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

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

Public Hearings

Audience publique

Commissioner

L'Honorable juge /
The Honourable Justice
Bruce Cohen

Commissaire

Held at:

Room 801
Federal Courthouse
701 West Georgia Street
Vancouver, B.C.

Wednesday, November 3, 2010

Tenue à :

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

le mercredi 3 novembre 2010

Errata for the Transcript of Hearings on November 3, 2010

Page	Line	Error	Correction
ii		Brian J. Wallace	Brian J. Wallace, Q.C.
ii		Jon Major's title is incorrect	Document Reviewer
iv		James Walkus is not a participant and R. Keith Oliver is not counsel	remove names from record
iv		Musgagmagw Tsawataineuk Tribal Counsel	Musgamagw Tsawataineuk Tribal Council
96	34	CSEP (phonetic)	CSAP

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John Hunter, Q.C.	Pacific Salmon Commission
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Charlene Hiller	Rio Tinto Alcan Inc ("RTAI").
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Tim Leadem, Q.C.	Conservation Coalition: Coastal Alliance for Aquaculture Reform Fraser Riverkeeper Society; Georgia Strait Alliance; Raincoast Conservation Foundation; Watershed Watch Salmon Society; Mr. Otto Langer; David Suzuki Foundation ("CONSERV")
Lyndsay Smith	Area D Salmon Gillnet Association; Area B Harvest Committee (Seine) ("GILLFSC")

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David Butcher	Southern Area E Gillnetters Assn. B.C. Fisheries Survival Coalition ("SGAHC")
Chris Watson	West Coast Trollers Area G Association; United Fishermen and Allied Workers' Union ("TWCTUFA")
Keith Lowes	B.C. Wildlife Federation; B.C. Federation of Drift Fishers ("WFFDF")
	Maa-nulth Treaty Society; Tsawwassen First Nation; Musqueam First Nation ("MTM")
	Western Central Coast Salish First Nations: Cowichan Tribes and Chemainus First Nation Hwlitsum First Nation and Penelakut Tribe Te'mexw Treaty Association ("WCCSFN")
Brenda Gaertner Leah Pence	First Nations Coalition: First Nations Fisheries Council; Aboriginal Caucus of the Fraser River; Aboriginal Fisheries Secretariat; Fraser Valley Aboriginal Fisheries Society; Northern Shuswap Tribal Council; Chehalis Indian Band; Secwepemc Fisheries Commission of the Shuswap Nation Tribal Council; Upper Fraser Fisheries Conservation Alliance; Other Douglas Treaty First Nations who applied together (the Snuneymuxw, Tsartlip and Tsawout)
	Adams Lake Indian Band Carrier Sekani Tribal Council ("FNC")
	Council of Haida Nation

APPEARANCES / COMPARUTIONS, cont'd.

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Tim Dickson	Sto:lo Tribal Council Cheam Indian Band ("STCCIB")
	Laich-kwil-tach Treaty Society James Walkus and Chief Harold Sewid Aboriginal Aquaculture Association ("LJHAH")
	Heiltsuk Tribal Council ("HTC")
	Musgagmagw Tsawataineuk Tribal Counsel ("MTTC")

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Vancouver, B.C. /Vancouver (C.-B.)
November 3, 2010/le 3 novembre 2010

THE REGISTRAR: The hearing is now resumed. Commissioner Cohen is presiding.

MR. WALLACE: Morning, Mr. Commissioner. We have, on the phone and by videoconference, Dr. Wendy Watson-Wright, from Paris. And the idea is that I will ask her questions for the next hour and a half or so. Perhaps there will be time, following that, for Mr. Taylor to ask questions, but I think that the intention is that Dr. Watson-Wright will come back tomorrow morning at this time, to answer questions from participants. Her time, tomorrow, is limited. If we run out of time on that period, Mr. Commissioner, my submission is, well, we'll just have to try and accommodate another opportunity as soon as we can.

Mr. Giles, could you please affirm Dr. Watson-Wright.

THE REGISTRAR: Doctor, we will affirm you, now. This is the registrar.

Do you solemnly affirm that the evidence to be given by you to this hearing shall be the truth, the whole truth and nothing but the truth?

DR. WATSON-WRIGHT: Yes, I affirm that.

THE REGISTRAR: Would you state your full name, please?

DR. WATSON-WRIGHT: Wendy Watson-Wright.

THE REGISTRAR: Thank you.

EXAMINATION IN CHIEF BY MR. WALLACE:

Q Dr. Watson-Wright, let me just ask you, very briefly, ask you some questions. I'll take you through your background. You have a Physiology PhD from Dalhousie, and a Master of Science and Bachelor of Physical Education, all from Dalhousie?

A Yes.

Q You joined DFO in 1989, worked in Halifax through 1992, and from 1992 to 1997, you were the director of DFO's St. Andrew's Biological Station, and in the last two years of that you were also Regional Manager of the Aquaculture Science Division at St. Andrew's?

A Yes, I was, for the Atlantic zone.

Q Thank you. From '97 to '99, Dr. Watson-Wright,

you were the Director General of Review -- the Review Evaluation and Audit Director of DFO in Ottawa, reporting to --

A Yes.

Q -- the associate deputy?

A Yes.

Q And from '99 to 2001, you were with Health Canada, as Director General of Strategic Policy Director, Population and Public Health Branch, and as the Associate Assistant Deputy Minister, correct?

A Yes, that's correct.

Q I understand you returned to DFO as Assistant Deputy Minister of Science in December of 2001, and you held that position until December of last year, correct?

A That's correct.

Q You're currently on a leave of absence from the department and from the federal civil service, and you are assistant deputy -- sorry, the Assistant Director General and Executive Secretary of the Intergovernmental Oceanographic Commission of UNESCO, correct?

A That's correct.

Q Dr. Watson-Wright, I have some questions for you relating to the direction of science and some of the documents produced in that regard during your time, I think mostly during the time you were the assistant deputy minister of science.

The first document I would ask you to look at is Exhibit 1 in the list, Mr. Lunn, and that is A Framework for the Future. You have that document in front of you, Dr. Watson-Wright?

A I certainly can. Yes, I do.

Q Can you tell the Commissioner, please, the genesis of that document?

A Yes, I'd be happy to, thank you. The document refers to the framework that we used for what we called science renewal. When I came into the department there were clearly a number of challenges being faced by science, and although when I first joined, the department was undergoing, first, a departmental assessment, and then following that, a departmental assessment and alignment project. That took a few years. And following those two in-depth departmental assessments, the science sector underwent a review.

When I came into the department, as I said, there were some challenges being faced by the sector. First of all, there was a growing demand for science advice, but an absence of resource increase, and the growing demand stemmed from the fact that whereas previously we had -- science had traditionally been servicing the ***Fisheries Act*** with the passage of a number of other acts, which included the ***Canadian Environmental Assessment Act***, the ***Oceans Act***, and the ***Species at Risk Act***, there was more of a demand for science.

So in addition, the complexity of the work was increasing, we needed to ensure that the science sector was responsible and flexible, so there were challenges, as I say. Through the -- what I noticed most in coming back, though, was that it seemed that science was not that well understood by the other sectors who we were trying to serve, and by senior management, and there seemed to be a little bit of a disconnect across the country as well. Nobody's fault, just that times were changing.

So what we did was undertake a review of the science program through the 2004, and what came out of that was we did find that there was lack of inadequate priority setting mechanisms, there was a bit of a lack of efficiency in delivering the program, it seemed, we were facing an accelerating loss of staff and, of course, there were fairly severe funding pressures. So from that we took a science renewal, and the framework, the document that you have in front of you, is really the umbrella document where we set out our strategy under the four pillars of relevant, effective, affordable and value for the science program that we wanted to have, and it was within that context that we established a number of strategies and then action plans, which would help move us forward within science renewal.

Q Thank you, Dr. Watson-Wright. If I may take you to page 5 of the exhibit, which I will now ask Mr. Registrar to mark.

A Yes.

MR. WALLACE: So it says Science at Fisheries and Oceans Canada: A Framework for the Future, will be exhibit number --

THE REGISTRAR: 36.

EXHIBIT 36: Science at Fisheries and Oceans Canada: A Framework for the Future

MR. WALLACE: Thank you.

Q And if I may ask you, Dr. Watson-Wright, to page 5 of that document, you've described, I think, the substance of the framework. I have a question about the paragraph at the bottom of the left-hand column. It identifies the completion of the review in 2004 and 2005, and the conclusion here, which I would just like to ask you about, the conclusion that:

> ...the Science Program needed to establish a transparent priority-setting process based on integrated risk management. In doing so, strategic and operational planning would be improved and thus, funding pressures caused by an expanding mandate and emerging priorities could be alleviated. Finally, the review revealed the need to renew the Science Program workforce in order to offset retirement and attrition.

A Yes.

Q I think you've addressed the last two points there, the last two sentences, but I would like to ask you about the meaning of the previous phrase, "transparent priority-setting process based on integrated risk management". Can you describe that, tell me a little more about the process that you established?

A Yes, although I think it's in some of the other documents that we may be discussing, but the transparent priority-setting process really refers to what I mentioned earlier, and that was we were -- we had a very longstanding relationship with fisheries management that had been our traditional client for 100 years or more. So it was not -- it was not so difficult to set priorities in conjunction with them. But with the ***Oceans Act*** and with the ***Species at Risk Act*** and whatnot, we had more clients, so we also had to service the Species at Risk program and the oceans program and any environmental programs, and we didn't have a mechanism for having all the clients in the same room at the same time, or having some sort of a

forum whereby all those who we were trying to serve would understand, you know, others had needs as well.

So it wasn't that science was ever trying to hide anything, it's just that we didn't have that mechanism. So that's what we were attempting to put in place, and we began that with the establishment of the Science Management Board.

And in terms of the integrated risk management, we did -- well, the department, as well, but the science sector undertook a risk-based approach in terms of we set up a framework for risk and ultimately had an integrated risk and performance-management framework. I don't have a copy of that here, but it certainly should be available.

And essentially, it's like any other risk process whereby across the country we sat down with the science regions and in headquarters to determine, what are the greatest risks for science, and by "risks" we mean to -- not being able to perform the science, not being able to serve clients' needs, and all those sorts of things. So it was a fairly -- it was quite a formal process in the end, but in fact, it was very helpful and contributed, I believe, to the department risk-based framework.

Q Thank you, Dr. Watson-Wright. You mentioned the Science Management Board, and was that established as a direct result of the new framework?

A Yes, it was, in fact. And the first meeting was held in October of 2005.

Q Thank you. And may I just quickly -- we provided the -- we received these documents only very recently and provided them yesterday, which is not much notice, I'm afraid, to participants, but I wonder if I might just take you to those minutes and ask you just to identify them? I won't go in great detail to them.

