detecting consistently 17 plus or minus seven copies all the time, so beyond that level we are not confident in our detection sensitivity, like we are starting to lose the ability to detect what's there. But 17, like 10 to 20 copies is relatively standard for real time PCRs.
Q Okay. I've got one further question and it has to do with Conservation Coalition, Mr. Lunn, number 34. If you turn to the page that I will find here, I'm looking for the page where it was said what will and won't be tested. It's 3 of 4, wherever that is in the PDF. It's the second-last page, yes. And it was pointed out that it was not to test for ISA in B.C., and that would be 2007-'08. Do you know why that decision was taken?
MS. GAGNE: No.
MR. TAYLOR: Okay. Thank you.
MR. MARTLAND: And, Mr. Commissioner, just so the

record reflects that that document last showed to the witness was Exhibit 2093.

As well as having Dr. Kibenge here from PEI to testify, his counsel, Jonathon Coady, C-o-a-d-y, is here and under our rules has the ability to ask questions. He didn't do that in the course of, if you will, a direct examination, but because of questions that have arisen, he's indicated he has some questions and is thus looking to re-examine his client, Dr. Kibenge.

MR. COADY: Thank you, Mr. Commissioner for the opportunity to be here today and to ask a couple of questions arising from the examination of Dr. Kibenge.

CROSS-EXAMINATION BY MR. COADY:

Q One question that arose during the course of your examination was about retainer and revenue for your lab. So I wonder if you could assist Mr. commissioner in explaining what, if any, funding you receive from DFO or CFIA.

DR. KIBENGE: My lab does not receive any funding from DFO or CFIA.

MR. COADY: Mr. Lunn, if I could bother you to bring up document -- it's Exhibit 2087, and I think the Commission document is 24. It's a table listing "Procedure", "AVC", "DFO", and finally "Significance".

Q Do you have that document in front of you?

DR. KIBENGE: Yes.

Q Okay. If I could ask you just to look at sections 4, 5 and 8, and I notice the final column to the far right deals with "Significance" as it relates to your lab. My question for you is under the DFO lab, in step 4, or section 4, it indicates a reference to ABI, that would be the kit, and in section 5 we see a reference again to the ABI kit, and in section 8 we see a reference to the Stratagene machine. And my use of the word is deliberate, what significance, if any, does the use of the Stratagene ThermoCycler and software have for DFO Moncton?

DR. KIBENGE: You know, I thought I testified to that. And my information is best on the Ringtest that we did, that that work was published actually early this year, in which we looked at 14 different

labs. And these labs were using a range of machines, including Stratagene and Roche and ABI. And there were seven labs that we flagged for having either false negatives or very high Cts, in excess of three Cts compared to what we're expecting. And what we found was actually those seven labs, what they had in common was the Stratagene machine with that Stratagene software. And going back and forth with one high profile lab in Europe, we actually determined that the main reason for the very high Cts and the false negatives was because of this software. And I worked with this person, and actually when she was (indiscernible - rapid speech), all the results were in line. And that's what we communicated in the manuscript.

Q My next question deals with section 9, which deals with cycling conditions. Would you be able to assist Mr. Commissioner in describing how those cycling conditions are developed or determined. Who develops those?

DR. KIBENGE: Well, actually, in fact these conditions I would say are dictated by the kits that you use. In our case, you know, it shows, you know, 63 degrees Centigrade for three minutes, and the other conditions aren't -- those, the 63 degrees Centigrade for three minutes is actually the -- what is recommended by the kit and it's based on the reverse transcriptase enzyme that is carried in the kit.

Q So those cycling conditions, if I've captured your evidence, are determined by the kit used and not the laboratory.

DR. KIBENGE: Exactly. The only variation I would have would be probably the 60 degrees Centigrade by one minute, and that's the annealing temperature, which is defined by the primers and the target you are trying to amplify.

Q My last question deals with section 10, which describes validation data. We did hear evidence that Dr. Nylund is using an assay based on Plarre's work in 2005, and the target in that case is 84 base pairs, or 69 base pairs for a different segment. Your lab is using Snow, which is a published assay in 2006, which deals with a 104 base pairs, and DFO Moncton is using an assay that was developed in-house for a target of 169 base

pairs. So what effect, if any, does the length of the target have on the sensitivity of the PCR testing?

DR. KIBENGE: Oh, I think it has a significant effect, and here you have to consider that the development of real time PCR, where you can see each cycle as it develops is based on the length of the cycle. So in essence, you want to see the signal within a very short time of the reaction taking place. And the duration then is defined by the target. The shorter the target, the shorter the cycle and the quicker you receive the signal. So in the case of Snow, you know, the target is 104, but their probe actually is tied to the reverse primer, so there's a very brief distance between the reverse primer and the probe. And once the reverse primer comes into play, it takes a very short time for the probe to start being degraded by enzyme and it gets the -- you get the signal.

In the more traditional real time PCR methods, actually the length between -- the distance between the forward primer and the probe is the most important and usually there is only five bases, so the moment the tagged primer is -- recognizes the forward primer as being annealed properly and it starts synthesizing that strand, within one or two seconds it should be able to hit the probe, degrade it, and you get the signal. So that you don't have actually to synthesize the whole length of that target before you get the signal. And that's the main difference in sensitivity between conventional RT-PCR, where you have to do the whole thing, which is very long, with real time RT-PCR.

And so the target actually is very important in the diagnostic sensitivity. And the length of the target in part is controlled by the length of the probe. You know, because the -- and certainly traditional real time RT-PCR, the length of the probe is usually 21 to 25 bases, and therefore you have to have enough room on either side of the probe for, you know, some distance to get the primers. Nowadays the better or the more sensitive real time PCR, you can have a probe of just about seven or eight bases long, and that allows you even a shorter target, and therefore more sensitivity of the real time PCR method.

Q So is it a fair characterization that the longer the target, the less sensitive the test? Is that a fair characterization?
DR. KIBENGE: Oh, yes. That's true, yes.
MR. COADY: Thank you, Mr. commissioner. I appreciate the opportunity to ask some questions.
MR. MARTLAND: Mr. Commissioner, we won't be beginning the second panel until we resume at 1:30. I do have some three areas to cover off.
Mr. Lunn, just to alert you, in a moment I will be going to Exhibit 2067, and following that to Exhibit 2054.

RE-EXAMINATION BY MR. MARTLAND:

Q I think my three areas all relate to Dr. Kibenge. The first, Dr. Kibenge, stems out of questions that were put to you by counsel for Canada that I think used the language about retainers, which you resisted in terms of the fees that you're paid -- that your lab, AVC, is paid for doing ISAV testing. I think I know the answer. How much does an ISAV test cost?
DR. KIBENGE: Right now out of my lab, we charge $45 per test.
Q 45.
DR. KIBENGE: $45, yes, per test, and by "per test", I mean per sample.
Q All right. Do you -- do you limit, do you simply do that testing for whoever comes to you and asks for the test? Do you limit yourselves to only testing industry, private people, ENGOs, government. Is there any restriction on who you test for?
DR. KIBENGE: No, we are a third party independent lab, and I would probably just summarize it by saying we don't discriminate.
Q My second area, Mr. Lunn, if we could have a look at Exhibit 2067. Thank you. And if we look on, or indeed in that first area, it's a fairly technical question. But, Dr. Kibenge, in the context of your evidence, and I won't take anyone to it, but the reference is Exhibit 2034, your paper that deals with this question about the software employed for the RT-PCR testing. There's reference in the first part of this email to MxPro that seems to relate to Kyle Garver's testing. If

you could help me to understand this MxPro, one of the softwares, or related to one of the hardware and software setups that you considered in the context of that analysis of software used at different labs.

DR. KIBENGE: Yes. This software is actually the one that is used with the Stratagene machine, and it would be the one that would have been common to the seven labs that we flagged for having false negatives and high Cts.

Q With respect to my third area, if we could look at Exhibit 2045, and I'll in fact go to page 11 of this document, of the PDF version when it comes up. Before I do that, just to situate what this question is about. A few minutes ago my friend, Ms. Schabus, asked you questions and took you to a different page of that document, page 15. When we see Exhibit 2045, what you'll see is the draft manuscript with Dr. Molly Kibenge as the lead author; you're listed as a co-author. It only ever went to the status of being a draft manuscript. She took you, Ms. Schabus took you to a page that dealt with Cultus Lake and positive test results on ISAV segment 8 of basically 100 percent. I just want to see if I can understand a little bit more about that.

At the page 11, if we could go there, please. It may be PDF page 11.

MR. LUNN: That's PDF 11.

MR. MARTLAND: I'm sorry, it's actual page 11. Thank you.

Q So under the bold heading of "Sockeye", do you know does that refer to the Cultus sockeye that were tested? You'll see in the first line there the reference:

> Although all Cultus Lake sockeye samples...

It goes on. So I take it that's the reference to sockeye in that passage.

DR. KIBENGE: Yes.

Q If I can read from it. If you have a look at the last sentence in the first paragraph:

> The nucleotide sequence of these inserts had identity to ISAV only in the primer sequence.

The question out of that comment, that passage, is this: is non-specific binding a possible reason why the sequencing product showed homology to ISAV in the primer sequence only?

DR. KIBENGE: Can you repeat --

Q Yes.

DR. KIBENGE: -- is the what, is the...?

Q Yes. Is the non -- is non-specific binding a possible reason why the sequencing product showed homology to ISAV in the primer sequence only?

DR. KIBENGE: No. If it's non-specific, it should not bind. These were primers that have been used or were being used at the time in my lab and in other labs, and they have been developed by Devold in 2001, widely used in Europe and the U.S. and Canada, and (indiscernible - overlapping speakers).

Q And I suppose trying to zoom back at least a little bit out of the minutiae of the detail, does that take away the risk or the concern that this could relate to false positive results for ISAV?

DR. KIBENGE: No. I wouldn't call it false positives. You know, this testing was done. I also got samples in my lab and I was able to repeat some of the results that Dr. Molly Kibenge got. So in my view, I think we ruled out false positives, contamination, and so on. But there again, I think the Pacific Biological Station had a structure in place, that then a valuation of the results and goes forward with what they decide to do.

Q Ms. Gagné, you've heard me ask those fairly detailed questions. Do you have any comment or evidence on that question?

MS. GAGNE: I have seen in the disclosed documents the sequence of these non-specific, and the match has nothing to do with any fish. The match is random mouse, human, and I have seen that with FA3/RA3 primers we were using at the time. We dropped using them because we found that they were matching non-specifically to the salmon RNA and producing non-specific amplification in the same size as the positive product, but upon sequencing it's clear that it's a non-specific product.

Q And what do you draw from that?

MS. GAGNE: This actually, for me, if I read that without any knowledge, I just see that you have

accidentally obtained a product of the wrong -- it's a non-specific amplification, and this is not uncommon.

Q And at the risk of one last round of ping-pong, Dr. Kibenge, would you have any response to that?

DR. KIBENGE: Well, I --

Q I want to keep this in the context, so I don't -- appreciating that we're going back to a draft manuscript from 2004 that didn't progress further, you were -- you had some involvement in it but you weren't the lead author on this.

DR. KIBENGE: Yeah, and --

Q But if you have any comments...

DR. KIBENGE: -- my comment was that, I mean, we didn't only look at segment 8. We also looked at segment 7, and the results showed there that in both cases there were ISA virus sequences that confirmed that actually what we were detecting was ISA virus sequences in the waters of British Columbia. But again, you know, depending on how you want to put the result, you can't attribute a lot of reasons to the result. In this particular case, the samples were classified as being because of cross-contamination.

What people miss here is that this study was not only doing ISA, it was actually testing for three different viruses. The other two viruses, all the results were negative. But ISA was being done by the same person. So the negative results were quickly accepted. The positive results were considered contamination. If contamination is because of the activities in the lab, the person doing the work, and so on, I wouldn't expect that contamination to be virus-specific, or ISA-specific, such that you can only produce when your outcome is ISA, but when (indiscernible - rapid speech) these are the samples, all of sudden you see then you get good results. So those are things that (indiscernible - voice drops off).

MR. MARTLAND: Mr. Commissioner, I think that concludes the evidence, unless you -- subject to any questions you may have of this panel, I think we're in a position to excuse and to thank both Ms. Gagné and Dr. Kibenge for their significant contribution to our work. Thank you.

THE COMMISSIONER: Yes. I want to add to that, Mr. Martland, to Ms. Gagné and to Dr. Kibenge, thank

you so much for travelling from Charlottetown and Moncton to Vancouver to participate in this proceeding, and to provide this Commission with your evidence. We're grateful for the time you've taken to do that. Thank you very much.

MS. GAGNE: You're welcome.

DR. KIBENGE: Thank you.

(PANEL EXCUSED)

MS. PANCHUK: The hearing will now adjourn until 1:30 p.m. Please remain standing in place while the Commissioner exits the room. Thank you.

(PROCEEDINGS ADJOURNED FOR NOON RECESS)
(PROCEEDINGS RECONVENED)

MS. PANCHUK: The hearing will now resume.

MR. MARTLAND: Mr. Commissioner, we begin, now, with the second panel on the ISAV evidence. There's two preliminary comments I'd like to cover off. There's, first, just a reminder of the rule that there's to be no photography or recording in the room. Secondly, that witnesses, we ask to please use the on/off toggle button on your microphone to turn it off and on. That doesn't apply for counsel, incidentally.

We have, Mr. Commissioner, a second panel of witnesses; Dr. Kim Klotins -- from right to left, Dr. Kim Klotins, Mr. Stephen Stephen, Dr. Peter Wright, and Dr. Simon Jones. I'd ask, at the outset, to have these witnesses affirmed, please.

MS. PANCHUK: I'll have each of you state your name, please. I'll start on your right-hand side, if you could press the --

DR. JONES: Simon Jones.

DR. WRIGHT: Peter Wright.

MR. STEPHEN: Stephen J. Stephen.

DR. KLOTINS: Kim Klotins.

MS. PANCHUK: I understand that Simon Jones was previously affirmed, and that stands.

SIMON JONES, recalled,
reminded.

MS. PANCHUK: We'll start on the right.

PETER WRIGHT, affirmed.

STEPHEN STEPHEN, affirmed.

KIM KLOTINS, affirmed.

MS. PANCHUK: Thank you. Counsel?
MR. MARTLAND: Thank you. Mr. Commissioner, we're not seeing to qualify these witnesses as experts for the purpose of the evidence we are seeking to elicit from them, today. For the record, I should observe Dr. Jones was previously qualified. He testified, as you will recall, in earlier hearings on sea lice and disease topics and the context of that his qualification was as an expert in parasitology and immunology, with a specialty in sea lice and diseases of salmon, including as this relates to farmed and wild salmon.