MR. WALLACE: Mr. Lunn, the first set of minutes is the Science Management Board minutes of October 13 and 14, 2005, which is list 4 on the additional -- number 4 on the additional documents.

Q Dr. Watson-Wright, these are the minutes of the first meeting of the Science Management Board?

A Yes.

Q And just the first paragraph says:

> The newly-formed Science Management Board (SMB) is responsible for identifying issues of importance to the achievement of the mandated objectives of the Department, selecting and assessing departmental and government-wide priorities needing science support, and providing strategic direction of the work planning of DFO science.

A Yes.

Q And then the next paragraph sets out the intention to have this board meet twice a year. Is that what, in fact, occurred?

A Yes, it did, throughout the time we were undergoing the science renewal, and it worked very well, because in one meeting the board would accept or approve some of the documents that we would show them, and then set out what we would be bringing back for the next management board meeting.

The nice thing about it was that it was the first time that senior management, a small group of senior managers, had the chance to talk only about science and about what scientists needed and science issues for a whole day. And, in fact, the first one was for a day and a half. And they were very, very good discussions. The membership included the deputy, they included the ADM of Fisheries Management and Oceans, myself, of course, two regional directors general, one from the east, one from the west. At the very first meeting we had one senior scientist, but we increased that to two, and also the chair of the science sector's external science advisory council. So those are all listed there.

MR. WALLACE: Thank you. Mr. Registrar, may we mark, please, the minutes of the Science Management Board meeting of October 13th and 14th, 2005, the inaugural meeting, as the next exhibit, please?

THE REGISTRAR: Exhibit 37.

> EXHIBIT 37: Science Management Board Minutes of Meeting, October 13 and 14, 2005

MR. WALLACE: Thank you.

Q Now, the board met again on January 23rd, 2006; is that correct?

A That's correct.
Q And that was the second meeting?
A Yes, it was.
MR. WALLACE: Mr. Registrar --
A What we were -- the timing of the meetings varied among years, largely because we were trying to line up before the departmental planning process, but it didn't work as well as we had hoped. So the January was the earliest one that we had in -- the 2006 meeting was the earliest we ever had, and after that it sort of went spring and fall.
MR. WALLACE: May I mark the minutes from January 23rd, 2006, please, as the next exhibit?
THE REGISTRAR: Number 38.

EXHIBIT 38: Science Management Board Minutes of Meeting, January 3, 2006

MR. WALLACE: Thank you.
Q And you've - just as a general question, Dr. Watson-Wright - you've reviewed the minutes of the meetings we have, and I think there are about eight of them, six of them?
A Yes.
Q And they accurately reflect what occurred at those meetings?
A They do.
Q Thank you. Then the next meeting that board held was in the fall of 2006, October the 4th, and may I direct you to those minutes, please?
A Yes.
Q And again, that is in line with what was intended and these minutes reflect what occurred at that meeting?
A They reflect what occurred at the meeting. The only thing I would say is that it may be a bit confusing. Although these minutes and at that meeting we talked about the five-year research plan, in fact, this is -- was the five-year research agenda that's being referenced here.
Q Okay. So the --
A And --
Q -- reference at number 3 should be the five-year research agenda?
A Yes. But we didn't come up with that nomenclature until a little bit later.
Q I wonder, then, and it's noted in there that -- in

the minutes, that this is the first of its kind of DFO science. Can you explain that, please?
A Well, as far as I know, there had never been a research agenda, or a five-year research agenda put together prior to that. That's what I was told. I can't prove that beyond the shadow of a doubt, but those who had been around much longer than I indicated that it hadn't been done before.
Q And --
A That may be, again, though, because, as I say, in the past it was with fisheries management predominantly, and maybe there wasn't felt that there was a need.
Q So am I correct that this process that we're going through, here, demonstrates an intention to put through basically long-term plans for setting priorities for science and establishing the relationship between science and the decision-makers in DFO?
A Yes, definitely. I would say it was an attempt to bring more organization into a priority setting and into planning, and to improve the relationship between -- and the understanding and the communication, between the science sector and the client sectors and senior management within the department. I think the relationship was always there but, of course, we can always improve relationships.
Q Thank you, Dr. Watson-Wright. Before we -- I think just for sequence, there's a reference, and I'll come back to the agenda in a moment. How does the agenda relate to the Ecosystem Science Framework in Support of Integrated Management? What was the order of things? Which came first?
A The Ecosystem Science Framework came first, if I'm not mistaken.
Q I'm just looking at --
A I'm quite certain it did.
Q The agenda is said to be 2007 to 2012. The Science Framework seems to be copyrighted 2007. So just, you know, we'll come back to --
A Yeah.
Q -- the framework in a moment, but I wanted just to keep it sequentially, if we can mark the Ecosystem Science Framework in Support of Integrated Management, as the next exhibit.
THE REGISTRAR: 39.

THE COMMISSIONER: Mr. Wallace, I'm sorry, I'm just a little bit lost --
MR. WALLACE: Okay.
THE COMMISSIONER: -- with the exhibits that you're marking.
MR. WALLACE: All right. May I back up, Mr. Commissioner? I did not back up the document for the Science Management Board which reference was first made to the -- to the research plan, which Dr. Watson-Wright corrected as being the research agenda. So let's back up and mark as the next exhibit, please, the Science Management Board Minutes for October the 4th, 2006.
THE REGISTRAR: So that will be marked as Exhibit 39.

EXHIBIT 39: Science Management Board Minutes of Meeting, October 4, 2006

MR. WALLACE: Thank you.
THE COMMISSIONER: Could you just go back to Exhibit 36 and just clarify for me what the documents are that you've been marking? I have, as Exhibit 36, A Framework for the Future; is that correct?
MR. WALLACE: Correct.
THE COMMISSIONER: And then 37 is a set of minutes?
MR. WALLACE: Yes, for October of 2005; 38 is minutes for January 2006; 39 are the minutes for October 2007 -- sorry, October 2006.
That meeting introduced the five-year research agenda wrongly described as the research plan --
A Right. Yes.
MR. WALLACE: That's where the reference first comes, so let's mark the Research Agenda as the next exhibit, then, please, the Five-Year Research Agenda, 2007 to 2012.
THE REGISTRAR: Number 40.
MR. LUNN: Do you have a number in our list of documents?
MR. WALLACE: It's Tab 3 of the original list.
MR. LUNN: Thanks.

EXHIBIT 40: Fisheries and Oceans Canada: Five-Year Research Agenda (2007-2012)

MR. WALLACE: Okay, I'm going to, now, complete the references to the Science Management Board

minutes. We'll come back to the framework -- the Ecosystem Framework in a moment.

The next Management Board minutes that I have are for April 19th of 2007. Again --

A April...?

MR. WALLACE: April 19th, 2007.

A Yes, correct.

MR. WALLACE: This is at number 7, Mr. Lunn, on the additional list.

Q And was that the next meeting of the Science Management Board, following the --

A Yes, it was.

Q -- October 2006?

A Yes.

MR. WALLACE: May that be marked as the next exhibit, please?

THE REGISTRAR: Number 41.

EXHIBIT 41: Science Management Board Minutes of Meeting, April 19, 2007

MR. WALLACE:

Q The Science Management Board met again on October 11th, 2007; is that correct?

A Yes. Yeah.

MR. WALLACE: And may those minutes, please, be marked as the next exhibit?

THE REGISTRAR: Number 42.

EXHIBIT 42: Science Management Board Minutes of Meeting, October 11, 2007

MR. WALLACE: Thank you. Then we have -- the next set of minutes I have is April 22nd, 2008.

A Correct.

Q And again, that is the next meeting of the Science Management Board?

A Yes, it was.

MR. WALLACE: And may those minutes, please, be marked as the next exhibit?

THE REGISTRAR: Number 43.

EXHIBIT 43: Science Management Board Minutes of Meeting, April 22, 2008

MR. WALLACE: And we have the Science Management Board minutes for November 28th, 2008, as the next

document.
A Correct.
MR. WALLACE: May that be marked as the next exhibit?
THE REGISTRAR: Number 44.

EXHIBIT 44: Science Management Board Minutes of Meeting, November 28, 2008

MR. WALLACE: And we have a meeting on April 17th, 2009, of the Science Management Board. That's --
A Yes.
MR. WALLACE: -- the next one.
THE REGISTRAR: Number 45.

EXHIBIT 45: Science Management Board Minutes of Meeting, April 17, 2009

MR. WALLACE: Exhibit 45, thank you. And the final notes -- minutes I have are from the Science Management Board, October 27th, 2009.
A Correct.
THE REGISTRAR: 46.

EXHIBIT 46: Science Management Board Minutes of Meeting, October 27, 2009

MR. WALLACE:
Q Now, is that the last meeting that you attended, Dr. Watson-Wright?
A Yes, it is.
Q Thank you. If I may, then, going back to the substance of the work of the committee and the development of the science program, the next document I'd like to ask you about, Dr. Watson-Wright, is an Ecosystem Science Framework in Support of Integrated Management, a document copyrighted in 2007. Can you please explain the genesis of this document, please?
A Yes. Well, going back to the minutes of the first Science Management Board meeting, the board decided there were two overriding priorities for the science sector. One, was to move into, really, in an organized fashion, to move into ecosystems science. Traditionally, we, as many others, had been conducting our work along the lines of an issue by issue basis or on a species by species basis, and it was becoming evidence not

just in Canada, but worldwide, that really there are so many interconnections that one cannot really conduct natural science in that way. So we were instructed by the board to produce an ecosystem science framework and, as well, we were instructed to focus on human resources. So, really, the ecosystem science framework in support of integrated management was developed as a result of that board meeting. It was led by the senior scientist in Ottawa, Jake Rice, and it was put together by the scientists, really, within the department. Other scientists, of course, were contacted, but I would say that the product was just about -- or the process was equally as important as the product. Scientists within the department had been saying for quite a while that, you know, we really do need to do this more holistic science.

So as I said, it's a move away from single activity management to integrated science for ecosystem-based management, and I believe that you already have, perhaps, talked about that a little bit or will. In order to manage, in an integrated way, the science produced has to be done in an integrated way. So it includes priorities for a foreign ecosystem-based approach to the science including, you know, setting objectives, developing ecosystem indicators, risk-based frameworks, and all of the things that are in the document.

It took a while, a number of months, to produce the document, but I think it has stood the test of time and includes reference to climate variability, biodiversity and all the issues that areas till facing the department now.

MR. WALLACE: Thank you, Dr. Watson-Wright. May this be marked as the next exhibit, please? This is A New Ecosystem Science Framework in Support of Integrated Management.

THE REGISTRAR: Number 47.

EXHIBIT 47: A New Ecosystem Science Framework in Support of Integrated Management

MR. WALLACE: Thank you.

Q Dr. Watson-Wright, just a couple of questions. This came from the very first meeting of the

Science Management Board, the instruction to --
A Yes.
Q And you described this as "We were," I think you said, "We were instructed by the board to," so a couple of questions --
A Well --
Q So can you --
A We were proposing it.
Q So the board proposes -- so the board is advisory, not directing; is that correct?
A Well, it was a decision-making board in the beginning. I think in the end it kind of morphed into something that would then take things to the departmental management committee. But in the beginning, yeah, instructed is probably a little strong. It was agreed that we should do this because, in fact, the science sector and our clients were all agreeing that this would be a good thing to do.
Q Thank you. Now, if I may ask you, please, to go to page 5 of this document, and I have a specific question about number 8 on the list of ecosystem science framework, the description of it says, at number 8, under the heading, "Knowledge access and special management methodologies", and there are a number of specific tools and elements which are described there, but this one I just wanted to ask about it as an example of something that I'm curious about. It says:

> Currently, the department's ability to implement an ecosystem science approach is limited. Data do not exist for many aquatic habitat features and populations of importance, and in some cases, information may exist but not be organized in ways that allow DFO Science to access it efficiently and systematically.

A Hmm.
Q That sounds, to me, to raise two questions that I'd like to ask you about in this new program of ecosystem science to support ecosystem management. The first is, there's a reference to the need for resources, at least I read it that way, and another question about -- it raises another question about the state of science and science's

ability to grapple with issues on an ecosystem basis, I wonder if you could just address how realistic an ecosystem-based approach is, given the issues of the state of science and resources?

A Thank you. This doesn't refer just to DFO science, by the way; this is in terms of data not existing for some aquatic habitats. An example could be some of the freshwater species at risk where there's very little information to go on, and in some cases, the information that may exist, it might be in the database of one individual scientist somewhere in a university somewhere, so it's not accessible to us. That was the reference to that.

I do think it's realistic. It's not easy, but it's absolutely realistic and necessary to try to put all the information together for a given ecosystem in order to be able to make predictions, projections as to what might happen. We're ignoring 80 percent of the data in favour of focusing on one species. I don't think that's helpful, and we've learned that, that there are so many interactions that we don't know about. We have to try.

This is not specific to Canada, either. It does mention it internationally, the scientific community -- international science community is trying to develop the necessary knowledge, and every country is actually struggling with this right now, and with integrated marine special planning as well. So there's a whole international community that's working on this, and I would say it behoves us to continue to improve upon it. We can't just give up and say, "Oh, it's just too hard."

In terms of resources, actually, usually, we're much more blunt about asking for resources. I don't notice it in this particular paragraph. But, you know, there's never enough science, and so resources -- resources are always an issue. But it -- I think, perhaps later, we could talk a little bit about the partnering initiative and in trying to include all those that have relevant information in the scientific discussion, so not limiting ourselves to the department.

Q Thank you. And there are -- perhaps that's what's referred to at the top of the next page, page 6,

where you make the note:

> DFO Science needs to tape into any relevant databases they do not already hold. If the information exists but has not been made available, usable databases must be created.
>
> Were there resources to create new databases?

A Well, in fact, we did put aside, within the science sector and in the context of review and renewal, we did put aside some resources for data management. DFO science had passed -- they had approved a data management policy I think just prior to when I came back to the department, but it was not being implemented evenly across the country, and we did have databases that didn't talk to each other, we had some regions that hadn't really gotten into the data management versus others. So as a sector, we set aside resources, we established a national data management committee, they put together a plan and, in fact, worked very hard over a number of years to make sure all the databases were compatible with each other and to make sure that scientists are entering data into the databases. It's a huge challenge, because it's, you know, data management is not as sexy as research, so it's -- but it's absolutely, absolutely essential.

Q Thank you. And do I take it from that, that, in your view, progress was made on this direction set out in the framework in 2007, in the last couple of years you were involved?

A Yes, I believe there was fairly good progress made.

Q The next paragraph, on page 6, talks about not -- not the compatibility of databases, but the existence of information at all, which is:

> Where essential habitat information does not exist, appropriate methodologies for collecting and using the information must be developed and implemented. These tasks are challenging, but crucial to the ecosystem science approach.

A Right.

Q Can you comment on the success of advancing that

crucial step?
A Well, again, I wouldn't have as much concrete information on that, but the focus on habitat, certainly there was an enhanced focus on habitat given many of the projects, for example, oil sands projects, projects for dredging, or anything like that. There was more of a focus put on habitat over the years. That wasn't because of anything I did, that was just because science and the client sector recognized it as a necessity, and in order to assist decision-makers...

(BACKGROUND NOISE)

MR. WALLACE:
Q Dr. Watson-Wright, can you hear us?
A Yes, I can hear you.
Q You're now showing up as a question mark, unfortunately, on the screen, but we can --
A Oh, I'm sorry, I think I -- I -- there.
Q That's all right, we can -- I think we can proceed just on the audio version. That would be -- we should carry on, if that's all right?
A I can see myself; I can't see you.
Q Okay. Just so -- a specific out of the framework document, Exhibit 47, if I may direct you to page 13 of that document, Dr. Watson-Wright. Oh, you're back.
A Yes.
Q There are some examples given of DFO activities placed in an ecosystem context, and I noticed that of the half dozen examples, four, perhaps, are relevant directly to what we're looking at. I wonder if you could just comment - page 13 - on the relationship of the ecosystem management to the four issues that I'm referring to, the second one being the Wild Salmon Policy in 2007. You identify this as an area that must be -- a policy that must be addressed in science advice in an ecosystem context. Then the others, the aquaculture and environmental impacts.
I'm wondering if you could just comment about the ecosystem basis for science in each of these four areas?
A Well, beginning with the cod recovery, which isn't -- the northern cod, in particular - some populations have recovered to a certain extent -

but just the fact that since 1992 we have never gotten back to the level of the northern cod where they used to be, in the absence of fishing, suggests that it's not one cause and one effect, and essentially that's what ecosystem science is talking about and that's what ecosystem-based management is based upon.

We really do need to understand more of what's going on in terms of predator/prey relationships, in terms of oceanic conditions and the like. So just to figure out what are all the factors that are influencing, in this case it would be cod, but in other cases it could be a number of species. And clearly, the, you know, the habitat, the environmental conditions, the human activities, we don't know, for example, although there's no fishing up there, there seems to be lots of ships going by, and is that having any impact? That's only a personal conjecture and it's not scientifically-based at all, but it's just to say that we really need to try and get a handle on everything that might be impacting on the target or what we're looking at.

And the same thing would be with the Wild Salmon Policy and the science to support that. If there's anything more complex than the life history of all the different species of pacific salmon and all they have to go through, where they go, and I -- I've never seen it. I don't really think people should ever talk about rocket science, as I've mentioned to you previously, because rocket science is pretty simple compared to biological science and I would say, in particular pacific salmon science.

The aquaculture and environmental impacts, of course, the same thing. It's a two-way street. You can't do anything in the aquatic environment without impacting and, likewise, the aquatic environment would influence what's going on with what's there. So there's a fair amount of work going on in near and far afield effects of aquaculture, what's the impact of the environmental, for example, harmful algal blooms, an aquaculture species, and, you know, taking the whole ecosystem into consideration.

And it would be similar for the others, the pathways and effects, in terms of in-water

activities, largely freshwater, but just sort of following the path of habitat impacts.

There are always cascading events, and I think as we see more of the events and as they cascade, then you kind of figure out, yeah, it's not just one thing that leads to one other, it's life and everything around is impacted.

And the oil and gas exploration and development in the north, of course, there's a great need, in terms of the north, given that it is, currently, in terms of the Arctic Ocean, it is, along with this other notion, one of the least impacted oceans in the world right now, and we have an opportunity here to protect it, or prevent it from becoming impacted as other oceans have been. And so I believe that there needs to be great care taken in that, taking into context the whole ecosystem and the fact that people's lives depend upon the ocean.

Q With each of these six, and I was strictly focusing on the four that relate to the terms of reference of this inquiry, they all end up, each of these narratives end up with an acknowledgment of the requirement to look at these things in an ecosystem way and identify -- so it's identified as a need and the complexity is acknowledged.

Did the science branch put in place specific programs to achieve the ecosystem information results that were described here as being necessary?

A I'm not sure I understand your question, but certainly we did put in place -- I mean, these given as examples for this particular document. But as we go through the other documents, you will see that we did put into place seven ecosystem research initiatives and one climate change science initiative across the country in order to attempt to do ecosystem science, and those are described in one of the other documents, I think, that we will come to, the research plan, in fact.

Q All right. Well, let's now, then, turn to the research -- the five-year research plan, and Mr. Lunn, that's --

A Do you want the agenda or the plan?

Q Well, you mentioned the plan. Should we -- the agenda we've marked as an exhibit. We can certainly go to that. That's the next document in

time from the framework. Will we find the establishment of programs there?
A Yes.
Q So then let's --
A The research agenda did precede the research plan.
Q Correct.
A It took us about a year to put that together and, again, the process was extremely important. It was led by one of the Pacific Region scientists and, again, Dr. Jake Rice from Ottawa, but included -- by the end of it, it included just about everybody in the department, not just the science sector.

The 10 research priority areas --

Q Okay, so we're --
A -- were established.
MR. WALLACE: Just for reference, Mr. Lunn, we're looking at the Five-Year Research Agenda, which is marked as an exhibit.
Q And those 10 items start on page 7. Yes, please. Sorry to interrupt.
A So the 10 are: fish population and community productivity, which would include stock assessment; the habitat; the climate change issues; ecosystem assessments and management strategies; aquatic invasive species and aquatic animal health, and aquaculture sustainability; the ecosystem effects of energy production; operational oceanography, which really refers to now forecasting and forecasting ocean events; and, of course, the emerging and enabling technologies for regulatory and policy responsibilities.

These were -- there were a number of workshops, there was a number of events, and a lot of interaction to come up with these, and the wording was very important. Once we came up with a draft, in fact, myself, and my senior director general, who was in charge of the science renewal, went across the country and met with regional management committees to go through the draft research agenda and to seek feedback.

And as I say, that took a number of months to put this together. In the end, the very last draft went to every single person in science in the department. And I see you're online and I'm not, somehow.
Q We can still hear you.