In very brief order, I will give a very basic sense of the background of each of these witnesses, beginning, please, with Exhibit 1997, Tab 5 (indiscernible - overlapping speakers) --
MR. TAYLOR: Mr. Martland, could I just clarify something in what you just said? Dr. Jones is an expert previously qualified, you're not bringing them here as experts, but my submission, Mr. Commissioner, is Dr. Jones was, is and remains an expert in what he's been qualified in for purposes of this panel. He was qualified before, and that's important, because some of the questions that he will be asked about have to do with ISA and, in fact, I don't remember exactly what he was qualified as before, although it includes virologist, but it was focused on sea lice at the time, as you recall.

It is my submission that he is a knowledgeable expert in ISA. He will explain what periods of time he did work in that area, and for the purposes of this evidence here, today, which is a different subject area than the other three panellists, it's my submission he should be an expert now, as he was before, and including ISA.
MR. MARTLAND: And Mr. Commissioner, I have no difficulty with that and, indeed, the qualification previously made is my understanding of the qualification, the specific language includes:

With a speciality in sea lice and diseases of salmon.

I think that language would be broad enough to capture Mr. Taylor's concern.

MR. TAYLOR: Yes, that's fine. And so --

MR. MARTLAND: So I accept Canada's point and am prepared to lead the evidence on the footing that Dr. Jones's expert qualification applies today.

EXAMINATION IN CHIEF BY MR. MARTLAND:

Q With respect to the background of each of these witnesses, number 5 on our list of documents, Exhibit 1997, Dr. Klotins, you'll recognize that as your C.V.?

DR. KLOTINS: Yes.

Q The first question's perhaps the easiest. By way of a brief overview, you have a doctor of veterinary medicine and a doctor of veterinary science and epidemiology by way of some of your academic credentials. Since May of 2010, you've been acting in the position of National Manager of Disease Control Contingency Planning, a position that includes implementing mandatory notification and disease response and training of veterinary inspectors; is that correct?

DR. KLOTINS: That is correct, thanks.

Q Secondly, Tab 6 on our list, Mr. Stephen, Exhibit 1998 is the document that's on screen. You'll recognize that, sir, as being your C.V.?

MR. STEPHEN: Yes, I do.

Q By way of your academic background, you have a BSc. and an MSc., both degrees in biology, and your present role is the Director of Biotechnology and Aquatic Animal Health Science Branch with the DFO in Ottawa?

MR. STEPHEN: Yes.

Q In that role, is it correct to state that you provide national guidance, direction and leadership in the development and implementation of Canada's National Aquatic Animal Health program and the Genomics and Biotechnology programs?

MR. STEPHEN: That's correct.

Q Now, Dr. Klotins, in my very quick review of your background, I neglected to provide your official

title, so please tell me if I have this correct. I understand that you're the Acting National Manager with the Disease Control Contingency Planning Branch of CFIA in Ottawa?

DR. KLOTINS: The Disease Control and Contingency Planning section --

Q Section.

DR. KLOTINS: -- of the Aquatic Animal Health Division in the Policy and Programs Branch at the CFIA.

Q All right. Thank you for that. With respect to Tab 7 on our list, Exhibit 1999, Dr. Wright, I expect you'll recognize that as your C.V.; is that correct?

DR. WRIGHT: Yes, it is.

Q Your title is the National Manager of the National Aquatic Animal Health Laboratory System with the DFO, and you're situated in Moncton, New Brunswick?

DR. WRIGHT: Correct.

Q And by way of only touching at the surface of your background, you have a PhD. In veterinary immunology, you've done significant work internationally, including for the OIE, and in 2006 you moved over to the DFO in the position of manger of the new -- then new National Animal -- sorry, National Aquatic Animal Health lab system?

DR. WRIGHT: Correct.

Q Let me start by asking each of you, in an overview level and in a quick method, if you can do so, to provide - and I'll start with Dr. Klotins - but the question will be to provide an overview of the respective roles of CFIA, DFO and, in particular, where DFO's Moncton lab fits into surveillance, reporting and investigation of reportable aquatic animal health diseases.

DR. KLOTINS: The CFIA is the lead agency under the authority of the ***Health of Animals Act***, and some of the supporting regulations, to design and implement the National Aquatic Animal Health Program, and that program consists of import controls, disease controls within the country, export health certification, and with support from risk assessment and surveillance. And the diagnostics and research for the NAAHP, the National Aquatic Animal Health Program, is provided under MOU with Fisheries and Oceans Canada, and I believe there's a collection of wild

stock as well under that MOU.
Q And when does the NAAHP date to?
DR. KLOTINS: I believe the funding for the NAAHP occurred in 2005, but maybe you know better, Stephen? 2005. I started with the agency in 2006, so I wasn't right there at the beginning. And at that point, then the, you know, once the budget was received and the hiring began of staff and then the start of the design of the program, the first order of business was to amend the ***Health of Animals Regulations*** and the ***Reportable Diseases Regulations*** to bring aquatic animals into the fold of the CFIA.
Q Mr. Stephen, in terms of that question around the respect of roles of CFIA and DFO and equally where the DFO's Moncton lab fits into the picture, would you be able to add any additional points on that question?
MR. STEPHEN: Yes, I can. DFO, as Dr. Klotins pointed out, has the responsibility under the program for the diagnostic research, the diagnostic testing, and providing scientific advice on diagnostic activities under the scope of the program. The program was funded in 2005 by the Federal Government and it was a partnership envisioned because of DFO's decade-old knowledge and experience in testing for aquatic animal diseases paired up with CFIA's regulatory authorities under the ***Health of Animals Act*** and ***Regulations***. And our Moncton laboratory is one of three key laboratories doing the diagnostic work, and each laboratory is designated based on the type of diseases as a national reference laboratory for various diseases, and Moncton, of course, is our ISA -- the national reference laboratory.
Q And just so I have the context, we've had a lot of evidence through the course of the Commission hearings about PBS, the Pacific Biological Station. Does it have a similar sort of role for other viruses or diseases?
MR. STEPHEN: Yes, it does. We actually have a -- and you might have heard, also, statements about the Freshwater Institute in Winnipeg, so the three main laboratories for our network. Dr. Wright can speak more to that. We have a fourth laboratory which also was mentioned, I think, by Nellie Gagné, and that's our biocontainment laboratory in

Charlottetown, which deals with an ability to do diagnostic research on exotic disease because of its containment capacity.

The specific reference laboratories for diseases, I don't have the list with me, but perhaps Peter can allude to some of that?

Q Indeed, I'll, Dr. Wright, ask you the question about what exactly is the National Aquatic Animal Health Laboratory System? And I don't know if that gets abbreviated to NAAHLS, with a silent "H" or what the right acronym is.

DR. WRIGHT: NAAHLS will do just fine. Prior to coming into DFO and prior to NAAHP, actually, all the laboratories are regional; there are six regions across Canada. The idea, here, was because we were moving into a national program, was to develop a national platform for diagnostic laboratories. So that's, in essence, what we have done. So they're not acting just regionally, they're acting nationally. In order to do that, we've implemented a quality management system right across the board. We've also implemented a LIM system for sample receipt and tracking all the way through. We have harmonized most of our testing platforms, which allows us to increase our capacity so that all the labs can actually be running the same assays on the same platforms.

So the idea here was to underpin a national laboratory system.

Q I have a more narrow type of question, Doctor. If I could ask Mr. Lunn to please bring up Tab 80, Exhibit 2022 on the screen. When we see it, I expect you'll see a letter of designation. I hope this is a quick "yes/no" question, but we'll see. A letter of designation signed by the Vice President of Science of the CFIA on October 28, 2011. It gives a designation of some people who work in DFO's Moncton lab as having the authority to carry out diagnostic analysis of finfish suspected of ISAV infection.

Is that a special designation that is effectively geared towards the investigation arising from reports mid-October onwards? I'm sorry, you'll need to push the button.

DR. WRIGHT: Yeah, sorry. It's not a special designation. This is a designation that is required from CFIA to allow any laboratory to test

on their behalf for specific diseases.
Q And I guess I'm just curious about the timing of this, because it dates to October 28 and would seem to fit in with the timeline of recent events on the ISAV front.
DR. KLOTINS: I can speak to that, because --
Q Certainly, Dr. Klotins.
DR. KLOTINS: -- it is a CFIA designation --
Q Thank you.
DR. KLOTINS: -- under the ***Health of Animals Act***. We had been -- we had identified, earlier on in the year, because of our -- because we were starting to put together a program for network laboratories, that there was a requirement for CFIA to approve these network laboratories, and we identified that that ability to approve the network laboratories had not been delegated from the Minister yet, and so we had to do that work. And then we were in the process of -- it took quite a while to get that delegation, and then we were in process of getting those letters of designation for the NAAHLS laboratory staff.

And the notification occurred prior to getting those designations out. Senior management decided that in view of the disease response we had to do here, we would designate initially for ISAV, but eventually all the DFO staff that work on behalf of the National Aquatic Animal Health Program will be designated more fully to conduct the tests we require for the program.
Q Mr. Lunn, I wonder if you would be able to draw up Tab 8, Exhibit 1759. Dr. Jones, I realize only now, that I introduced the other panel members and not you, and I don't want to leave you out from that basic introduction. You have testified previously in these hearings.

First, you'll see that as being your C.V. already in evidence; is that right?
DR. JONES: That's correct.
Q And in a nutshell, you have degrees by way of a BSc., an MSc., and a PhD., and currently serve the position of Research Scientist with the PBS in Nanaimo with the DFO, and bear the title of Head of Fish Parasitology; is that right?
DR. JONES: That's correct, I lead the Fish Parasitology Research Program.
Q Thank you. I expect my next series of questions

will focus on the other three witnesses, and I will have some questions for you, sir, towards the conclusion of my questions today.

Let me move to some questions, Dr. Klotins, I'd like to ask you to address, please. These deal with the questions about reporting suspected cases of ISAV. I'll do that, and Mr. Lunn, I'm throwing you a curveball. Rather than Exhibit 2027, which is our Tab 103, I'd like to see if we could draw Canada's Tab -- if we could look at Tab 103 of our list, but equally, I will look to go to Tab 29 of Canada's list of documents.

And as that comes up, that's 103 of our list, and I can use that as a starting point. This is a directive, Dr. Klotins, indeed, that you signed, dated January 19. It gives -- it advises of the mandatory notification of reportable aquatic animal health -- sorry, aquatic animal diseases; is that right?

DR. KLOTINS: Yes, this directive went to veterinarians and aquatic animal health specialists in Canada that we had lists for.

Q Okay. And now, the document I was reaching for via Canada's disclosure, and Tab 29 of Canada's documents, I think, in turn, has three documents, so there may be a covering e-mail and then there's a document which is awfully similar but a little different in that the first paragraph - we can see it on the right-hand side there - the first paragraph's longer. And Mr. Lunn, if you can bring up the document at the far right of the screen, please, that document uses different language. We see it in the second sentence:

> Canadians who own or have possession, care or control of aquatic animals are required to notify...when they suspect or detect a Reportable...disease.

DR. KLOTINS: Yes, that's correct.

Q Can you help me understand the process or why there are two separate documents that are otherwise basically the same?

DR. KLOTINS: There are two separate documents because they relate to different parts of the ***Health of Animals Act*** and the section -- I think if -- yes, 5.1 is on the screen there, speaks to persons who

own or have possession, care or control of an animal and notify the nearest veterinary inspector.

Q And before I forget to do it, if we could please mark this exhibit.

MS. PANCHUK: 2103.

EXHIBIT 2103: Aquatic Animal Health Division Directive dated January 19, 2011, Subject: Mandatory Notification of Reportable Aquatic Animal Diseases

MR. MARTLAND: 2103, thank you.

Q What does "suspecting a disease" mean?

DR. KLOTINS: It means that they have some information or some idea that the disease may be present in the fish that they own -- they possess, own, care or have control of. Some fact. And it could be whatever fact they think gives them the suspicion that the disease is there.

Q And it's hard to resist the urge to look at this in the subjective or objective kind of way, because I suppose any one individual's sense of when something is suspicious may be quite different across different people and --

DR. KLOTINS: Mm-hmm.

Q -- indeed, when we talk about the situation where there's a duty to report, not simply for fish health professionals or veterinarians or, broadly, for Canadians, that that might lead different people to have different views of when they're required to report?

DR. KLOTINS: Yes, I agree. The other part of -- well, I guess what we're also planning to do, and we've started to do, is to provide some information to all who are obligated to notify about the, you know, information about the various diseases, or reportable diseases.

We have a couple of the Q and A fact sheets up on the external website. The rest are in the process of being approved. And we have pictures that are going with those diseases. We let them know where we think they occur in Canada right now, and we give probably the most common clinical signs and who they can contact if they suspect has disease.

So there will be more educational effort

coming in the future.
Q Let's not try and grapple with the vast range of subjective ways that individual Canadians might look at it, but if I can ask a hypothetical about labs that are in a position to assess and screen for ISA in particular. From the CFIA's point of view, at what point should the lab be reporting, on one level, if somebody, somewhere, sends in tissue and asks for an ISAV test, that would seem to signal that someone is suspicious about ISA. I'm wondering, I'm just looking to get a sense of where, along the spectrum of interests, suspicion, more than suspicion, at what point would the CFIA expect that test, the fact of that testing or the results of the testing to be reportable?
DR. KLOTINS: Yes, it could occur at that point. Depending on what is put on a laboratory submission form, if the laboratory has one. There may be other factors that indicate suspicion. The diagnostician will read those as well. And especially in view of that, they may not get the whole animal in, but bits of tissue. We prefer that they report sooner rather than later.
Q The reason for that seems obvious, but why is that?
DR. KLOTINS: Basically, so that we can start investigating whether there is some basis to the suspicion. And if, for example, if it occurs in cultured animals, perhaps we can initiate an inspection and go visit the site, take a look at the animals, see if we need to collect more samples that can be submitted to the NAAHLS laboratories.
Q I'd like to have, Mr. Lunn, Tab 75 of Commission's list of documents on screen. Dr. Klotins, this, when we see it, I expect you'll see an e-mail from Dr. Kiley, and we see it's an e-mail, in fact, from you to Dr. Kiley, November 4th of this year, in which you say, at the third sentence:

> I'm thinking we should also advise all laboratories in Canada to not test any more samples of wild finfish for ISAV from the Pacific Ocean.

Could you explain that and help us understand that?

DR. KLOTINS: The idea behind this was to basically identify that there are samples that CFIA has not provided -- it's a chain of custody issue in that there were samples out there being tested, looks like we had a suspect positive, and we need to confirm what is going out in the wild fish. So it was just an idea. It was never, in terms of whether we could do it or not, that would need to be investigated, but certainly we do have communications with laboratories. We can advise them of, you know, what's been found out in Canada. And my idea was, you know, there are samples out there that we'll not be able to confirm because of the chain of custody. And, you know, really, ultimately we can't tell them not to test, I believe, but it's just an idea I put forward.

Q I'm not clear, though, why you would look to have labs not to testing?

DR. KLOTINS: Because I would prefer that we started something that CFIA had oversight over and that then we could confirm the findings in the long run.

Q Is that a question of distrust of labs that might be doing those tests?

DR. KLOTINS: No. No, it had no -- no distrust there. I mean, we would have had to -- they were not network laboratories, number one, so we would have to evaluate whether they could do the work for us. Right now, there are no approved laboratories; it would have to come to NAAHLS.

Q Mm-hmm.

DR. KLOTINS: And we also wanted the oversight on sample collection, shipment to the lab, to the lab that we can confirm through, and -- and that's why I made the recommendation.

Q What happened to the recommendation?

DR. KLOTINS: It was -- we never used it.

Q It didn't go anywhere?

DR. KLOTINS: No.

Q So this idea that simply to really put out words -- put out the word not to continue in such testing, that was a suggestion made but never --

DR. KLOTINS: Yeah.

Q -- acted upon?

DR. KLOTINS: No, it was --

Q Was there any intention in this to avoid or

prevent future additional reports of ISAV vis-à-vis Pacific salmon?

DR. KLOTINS: No.

Q There have been a number of documents being developed, I appreciate, from CFIA; plans, procedures, protocols for dealing, first, generally with aquatic animal diseases, and in specific terms with ISAV. I wonder, Mr. Lunn, if you can put Tab 92 -- I'm sorry, I forgot to mark that last document, I think, as an exhibit, if we can do that, please.

MS. PANCHUK: 2104.

EXHIBIT 2104: E-mail dated 11/4/2011 from Kim Klotins to Cornelius Kiley, Subject: Laboratory Result Notification of a negative test result

MR. MARTLAND: Tab 92 of our list of documents is the Aquatic Animal Health Functional Plan. This is a draft, I expect, dated September 1, 2010.

Q Do you recognize that, Dr. Klotins?

DR. KLOTINS: Yes.

MR. MARTLAND: If this could be Exhibit 2105, please.

MS. PANCHUK: So marked.

EXHIBIT 2105: Canadian Food Inspection Agency, Aquatic Animal Health Functional Plan Draft, September 1, 2010

MR. MARTLAND:

Q And whether by way of reference to this or if there are other documents you think we should be looking at, but I'd be looking to have an understanding, in a summary way, of the purpose and status of CFIA's work towards developing procedures and protocols for aquatic animal diseases.

DR. KLOTINS: In terms of?

Q What's the state of play in terms of developing this plan and other plans and procedures to deal with aquatic diseases?

DR. KLOTINS: This plan is an overarching view of how we would conduct disease response within the CFIA and would identify any partners we have agreements with. And then, in terms of supporting this document with specific policies and procedures, we

have developed the policy for receipt and processing a mandatory notification and determination of initial inspection. We have developed a procedure on how that should be done within the CFIA.

We've also developed hazard specific plans. In particular, we started with four diseases, including ISAV, and those speak to specific disease response that should be considered for those diseases.

We also have sampling procedures in place for sampling cultured finfish, cultured molluscs and cultured crustaceans that help with the Aquatic Animal Health Functional Plan.

Those are probably the main documents that I can think of right now.

Q And by way of Mr. Lunn's magic, I'm hoping we could bring some of these up in succession. Tab 93, Exhibit 2023, I expect will be the Mandatory Notification Suspect Phase Disease Response Policy. Do you recognize that?

DR. KLOTINS: Yes.

Q Tab 94, Exhibit 2024, should be the Receipt and Evaluation of Mandatory Notifications. I think you alluded to that a moment ago.

DR. KLOTINS: Yes.

Q I'll skip Tab 95, indeed, and move onto Tab 96, which I think will be the Hazard Specific Plan in a draft version from April 2011; is that correct?

DR. KLOTINS: Yes.

MR. MARTLAND: Let me move, now, into -- and I'm sorry, I need to mark, variously, these documents. Just 96. 2106?

MS. PANCHUK: So marked.

EXHIBIT 2106: Canadian Food and Inspection Agency ISAV Hazard Specific Plan Draft, dated April 2011

MR. MARTLAND: Let me now move towards the fall of 2011, ISAV tests that have taken place, and CFIA's -- initially, I'll focus on CFIA's investigation arising from those reports. Let me start by way of a more general type of a question.

Q Dr. Klotins, what steps does the CFIA take to confirm a report of an infectious disease, in particular vis-à-vis ISAV reports from this fall,

what steps were taken?

DR. KLOTINS: Okay, let me see. In terms of the ISAV notification that we received from Dr. Kibenge, the first one on October the 15th, we did ask Dr. Kibenge if he had samples that we could test to corroborate his findings. There were none. We also started a trace back, where we identified where these specimen came from, and they came from Dr. Routledge, SFU. And so we identified all the members of the population that were involved with the testing. The 48 fish resulted from a larger population of, I believe, just over 400 fish, and some went to UBC as well. And so we did some trace back, and we identified where they were located and issued quarantine orders on those samples and then collected them and shipped them to Moncton for testing to see if we could corroborate findings again in the larger population.

And we also identified that some of the specimens went to Dr. Nylund in Norway, and we did request from Dr. Nylund if he had some information on the testing was he willing to share it with Canada, and he agreed that he would if the people in Canada were not willing to do so. That was the first notification.

MR. MARTLAND: That sound is usually somebody's cell phone that is on close to a mike. Whether you turn off the phone or move it will usually do the trick. It's not me. Please carry on.

DR. KLOTINS: Subsequently, we had a second notification from Dr. Kibenge that he had gotten some positives from samples that were submitted to him from wild salmon in B.C. I believe they were collected around the Weaver Creek/Harrison River area. And we requested, again, from him homogenate, or at least his tissues that we could test to corroborate his findings again. And again did a trace back to find out where these fish came from and what condition they were in, in terms of, you know, some idea of what the clinical signs could be if there were any. And that was the second notification.

Q And that's helpful by way of an understanding, and there may be, you appreciate, some more detail to the response or other testing. But let me ask, now, about in these situations, what is the

direction or directive from CFIA in terms of what confirmatory or additional testing is to take place, and then, secondly - or two other points - what happens in terms of brief and trade partners, what happens in terms of advising or giving an update or notice to the OIE?

DR. KLOTINS: Right. So we basically knew right from the beginning we probably wouldn't be able to confirm the results, but we wanted to get an idea of whether ISAV actually exists out there or not, and which is why we did some of the testing, corroborative testing. Sorry, but I --

Q No, no, that's fine, and there's a lot -- I'm combining my questions --

DR. KLOTINS: Yeah.

Q -- which isn't always very effective. But let me pick up on a point you made a moment ago. I think you said that you expected or you knew from the beginning that it would be unlikely that you'd be able to confirm results. Why do you say that?

DR. KLOTINS: That's right, because we had no oversight on the collection. So the CFIA, because our decisions are very important, can affect multiple stakeholders and partners, including international trade, and because these were wild fish, so it would affect the commercial fishing industry in particular, we need to be very sure that when we make decisions about calling an area or a particular population of fish positive that they truly are positive.

So as part of that process, we provide oversight in the collection, the shipping, in the approved laboratories and so we can be sure of the results applied to those populations in terms of our decision-making, inform our decision-making.

Q Does the CFIA get -- I'm wondering if it's CFIA, DFO, the lab, who is it that makes the decision about which test to engage in?

DR. KLOTINS: The CFIA, there is a laboratory submission form that we need to fill in and it's CFIA that determines what disease to test for. In terms of what tests are used, that is agreement between DFO and CFIA, called a Test Method Agreement, and we work collaboratively, you know, collaboratively together on what is going to be accepted.

In terms of case definitions, what we

eventually call a positive, those case definitions are built into the Hazard Specific Plans and they define what a positive case is for an individual fish, and then for a population of fish out in the wild, basically out in the watershed.

Q Dr. Wright, you have an OIE background, I know. I wonder if you can help us understand in terms of a Canadian process for determining or confirming ISAV vis-à-vis an OIE notice or reporting standard, are those two the same; are they different?

DR. WRIGHT: They're very, very generally the same. The only thing that's really different in there would be the particular assay being used. But we have a test method agreement that, as Dr. Klotins said, where basically we look at what our approach will be to test apparently healthy populations or clinically effected populations, all the while being aware of what the definitions are within the OIE that they put out in their manual.

Q Okay.

DR. WRIGHT: And so it's, if you want, it is a partnership, but was part of the quality system we run we have to have agreement from our client as to how we're going to approach any of the diagnostics that we're doing on their behalf.

Q Mm-hmm. Now, Dr. Wright, I'll continue with you for a moment. We've heard this concern about chain of custody. Some of the documents refer to chain of custody concerns at a general level. Could you help us understand what are those concerns? What effect would they have on confirmatory testing?

DR. WRIGHT: Well, the chain of custody is, well, it's not just confirmatory, it's for any testing that would be done. The chain of custody is -- basically assures that when the samples are collected one use -- that CFIA knows where they came from, how they were collected, how they were preserved, how they were shipped, and when they were received in the lab, and that chain of custody goes all the way through every lab procedure that's done, all the way to the point where the report of analysis is issued.

So basically chain of custody is from point of collection right to the point of reporting, and every step and every person in between, to assure

that that report matches what's happening out there in the field.

Q Is the concern there that someone might deliberately contaminate? Is it a concern that a lab unintentionally may cross-contaminate? Is it a bit of both?

DR. WRIGHT: It's probably -- it's a bit of both. I mean, there have been situations, and I'm not implying that any -- anything that's happened here, but there are situations that have happened, and certainly in the terrestrial world, where the chain of custody, once broken, sometimes mistakes can be made where, you know, one sample may be substituted for another, even when they're originating in the field or if they're mislabelled this, that and the other. And in the end you end up with an erroneous result that doesn't match the case that was submitted originally.

Q Mm-hmm. Dr. Klotins, you referred, a little while ago, to the, I think, to Dr. Routledge and having taken or obtained some fish from him, the fish that he used in his research project. I wonder, at a general level, what is the -- if you can help us understand when the CFIA would obtain -- I gather that the word "seizure" has a different meaning in the terms of the CFIA's work than it might more generally, so calling it a seizure may not be the right terminology. When would it obtain fish samples from someone like Dr. Routledge or others who have relevant samples?

DR. KLOTINS: Yeah, it's embedded in the legislation as well, in a number of sections, but in terms of the reportable diseases, once we've been notified, then s. 6 of the ***Health of Animals Act*** speaks to providing samples and information that help with the investigation.

Q In Dr. Routledge's case, did he contact you or express a view about the return of his fish samples, of his fish tissue, back to him?

DR. KLOTINS: Yes, he did.

Q What was his view on that?

DR. KLOTINS: He requested to have his samples back, as they represent the sum total of his sample collection for 2011 from that particular area where he collected.

Q Did you face a similar request from Alexandra Morton?

DR. KLOTINS: I believe there was a request, yes.
Q And have those samples been returned, or will they be?
DR. KLOTINS: The removal of the quarantine orders and the decision to return the samples, that's still under advisement, but the decision should be made soon.
Q Who makes the decision?
DR. KLOTINS: The inspector makes the decision. Usually the one that puts the -- the inspector that puts the quarantine orders in, but a lot of people can contribute to that decision.
Q I don't want to sound too simplistic, but if the result of attempts at confirmatory testing suggests that the ISAV is not found to be there, is there still a need -- why would there still be a need to hold onto samples if that concern's been effectively addressed?
DR. KLOTINS: Yes, what we needed to address was what was identified in the risk assessment is to make sure that those samples weren't contaminated when they were sent to the lab in Moncton. So basically we're sending back the samples that came to the lab is what goes back to Simon Fraser University.
Q Dr. Wright, in terms of the DFO Moncton lab and the testing that it's done, is it right to say that the Moncton lab, the Gulf Fisheries Centre, I take it is another way of referring to the Moncton lab, does the Gulf Fisheries Centre conduct confirmatory tests before Canada would ever make a report to the OIE? For ISAV.
DR. WRIGHT: For ISAV? Yes, of -- well, yes, for ISAV. It's the Moncton lab, or GFC, is the national reference laboratory for ISA, so any confirmatory testing that would be done within the NAAHL system would be done at that laboratory with Nellie Gagné being recognized as our ref lab expert.
Q I asked a question about the notice or the characterization for OIE versus for CFIA or Canada's point of view. How about the designation of these laboratories? There's an OIE reference laboratory, which is Dr. Kibenge's lab for ISAV. There's also a CFIA national reference laboratory for ISAV, which is the DFO Moncton lab.
DR. WRIGHT: It's quite normal for any country like Canada, the U.S., anywhere in the U.K., that you

do have your own national laboratory system, whether it's for aquatic animals or terrestrial animals, and within those -- the infrastructure of those lab systems you will designate a national reference laboratory for specific diseases or groups of diseases.

The OIE designation is just that, an OIE designation. It has really no implications for the host country, itself. The idea is that with the OIE you have different regions around the world and they try and put a reference laboratory into each of the individual regions and they're there to provide support to those member countries of the OIE that may not have the laboratory or veterinary infrastructure to conduct investigations for the diseases that those reference labs are responsible for.

There are a large number of reference labs the OIE has designated probably in the last 15 years or so in building the network, and they cover a very large range of both terrestrial and aquatic animals. But it is primarily to help those member countries that do not have the appropriate infrastructure to do the diagnosis themselves.

Q Dr. Klotins, I'd like to come back just momentarily to this question around returning fish to researches or people who've submitted fish or tissues. I wonder, is there a concern that if the CFIA is regularly acquiring samples from either people or labs, I suppose, that that fact, in itself, could have a chilling effect on people reporting suspicions, that out of a fear that -- or, indeed, conducting the testing in the first place that out of a fear that this will simply trigger a process where CFIA is obtaining the fish samples and quarantining them or holding them, that that's a disincentive to engaging in the testing or reporting suspicions?

DR. KLOTINS: I don't believe that is the case. In particular with the ***Health of Animals Act***, to encourage reporting we do offer compensation for a number of things, including animals that are hurt or destroyed because of sampling. So I don't believe the sampling, itself, is a discouragement to notify.

Q I suppose the compensation might be helpful if

someone is commercially trying to grow or raise animals but less meaningful to a researcher?

DR. KLOTINS: If we ordered animals destroyed by a researcher, they could be compensated as well.