A And ultimately it was approved by the science management board and by the departmental management committee. There.
Q Hello.
A Oh, so you're back.
Q Yes. But we were listening to you throughout.
A Okay. That's what I thought.
Q Okay, thank you. You were describing the process for putting the agenda in place. Can you just describe what the purpose of this was, to establish what the priorities for the research plan which follows; is that -- am I correct --
A Yes.
Q -- on that?
A Yes, that's correct. And could I just back up and explain something?
Q Please.
A It's important to understand that research is just one of the five functions that are undertaken by the science sector of DFO. It's an important function, but it's one. And the others are important as well, the others being we undertake monitoring, data management we've already mentioned, provide scientific advice, and then also come up with some products and services.

The Parks and Services have been largely in the past related to Canadian Hydrographic Service charts, tide tables and whatnot but, in fact, more and more some of the documents that are produced are considered products and services from the rest of science as well.

So in this particular case, we're talking only about the research agenda and not the science agenda.

Q Thank you, that's very helpful. Continuing on, then, with the research agenda, the next step was to produce a five-year research plan.
A Yes.
Q And I'm referring to that document at Tab 4, Mr. Lunn. This, I take it, is intended to implement the agenda with specific projects for the five-year period; is that correct?
A That is correct. The research plan, in fact, was pretty much where the rubber hits the road, in terms of the research agenda, and what the research plan talks about is it has an overview of 20 key science initiatives and how they relate to

each other in terms of working toward ecosystems and science. So I've mentioned that there were seven ecosystem research initiatives put in place, one in each region and two in central Arctic. They were on the Newfoundland Shelf, the Gulf of Maine, and the Northumberland Strait, the Lower St. Lawrence Estuary, Lake Ontario, Beaufort Sea Shelf, and the Strait of Georgia.

And I think that the ecosystem research initiative in the Strait of Georgia is particularly relevant for this commission. That began a couple of years ago, and I don't have the preliminary data coming out of that, but I'm sure it will be -- it should be interesting.

The climate change science initiative I mentioned. This was done on a national basis to address national research priorities, including prediction of climate change in Canadian waters, trying to understand the impacts of climate change on aquatic ecosystems, anticipating merging issues. And then their hope was also to work with other sectors and others to look at potential socioeconomic impacts.

And there are three main themes in that. One, is the role of oceans in regional climate. We know that oceans control the global climate. But how can we then get those models down to a regional basis so they have more meaning for the person living on the coastline.

Also, the impacts of climate change on ecosystems composition, and it's quite interesting that some species are impacted in a different way from others, and that would include looking at the structure and functions of the ecosystem, and then looking at emerging issues that could impact ecosystems health. One of the emerging issues could be, for example ocean acidification, which is a very large issue around the globe.

Then the research plan also talks about the 12 centres of expertise that had been put in place over -- beginning maybe in 2004, I think the first one. These are largely -- I think there are 12, all together. Ten of them are virtual centres of expertise, and two of them are geographically based. But the COEs were put together to bring together the expertise across Canada, within the department, predominantly, on particular areas.

The first one was the Centre for Offshore Oil, Gas and Energy Research, out of the Bedford Institute, in Halifax, and that's what they focus on, is oil, gas and energy research and the impacts on the aquatic environment. And, in fact, the director of that COE was very heavily involved in work in the Gulf of Mexico this past summer, related to the BP oil spill.

Different COEs, they have different issues now, so approach things differently. The one for the Arctic, in fact, is more of a coordinating COE. We also have one for marine mammals, which brings together all the marine mammal researchers across the country. And those are noted in the document.

The two geographically-based COEs, one is on pesticides, and that's based in Winnipeg, and that COE deals mainly with the Pest Management Regulatory Agency, working on priority pesticides and looking at their impacts on aquatic organisms. And the other one would be the Biotechnology Research COE, which is centred in West Vancouver and led by Bob Devlin, and that's located only there, although he certainly collaborates internationally.

So the focus on the COEs, the focus of all of this, is on teamwork and collaborative mechanisms, and with a slight change in governance, meaning through the COEs, in an attempt to balance national and regional priorities.

Q Thank you, Dr. Watson-Wright. And just if I may refer you to -- first, perhaps we could just mark this as the next exhibit, the five-year research plan, 2008 to 2013?

THE REGISTRAR: Exhibit 48.

EXHIBIT 48: Fisheries and Oceans Canada, Five-year Research Plan (2008-2013)

MR. WALLACE:

Q At page 3, Dr. Watson-Wright, the second paragraph describes what this plan is intended to do, in terms of a -- its role in establishing the priorities with carrying out particular projects. It says:

This plan provides a rationale for **what**

> research is conducted in support of priority areas, especially ecosystem-based management, and **how** this research will be delivered to ensure federal and departmental priorities,

and so on.

A Mm-hmm.

Q It says it's a living document to guide DFO Science through the next five years. It describes 20 initiatives, and concludes, the next sentence:

> It is expected that both the Research Agenda and this accompanying Research Plan will be revisited and revised accordingly in five years to ensure changing priorities are adequately addressed.

Now, was it the intention of this document, then, that it would set the scene for the research to be conducted by DFO for that five-year period?

A Well, this isn't all the research that's done in a department. This is more related to the ecosystem science. Of course, the traditional fisheries research carries on and sort of the day to day research that's needed does carry on. But no, this was more the broad -- the ecosystem-based research that the department would undertake. And, of course, it hasn't been revised yet, because it's only been two years, and it takes -- it takes a while to get geared up and then to start, actually, the work and getting the results. But I would suspect that it would be revisited within, you know, the next year and a half or so.

Q Okay. So it suggests, here, that it would be revisited and revised in five years. You're suggesting that's an ongoing reconsideration?

A Well, I guess it will depend on how things are going, and that's what the National Science Directors' Committee generally looks at. The intent is for a yearly report on all of these things, and there was a yearly -- to be a yearly meeting whereby all the COEs come together, the heads of the ecosystem research initiatives and the climate change science initiative, along with the national science directors, and in our first meeting I think it included the regional science managers as well.

So it's through those, you know, taking stock annually of how things are going that one would decide, "Well, do we want to tweak this a little bit or not." I wouldn't think, you know, it's not a case of, "We're going to stop this and start something new," it's probably more of a tweaking. But in that way it would be evergreen, and maybe it will happen that someone sees an absolute need to begin another one of these ecosystem research initiatives in another particular area for a particular reason.

Q May I take you to page 18 of the plan? It seems to be quite directive. It says:

> What Research Will be Conducted Under This Plan?
>
> DFO Science is committed to addressing priority areas identified in the [agenda] and providing advice and support for ecosystem-based management. Research priorities and timelines will be developed within each region but will be coordinated nationally...

That wasn't what I intended to read. Thank you. It's the paragraph at the top of page 20, beginning there:

> This Research Plan communicates our research priorities and approaches to achieving them from senior DFO Science managers to DFO Science staff. DFO Science will ensure all research projects maximize integration and harmonization with other DFO Science functions, especially its monitoring programs and collaborations with partners, and this will require substantial planning.

Now, are you aware, Dr. Watson-Wright, whether this plan has, in fact, been followed and that the -- been used to integrate and harmonize with other DFO Science functions?

A Well, certainly that was -- it was. I believe it probably still is. I think once, you know, once folks get going on this they get quite enthusiastic. But there was certainly a focus, for example, on the data management side. And as

I mentioned, sometimes it's a little more difficult to get scientists to focus on the data management, but that was very consciously planned in here, and I believe that, yeah, no, the intent certainly was to integrate and to promote collaboration and to bring others in through whatever mechanism. So I can't speak to this day, in particular, but it seemed to be going well by the time I left.

Q Thank you. Now, you mentioned earlier, Dr. Watson-Wright, that another element of the agenda was to deal with the human resources strategy, and I wonder if I might just direct you to a document called, "The National Human Resources Strategy For the Science Sector, Fisheries and Oceans Canada, April 2007", and ask you just to comment on that strategy and what was the impetus behind it?

A Well, again, we would come back to the October of 2005 Science Management Board, and we spent half of that meeting discussing human resources and the challenges that would be faced by the science sector in the near future. There was a recognition of the demographics, whereby in the research science community at least 50 -- 48 percent, I think, were eligible to retire by 2011; 68 percent of the executive in the science sector were eligible to retire; and the engineers, as well, which are more related to Canadian Hydrographic Service, that was around almost 50 percent.

So there was a recognition that we needed to start rejuvenating. We had been stagnant for a number of years, largely due to resource constraints, but it was felt that we absolutely had to start bringing in new blood. And, in addition, we had to be thinking about what type of researcher we would want, given the emphasis on ecosystem science and integration and collaboration, it was absolutely essential that we try to bring in, you know, collaborative-type scientists. I think largely the science community has gone that way, but in the past it wasn't always as collaborative as it is these days.

So the HR strategy, again, was put together as a result of that first meeting. It is focused on four pillars of recruitment, retention, development and representation. Representation

meaning diversity in terms of hiring. And we did undertake, immediately -- we were able to put aside some resources to start a recruitment for research scientists, was the beginning, and we were able to bring in, I think, 15 in the end. Recruitment takes a fair amount of time in the public service, although the public service of Canada now looks like light speed compared to the speed that things move at in UNESCO - that's not a criticism, it's just a statement.

And we carried on from there. There was an action plan put together, which shows up within, in the context of the strategy document, and it has moved on from there, and as far as I know it's going quite well.

One thing we did do, which seemed to work fairly well, was to initiate what we called a knowledge-transfer initiative, whereby older, more experienced scientists who were going to retire, we were able to bring in a young person. If that was an area of expertise that we wished to keep, we were able to overlap the younger person with the older person going out, and I think that worked quite well.

Part of the strategy, also, was to recruit at a higher than attrition rate over the -- well, at that time it was the next few years. I'm not sure if that was actually accomplished, but there has been rejuvenation within the science sector. And by the time I left, in visiting some of our institutes, it was really, really nice to see these young people - we could always use more - but it was really nice to see, and they're enthusiastic and energetic, and it really boosted the morale, I would say, and is boosting the productivity as well.

MR. WALLACE: Thank you, Dr. Watson-Wright. May this be marked as the next exhibit, please, Mr. Registrar?

THE REGISTRAR: Number 49.

EXHIBIT 49: National Human Resources Strategy for the Science Sector, Fisheries and Oceans Canada, April 2007

MR. WALLACE: The next document I would like to refer you to, Dr. Watson-Wright, is Policy on

Collaborative Agreements with Non-Government Organizations. This is at Tab 3 on the additional list, Mr. Lunn.

Q Are you familiar with this document, Dr. Watson-Wright?

A Well, I am, now. It's not a science document. That's a departmental document. But clearly science collaborates a lot, and we had put together our own framework for collaboration, although I don't have it and I couldn't find it. But clearly the science sector would follow any departmental agreement policy. In this particular one, it's just -- it's for collaboration with non-governmental organizations.

Q Yes.