Q Dr. Wright, is there a distinction between analytical tests and diagnostic tests?

DR. WRIGHT: In the field of regulatory veterinary medicine, analytical tests, if you look at the OIE validation pathway, the first stage, Stage 1, is the analytical validation of the assay, and that's where you're looking at more or less the physical chemical aspects of the assay, itself, biologically included. It looks at things such as initial repeatability. It looks at analytical specificity which would include the selectivity of that assay, the exclusivity of that assay, the inclusivity of that assay, all nice big words. Analytical sensitivity is actually talking about a limit of detection of that assay. And this is where you would do your preliminary care comparisons with any standard of comparison you would have.

Moving from that, you move into what's called a diagnostic validation, and this is really looking at the performance of the assay in the context of its ability to detect disease or exposure in animals. So it's gone beyond the analytical stage, it's now moving into a different realm, and that's, I guess, basically the realm of probability; what's the probability that if it tests positive or that if you have an infected animal that it will test positive or, on the other hand, the specificity if you have a non-infected, non-diseased animal it tests negative.

And then, when you move from that, then you get down into what's known as predictive values, and actually, Dr. Klotins can probably get into more of that detail, because these are a lot of the epidemiological principles that come into play once the test is put out there into a diagnostic laboratory, taken from research and actually put into a diagnostic application.

Q Dr. Wright, does Canada only consider, as confirmatory of ISAV, does Canada only consider positive tests that follow Ms. Gagné's protocol as used at the Moncton lab?

DR. WRIGHT: In the context of Canada?

Q Yes.
DR. WRIGHT: Well, what we would expect to see right now, I mean, in the transitioning into the National Aquatic Animal Health Program, much like what it would be for the Terrestrial Animal Health Program, is that any laboratory testing on behalf of CFIA would have to be using validated tests. It doesn't necessarily mean that it has to be our test. But they would have to show all of those validation criteria in order to convince their client, which is the National Animal Health Program that they have a validated test that has the performance requisites required.

Now, unfortunately for most of these tests, that information is not there. The analytical might be there, but the diagnostic probably isn't there, mainly because it's very difficult to get a hold of reference animals, or there are alternative ways you can go to look and analyze the diagnostic performance, but for the most part they're not done. So you would want to depend on assays where you do have those characteristics in -- that have been properly determined.

Q We've heard evidence around the OIE manual - I don't know that I need it on screen, but it's Exhibit 1676 - and in the OIE manual, and perhaps you alluded to this in earlier evidence, refers to, for example, Plarre and Snow and some names and publications we've heard of earlier. I wonder, are the protocols that the DFO Moncton lab considered equivalent or better than what's in the OIE manual --
DR. WRIGHT: Compared --
Q -- for ISAV?
DR. WRIGHT: Sorry?
Q For ISAV?
DR. WRIGHT: For ISAV? They're considered comparable. At least that was the information that we were operating on up until this point in time. There was no reason to believe otherwise. And again, that's through a lot of in-silico testing, but we've also gone through and done field validation of this assay as well.
Q Can countries, broadly speaking, can countries use any test they like so long as they're following, from an OIE perspective, so long as they're following the international validation protocol?

DR. WRIGHT: Yes, that's one of the keys. The fact that a procedure -- the whole idea of the manual is, again, to allow those countries that don't have that infrastructure, whether it was research and/or diagnostics, that it gives them procedures that by fact that they're in the OIE manual they have accepted with respect to their performance characteristics. It doesn't say anywhere that you must use these procedures, but if you have your own they must be equivalent -- equivalent or comparable. Some statisticians will tell you you can never prove equivalency or superior to the tests that are in there. And over time the OIE -- the idea is the manuals, when they're reviewed, will be updated, so that it should be the better tests that are being replaced as you go along. And that does, over time, but it's a long process.

But no, you don't have to use the OIE procedure, but you have to be able to demonstrate that comparability or superiority using the principles of validation as outlined by the OIE.

Q I take it, sir, you were in the room for yesterday's evidence and this morning for the first panel, is that right?

DR. WRIGHT: Yes.

Q I'm curious as to whether you heard anything through the course of that evidence, for example, Dr. Kibenge, his paper that looked at the software that these different labs have used, has anything caused concern or changed your view of the methodology the DFO Moncton lab has used?

DR. WRIGHT: No, I mean, given the information that we have, at this point in time, or up until this point in time, there was no reason to believe that there was any problem with our assay.

Q There was no reason to believe. Is there, now, a reason to believe?

DR. WRIGHT: I won't know that until we actually have confirmation that we have a variant of this virus out there, where we may have to look at modifying our technique in order to be able to detect it on a reliable basis, which will also require that we go through the whole validation process once again, which is fine, but it all takes time.

But essentially, you need something to work with, and we don't have that at this point in time. So basically, to answer your question, I

don't know, yet.
Q I'd like to, at a topic level, look very quickly at some internal government communications to understand the updating -- effectively, the updating process. I'll start, Dr. Klotins, with Tab 63 of Commission Counsel's list of documents. I think what this document will provide is a series of different reports that are CFIA documents, called Situation Reports. Tab 63. Thank you. So we'll start with the first. That will be fine to put it on screen.
And these reports, you'll see the one on screen is number 2, but we have 2 through to 18 under this tab in our list of exhibits. Can I confirm that these are CFIA situation reports, Dr. Klotins?
DR. KLOTINS: Yes, they are.
MR. MARTLAND: I'd ask that these collectively be marked as the next exhibit, please.
MS. PANCHUK: Report 3 has been marked as Exhibit 2095, previously.
MR. MARTLAND: Yes, I think the third one has been marked previously, and so that we can note that on the record, but I'd like to actually mark the remainder collectively, indeed, all of these, if I can do that, 2 through 18, as being, I think, Exhibit 2107, if my math's right.
MS. PANCHUK: That's right. So marked.

EXHIBIT 2107: Situation Reports (Internal) #2 through #18 for the period October 19, 2011, to December 8, 2011

MR. MARTLAND: Thank you. One presumes --
MR. ROSENBLOOM: Excuse me, Mr. Martland. To make things simple, the report that I filed to be marked as an exhibit, I can withdraw that so it all goes in under one package under one exhibit number, so it's no confusion later.
MR. MARTLAND: I think it's tempting, but not simpler that way.
MR. TAYLOR: The problem is that exhibits that have been marked have been referred to on the record and it becomes confusing. Thank you.
MR. MARTLAND: I think we'll leave that line, thank you.
Q It seems self apparent these are, as they say,

internal situation reports. Is that the purpose of these communications?

DR. KLOTINS: Yes. And they're primarily communications to senior management in CFIA, the purpose of these.

Q Tab 61 of Commission's list of documents, this starts at update #2. I understand that what was treated as update #1 was an e-mail from Ray Fletcher to a number of people. That should be Tab 61, and will come up in a moment. Is that the case?

DR. KLOTINS: I can't speak to whether this is considered situation #1 or not.

Q Okay. That's fine. I'd like to, nonetheless, ask that this be marked as an exhibit.

MS. PANCHUK: 2108.

EXHIBIT 2108: E-mail dated 10/18/2011, from Ray Fletcher to Kim Klotins, et al, Subject: SFU samples

MR. MARTLAND: If I could move to Tab 59. Mr. Stephen, I don't want to leave you out, and indeed, although the same moniker isn't used within DFO, we see here something in the upper right listed as being issue updates as per calls with CFIA.

Q Could you first confirm that that is what it says it is and tell us what these documents are?

MR. STEPHEN: Unlike CFIA, we don't have formalized situational reports, so I issued e-mails to senior management with a summary of the discussions we had with CFIA when the investigation calls. This appears to be a compilation of numerous ones, so I haven't had a chance to go through it and compare it against my individual ones. But in general, that would be the format I would provide it in.

MR. MARTLAND: Okay. If these might be marked, then, as Exhibit, I think, 2109.

MS. PANCHUK: So marked.

EXHIBIT 2109: Issue updates - as per calls with CFIA, for period October 18, 2011, to December 7, 2011

MR. MARTLAND: Thank you.

Q Who are Siddika Mithani and Wayne Moore, Mr. Stephen? Do you report to them?

MR. STEPHEN: Wayne Moore is my Director General of Strategic and Regulatory Science Directorate, and Dr. Siddika Mithani is my Assistant Deputy Minister of Ecosystems and Oceans Science Sector in the Department.

Q Have you played the role in this -- I'm sure it's been an awfully busy time since October onwards, vis-à-vis ISAV. Have you played the role of briefing those two individuals about ISAV developments, including testing at the DFO Moncton lab?

MR. STEPHEN: Yes, I have. At the headquarters level I've consolidated, along with a couple of my staff, consolidated information both coming from CFIA and coming from our laboratory and providing both verbal and written briefings to them.

If I may add, I've also briefed, at one time, the Associate Deputy Minster, several other assistant deputy ministers, and several times the ministerial office staff at their request.

Q And whether it's vis-à-vis the two superiors I named or others, the ADM and others, have they directed you as to anything to do with how to communicate about or what to say about the ISAV testing that has been conducted?

MR. STEPHEN: They may only have questions about further information, when we will get samples back, and you may have some correspondence, e-mail correspondence, asking, "When are the results coming in from Moncton," those sort of things. But generally, they have left it to me to provide that information to senior management.

Q On the question of e-mails, I think you were here through the day yesterday and heard Dr. Miller testify, so partly picking up on a point she made, although, in fairness, I think it wasn't perfectly clear, it was a suggestion rather than something more explicit, it does seem that in terms of production to the Cohen Commission process, perhaps surprisingly fewer e-mails than we might have expected from you and others on the question of ISAV developments. I wonder if there was a conscious decision not to use the written format to have these communications?

MR. STEPHEN: No, there wasn't. I can tell you that the only communication I had, and it was noted the other day, was on a call with Dr. Miller and

others on November 24th. I received no documentation from Dr. Miller about her samples, about her results, about the origin of her samples, or anything. In fact, the only time I received those was when I received the CD for the Cohen Commission documents.

Q All right.

MR. STEPHEN: I never saw anything from her, so I had nothing to forward on.

Q And in terms of -- I want to give you the opportunity to respond to that suggestion, effectively an implication that there was some preference or direction that people shouldn't be using e-mails about ISAV.

MR. STEPHEN: No, I don't think that's the case. When I received the information through the conference call on November 24th, I had a discussion, at that time, with Dr. Miller about had she notified CFIA as per the explanation that Dr. Klotins had just given us.

Q Mm-hmm.

MR. STEPHEN: Several times she said, "No," and I asked her, "Why?" and she said, Well, she wouldn't normally -- she wouldn't notify anybody unless she confirmed something. I explained, at that time, that mandatory notification does not require a firm confirmation, it requires a suspicion, as Dr. Klotins has pointed out, and we have an obligation to notify CFIA.

Q Mm-hmm.

MR. STEPHEN: Shortly after the call, I called Dr. Con Kiley, superior of Dr. Klotins, and advised him of the fact that Dr. Miller had found samples --

Q Okay.

MR. STEPHEN: -- that she believed tested positive for ISA. As CFIA is the lead for any investigation on suspicion, I left it with them to go and speak with Dr. Miller about her evidence that she had.

Q Mm-hmm. In the context of that discussion, I guess it's a conference call with some folks at PBS, as well as yourself. I think my understanding is Mark Saunders, Stewart Johnson, Kristi Miller, Kyle Garver, Mark Higgins, Karia Kaukinen, as being on that. Does that fit with your recollection?

MR. STEPHEN: Well, I remember about four of those people, and the last two probably not. The

initial start with the discussion, a few minutes after the discussion and the evidence of Dr. Miller came out, I called in my senior science advisor for the NAAHP, Alf Bungay, to come in and sit with me about -- and hear what was being discussed.

Q Mm-hmm. Was there any comment by you, or anyone, to the effect that Dr. Miller should stop testing, shouldn't refer to results as being ISAV-positive results, et cetera; was anything along those lines said?

MR. STEPHEN: What I said is that perhaps until CFIA starts their investigation, we should defer further sampling, but I do not have any direct functional or direct authority over Dr. Miller. It was a suggestion, because recognizing trying to chase a number of different results if they're coming constantly, it makes it hard to follow up on an investigation. I did talk to Mark Saunders several times after that call and suggested that in advance or in preparation for CFIA's findings we should plan and have a strategic plan about what questions we have to answer based on Dr. Miller's finding, where we should go with further research, where funding could come from, those sort of things. And Mark Saunders has sent me an e-mail, I believe it was December 8th, relating to referencing that and in consultation with CFIA's plan for surveillance.

So my idea, when you move from an investigate -- or a scientific research, pure research, and you're moving into an area where you're going to do research on a regulatory issue, or potentially regulatory disease, it's a good thing to have a planned approach; where are you going; what are the questions you're asking; why are you asking these questions; if we find something, what are we going to do; are we prepared for CFIA to take action as necessary, et cetera.

The fact that we were already engaged in discussions with CFIA on the surveillance plan made perfect sense to me to say, "You have to have" -- "Let's integrate whatever Dr. Miller may be wanting to look at and to a broader picture so that we're collaboratively working on things."

Q I think you said you don't have functional authority over Kristi Miller, but do you have some

influence over funding for her lab?
MR. STEPHEN: Only in the fact that I run several processes out of funding I have for funding for researchers across the country. One of those largest amounts of money is the Genomics Research and Development Initiative, which I think you heard Dr. Miller talk to two days ago -- or yesterday, I'm sorry.
Q It only feels like two days ago.
MR. STEPHEN: But, and in fact, I had just sent an e-mail to Dr. Miller advising her that she has been awarded $462,000 over the next three years, beginning this year, for research on genomic research, specific for Parvovirus and related research. If I add up all the money she's received since 1999 under the GRDI funding, it amounts to $2.4 million. She was also awarded, in collaborative work with Ruth Withler, another $400,000. So, in fact, over the last 10 or so years my office, or the branch I'm in now has awarded about $2.8 million of funding for her for research.

And I'll just add one more thing. The $462,000 over the next three years represents 20 percent of all the funding allotted out of the budget I have for that money. So she's one of eight researchers and she gets 20 percent of the money.
Q At some level, is Kristi Miller's, the findings that she described here in evidence yesterday, is that a game changer? Instead of having a situation where AVC has some reports and there's a set of processes that then engage with the DFO Moncton lab to try and learn whether those can be repeated to learn whether, in a sense, the AVC testing is an outlier or something that's hard to explain, to have a DFO lab with Kristi Miller's expertise obtain the results that she obtained, I invite you, Mr. Stephen, and then others, to pick up on that, if you'd care to, does this fundamentally change the picture on the question of whether ISAV may be present on this coast?
MR. STEPHEN: I don't think it's a game changer at all. We would, in my opinion, treat this -- anybody bringing forward presumptive positives or what they believe are positives for findings, refer that to CFIA. It's up to CFIA to take the lead on

investigating that. We supply the diagnostic capability to do a verification or to try and replicate the other's findings.

The fact that it may prompt us, ultimately, to say, "Well, do we need to look," as Nellie had alluded to, and Peter, "Do we need" -- "Are we finding new information to say we have to maybe adapt our processes in the future," what have you? Part of our - and I'll leave it to Peter to speak more about this - part of our quality assurance program is to reassess our diagnostic tests on a routine basis to see if we're in keeping with new developments worldwide, and I think Nellie Gagné spoke to that earlier.

Q Mm-hmm.

DR. KLOTINS: If I can add, from CFIA's perspective, because by legislation we're the final arbiter on -- or decision-maker on aquatic animal diseases in Canada and those in the aquatic animals that come into Canada, we're in the process of investigating the findings. We've done an initial interview with the researches on that project and one other interview with Kristi Miller with the sockeye salmon. We've gotten some initial information and we have to evaluate it, see if we need to get more information. We have run some tests on the initial sockeye salmon that she was testing and could not corroborate her results, and we have to identify the next steps.

But she will -- the research methodology will be under the same scrutiny as for the Atlantic Veterinary College.

Q Dr. Wright?

DR. WRIGHT: The only thing I would like to add there is the results that Dr. Miller has presented, she has introduced, if you want a new technique into this. It needs to be proven, it needs to go through that Stage 1, and I think, as we saw yesterday with our colleague from Norway, he expressed some scepticism about it, so although it may have merit, there's a lot more work that needs to be done before you would even consider trying to transition that from a research tool into a diagnostic tool, that you would go on and do a full Stage 1, Stage 2, and even up to Stage 3 validation, which is putting it out to look at its ruggedness in different laboratories.

So although there may be something there and it may be a kernel of starting something, it has long way to go before it would actually find applications that we can convince our trading partner is fully validated.

MR. MARTLAND: Mr. Lunn, could you bring up Tab 108, please, from Commission's list of documents.

Q Mr. Stephen, you're first on the list of folks who received this. I see Con Kiley was mentioned, we see his name there from CFIA. "Inspection.gc.ca" is for folks at the CFIA, I take it, Dr. Klotins, is that right?

DR. KLOTINS: Yes, that's correct.

MR. MARTLAND: And indeed, I see you as a recipient of this. If this might be marked, please, as the next Exhibit 2010 -- 2110.

MS. PANCHUK: So marked.

EXHIBIT 2110: E-mail dated November 9, 2011, from Joseph Beres to Stephen Stephen, Kim Klotins, et al, Subject: The Early Bird - November 9, 2011, ISAV

MR. MARTLAND:

Q It's from someone named Joseph Beres. Who is he?

DR. KLOTINS: Joseph Beres works in CFIA operations in the western area, more specifically out of the Burnaby office, and on this particular disease response he's one of the co-leaders for the team that's running the response.

Q Okay. So he's involved in the CFIA's active investigation right now?

DR. KLOTINS: Yes. Yes, he still is, yes.

Q Okay. Now, I appreciate he's not here and neither of you, although you received this, didn't write the e-mail, but I want to just pick up on, if you will, a flavour that is pretty clear in this e-mail:

It is clear that we are turning the PR tide to our favour, - and this is because...

It goes on to praise Dr. -- you, Stephen, Peter and Paul are listed there as the ones who get the praise:

Congratulations!

> One battle is won, now we have to nail the surveillance piece, and we will win the war, also.

That language, that way of framing it is, "If there's a hill to be won and we need to fight our way up it and win that battle," suggests that CFIA is going into this with a hypothesis or with an end goal, and I'd like to put that -- and I'd like to put that to you, Dr. Klotins. Is that an attitude that's prevalent or shared with others at CFIA? Am I misreading this?

DR. KLOTINS: The values for CFIA are actually to -- to deal with any response in a professional manner, especially when dealing with external stakeholders. We may get a little bit exuberant internally. I can't speak to his frame of mind here or how he views disease response in general. I really can't speak to what he was thinking during this.

In terms of whether it speaks to you as -- how did you frame that, Brock?

Q I wonder if it suggests that there's sort of an -- that instead of this being a collective enterprise where people are trying to learn the truth of a situation --

DR. KLOTINS: Yeah.

Q -- this is a hockey game and we're wearing red jerseys and we want to score on the other goal. Is it an adversarial thing? Is the CFIA going into this out of a concern for trade partners and other interests with a view to, however we get there, to announcing there is no ISAV?

DR. KLOTINS: Well, I don't read that in the e-mail, because in surveillance you can get both results, you can get positive results and you can get negative results, so I don't -- my read is not that there's a particular viewpoint that we're following. I mean, the point of surveillance is to find out if it is there or it is not there.

Q Mr. Stephen, I'd like to ask if DFO -- if you could again address any appearance that DFO, in the course of the testing work that goes on, has gone into this with a view to looking to get to the conclusion that there is no ISA or ISAV?

MR. STEPHEN: No, we have not. I can tell you that, for example, our laboratories over the last two

years, since fall of 2009, have reported to CFIA five different cases of suspect diseases; four for finfish and one for shellfish. We have actually, out of those five, confirmed one case of ISA in Prince Edward Island. So we're not about disproving anything; we're about proving the facts.

As Dr. Klotins pointed out earlier, the importance of finding the facts and being able to verify the presence or absence of any disease has not only international trade significance but domestic impacts as well for everybody concerned. For First Nations, for -- well, fishers, for aquaculturalists, for all Canadians. So we have to be -- it's just like trying to say somebody is guilty until proven innocent; you can't do that. You have to sort of say, "Is this situation true or not?" That's what our objective is, so that's what this whole program is all about.

Q Let me move to some questions that deal with the question of inspections of labs, and we've heard some evidence through Dr. Kibenge of that. Dr. Klotins, as part of CFIA's investigation, I take it that it's conducted an inspection or at least started to conduct an inspection of two different labs: first, Dr. Kibenge's lab; secondly, the DFO Moncton lab; is that right?

DR. KLOTINS: Yes, correct. Well, they were done -- I think the DFO lab was inspected first, and then the AVC lab was inspected afterwards.

Q All right. I'm sorry, the DFO lab was inspected first, and then the AVC?

DR. KLOTINS: Yeah, because they're both in the same area, it's just the way the logistics worked out.

Q Okay.

DR. KLOTINS: Yeah.

Q Why was that done?

DR. KLOTINS: It was to garner more information on decision-making on whether the findings are true positives or false positives, and that was the reason for the inspections.

Q Was to look at the labs that were doing -- that were going to be doing that testing?

DR. KLOTINS: That had done the testing and that will -- that are doing our testing as well.

Q Now, vis-à-vis Dr. Kibenge's lab, if we could look, please, Mr. Lunn, at Tab 84 from

Commission's list of documents, this seems to be a CFIA checklist of Dr. Kibenge's lab, dated back to June of 2009; is that correct? The date's at the very end, I'm sorry. And up, sorry, up a little bit where the handwriting is.

DR. KLOTINS: Yes, it's dated June 26th, 2009.

MR. MARTLAND: If this could be marked as 2111, please.

MS. PANCHUK: So marked.

EXHIBIT 2111: CFIA-ACIA Inspection Checklist - Animal Pathogen Containment Level 2 Laboratories, Importer: Dr. Kibenge

MR. MARTLAND:

Q Was this same checklist what was used to conduct the recent inspection of his lab? And if not, why not?

DR. KLOTINS: This checklist was not used, because it's a checklist that was performed by the office of Biosafety and Biocontainment at the CFIA and was done because he was applying for an import permit to bring infected materials into Canada. And what they do is they assess what materials he's going to bring in and what his purpose is, like how he's going to use the materials, and whether his laboratory is contained in terms of he can use those pathogens and it won't escape his laboratory.

Q In the course of setting up this process of inspecting the different labs, I wonder, Dr. Wright, was that a process that you were giving advice on or involved in?

DR. WRIGHT: I --

Q I'm sorry, that wasn't a very clear question. Not in the 2009 case but, rather, the more recent testing -- sorry, the more recent inspection that has take place vis-à-vis -- and I should say inspection and assessment. I don't know if "audit" is the right word.

DR. WRIGHT: No, it's an assessment, it's not an audit.

Q All right.

DR. WRIGHT: And as Dr. Klotins said, it was trying to gather information in order to explain the divergent results between the two laboratories.

Q Mm-hmm.

DR. WRIGHT: So the same process was used for both labs. We were inspected first only because we

were on the way. They were inspected the very next morning.
Q Okay.
DR. WRIGHT: But what you're looking at here, in this document, is what is required to have any laboratory certified to use pathogens in their lab, either at the bench level or, see, this is Level 2, or you kick it up a notch to Level 3, if you're actually using live pathogens. There are two standards that are out there that CFIA has developed; one is for terrestrial pathogens, and the other is for aquatic animal pathogens. This is actually -- it looks like the old form.
In terms of the assessment, the only thing that I provided to the working group were some resource documents from the OIE with respect to what the expectations were for validation of an assay, and nothing more than that.
Q We believe --
DR. WRIGHT: I was really just putting on my OIE hat and providing them with a resource document to a validation pathway.
Q Now, Exhibit 2102, and if you were in the room for some of the testimony, I think the new checklist may indeed have been led into evidence. Do you remember seeing it through --
DR. WRIGHT: Yeah, but from where I was sitting --
Q No, it's not a memory test, so that's --
DR. WRIGHT: I mean, basically, it's what that title is above.
Q Okay.
DR. WRIGHT: If it says "aquatic", then it's the new one.
Q All right. Thank you.
DR. WRIGHT: That's the latest standard to come out from CFIA.
Q Dr. Klotins was -- indeed, maybe, Mr. Lunn, you can wiggle that 2102 over into view. Is that what you were referring to, Dr. Wright?
DR. WRIGHT: But again, it doesn't say "aquatic" on this one. I mean, the two standards at Level 2, which is really a bench level, are very, very similar.
Q Okay.
DR. WRIGHT: So there's not too much difference but there are checklists, one for aquatic and one for terrestrial now, but they're just transitioning

those into play.
Q Dr. Klotins?
DR. KLOTINS: Yes, and if I can add to that, the reason we checked whether he was still approved to import pathogens was there was a concern from stakeholders in the Atlantic provinces that, let's say it was truly a new ISAV, it would be a strain that is not present on the east coast, and we would want to make sure it doesn't escape the laboratory on the east coast.
Q In terms of this lab assessment process, Dr. Klotins, who - I don't need a comprehensive list - but who, in fact, actually is doing the assessment?
DR. KLOTINS: The safety officer at the Atlantic Veterinary College would do the assessment. So they've been approved by the university to conduct these assessments.
Q What I'm wondering about, though, is if I have it correct, the CFIA has engaged somebody from the University of Guelph, if I have it right, to examine and report on the AVC and the DFO Moncton labs, but I --
DR. KLOTINS: I think I misunderstood you. I thought you were talking about the biocontainment assessment.
Q I'm sorry, I was trying to --
DR. KLOTINS: I'm sorry.
Q -- back out to a broader question. That's fine.
DR. KLOTINS: The laboratory assessment, the one we conducted on both Moncton and AVC is -- we -- it was two people from CFIA and Davor Ojkic, from the University of Guelph --
Q Okay.
DR. KLOTINS: -- who's an external.
Q Yes. Mr. Stephen?
MR. STEPHEN: If I may just add that both Peter and I were supportive of having an external examiner for this assessment team, and we were happy to see somebody from OVC, or whomever.
Q Was there input put into that assessment process that we've been talking about, was there input into that from Dr. -- I'm sorry, from Ms. Nellie Gagné?
DR. WRIGHT: No, there wasn't.
Q Exhibit for ID SSS, please, Mr. Lunn. Now, Dr. Wright, I don't know if you've looked at this, or

Dr. Klotins, for that matter. Does this not suggest -- there may be an e-mail that covers -- there, we see it there, ahead. That seems to suggest that there was some discussion with Nellie, I presume Gagné. I don't know if that -- I'm not asking you to infer it from the document, but do you know if Nellie Gagné was consulted about this?

DR. KLOTINS: Yeah, I can speak to that. This was basically at the beginning of the investigation we wanted to -- we started to initiate discussion about whether there were some issues in this laboratory or with the test methodology, because the findings just didn't seem right. So we wanted -- and plus, we could not assess his methodology at this point, but just what he wrote on his lab report was a little bit concerning, in terms of whether, you know, it really was a true positive. And so Tim Davis, who's our area program specialist for aquatics in the Atlantic area, he -- we were initially thinking that the assessment -- they were putting together the assessment checklist before we formed the team to get the process going, and so he just started some of the preparatory work and he did -- Tim didn't understand the test methodology that well, so he went to visit Dr. Gagné at the Moncton lab to learn more about PCR testing and all its foibles and why it's not a perfect test.

Q All right.

DR. KLOTINS: And so that's his summary of the discussion with Nellie, and she was looking at Dr. Kibenge's report, the initial one.

Q There's a second document which may help to situate some of these questions, and it certainly may be that I'm misunderstanding the timing of things or where different pieces of the work fit together. Tab 83 of Commission's list of documents. Dr. Klotins, to you and Victoria Peterson, from Tim Davis, it talks about meeting with Nellie Gagné [as read]:

> I confirm that we will need someone with PCR expertise, not just experience -

-- pointing out some issues with the OIE reports --

- some other areas you may want to check during the inspection. Too bad we can't take her.

Does this relate to the laboratory assessment from the OVC person that you mentioned?

DR. KLOTINS: No, this was after Tim went and talked with Nellie or -- he felt very uncomfortable that he could do the lab assessment, so he was recommending that somebody else with more expertise should be conducting the lab assessment. He gave a recommendation of Nellie, but that -- it was decided to put together a team. The project lead was Ingrid van der Linden, and she was to put together a team first to come up with a checklist, and then a team that actually went and did the assessment.

Q Dr. Wright, were you on that team?

DR. WRIGHT: No. As I said, I was not on the assessment team.

Q Okay.

DR. WRIGHT: No, I was part of the working group.

Q Okay.

DR. WRIGHT: And as I said, my only input to that working group was from the OIE perspective in providing them with some resource information with respect to the OIE guidelines for the validation and the validation pathway.

Q And was Dr. Kibenge sought out for input or advice or involvement in this process?

DR. KLOTINS: In terms of developing a lab assessment checklist?

Q Yes.

DR. KLOTINS: No.

Q Why not?

DR. KLOTINS: Because he's the one being assessed.