A So this would apply to all sectors in the department, not just to science.

Q And it's your recollection, then, that there was a different protocol for science, or did science follow this?

A Well, it's not a different protocol, it's just that our collaboration framework included not just NGOs, but it included universities. For example, it included the private sector, it -- it was just more of a framework; it' wasn't a policy.

Q Right.

A And it had -- and guidelines were put together. In terms of getting into collaborative arrangements for science, we wouldn't have done something that was not in agreement with overall departmental policy, but it's just that our framework was related specifically to science.

MR. WALLACE: Okay. Now, I'd like to mark this as an exhibit as well, Mr. Registrar, please.

THE REGISTRAR: Number 50.

EXHIBIT 50: Department of Fisheries and Oceans: Policy on Collaborative Arrangements with Non-Government Organizations

MR. WALLACE: Thank you. Finally, if I could take you to the document entitled, "A Framework for the Application of Precaution in Science-Based Decision Making About Risk", and if I may, that's at Tab 6, Mr. Lunn.

Q Dr. Watson-Wright, are you familiar with this document?

A Yes, I am. This is kind of a bible document in the Government of Canada. It was put together just before, I think, I came back to DFO, but it really set the stage for a lot of the work that was subsequently done within the department on the precautionary approach.

MR. WALLACE: May I ask, then, Mr. Registrar, to have this marked as the next exhibit?

THE REGISTRAR: Number 51.

EXHIBIT 51: Government of Canada: A Framework for the Application of Precaution in Science-Based Decision Making About Risk

MR. WALLACE: Please excuse me for a moment. Thank you very much, Dr. Watson-Wright. Those are the documents I wanted to ask you about. It's now quarter to 10:00 here. I wonder, what is your availability, Dr. Watson-Wright? Are you available for a bit longer, or should we take a short break?

A No, I'm fine.

THE COMMISSIONER: Mr. Wallace, I was going to suggest, while we have the technology working, we should keep going.

MR. WALLACE: Keep going.

THE COMMISSIONER: May I just ask you to perhaps clarify for me and the other counsel in the room, the witness has used the term "ecosystem science" and I wanted to make sure I understood what she meant by that in terms of whether it's a formal branch of the science community, or whether she is making reference to some other title or recognition of a combination of sciences that might be labelled "ecosystem science", just so I understand what she's addressing when she used that term, and she used it several times.

MR. WALLACE: Thank you.

Q Dr. Watson-Wright, were you able to hear that question?

A Yes, I think it's, what am I talking about when I say "ecosystem science"?

Q Yes, please, if you would -- could you respond, please, to the Commissioner's question?

A Yes. In fact, there is an ecosystem science directorate, but when I was using the term I was really referring to science that attempts to look

in an ecosystem-basis, meaning in a geographical location, for example, let's say the Strait of Georgia as an ecosystem, what are all the processes and species and everything that's going on in that particular ecosystem that could be affecting, in this case, Fraser River sockeye?

So it's rather than just following the, you know, the physiology or the biology of the salmon, which has been done in the past, to look at everything that could possibly be impacting on the returns of this particular species, rather than focusing on -- but the ecosystem, in this case, the focus on the commission is on that species. Ecosystem science, though would be looking at all the species in there and what's going on and what's impacting each other.

Does that make any sense?

THE COMMISSIONER: Yes, it does. I just want to try and tie that back into your -- into the document that Mr. Wallace put to you when you made reference to the research plan, and whether you can take me, perhaps, to some part of that document which would reflect just what you said about your meaning of ecosystem science; in other words, where is it identified or articulated in that fashion somewhere in that document?

A The research plan?

THE COMMISSIONER: If that's a convenient document for you, or another document, if you would find a reference that you might take me to in one of the other exhibits that have been marked.

MR. WALLACE: Perhaps the "A New Ecosystem Science Framework", Exhibit 47?

A I think the -- I'm just trying to bring that up. It might be easier with some of the examples of the ecosystem research initiative, I think, to explain it.

THE COMMISSIONER: All right.

A So I'm looking at the Five-year Research Plan.

MR. WALLACE: That's Exhibit 48.

A And, for example, when it refers to the Strait of Georgia ERI, it's focusing on the area between Johnstone Strait and the mouth of Juan de Fuca, and talks about the focus of many resource management and scientific issues, and you would certainly know that better than I. And also the fact that it's facing significant stresses, such

as climate change, invasive species.

So the attempt, here, is to -- there are three major themes that have been outlined, and that is trying to understand how the ecosystem works, trying to identify the drivers of change that will most likely determine future conditions, and then analyze the future responses to the system under those influences.

So the research and the -- that is planned and that is being undertaken within this ERI, is looking at three major research priorities. One is what's controlling the productivity in the Strait of Georgia, the timing, what, you know, what are the mismatches and how important are they in the timing of physical and biological processes within the Strait of Georgia, and then resilience, meaning, you know, what properties does the ecosystem provide in terms of resilience against major disruption and collapse of the system.

Now, how the scientists are actually going to do that I would not attempt to try to tell you. I would suggest that the scientists would be best to tell you exactly how they would be going to do that.

MR. WALLACE:

Q Are those Parisian bells?

A Yes, they are, actually. And about in eight minutes the Eiffel Tower will be sparkling.

Q Dr. Watson-Wright, I wonder if perhaps the Commissioner's question might also be addressed by the New Ecosystem Science Framework where there appears to be a definition of ecosystem science on page 1?

THE COMMISSIONER: What exhibit is that, Mr. Wallace?

MR. WALLACE: That's Exhibit 47.

A Yes.

Q Thank you.

A Much better articulated than I do.

MR. WALLACE: Hardly. Mr. Commissioner, I have no further questions for Dr. Watson-Wright, at this point. If Dr. Watson-Wright is prepared to carry on, perhaps, with the technology staying in place and everybody here, perhaps we could just carry on?

A Yes, I can do that.

MR. WALLACE: Mr. Taylor?

CROSS-EXAMINATION BY MR. TAYLOR:

Q Mitchell Taylor. And Dr. Watson-Wright, am I appearing on your screen now?
A You are, indeed.
Q I think I am. All right. Perhaps I could ask you, as a starting question or first question, to turn to the definition that Mr. Wallace just referred you to, and you said that it looks pretty good.
Can you unpack what it's saying there, and perhaps what I'll refer to as layman's language, explain what the definition is telling us or saying?
A Well, it is saying, essentially, that it's no good to look at one species or one particular human activity or to limit the research or science that's being done in an ecosystem context to one thing. You have to look at the interrelationships of activities, species, occurrences, events, in order to understand the ecosystem and in order to be able to make predictions, and in order to be able to advise management so that they can make decisions or regulations or whatever.
Q Then when what I will call the whole of the ecosystem approach or --
A Sorry, I can't hear you.
Q Sorry, I pushed the button by mistake. Once someone -- a scientist has looked at the whole of the ecosystem, or taken a whole ecosystem approach to the work that they're doing, can you say, then, how you would tie that back to a particular species that might be of interest in a given situation?
A I could speculate, but really, I think that there are witnesses you will be interviewing, in terms of scientists --
Q Okay.
A -- who would be able to articulate it much better than I.
Q All right. That's fine. I think you've really laid this out well, but is there anything you want to add in this area to what are the merits of an ecosystem science-based approach?
A Well, the merits, and going back to the northern Cod issue, for example, are just that unless we're looking -- I think in the past, you know, certain

scientists were focused on certain areas, had certain expertise, and let's say we were out doing some monitoring, they would focus only on what responded to their particular interests and the rest of the data would go unused.

I think, you know, for example, in terms of acoustics and looking at fish, or looking at the habitat, those who wanted to look -- the fish biologists would look only at the fish and not pay attention to what's happening with the habitat, and vice versa. But when you put the two together, you could find some very interesting relationships.

So I think it's an attempt to do that. I mean, there are any number of things going on in the world today, and in the oceans in particular, that are going to impact the ecosystem and the species of interest, and in terms of -- there's - it's just so complex that it's so interesting, and it's critical to look at the relationships as much as we can. I mean, we're only human, but I think we are getting better, and we are getting better technologies in order to be able to understand things.

One of the technologies I know you heard about was in terms of tracking the salmon to a certain point up through the Strait of Georgia until they get into the open ocean. Without that technology, years ago we had no idea what was going on. The other is the ability to look at things through satellite and be able to compare in terms of phytoplankton blooms with what may be happening with the productivity of species.

So I think as we become more sophisticated and as we look into it more closely, it is apparent that we may have missed many things in the past, either because of a lack of technology or a lack of trying to put all the pieces together, and I think time is telling us and nature is telling us that that won't work, that nature is nature and one thing affects another, and therefore we need to be trying to understand it.

Q Dr. Watson-Wright, as I hear you, I think you're suggesting a number of things, two of which I want to suggest to you and see if I've got it right, and one is that things or animals or fish in an

ecosystem interact and have interrelationships with other things and other parts of the ecosystem, there's a complex interaction going on; is that one of the things you're suggesting?
A Yes.
Q And are you also suggesting that if you do not have a whole ecosystem or whole of ecosystem look or approach that you might miss things that are important and should not be missed?
A Yes. Yes, I believe that. Now, when would you ever have a whole ecosystem perspective? That's the issue, I guess. So we need to do as much as we can in terms of gathering information.
Q Now, Mr. Wallace took you through quite a number of documents and they were explained by you for the Commissioner. I understand that the objective behind all of that work and the approaches set out in those documents, was to, if you like, structure, focus and prioritize the work being done by the science sector; is that, generally speaking, what their objective was?
A Yes. I haven't heard those particular words used, but that, essentially, is what we were trying to do. We were trying to become more organized, yes, structured, we -- to provide guidance. We were trying to work as a national team, recognizing regional issues, and have a means of prioritizing the various demands or requests from the varying clients and, as I said, with the increase in legislation to which we had to respond, it just became more and more complex.
Q Now, as of the fall or thereabouts of 2009, which is when your tenure was coming to an end and you were moving to your current role with UNESCO, can you say, as of that time, the fall of 2009, how you saw science fitting in with -- fitting into the department and the role of science in the department as of that point? Or, put another way, with the work that you'd put in place and the processes you'd put in place, what had you seen accomplished by roughly the fall of 2009?
A Well, it may have been my imagination, but I did feel that there was a much better understanding of the role of science within the department than when I first got there, or at least it was more apparent to me. I did feel that I wasn't sort of the lone voice in the wilderness, saying, "What

about science?" because certainly the client sectors and the regional directors general, not because of me, but they definitely understood we need to be making science -- we're a science-based department and we need to make sure that our management decisions are based on science and based on the best science.

I think that the communication between science and the client sectors and between, I guess, across the regions, was improved, and I, you know, science was seen as an equal partner and very much needed within the department.