Q CFIA and DFO have a close working relationship, a mutual relationship vis-à-vis the DFO Moncton's lab on an issue like ISAV, so Dr. Kibenge was left off the list, so to speak, but why is it that we see the involvement, in terms of if I broaden it to inspections leading up to the assessment, that we do see the involvement of people from DFO or CFIA?

DR. KLOTINS: Well, as I indicated before, Tim went to speak to Dr. Gagné because he wanted to learn more

about the process, and it -- what it clarified for him is that he's not expert in doing the assessment, and the decision, then, was made to put together a team. In terms of putting together the assessment itself, we had the expertise in-house in order to do that, in particular because we will be eventually assessing network labs and it's a similar protocol that we would use to do that.

Q I appreciate she may have the expertise in-house, but I think my question isn't so much where do you draw -- where can you find experts or who else do you need to bring into the equation so much as the concern, frankly, about the appearance of a conflict of interest. If DFO Moncton is the subject of an examination and an inspection, ultimately an assessment, how is it that DFO or CFIA people are involved in that process? It would seem not to be an independent process. And to jump ahead, at least drawing some initial -- they may be initial conclusions from the assessment process, seem to be more critical of AVC than DFO Moncton.

DR. KLOTINS: Whether it needs to be an independent or not depends on the information we were looking for so we can make decisions on whether it's a true positive or not. In terms of conducting -- it really is an extension of the inspection process where we're gathering information, and we felt we could come up with the questions that we needed to make that determination.

In terms of -- there was never an intention to do a comparison between the two laboratories. There was never an intention to do a comparison between the two laboratories, it was just to assess whether all the pieces are in place in order to make a determination of whether it's a true positive or a false positive or whatever.

MR. MARTLAND: I'd like to move, Dr. Jones, to asking you some questions, and Mr. Commissioner, I'm just looking at the clock; it's 10 past 3:00. Perhaps if I can take five or seven minutes and see whether I can not complete my questions but complete these questions relating to Dr. Jones?

THE COMMISSIONER: I think we should adjourn now.

MR. MARTLAND: Adjourn at this point? That's fine. Thank you.

MS. PANCHUK: The hearings will now adjourn for 15 minutes -- or recess for 15 minutes. Please remain standing while the Commissioner exits the room. Thank you.

(PROCEEDINGS ADJOURNED FOR AFTERNOON RECESS)
(PROCEEDINGS RECONVENED)

MS. PANCHUK: The hearing will now resume.

EXAMINATION IN CHIEF BY MR. MARTLAND, continuing:

Q Mr. Lunn, if you're able to put on screen Tab 100 of Commission's list, Dr. Klotins, I'll direct a question to you. This is -- has got a clear stamp of "draft" across the front. It's the -- listed as the surveillance plan for ISAV, IPNV and IHNV dealing with salmon in B.C.; is that correct?
DR. KLOTINS: Yes.
MR. MARTLAND: If this might be marked as Exhibit -- I think 2112?
MS. PANCHUK: So marked.

EXHIBIT 2112: Surveillance Plan for ISAV, IPNV and IHNV in Anadromous Salmonids in British Columbia - November 2011

MR. MARTLAND:
Q Could you give us a sense please, Dr. Klotins, of the timing of the work on this surveillance program?
DR. KLOTINS: Timing in what terms?
Q How far along is either the document, which is marked "draft" but more broadly, where do things stand in terms of a surveillance program for ISAV in wild fish?
DR. KLOTINS: Okay. So the surveillance plan, I believe, is in its second or third draft now. There's been review by basically the partners, CFIA and DFO, to -- internally to make sure we're -- at least we've got a plan that we're fairly comfortable with. There's still some more work to be done on that. It's a plan that involves both wild and cultured fish and they'll be surveyed a little bit differently and the document explains how that will be done.
In terms of -- once we're satisfied

internally that we've got something to go out with, I believe the plan is to consult with a broader stakeholder group and see if that is doable, particularly because of the sampling collection points we're proposing for the wild fish. So basically, to see if we can implement it in the fashion that we're envisioning.

So NAAHL is working diligently on this and I would imagine that in January we can start the broader consultation to see if it's implementable and hopefully we can begin, you know, based on the feedback and the arrangements we can make, hopefully we can start implementing sometime towards late Spring in 2012.

Q All right. Mr. Stephen?

MR. STEPHEN: Yes, thank you. I just -- because I don't see a date on this, at least in the part we can see --

Q Maybe we can --

MR. STEPHEN: Sorry?

Q No, oh, there we go. November '11.

MR. STEPHEN: Okay. It's unclear to me because I haven't had a chance to read this, whether this version that you have here has incorporated any of our comments yet or not, so just want to point that out.

Q That's helpful, and I think we should all proceed on the footing this is a document obviously under development right now.

DR. KLOTINS: That's right. And it'll be -- I would imagine there would be several more versions before it's finalized.

Q Dr. Klotins or Dr. Wright, with respect to this process of laboratory assessments, we've heard about that vis-à-vis AVC and the Gulf Fisheries Centre. There had been suggestion at some point, as I understand, that perhaps the Provincial Animal Health Lab in Abbotsford might be brought into that laboratory assessment program. Could you help us understand that idea, what happened to that, is that something that's a possibility or a prospect for the future?

DR. KLOTINS: I'll make some introductory comments and perhaps Peter can speak to it more, because he'll be more intimately involved with the network laboratories, getting them on board with the CFIA to do CFIA's work. But B.C. Ministry of

Agriculture has expressed an interest to help with the sampling. I don't know if other laboratories have in Canada. They will all need to undergo an assessment and an evaluation to see if they can perform the tests that we need for at least initial confirmation and then -- or at least initial testing and do the confirmation at the NAAHLS laboratory of any positives. So, Peter, if you want to carry on with that?

DR. WRIGHT: Thanks, Kim. I just need one point of clarification. Are you talking assessment in terms of the assessment that's going on at AVC and the Gulf Fisheries Centre?

Q Yes.

DR. WRIGHT: Okay. What Dr. Klotins was talking about was something totally different.

Q Okay.

DR. WRIGHT: Okay. So --

Q Can you help me understand then the distinction between the two? If we're speaking over one another, then --

DR. WRIGHT: Okay.

Q -- what the two things were?

DR. WRIGHT: The -- it -- well, the assessment of the two laboratories where we have the divergent results --

Q Mm-hmm.

DR. WRIGHT: -- which was our national reference laboratory and Dr. Kibenge's lab, I'm not sure. It's a CFIA initiative. I don't think to my knowledge that the B.C. NAAHL lab was part of that assessment.

DR. KLOTINS: No, it wasn't. And it's true, I'm not talking about the exact lab assessment that would be done as was done at Dr. Kibenge's lab, it would be an assessment to see if they can do the work for us.

Q I see.

DR. KLOTINS: Yeah. But it looks at a lot of the -- well, it would look at --

Q Yes.

DR. KLOTINS: -- a lot of the same things and probably some extra, right?

DR. WRIGHT: I agree. I just wanted to make it clear --

Q No, I appreciate you making the distinction. I really --

DR. WRIGHT: Because what we had just started to initiate was dialogue with what I've been calling third party laboratories.

Q Mm-hmm.

DR. WRIGHT: Which are either provincial or vet school labs or private, semi-private labs --

Q Mm-hmm.

DR. WRIGHT: -- that have been conducting diagnostics in Canada, the idea being now with the NAAHP program coming into place, is that we would network these laboratories to increase our capacity and give us search capacity and then they could conduct testing where they could charge a fee for service type thing. So we had to wait at least till this point in the development of the program so that we could get some numbers of anticipated tests so they could build their own business case and determine whether or not they wanted to participate.

So as I say, we're just starting down that road and the idea being is we're setting the criteria which they would have to fulfil in order to become one of the network labs testing on behalf of the National Animal Health Program and that document that you produced earlier where you had, you know, designation of laboratory and laboratory staff --

Q Mm-hmm.

DR. WRIGHT: -- that would apply to them, as well.

Q Okay.

DR. WRIGHT: Okay? So we are going to be looking, as Dr. Klotins said, at very similar things and what's their level of biocontainment, biosecurity, where are they in their quality management plan, what do they have in terms of laboratory information systems, what do they have in place in terms of training of staff and, you know, all of that. So we are sitting -- setting out the basic criteria and we're having dialogue with them and it's obviously been interrupted in the last little while. So we haven't gone any further on that.

Q Right.

DR. WRIGHT: But that's the idea, is to network --

Q Now, I'm facing my own time allocation limits momentarily, so I've got two last areas, but Mr. Stephen, I think you were looking to make a brief point. Go ahead.

MR. STEPHEN: Yes, I believe your question arose from an email I received from Sharon Ford. She's the director from Aquaculture Management within Fisheries and Oceans where she suggested that perhaps if we were going to assess the two laboratories, Moncton and Charlottetown, we might want to consider the provincial lab.

I forwarded that request on to CFIA to Dr. Con Kiley, but I did point out to Sharon at the time that I believed that this assessment was based on the investigation that was currently going on and not a broader general assessment of laboratories with ISA capacity, testing capacity.

Q Okay. Dr. Jones, largely you've had, I suppose, the benefit of being silent through many of the questions that we've been -- that I've been putting to the panel today. The questions I have to ask you relate to work that Dr. Molly Kibenge did in the run of about 2003 to 2004 in testing Pacific salmon for ISAV. You're familiar with the work that she did.

I'll try to put a few documents on the screen and then ask just a few questions to have a clear understanding on this. First of all, Tab 30, please. The question first I'll ask you to confirm these documents are what we understand them to be and to mark them and then -- indeed, let me do that.

So first, you recognize this as being a draft paper plus some emails among -- which will be at the end, I suspect, of -- after the paper among variously Dr. Jones, Molly Kibenge and Nellie Gagné in the period of May to June 2004, along with -- what we see here is the draft paper and if we scroll down a little ways we see these emails. Do you recognize that?

DR. JONES: Yes, I do.

MR. MARTLAND: If this might be marked as Exhibit 2113, please.

MS. PANCHUK: So marked.

EXHIBIT 2113: Presence of Infectious Salmon Anaemia Virus nucleotide sequences in wild Pacific salmon and attached emails

MR. MARTLAND:
Q Next, Tab 110, these are emails, Dr. Jones, between you and Molly Kibenge from February 2005; do you recognize those?
DR. JONES: I recognize what I see on the screen, yes, I do.
MR. MARTLAND: Exhibit 2114, please.
MS. PANCHUK: So marked.

EXHIBIT 2114: Emails between Simon Jones and Molly Kibenge dated February 2005

MR. MARTLAND:
Q Lastly, Tab 111, we jump now ahead to January 2006, again emails between yourself and Molly Kibenge; is that correct?
DR. JONES: Yes, that's correct.
MR. MARTLAND: If that might be Exhibit 2115, please?
MS. PANCHUK: So marked.

EXHIBIT 2115: Emails between Simon Jones and Molly Kibenge dated January 2006

MR. MARTLAND:
Q Dr. Jones, you testified before this commission on the topic of sea lice in early September of this year and prior to that, were interviewed by commission counsel and I take it equally were asked to produce relevant documents that you had that pertained to this commission and the work we were doing; is that correct?
DR. JONES: To my recollection, yes, that's correct.
Q At the time of that were you -- would you have considered ISA to be an issue -- an issue that at least was something that was on the commission's radar that the commission would be looking into?
DR. JONES: No, I did not.
Q Were you aware of a dialogue in the public realm or otherwise around the concern about ISA arriving on the Pacific Coast?
DR. JONES: Generally, yes, I -- obviously, I am aware that ISA has not been reported and the potential for ISA to occur has been raised as a concern.
Q And in terms of these different documents there's -- I've simply had flash across the screen in front of you, could you tell us why those were not produced at the commission until November 11 --

sorry, November of 2011?

DR. JONES: Dr. Molly Kibenge was a post-doctoral scientist in my laboratory from January 2003 approximately until about the middle of June 2004. And that time predates much of this sort of regulatory framework that we've been hearing discussed in this panel up to date. At that time the fish health protection regulations were administered under the ***Fisheries Act*** and at our station at PBS. Dorothy Kieser was in charge of the diagnostic laboratory and was therefore representing the -- or responsible for the ***Fish Health Protection Regulations***. So that was sort of where we were at that time.

At that time also we had no evidence of ISA. There was certainly no disease, no mortality associated with ISA in farmed salmon. We'd seen no evidence at all that the virus had been isolated on the coast of British Columbia. So Molly -- Molly's research was to survey wild Pacific salmon for viruses, for IHN virus, VHS virus and for ISA virus and our expectation was that we would not see evidence of ISA. So in a sense, this was looking for something we didn't believe to be there.

During the course of her work, which involved attempts to culture the virus in cell culture but also to amplify segments of the viral genome by RTPCR, Molly began to find positive signals in the PCR results and these results were a surprise. Of course, we had not expected to see them. And it was very important for us that we were able to reproduce the findings. So I think to answer your question shortly, the concern that we had with the work that Molly did was that we were not able to reproduce the findings. So she could not reproduce amplification of the Segment 8 genome or it was amplified inconsistently from samples that might be positive one time, negative, and she could never amplify Segment 7, 2 or 6 when she attempted to do that.

And this transpired over several months and it was, I think, about October of 2003 that we thought it would be valuable to seek the opinion of another laboratory. From Molly's findings, she was seeing these Segment 8 apparently positive results from chinook salmon quite frequently, so

we chose to send 20 samples of chinook salmon to the Atlantic Veterinary College to the lab of Professor Kibenge.

Q Mm-hmm.

DR. JONES: And those samples were blind.

Q Mm-hmm.

DR. JONES: We sent ten that were positive from Molly's results and ten that were negative, and we got results back a few weeks later or so, I think sometime in October of 2003, and Dr. Kibenge was able to confirm that there were some positives.

Q Mm-hmm.

DR. JONES: Where he found the positives were among both groups, so among the positive samples that were provided to AVC. Three of those turned out to be positive in Dr. Kibenge's -- Professor Kibenge's hands, and of the negative samples that we sent, three of those came back positive as well. So we were still concerned that this inability to replicate was -- it was an issue for us. We wanted to be able to confirm the findings, that a positive result or a negative result really didn't mean very much until we could get some evidence of consistency and reproducibility.

We met with Dorothy Kieser and Garth Traxler and Molly and myself and I don't remember when that was. I think it was early in 2004, possibly March or so. And as a result of that meeting it was suggested that samples were sent to Nellie Gagné's laboratory at DFO Moncton, which we did. We sent approximately 90, maybe more than 90, 95 samples to Nellie's -- to Nellie to confirm by PCR testing for ISA and the results of Nellie's tests were that she could not reproduce the finding, so she found no evidence of ISA when -- and, in fact, she repeated those tests repeatedly and at the end of that replicated process of not being able to reproduce the findings, report it back to us. And I guess we heard yesterday there was some dialogue between Nellie and Mollie regarding trying to optimize what was going on, but --

Q Mm-hmm.