Q Mr. Wallace asked you some questions about partnering and so forth with outside agencies. Are there protocols that were put in place that governed the partnering or collaboration with outside agencies?

A Yes. Of course, the department and the Government of Canada has protocols, but also science did and, as I said, I don't have any of those documents. But we did put a focus on partnering, because, for one thing, we don't -- the department doesn't have all the expertise within the department that it may need for a particular issue. There are some excellent researchers certainly within Canada in the university system, in some cases within the provinces, and internationally, whereby DFO can work with these people on issues of importance to the DFO mandate.

And then in addition, of course, in terms of resources, in some cases outside partners would have more of an ability to bring in outside resources to assist or, in some cases, the scientists would be able to access resources. As an example, one of our researches was very effective in working with the United States Environmental Protection Agency and was able to work on issues that were of interest to them but, more importantly to us, of interest to Canada and to DFO. And so with all those sorts of things, many of the scientists are fairly entrepreneurial, given the opportunity, and it was always with the understanding that there can be no conflict of interest and it has to go according to Government of Canada policy and guidelines. But it's necessary. It's all about collaboration.

Q Earlier, Mr. Wallace asked you and took you

through -- asked you about and took you through some of the Science Management Board ecosystem minutes, and they've been marked as an exhibit. And you spoke to some of this, but is there anything more or anything concrete that you want to say about what was achieved as a result of the Science Management Board process that you put in place as part of your focusing and prioritizing of the science work?

A Well, again, I think what was achieved was, number one, there was much better -- there was much more interest, understanding and, I guess, support for the need for science and, as well, the issues facing science, among the senior cadre of the department. Two, I think that all the documents that you've seen that have come out of that initiative really did sort of set the stage and gave guidance to science within the department and also allowed others to see what we were trying to do and where we were going.

So I think just having -- the major thing would be having others understand and wish to see more science and also be supportive and understanding of what we're trying to do. When I came back to the department, I think I mentioned to you, I was told that science is a big black box. We know the money goes in, we don't see it come out, we don't know what you do. So I thought that was a bit of an issue, and I would like to think that at least it's maybe grey, now, instead of black and, with any luck, it's quite transparent.

Q All right. Thank you, Dr. Watson-Wright.

THE COMMISSIONER: Mr. Taylor, I wonder if you could just, while you're on your feet, consider asking this witness, with regards to these exhibits, well, in particular not the minutes so much, but the documents you've been referring to and Mr. Wallace has been referring to, is there some formal process within the department for actually adopting these documents as official departmental policy, what the protocols are when these kinds of documents are created, if you find that convenient?

MR. TAYLOR: Yes, happy to, Mr. Commissioner. And Mr. Commissioner will clarify, if I don't get all of the elements of this question into this.

Q Did you hear Mr. Commissioner speaking, Dr. Watson-Wright?
A I think he was asking, is there a process whereby these become departmental policies?
Q Yes. I might unpack it a little bit, or break it down this way. I believe the question is: Is there a process within the Department of Fisheries and Oceans where the --
A I can't hear you.
Q Sorry. Is there a process within the Department of Fisheries and Oceans for these documents that we've seen to be formally adopted and, if so, are they being formally adopted by the science sector or the department as a whole, and with all of that, what is their status once they've gone through any of these processes for adoption?
A Well, the documents that you're seeing that relate to science renewal were approved by the Science Management Board, so that's the deputy level and that's as high as it goes within the department. They are not necessarily -- they aren't policy documents. They're plans and agendas and frameworks and things like that. And so that I would say that they have been approved at the highest level and by the department, not just by science.
Q Do you know whether they go before the deputy's management committee, I think is the proper name?
A Well, we had -- they certainly did, and the departmental management committee was made aware of these documents. At some point, we may have actually taken some of them to the departmental management committee. At the beginning, we didn't. I think it may have changed, but I, quite frankly, can't say for certain. But every member of the departmental management committee was involved, for example, with the approving the research plan and having input -- research agenda and having input into it. The Framework for the Future, yes, it was approved by the Science Management Board. It was mainly a guidance document, though, for science. So there were kind of -- they're not all the same, they're not all equal documents, but I believe they would be considered official documents of the department.
Q Is there a means - and this is going beyond Mr. Commissioner's question - was there a means,

during the time you were in the department, for communicating these documents to the members or the employees of the science sector, including, in particular, the scientists?

A Oh yes, they certainly went on -- they are on the website, and the regions -- the regional directors would have ensured that - at least I believe they did - ensured that their scientists knew about these. In some cases, they were circulated by email. But largely, when these sorts of things were approved, it would be through the National Science Directors' Committee that they would then be disseminated. So that includes the directors general in Ottawa, as well as each regional director of science in the six regions.

MR. TAYLOR: All right. Thank you. Are there aspects of your question, Mr. Commissioner, that have been left untouched as yet?

THE COMMISSIONER: No. Thank you very much, Mr. Taylor, and thanks to the witness.

A Could I say one more thing, though? As we move -- as we were moving through science renewal and through the Framework for the Future, I, personally, I don't know how many presentations I made to science staff across the country on what we were trying to do and what the framework looked like and where we were trying to go. That's not to say that everybody listened, or that I actually got my point across, but it was -- I believe that the sector tried very hard to make sure that the staff, all the staff, were engaged and made aware of where we were trying to go.

MR. TAYLOR:

Q Just finally, Dr. Watson-Wright, and just to have it clearly on the record, when you left and when your successor arrived, Mr. Wallace has touched on this, of course, but you formally left in December of 2009, and --

A Yes.

Q -- moved from Ottawa to Paris; is that right?

A Yes, that's correct.

Q And practically speaking, by about October of 2009, you were easing your way out of your fisheries position and into your UNESCO position; is that right?

A Well, not exactly, although I -- some documents that you have shared with me I note that I did not

sign them off because I happened to be away at that particular period, but I was still very much working on DFO issues right up until the time that I left. In fact, I think the week before I left I and the deputy minister gave a presentation to the deputy minister's committee on climate change, energy and environment on the issue of the ocean's role in climate change, and also ocean acidification and what an issue it is.

So yes, I was trying to get things in order, but I hadn't moved out already, by any means.

Q All right. Now, you know that Dr. Mithani as your successor, is ADM Science and Oceans, right?

A That's correct.

Q And I think this is not controversial, but is it your understanding that she came into her position as your successor in March of 2010?

A It was February or March, I'm not sure which.

MR. TAYLOR: All right. Thank you, Dr. Watson-Wright.

A You're welcome.

MR. WALLACE: Mr. Commissioner, I suggested, this morning, that we might break at this point to allow participants to consider some of the documents that were only provided yesterday, and also to allow Dr. Watson-Wright to carry on with her evening activities, but that would require coming back tomorrow when Dr. Watson-Wright is available again at half past 8:00 to give the participants an opportunity to ask her questions. That would also give me the opportunity to canvas the participants to determine what their best guess is on time. The disadvantage is, it means Dr. Watson-Wright having to do this again tomorrow evening and us having to do it again tomorrow morning, but I suggest that may be the best way to proceed, but I'm in your hands, or I'm happy to hear from participants. And perhaps Dr. Watson-Wright is available to carry on, and if any participant is willing to begin cross-examination now, this might work as well.

THE COMMISSIONER: Well, first, Dr. Watson-Wright, may I ask you if it is convenient for you to participate as a witness again at the same time tomorrow?

A Yes, I can do that, Mr. Commissioner.

THE COMMISSIONER: Thank you very much. Then may I ask any of the participants' counsel if they would

like to ask some questions at this point, or whether they prefer all to await the opportunity tomorrow? By their silence, I assume that their preference is tomorrow; is that a fair assumption?

All right, Mr. Wallace, it appears that your proposal seems to be the most convenient for all concerned.

MR. WALLACE: And during the course of the day, I'll determine what the time limits look like and communicate that to Dr. Watson-Wright, and she'll have it tomorrow morning when she gets to work.

THE COMMISSIONER: All right. Dr. Watson-Wright, thank you very much for making yourself available today and being willing to do so again tomorrow. I'm grateful for that convenience on your side.

A You're very welcome.

THE COMMISSIONER: Mr. Wallace, then you wish to take a break at this point?

MR. WALLACE: I suggest that, yes, Mr. Commissioner.

THE COMMISSIONER: Thank you very much.

MR. WALLACE: Thank you, Dr. Watson-Wright.

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

A So I'm going to sign off?

MR. WALLACE: Thank you.

A Thank you.

MR. WALLACE: Thank you very much.

A You're very welcome.

(WITNESS STOOD DOWN)

(PROCEEDINGS ADJOURNED FOR MORNING RECESS)

(PROCEEDINGS RECONVENED)

THE REGISTRAR: The hearing is now resumed.

MR. WALLACE: Thank you, Mr. Commissioner. I didn't go through the formalities this morning of identifying myself, Brian Wallace, Commission Counsel, for the record, and with me is Associate Commission Counsel Meg Gaily, and our Assistant, Jon Major.

Mr. Commissioner, we now have the balance of the Science Panel available. Mr. Bevan and Mr. Sprout have already been affirmed from their appearance earlier this week. I would ask the registrar, please, to affirm the other three witnesses.

THE REGISTRAR: I will now affirm the remaining three. That will be Dr. Mithani, Dr. Laura Richards, and Mr. Cass.

Do you solemnly affirm that the evidence to be given by you to this hearing shall be the truth, the whole truth and nothing but the truth? Dr. Mithani?

DR. MITHANI: I do.

THE REGISTRAR: Dr. Richards?

DR. RICHARDS: Yes, I do.

MR. CASS: I do.

THE REGISTRAR: Would you state your full name, please.

DR. MITHANI: Siddika Mithani.

THE REGISTRAR: I need you to speak up, please.

DR. MITHANI: Siddika Mithani.

THE REGISTRAR: Thank you.

DR. RICHARDS: Laura Jean Richards.

THE REGISTRAR: Thank you.

MR. CASS: Alan Joseph Cass.

THE REGISTRAR: Thank you. Counsel.

MR. WALLACE: Mr. Commissioner, we have a technical glitch with bringing up documents. I think that we can start with some purely oral testimony, but at some stage we are -- in the next few minutes we may run into a problem if Mr. Lunn isn't back with his backup yet.

THE COMMISSIONER: Just for my convenience, if you could have the witnesses each spell their names for me, that would be helpful.

MR. WALLACE: Thank you very much. Dr. Mithani, could you spell your name.

DR. MITHANI: It's S-i-d-d-i-k-a, M-i-t-h-a-n-i.

MR. WALLACE: Dr. Richards.