DR. JONES: -- at the end of the day, Nellie was not able to reproduce the finding.

Q Mm-hmm.

DR. JONES: So in 2004, and Mollie left very shortly after that, went back to AVC. We concluded at

that point that the findings that Mollie had produced were not representative of ISA and that they were -- well, perhaps not a failed experiment, but they were like many other studies where we conduct work, diagnostic work or research for pathogens, that this was a test that did not yield a positive finding.

I think it was for that reason that it was not felt to be of significance to this commission.

Q It may have certainly in the glare of recent events, it may achieve an importance that may not have been apparent at the time. I suppose the basic question is were these documents that were not disclosed because they were overlooked or were they deliberately set aside and not disclosed?

DR. JONES: Well, you know, I mean, I'm trying hard to keep my thinking as it was in 2003/2004 and what we concluded then. I was certainly aware that we had conducted that work, but there was no reason to assign any importance to that. It was a series of experiments that yield some puzzling results that were not verifiable and it didn't seem to add meaning to -- it didn't seem to contribute to anything other than that this was a confusing piece of information that -- yeah, was essentially a negative result.

MR. MARTLAND: Thank you. Panel members, thank you very much for addressing the questions I have of you. Canada is next as counsel. We're sitting today until 4:30. Canada's allocation is 70 minutes.

MR. TAYLOR: Just bear with me here. I'm going to have to move this computer. Thank you.

CROSS-EXAMINATION BY MR. TAYLOR:

Q Dr. Johnson -- sorry, Dr. Jones, I'm going to ask you one question and then leave you while I turn to the other panellists and then I'll come back to you, at this point Monday, no doubt. My one question for the moment is when you last worked in ISA or when your work was last focused on ISA? It was around the time you were working with Mollie Kibenge and apparently isn't now, but when did that change?

DR. JONES: Well, the work that I just described in my testimony a few minutes ago was the last time that

I was involved with work that involved testing methods for ISA virus. I've not since worked with ISA virus or the testing for it.

Q All right. And so shortly after your work with Mollie Kibenge and then she went back to Atlantic Veterinary College, what did you move into at that point?

DR. JONES: Well, even before Mollie left, I was already beginning to become involved in sea lice research and that became a much more important focus of my research investigations, so from 2004 until probably 2009, I spent much of my time on sea lice research.

Q All right. I'll turn now to a series of questions of the other panellists and just by way of explanation, if it's not clear, Mr. Commissioner, it appears that there's two different panels really within this panel. Dr. Jones is here for a specific purpose and commission counsel has decided to put him on this panel, but the other panellists are here for the response evidence if I could call it that on the recent report.

I want to begin, panellists, by asking you about the regulatory regime that we have for reportable diseases and the situation or what existed before that. Now, my questions invite answers of a fairly gloss nature. We don't need to dig down into the details, I don't think.

I'll start with you, Dr. Klotins and ask about the regulatory regime -- now, let me start with Mr. Stephen on the question of the regulatory regime before January 2011 or so, which is when the current regime came into place. And I suppose I better ask the first question, when did the current regime come into place that we've been talking about in Martland's questions?

MR. STEPHEN: Well, Dr. Klotins is better able to answer when it came into place, the current one. I can speak about the previous --

Q Okay. Well --

MR. STEPHEN: Which would you like first?

Q And I don't need a specific date, but when did the current regime where CFIA as the lead agency took responsibility for aquatic animal health?

DR. KLOTINS: The amendments to the ***Health of Animals Regulations*** came into play on December -- I think it was December the 10th, 2011 or December the

19th, not exactly sure, December 2011, and the report -- the amendments to the ***Reportable Diseases Regulations*** came into force on January 5th -- okay, 2010 for the ***Health of Animals Regulations***.

Q Yes.

DR. KLOTINS: And 2011 for the ***Reportable Diseases Regulations***.

Q All right. Just to be sure we've got this clear, 'cause I think your evidence a few moments ago had it coming into force this week.

DR. KLOTINS: Yeah.

Q Is it right that the ***Health of Animal Regulations*** were amended to include aquatic animals in December 2010?

DR. KLOTINS: Yes, it was 2010. Yes.

Q And then the ***Reportable Disease Regulations*** were amended to include, amongst other things, ISAV in January of 2011?

DR. JONES: Yes.

Q All right. And that is the regime that we're now operating under. Is it the case that for terrestrial animals, the kind of regime that you've been describing, you panellists, in the evidence so far has been in existence for quite some time?

DR. KLOTINS: Yes.

Q All right. So we'll come back to you, Mr. Stephen, and before December of 2010 what was the situation and who was responsible and what was done in brief.

MR. STEPHEN: Okay. There's two pieces of legislation that Fisheries and Oceans is responsible for: Section 56(b) of the ***Fishery General Regulations*** under the ***Fisheries Act*** and the one that my branch deals with ***Fish Health Protection Regulations***. I can speak to the latter, but not as much to the former.

Q All right.

MR. STEPHEN: ***Fish Health Protection Regulations*** were developed many years ago and to deal with the import of salmonids, any species in the family *Salmonidae*, so Arctic char, whitefish, trout, salmon, both Pacific and Atlantic, the requirements there are fairly brief, but requirement of movement of salmonids into Canada or between provinces requiring a fish health

certificate and an accompanying import permit, there is a list that -- two schedules of diseases. I don't have them off the top of my head.

Q Oh, that's fine.

MR. STEPHEN: But I can point out that ISA is not one of them, because this was an old list. There was at one point an attempt to think about updating the regulations to include a broader scope of diseases; however, with the planning and development of the National Aquatic Animal Health Program it was seen that these ***Fish Health Protection Regulations*** would be ultimately rescinded with CFIA's authorities come into play.

At the moment we have just amended the ***Fish Health Protection Regulations*** because the CFIA is moving in a stepped implementation of the program and our amendment reflects that we are releasing control of imports from international movements into Canada of salmonids because CFIA has the authority now. And we wanted to remove duplication of regulatory authority and --

Q When you say releasing, do you mean you're moving the responsibility from DFO to CFIA?

MR. STEPHEN: Yes. We basically amended the definition of import to say import means between -- from one province to another instead of from outside the country into Canada.

Q All right.

MR. STEPHEN: And we've just made that amendment this month.

Q What prompted a move towards a national regulatory regime of the kind we have now? I'll leave it to the panel to decide who best to answer.

MR. STEPHEN: Well, I can start. The focus, as I mentioned under the ***Fish Health Protection Regulations*** is only on salmonids, so it was very limited in scope. With the world coming into more awareness of aquatic animal diseases in trade, it was seen as a real necessity for Canada to have a broader capacity to deal with diseases of finfish beyond just salmon, crustaceans and molluscs, as Dr. Klotins had pointed out earlier. So the whole plan for the NAAHP was to be a much bigger and much more comprehensive program.

Q Anything to add to that, Dr. Klotins?

DR. KLOTINS: There was also a bigger focus now on the international community to set up standards for

safe trade of aquatic animals and that drove the -- that was one of the drivers for creating the NAAHP as well.

Q All right. Were other governments, provincial governments perhaps, and other organizations involved in formulating whether there should be this change and if so, the particulars of it?

DR. KLOTINS: The plan was brought forward to the Canadian Council of Aquaculture and Fisheries ministers and they endorsed the plan.

Q All right.

DR. KLOTINS: The Canadian Council is composed of provincial fisheries and aquaculture ministries as well as DFO.

Q All right. Were any outsiders included in that consideration or discussion? NGOs or industry?

MR. STEPHEN: I believe there was, but I was not directly involved in leading that. I was peripherally involved as part of the CFIA at the time.

Q All right. Now, the National Aquatic Animal Health Program, which is called NAAHP as I understand it, is something that is under whose department? Or is it both departments? Where does it lie?

DR. KLOTINS: The lead agency is the Canadian Food Inspection Agency because of the legislative authority and we're responsible for developing and implementing the program. On the other part of it, implementing for the laboratory services and research is the responsibility of Fisheries and Oceans Canada through an MOU.

MR. STEPHEN: And if I could just add that I mentioned earlier that the Government of Canada in 2005 recognized the need for this program and recognized the capacity on the regulatory side for CFIA and the diagnostic capacity and research of aquatic animal disease that DFO had been building up for many decades.

Q All right. Now, mandatory reporting has come into play. Is it correct that that has come about for the first time in the aquatic area as of January or so of -- January or so of 2011?

DR. KLOTINS: At the federal level, I believe so.

Q And you've given some evidence on that already. Although new in the aquatic world, had that reporting requirement been in place for a long

period of time?
DR. KLOTINS: For terrestrial animal health?
Q Yes.
DR. KLOTINS: Yes. It had been there ever since the ***Health of Animals Act*** was enacted.
Q All right. Now, if we could have Exhibit 2103 up on the screen, please, which as I understand it is Canada's Tab 29. Now, is that -- I'll ask you, Dr. Klotins, I think you've given evidence already, but just to confirm, that's something that you had a hand in drafting, is it?
DR. KLOTINS: Yes, I did.
Q And, in fact, are you the principal author?
DR. KLOTINS: Yes, I am.
Q Now, is that something that CFIA caused to be distributed to DFO and to universities and to others who should know about this?
DR. KLOTINS: Yes, we did.
Q And more specifically, did you cause it to be sent to Mr. Stephen?
DR. KLOTINS: We had talked together on how best to distribute it through DFO and Stephen agreed to be the contact point and to distribute it within DFO. Is that -- that's my recollection.
MR. STEPHEN: Yes.
DR. KLOTINS: Yeah.
Q All right. And so picking up with that or picking up on that, Mr. Stephen, what then was done within DFO?
MR. STEPHEN: I consulted with several colleagues across the country and we looked at the best way to distribute this across the whole department. You have to understand that although I work within the Science sector, there are other people within the department in aquaculture and other places that deal with fish, so we decided that having this mandatory reporting notification documents from Dr. Klotins, my assistant deputy minister, Siddika Mithani, would distribute this to all departmental management committees, so all -- the deputy minister, all the assistant deputy ministers, or regional directors general, and request that all of them provide this to all staff who were involved in, as the directive says, people involved in rearing, holding, researching, et cetera, aquatic organisms.
So anybody who was a researcher within

Science, anybody who was working the Salmon Enhancement Program here on the West Coast, anybody who was doing anything with aquatic animals would have been -- should have received notification of this in -- we actually did it a couple of weeks after this was issued, so it was -- I think it was February the 7th.

Q All right.

MR. STEPHEN: And then it was distributed.

Q So are you confident that it was distributed throughout DFO to the respective Science areas and, in turn, from whoever receives it in the Science areas to their staff and scientists?

MR. STEPHEN: I can't say that I verified it in every case, but I would assume that the department management committee would indeed do that, yes.

Q Are you aware of a reminder notice with regard to this directive that was sent out recently by DFO to its various offices, labs, and scientists?

MR. STEPHEN: Yes, I am. In fact, I was instrumental in making sure that that happened. After my discussion with Dr. Miller on November 24th, it became apparent that perhaps people needed a reminder of the necessity to report on any suspect cases of disease, including ISA, and I advised my -- recommended to my director general and my ADM that the issue -- that the notification be sent out as a reminder, and that was done.

MR. TAYLOR: All right. Now, I'm not completely clear what's in Exhibit 2103, but I know that in Tab 29 there was a number of documents and I'm not certain whether all of those documents became part of 2013 or just what I see on the screen. Mr. Lunn, can you help me? In other words, are there multiple pages to this exhibit?

MR. LUNN: There are four pages to Exhibit 2103.

MR. TAYLOR: Okay. Can --

MR. LUNN: It's been identified by the DFO number that I have with it. I'm not sure it's the same as your Tab 29. I'm just --

MR. TAYLOR: Maybe if I could just see the first page of the exhibit.

MR. LUNN: Certainly. We're looking at it.

MR. TAYLOR: All right. Maybe separately you could pull up Tab 29 then, please?

MR. LUNN: Yes, I'm doing that now. It looks like they might be the same document, just with different

DFO numbers. They look...
MR. TAYLOR: There should be an email November 28, 2011. Does it help if I give the DFO number?
MR. LUNN: Yes, I've got multiple parts of Tab 29 and the email's on the right-hand side of the screen now.
MR. TAYLOR: Yes, thank you. So wherever this is in the material. I'd ask that --
Q Firstly, Mr. Stephen, is that the reminder notice?
MR. STEPHEN: Yes, it is.
MR. TAYLOR: Could that be Exhibit -- the next exhibit, please?
MS. PANCHUK: Exhibit --
MR. LUNN: The email on the right?
MR. TAYLOR: The email on the right, November 28, 2011.
MS. PANCHUK: Exhibit 2116.