DR. RICHARDS: Yes. Laura Richards, L-a-u-r-a, R-i-c-h-a-r-d-s.

MR. WALLACE: Mr. Cass.

MR. CASS: Alan Cass, A-l-a-n, C-a-s-s.

THE COMMISSIONER: Thank you.

MR. WALLACE: Thank you. I am reminded that Mr. Taylor wished to raise a preliminary matter.

MR. TAYLOR: Mitchell Taylor, Mr. Commissioner. It's about documents. We received a set of documents yesterday from the Conservation Coalition through Commission Counsel, and we received a set of documents from the Aquaculture Coalition through Commission Counsel.

The Conservation Coalition's came to us at

about 1:30 yesterday, and the Aquaculture Coalition's came to us at about five o'clock yesterday, meaning because I was here I saw them, as did Mr. Wallace, about 5:30 yesterday or so.

Now, I'm raising this now because I am seeking a ruling from Mr. Commissioner, if you are prepared to give one now, on the use that may or may not be made of these documents. The reason I am rising now is if there isn't clarity now, but it only comes about after someone tries to put these documents to witnesses, I will have been in the position of having asked my questions not knowing whether they're in or out, and so will counsel for some other participants, including the Province, and Mr. Blair for the Salmon Farmers.

The documents in the main, as I see them, relate to aquaculture, and scientific evidence to do with aquaculture.

The objection I have is that those documents from those two coalitions came late -- too late, in my view; secondly, that these witnesses are not the right witnesses to deal with them, in any event; thirdly, they're off topic, because they delve into aquaculture and what you will be hearing when it comes time to deal with aquaculture, the intense scientific and other debate that exists over aquaculture, but we're off topic for that right now. It's just not the time, even beyond these not being the right witnesses. And then fourthly, that wrapping all of that up and putting it together, it would be unfair and prejudicial both to individual witnesses here to have these documents put to them, and to some of the participants as organizations, including the Government of Canada, to have these documents being put now. They are, if you like, cherry-picked documents on the point.

The witnesses, who as I say are not the right witnesses, although they are scientists, all save -- three of them are, but they're not the right witnesses for this expertise, and this is too little, too late, not the right witnesses, not the right time, we're off topic, and it's unfair to put cherry-picked documents to witnesses at this point when with proper preparation and the right witnesses this can all be done later and in the context of having the full suite of scientific

papers and so forth that should be put to the right witnesses.

So I am objecting to documents that you haven't seen, but I'm objecting now because otherwise I am going to be faced with asking questions not knowing what the state of play is.

There is a broader question that some of the counsel have been discussing, and that has to do with not just the order of go, in terms of questioning, but -- and Mr. Wallace is, I understand, going to be speaking to counsel about that at some point, but also the timeliness and sort of plucking and putting documents in at the last minute, that it's going to have to be addressed as we move forward, I think. But for now I am dealing with these documents specifically.

THE COMMISSIONER: Just a general remark, Mr. Taylor, before other counsel speak. I don't know, of course, the documents you are speaking about. Mr. Wallace and his associates have been preparing to lead these witnesses initially, and then of course you will have an opportunity to do so, as well.

I think insofar as these documents are concerned, it would be appropriate for me to, at the very least, hear from Commission Counsel with regard to these documents. You make the point that it's too little, too late, not the right witnesses, and so on. I don't know what Commission Counsel's position is in that regard. He may not be in a position to address the points you've just made now, because both of you obviously have just - I gather from your comments, I haven't heard from him - had a chance to look at these documents. So it seems to me it's really something I need to know from Commission Counsel in terms of is it too little, too late, are these the right witnesses, are there witnesses who will be coming that could address these documents, and so on and so forth, before I would be in a position to rule on your points that you have just made.

MR. TAYLOR: Of course. I appreciate that, and I think that's a good idea, Mr. Commissioner. Just to clarify, and you said I haven't looked at the documents which that is perfectly correct in the sense of studying the documents. I have eyeballed

the documents, is what I can say.
THE COMMISSIONER: No, I took your comments to be that.
MR. WALLACE: Thank you. Mr. Commissioner, I, too have gone through the documents briefly. There are, I think, 32 documents in the first list from the Aquaculture Coalition and then subsequently last evening another, I think, three, that I have not looked at. And there are, I think three from the Conservation Coalition, which came earlier in the day yesterday.

I e-mailed to all counsel this morning, probably too late for them to read it before they arrived here at 8:30, and in that e-mail I said that I had -- it would -- that my position was that this was not the appropriate time to produce these documents because of the lack of timeliness, both -- and principally because it would be unfair to the witnesses in particular and the other participants in their preparation.

Secondarily, it offends our rules that require reasonable notice.

I also made the point that the documents appeared to me all to relate to aquaculture in some detail, and they were various published articles.

And I pointed out that aquaculture has a dedicated period of time in this inquiry. We would have an opportunity to prepare for it in a methodical way, and it didn't seem to me that this was the panel of witnesses to whom these documents should be put. And further, that if it turned out through the aquaculture piece that some of these questions were properly put to the witnesses we have here now, we have the intention of recalling a, what I might call, an executive DFO panel at the end of the hearings to clean up exactly that sort of loose end. And if there was a witness here today who wasn't scheduled to be on that panel, we would certainly consider recalling a witness for that purpose.

So that was my take on the documents, that basically there is prejudice and an inappropriateness in hearing from it now. In my submission, there is no prejudice to leaving it until aquaculture, and seeing how it develops later.

There may be other participants who may wish

to weigh in before Mr. Leadem and Mr. McDade should have an opportunity, as well.

THE COMMISSIONER: Sorry, Mr. Leadem, you were about to stand.

MR. PROWSE: I was up already, Mr. Commissioner, if I might.

THE COMMISSIONER: Oh, I'm sorry, Mr. Prowse. I apologize.

MR. PROWSE: Yes, so Clifton Prowse for the Province of British Columbia.

Mr. Commissioner, I support the objection made and the position of Commission Counsel. The volume of paper that we're talking about I can't physically describe because I couldn't eyeball them, because they crashed my e-mail and they crashed the printer. Some of them are long studies that are very -- are huge scientific documents. And I think that Mr. Leadem and Mr. McDade will have ample opportunity to advance these documents at a later stage of the Commission.

The later stage, I think we're talking about, looks sometime in April or May of next year. I assume that there will be several days made available and that there is going to be contested evidence and the whole nine yards. I think of it as being a trial within a trial. But I think it's very important that that trial start in April and that's the time when this be dealt with, rather than documents coming in incidentally through witnesses. And so I support the position of Mr. Taylor and Commission Counsel.

MR. BLAIR: Alan Blair for the B.C. Salmon Farmers Association, also speaking in support of the remarks made by Mr. Taylor.

On the issue of lateness of disclosure, those of us who have BlackBerrys just received four more attachments at 10:10 this morning, and I doubt that we've even eyeballed those, and they're from the same group of documents.

THE COMMISSIONER: Mr. Leadem.

MR. LEADEM: For the record, Leadem, initial, T., appearing as counsel for the Conservation Coalition.

Firstly, let me say that I regret that we're taking up valuable time at the Commission to deal with this issue that would better be a -- would

better be addressed by some concordance amongst counsel. Some of the difficulties that we've been experiencing, I think are better dealt amongst ourselves, rather than bringing them to air in front of the Commissioner.

Having said that, now that it's been raised, there are a number of difficulties with respect to documents, not just from my clients, and not just from Mr. McDade's clients, but other participants, as well as Commission counsel, being visited upon us at the last minute. And the case in point is that we received many documents late in the day that were sent to us from the actual Commission Counsel.

Now, the problem that I see is that we are in this process and that we're not quite sure how it's all evolving.

The documents that I intend to rely upon in cross-examination are not necessarily -- although on the face of it they appear to be aquaculture documents. They don't necessarily -- are on aquaculture, per se, but they're on as a case study with respect to how science is addressed and how science is used.

And I think it's rather presumptuous, with all due respect, for counsel to say that they think that this is somehow -- that it's presumptuous for them to suggest that they know they can intuit what my cross-examination is all about. I should be allowed to pursue my cross-examination in the direction that I see. And if there's objections taken at that time, then they can be dealt with at that time.

MS. SMITH: Thank you, Mr. Commissioner, Lyndsay Smith on behalf of Areas B and D.

I support Mr. Leadeam's position and, in my respectful submission, to curtail cross-examination on the basis suggested by Mr. Taylor, runs the risk of this Commission being deprived of evidence relevant to the terms of reference, and in my respectful submission that's the place to look. And the objection should be in the normal course, on a case-by-case basis, so that we aren't in a position where evidence is either not elicited or we're in a situation where witnesses are being recalled.

And I echo my learned colleague's submissions

with regard to an even playing field with regard to late disclosure. We're being deluged with documents and some of them are coming late. And so, in my respectful submission, that objection is weak and perhaps not an adequate basis to deprive the Commissioner of the evidence potentially available.

THE COMMISSIONER: Thank you.

MR. McDADE: Well, Mr. Commissioner, I --

THE COMMISSIONER: You have to identify yourself, sir.

MR. McDADE: It's Greg McDade, for the --

THE COMMISSIONER: Thank you.

MR. McDADE: -- Aquaculture Coalition.

THE COMMISSIONER: Thank you.

MR. McDADE: I must say I think I agree with Mr. Leadem. I frankly don't understand the objection at this point. And you may be, since you haven't seen the documents and don't know what the issues are, you may be under a misapprehension about the purpose of them.

Let me say that most of the documents that we provided notice of are in fact DFO documents, some of them right off the website, or documents that have been referred to many times, Reports to the Standing Committee on Fisheries. There are a number of Science reports that do relate to aquaculture, but that would be a small percentage of the documents.

When I say I don't know what the objection is, I think somebody is misunderstanding what our questions are before we've even asked them. We're in an odd position with the rules that have been imposed on us. We've been told we have to give notice of documents, even though they're in Ringtail, even though they're DFO documents, we've been asked to give notice of them in advance of cross-examination in the event we may refer to them. And we've endeavoured -- maybe we took that too literally, but we've endeavoured to try and do that, to try and plan out one's cross-examination before the evidence is even presented, and give all the list of documents, which we may or may not refer to in cross-examination, to give people as much advance notice as they can. And I'm just trying to do that in as good faith as I can.

It's not that I want to examine the documents in detail, and there may be a better time to do

that. But it may be that there are questions in which some of these documents may be relevant to the answer. So it's just simply a precautionary approach to looking at full cross-examination. And I don't think objections to those kinds of documents should be made until the question is asked.

What I understood today was about, was about science and risk, and how the -- how the Department prioritizes its science matters. That's what I intend to cross-examine on.