EXHIBIT 2116: Email from Siddika Mithani to various people dated November 28, 2011

MR. STEPHEN: If I may?
MR. TAYLOR:
Q Yes?
MR. STEPHEN: I just want to add that you can see that the message went out directly again from my assistant deputy minister and my director general, Wayne Moore, was copied on that to confirm that distribution.
Q By the way, who are XNATDMB members?
MR. STEPHEN: That's an internal mail group that departmental management board, which is the deputy minister, the assistant deputy ministers, and the regional directors general.
Q All right.
MR. STEPHEN: They all report to the deputy minister, so it's her -- her executive committee.
Q So it would include Sue Farlinger of this region?
MR. STEPHEN: It should, yes.
MR. TAYLOR: Now, further into Tab 29 is what you had up on the screen a moment ago, Mr. Lunn.
MR. LUNN: Yes.
MR. TAYLOR:
Q And then further into Tab 29 is yet another version of -- yes, thank you. And is what's on the screen now part of 2103?
MR. STEPHEN: I don't believe so, no.
MR. TAYLOR: Could this be marked as the next exhibit,

please? I'll take that as a yes.
MS. PANCHUK: 2117.
MR. MARTLAND: We -- sorry, we think this may be 2027, for what it's worth.
MR. LUNN: Thank you.
MR. TAYLOR: Well, I heard a "maybe" in that. I'll just leave it for the moment, unless anyone clarifies and keep going. Now, could we have what's on the screen and 2103 side-by-side?
MR. LUNN: Yes. One moment, please.
MR. TAYLOR:
Q And Dr. Klotins, I'll ask you this question, and this came up before. You'll see that when it comes up here that one of these documents has a longer first paragraph than the other and you spoke to some of this before. Can you just run this by us again? What's the difference and what's the reason for the difference between these two?
DR. KLOTINS: Well, the difference is --
MR. LUNN: Microphone, please?
DR. KLOTINS: Sorry. The difference is that one speaks to section 5(1) of the Act --
Q Okay.
DR. KLOTINS: -- that speaks to Canadians who own or work with aquatic animals and --
Q Okay. Just pausing, if I could - sorry to interrupt you. But which one, the left or the right speaks to the -- what you just said?
DR. KLOTINS: The one on the right.
Q Okay. And that's 2103, exhibit number. Thank you. Carry on.
DR. KLOTINS: Yes. And the one on the left speaks to veterinarians and aquatic animal health specialists that -- where s. 5(2) applies to.
MR. TAYLOR: All right. Thank you. And that's the one that is the exhibit that was just marked.
Q Now, NAAHP, as I understand it, is jointly run by CFIA and DFO; is that correct, Dr. Klotins and Mr. Stephen?
DR. KLOTINS: Well, it's a partnership.
Q All right.
DR. KLOTINS: And CFIA is the lead agency, particularly with decision-making and developing the programs and implementing them and DFO shares the responsibility and implementation.
Q And put another way, is it the case that CFIA has

got the regulatory and enforcement responsibility and provides overall direction and for its part DFO provides the laboratory support?
DR. KLOTINS: Yes. And they provide research support, as well.
Q All right. Now, is it correct that NAAHP has four main elements: program direction and regulation; then secondly field operation; thirdly diagnostic testing; and fourthly, as you just mentioned, research and development?
DR. KLOTINS: In terms of the program?
Q Yeah.
DR. KLOTINS: Those are probably the main elements.
Q All right.
DR. KLOTINS: Yeah.
Q And the testing that has been done and is the subject of evidence here by the Moncton lab, by Ms. Gagné and others, that's the -- that's part of the diagnostic testing function, is it?
DR. KLOTINS: Yes, it is.
Q And on that second one, field operations, does CFIA have field staff in British Columbia?
DR. KLOTINS: Yes, they do.
Q And where --
DR. KLOTINS: Yes, we do.
Q And is that in the Lower Mainland area?
DR. KLOTINS: It's spread out throughout B.C.
Q All right. And what is their function and as well as stating generally what their function is, if they have a role in the specific subject matter of these hearings, if you could elaborate on that.
DR. KLOTINS: The field staff designated under the ***Health of Animals Act*** in terms of employees and CFIA are inspectors and veterinary inspectors and they help to carry out the activities we need to do under the ***Health of Animals Act*** and Regulations. So in this particular case, they can receive notifications. They can process them and determine whether they need to go and inspect, collect samples and information and make determinations about disease response.
Q All right.
DR. KLOTINS: Et cetera.
Q Okay. Thank you. Have they had -- have the field staff in British Columbia had a role with regard to the reports and the testing that's been done arising from what Dr. Routledge of SFU began in

October of this year?
DR. KLOTINS: Yes, they have.
Q What is that?
DR. KLOTINS: So veterinary inspector and inspector from -- well, two veterinary inspectors from the Burnaby office played a role in contacting some of the people we needed to talk to here in British Columbia. Joseph Beres was -- served as a what we call an incident commander of the disease response and he shared that leadership role with Con Kiley in national. We also had a veterinary inspector out on the East Coast in the Atlantic area that was involved in organizing and getting samples from Dr. Kibenge to Nellie's lab and with some of the initial work, we started to do on the lat assessment piece.
Q All right. Thank you. I'm going to turn now to you, Dr. Wright, if I may, and ask about validation techniques. I understand that validation is an area or perhaps the area of specialty that you had; is that right?
DR. WRIGHT: Yes, that's right.
Q And, in fact, you've spent most of your career doing validation work or validation development of -- and validation techniques?
DR. WRIGHT: Well, I'm both setting the principles and standards for validation, as well as collaborating in validation work for various tests of diseases, yes.
Q All right. And in my questions, although I'm going to address them primarily to Dr. Wright if Dr. Klotins or Mr. Stephen have something that you want to add in, by all means.
Can you, Dr. Wright, explain the purpose of validation tests and confirmation of findings and, in particular, in the context of reportable diseases?
DR. WRIGHT: Well, essentially validation -- well, it does several things for you. I mean, one, it's basically the scientific proof that the tests that you're using actually works and that it's repeatable and it's reliable. The analytical portion of that validation, as I said before, basically verifies that you're detecting what you say you're detecting at the limit that you're detecting and that then determines whether or not there are any extraneous factors in the matrix

that can inhibit that; that you've got a repeatable test, and that it's comparable to other tests that may be used as a standard of comparison.

The second stage of validation is actually putting it out in the field. In essence what you're looking at there -- well, not putting it into the field, but doing the field validation, and this is using the test -- there's two ways to approach it. Either the conventional approach would be to have reference animals that are known to be free of disease and/or exposure, and those that have been exposed and/or diseased. There are other ways of approaching this. There are Bayesian models that can be used and it very much depends on the situation and what kinds of reference materials are available to you. In some cases, there aren't any whatsoever, but you can go out and use these other models.

And essentially what that does is it gives you some diagnostic performance characteristics and, as I say, these are probabilistic estimates of performance and determine whether or not if you have a positive animal, whether or not with what level of confidence you can be assured that you're going to get a positive result and the negative corollary to that.

Q So --

DR. WRIGHT: So basically what it's doing is it is providing a tool for the program to use to either detect and/or manage disease and to qualify animals for movement. It supports the import/export. It supports all kinds of things. But you need all of those credentials in place in order to be able to withstand any type of scrutiny of the testing you're doing and the reliability of the results that you're generating.

Q Now, with respect to reportable diseases and specifically ISA, I understand that the techniques and protocols at Ms. Gagné's lab in Moncton have used have been developed and constitute the validation testing that is acceptable to both Canada and the OIE for ISA; is that right? ISAV -- or ISA; is that right?

DR. WRIGHT: Yes, that's right.

Q And is there an expectation on the part of -- well, let me ask first, does the OIE leave it to

Canada to develop the validation testing technique and protocols and then put it to the OIE to see if it passes muster or is it the other way around, where they give guidance what is to be done?

DR. WRIGHT: No, it's more that they give guidance. They do not approve tests within member countries, but they -- as I said before in their manuals, both the aquatics manual and the terrestrial manual, they will give examples of acceptable tests and protocols and that's available to all member countries. If they wish to use them they may. But as I have said that there's nothing stopping a country developing their own test along the same lines but they must be able to demonstrate that their tests perform as well, if not better, than what's in the standard.

Q And that's what Canada did, is it, in the case of ISAV?

DR. WRIGHT: Essentially, yes.

Q And in that regard, did Canada at some point put something to the OIE that says essentially this is what we are going to use by way of validation testing and get a response from the OIE?

DR. WRIGHT: No, there's no requirement for that.

Q All right. Is there an expectation on the part of the OIE what Canada or any country might do before it makes changes to the validation techniques and methodology it uses?

DR. WRIGHT: Well, those are all set out in the validation chapter that's -- it's the same chapter, and it's both in the aquatics and the terrestrial manual, so those are the guiding principles. There's also a validation pathway. It was originally designed to allow -- well, as -- as part of the guide for the member countries and the developers within those countries, but it's also been used as a guide for any commercial interests that wish to put forth a test to the OIE for registration. But that's only for commercial tests.

Member countries can actually develop their own tests. They can either adopt the one that's in the manual, develop their own. And -- but the expectation is that they will follow those validation principles and guidelines that are set out by the OIE.

MR. TAYLOR: All right. Could we have Canada Tab 32,

please, on the screen?
MS. PANCHUK: Just to clarify, Exhibit 2116 was the email. The document on the left has been previously marked as Exhibit 2027 and the document on the right has previously been marked as 2103.
MR. TAYLOR: All right.
MS. PANCHUK: So we've not marked anything for 2117.
MR. TAYLOR: All right. Thank you for that, Ms. Panchuk.
Q So Tab 32, and I may be told this is an exhibit through another means, but as we're perhaps getting word on that, Dr. Wright, do you recognize this document?
DR. WRIGHT: Yes, I do.
Q That's a paper authored by you and others, is it?
DR. WRIGHT: Yes, it is.
Q And you're the principal author?
DR. WRIGHT: Yes, I am.
Q And in brief, what is this and what does it tell us?
DR. WRIGHT: It basically describes the evolution of the validation pathway that's used by the OIE. It's not something that any one individual came up with. If anybody has taken time to read it, there's been a number of international consultations that have taken place to define these criteria that need to be fulfilled in order for a test to be considered validated as fit for purpose and there are multiple purposes there in regulatory diagnostics that you'll see if you go through there.

And it actually indicates at different points during the ontogeny of all of this, where the OIE has actually passed resolutions and where -- important ones where, you know, it recognizes that assay development is an ongoing process or development in monitoring is an ongoing process and the tests must be fit for purpose and basically, where -- takes us to where we are today in terms of the standards and the guidelines of the OIE and the encouragement for all member country laboratories to follow those guidelines.

And, as a matter of fact, the OIE quality standards indicates that any lab that's involved in diagnostic testing should only be using tests that are validated according to the principles of the OIE.

MR. TAYLOR: All right. Thank you. Could this be an exhibit please?
MS. PANCHUK: Exhibit 2117.

EXHIBIT 2117: Development of a Framework for International Certification by OIE of Diagnostic Tests Validated as Fit for Purpose

MR. TAYLOR: Could we have Exhibit 1676, please, 1676, which is also at commission Tab 52, and specifically, pages -- well, we'll look at the first -- this is an OIE document, I think.
Q Do you recognize that, Dr. Klotins?
DR. KLOTINS: Yes, I do. It is from the OIE --
Q All right.
DR. KLOTINS: -- manual.
Q Could we go to pages 11 and 12, please, and what I'd like to hear from you, Dr. Klotins, is what is a suspected case of ISA and what is a confirmed case?
DR. KLOTINS: On the -- yeah, the suspected case criteria are listed in number 7.1.
MR. TAYLOR: I think it's the next page, Mr. Lunn.
DR. KLOTINS: Yeah. It starts on the bottom --
MR. TAYLOR: There we are.
DR. KLOTINS: -- of that page and... Yeah. So OIE suggests that a definition of a suspect case meets at least one of the following criteria, and then confirmed case is another set of criteria.
MR. TAYLOR:
Q All right. And without reading it, what's the essential definition of "suspected case" and the same for "confirmed case" and what's the difference?
DR. KLOTINS: Basically in a suspect case is you have some inkling that ISA may be there, but you haven't confirmed it with -- or with cell culture and another -- at least another test, as well.
Q And a confirmed one then?
DR. KLOTINS: Sorry, that's what I meant.
Q Oh, okay.
DR. KLOTINS: The second part. The suspect is just one test or a set of clinical signs.
Q And the confirmed becomes --
DR. KLOTINS: The confirmed has --
Q -- a repeated and cultured --
DR. KLOTINS: -- you know, the clinical signs and/or

cell culture, plus another test.
Q All right.
DR. KLOTINS: At least.
Q Now, I'd like to ask you some questions, Dr. Klotins, about what CFIA did upon hearing of the reports that there might be ISAV in B.C. waters and those came to you in October, as we've heard. In addition to taking steps to have samples tested, the CFIA started an investigation, as I understand it; is that the word you use, investigation? Or do you call it something else?
DR. KLOTINS: Most typically we use "investigation".
Q And what does an investigation entail in this context, and if you could from there go to what has been done, what is being done, and what's the purpose of this? Now, you've spoken something of that, but if you could in brief take us from October when you got the reports and an investigation was started, what does that entail and what's been done and is being done and where is that going to go? I don't mean in result, but what next? And what is this all in aid of?
DR. KLOTINS: Yeah. So I guess what's common in all the - I think there's about four notifications now - is that we asked if we could get samples, if we could corroborate the findings and we also started an investigation to find out about the fish population and whether they were exhibiting any clinical signs. We also started the investigation of why we couldn't corroborate results and then determining -- because this is a wild fish and there was no question of eradication or anything like that, it's more like because we can't confirm, but there is some suspicion how do we set up a surveillance program to determine whether ISA does occur in B.C. or whether we have disease freedom.
Q All right. And what's going on, on the ground, in this investigation, if you like?
DR. KLOTINS: On the --
Q What's happening?
DR. KLOTINS: We've basically did all the work on the samples. The results have come back. We've interpreted them as negative at this point, and that was for the first notification. That included the samples from SFU. The same with the second notification from fish that were sampled in

Weaver Creek, Harrison River, and we are still continuing our investigation with the two notifications that involved test results from Kristi Miller's lab.

In terms of the samples from SFU, we're in the process of deciding to lift the quarantine orders and making a decision about returning -- returning samples as requested by Dr. Routledge, and we're continuing our investigation with the Kristi Miller samples and we're also putting together a surveillance program.

Q All right. And we will come to the surveillance program and probably Monday at this point. Let me turn in the few remaining minutes today to a couple of things. One is the lab assessment of the Moncton and the AVC, Dr. Kibenge's lab. First let me confirm if I'm right, is it the case that you were not here this morning for the evidence given this morning?

DR. KLOTINS: Yes, that's correct.

Q All right. Dr. Kibenge said in evidence this morning --

THE COMMISSIONER: Mr. Taylor, I wonder if I could just beg your indulgence for a moment. I note the time and I would prefer if you get into this area that you had a clear run at it, rather than breaking it up after a minute of questions. So --

MR. TAYLOR: That's fine.

THE COMMISSIONER: Thank you very much. Mr. Martland, it might be useful just to review the hours for Monday.

MR. MARTLAND: Yes, I will do that.

THE COMMISSIONER: Thank you.

MR. MARTLAND: Mr. Commissioner, we have, once we conclude today's session, on Monday sitting from 9:00 to 4:30 but scheduling requirements mean that the lunch break that day will be from 12:30 to 3:15, so the hours are 9:00 to 4:30 Monday, lunch 12:30 to 3:15.

We are on schedule. I'll be asking all counsel to respect their time allocations. They've been very good at doing that. We're on our schedule. Thank you.

THE COMMISSIONER: Thank you very much, Mr. Taylor, for your indulgence and I thank the witnesses for today and, as you heard, we're back here all four of you at nine o'clock on Monday morning.

Thank you very much for making yourselves available on Monday. Thank you.

MS. PANCHUK: The hearing will now adjourn until Monday at 9:00 a.m.

(PROCEEDINGS ADJOURNED TO DECEMBER 19, 2011 AT 9:00 A.M.)

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

_____

Diane Rochfort

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

_____

Pat Neumann

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

_____

Karen Hefferland

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

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Susan Osborne