Now, the fact that the particular documents that I'm interested in all relate, or many of them relate to aquaculture, should be no surprises. That's what my clients -- that's the position they're coming from. I would -- I would suggest that would apply to every participant in the room, that the documents that they'll want to cross-examine on, if they're not wasting the Commission's time, would be documents that are relevant to the points that they're going to make to you at the end of this hearing.

But the general nature of the discussion today is -- I intend to respect that. Now, to say, though, that you can discuss science and risk without discussing aquaculture would be as artificial as saying that you could discuss it without discussing salmon, or without discussing fish habitat, or without -- surely, science and risk applies to all of these matters.

And if we're to get beyond the very generic and bureaucratic evidence of we're integrating this and doing that, surely wee need to look at what actually is happening in that relationship. And here we have the senior people from DFO, and like I did yesterday, in terms of asking questions about organization from an aquaculture perspective, I'd like to ask questions about priority setting and the policy approach to science in Ottawa from an aquaculture perspective.

If I'm not going to be allowed to ask questions about that because it relates to aquaculture, I should just sit down and go home.

Now, if I am going to be allowed to ask questions about it, then it seems to me I should respect the Commission's request that we give some advance notice of those documents that we're

intending to refer to. These documents, most of them are already in Ringtail, or -- or readily available to others.

Now, in terms of the length of notice, though, I do think there's a matter here that you, Mr. Commissioner, have to address. I'm hearing complaints about the fact that we gave some notice about some documents on Monday, and an additional three yesterday, as because we didn't get notice of half of the documents that were put in as exhibits today -- in fact, more than half of the documents that were put in as exhibits to you today were not provided to us until yesterday during the hearing, when we didn't see them till last night, hundreds of pages of documents. All of the documents that were provided over the last two days to you didn't come to us from the Commission until Friday night.

Now, if we're going to prepare -- and I wasn't complaining about that, that comes with the nature of trying to do the Commission. I accept Commission Counsel's statements when he says they're doing the best they can and they're getting the documents to us as fast as they can, and I'm prepared to work late to be able to deal with that. But there can't be two standards here. If we're not getting the documents until Tuesday, people can hardly -- people can hardly object to the fact that we don't give our response documents until Tuesday.

Cross-examination has a purpose, and if the participants here are going to be able to assist you, our role has to be respected. And neither -- if we're going to be asked to give our documents with more notice, then surely we have to expect that the witnesses that come before you will produce their documents ahead of time, as well, an equal amount. Ideally, that's how this matter will work as we start rolling.

If we get witness statements and witness documents a week ahead of time, then of course we can prepare a response three or four days ahead of time. But if we get all the witness statements and the witness documents the day before they testify, then I think it's really unfair to hear objections that we didn't produce our documents at the same time. If I have to wade through those

hundreds and hundreds of pages of documents to be able to cross-examine, then it's not unfair for me to present documents that I want to use in cross-examination.

We have a -- we have a database here that's now approaching many hundreds of thousands of documents that we're all having to deal with. This is difficult. But I think it's totally unfair to make this objection at this point.

But let me come back to my main point. I think people misunderstand what we're trying to do with these documents.

THE COMMISSIONER: I have your main point, Mr. McDade.

MR. McDADE: Thank you.

THE COMMISSIONER: Thank you very much.

Mr. Taylor, before I hear any further submissions, I just wanted to -- and I think we are taking up some valuable time here from witness availability. I wanted to pick up on the sentiment that Mr. Leadem expressed, and that is that I think this is a matter that at least initially can be handled well by counsel collaborating around the subject matter of timeliness and use of documents.

Secondly, it would be, I think, more rational for me to, if I have to give a ruling, give it in the context of a specific document put to a specific witness. At that time I will at least have some directed submissions with regard to the fairness issue and the appropriateness issue regarding that question and that document at that time.

I think there are ways in which I can deal with issues around timeliness and subject matter and appropriateness, that would at least put on the record the question and put on the record the document, and I can deal with it in different ways in terms of ensuring that the question is not lost and the document will be fleshed out and there will be an opportunity for all counsel in the room to deal with the matter at hand. But I am somewhat concerned about dealing with rulings in a vacuum.

MR. TAYLOR: A couple of points, if I may, Mr. Commissioner. Firstly, I understand there's 32 documents that came from Mr. McDade last night, and they didn't come Monday, as he said, they came

last night to us as participants. I can't speak to when he sent them to the Commission. I can only speak to when we got them, because everything goes through the Commission. Of those 32, I'm told that or understand that only 12 of them are in Ringtail. And as a general point, we've seen little very documentation in Ringtail from any other participants besides ourselves, and there's some from the Province, as well. But that's not today's issue.

I take your point, Mr. Commissioner, that Mr. Leadem has suggested it could be dealt with amongst counsel. I note that neither Mr. McDade nor Mr. Leadem spoke with me or had any approach towards me before they just sent over these documents, even though we've been sitting 20 feet apart for the last four days. This came as a complete surprise to me when I got back to the office, and it seems to me incumbent on them, knowing full well that there's going to be issues about this, that they would have spoken with me. But if it is your preference as I hear you, for counsel to speak at the lunch break, we can do that and see what, if anything, comes of this.

But with all of that, there will be a range of documents, of course, but in the main a lot of the documents, and the main concern is this is nothing but a back-door attempt to put in scientific papers that ought properly to be put to witnesses other than these ones, at a time other than now.

But with that, I hear your point that it's difficult for you to be dealing with it in a vacuum. I think that this, unless we can do something in talking, it will all come up again, it sounds like, sometime later this afternoon or tomorrow, and we'll have to deal with it then. And if we go in that way, depending on what the outcome of that is, of course, re-examination may be longer than shorter, and we may -- well, we'll just have to see how it goes, I suppose, at that point.

THE COMMISSIONER: Thank you, Mr. Taylor. Mr. Wallace.

MR. WALLACE: Thank you, Mr. Commissioner. Two good things happened as a result of that break. The documents that the technical -- the technical glitch we had has been corrected, so we ought to

be able to proceed. And we learned Mr. McDade's application of the precautionary principle in a legal context.

EXAMINATION IN CHIEF ON QUALIFICATIONS OF SIDDIKA MITHANI BY MR. WALLACE:

Q I wonder if I may address you, Dr. Mithani. You're currently the ADM Science at DFO?
A That's correct.
Q And you have come to this position only in February of this year?
A That's correct.
Q Prior to that you were with Health Canada and had been there since 1997 in several positions, including Director General, Veterinary Drug Directorate, 2005-2007, and as Associate Assistant Deputy Minister of Health Products and Food Branch from 2007 until this year?
A That's correct.

EXAMINATION IN CHIEF BY MR. WALLACE:

Q I have a couple of questions that I'd like to address to you at this point, Dr. Mithani. You have heard Dr. Watson-Wright this morning describe a number of documents, well, essentially a process and a focus for Science, which as I hear her has been underway since about 2005, and there are two aspects to it. And I would like to first of all ask you about the process that was established by those documents, and ask you to comment on the status of that direction of the process, being the setting of a five-year framework, and a five-year plan, and then specific projects which were intended to carry on through 2013, and as I heard Dr. Watson-Wright this morning, subject to tweaking, were the roadmap for Science through the period we're in now.

I wonder if you could comment, please, on where that program is.

DR. MITHANI: Thank you very much. Mr. Commissioner, I did hear Dr. Wendy Watson-Wright and I -- from my perspective, the work that has been done since 2005 as described by Dr. Wendy Watson-Wright has been very appropriate. What needed to be achieved

with respect to the understanding of Science within the Department, has certainly been achieved. What Dr. Wendy Watson-Wright and the team had done in terms of providing a mechanism for establishing research Science priorities, would be exactly the way that any ADM would have moved forward. And I think that the process will not change.

I think if you -- if you look at some of the work that is currently being done, in order to ascertain as we move forward what our Science priorities -- our research Science priorities are going to be, it is -- it is a similar process which is both top-down and bottom-up, where there is engagement with scientists in terms of the areas that they would identify as research priorities. It would go through a similar process where there would be engagement with the National Science Directors Committee, and as well the approval of these research Science priorities from the Departmental Management Committee.

It's really important from my perspective, as I come into this -- this particular role as the new kid on the block, to look at and to ensure that the Science priorities are clearly aligned with the strategic outcomes. And as we look at Science Renewal, which is what Dr. Wendy Watson-Wright had done, we are now at a stage where it's time to look at how those Science priorities need to be aligned with the strategic outcomes.

So I think that what we are trying to do now is the initial work of renewal has been done, we've looked at Science capacity. That's what Dr. Wendy Watson-Wright did, and my role now is to take that beyond just the renewal and look at how we can align appropriately as we look at Science research priorities.

Q Dr. Watson-Wright this morning described the work of the Science Management Board, and we in fact have minutes of all of the meetings, I think, of that Board up until 2009. Has that Board met since?

DR. MITHANI: No, the Science Management Board has not met since 2009, and again the reason has been, as Dr. Wendy Watson-Wright articulated very clearly, that there was a purpose, there was a focus. The Science Management Board was really looking at a

strategic direction. We are there now.

What we now need to do is to go one step further, identify what the Science priorities need to be, to actually validate them and say is this where we still need to be? Has anything changed? Does it need tweaking? And I think that Dr. Wendy Watson-Wright did talk about the tweaking.

So we haven't met yet because what you need to do, from my perspective, is you have to be very clear on the kind of advice, recommendation that you would want from a Science Management Board. And at this point in time there's work underway in looking at exactly what we would want to bring the Science Management Board for, and what kind of advice we would want from that Board so that we can move forward.

So again it's a question of validation, looking at where our Science priorities, what we want to tweak, and then bring them back in again and talk about validation and then have the approval process just as Dr. Wendy Watson-Wright had articulated.

Q Dr. Mithani, perhaps it's semantics, but could you explain to me or to the Commissioner, please, the difference between the strategic direction and the priorities. As I understand you, you say that the strategic direction is in place and now it's time to reconsider priorities. Is that the -- I don't -- it strikes me as perhaps a contradiction there, but that may be my misunderstanding of the words.

DR. MITHANI: Thank you for the question, Mr. Commissioner. It's not a contradiction. It's clearly looking at how we move beyond the priorities. So what Dr. Wendy Watson-Wright at the time had done was established certain priorities, certain Science priorities. And what the next step is, is to look within those priorities and further refine those priorities so that we have some good tangible deliverables in terms of what Science needs to do when we move forward.

Q I wonder if we could just look at some of the specifics that the way the Science strategy had developed through Science Renewal, as I understand Dr. Watson-Wright, the first step was a Framework for the Future, which is -- if you could bring that up. What's the exhibit number, Mr. Lunn?

MR. LUNN: Exhibit 36.
MR. WALLACE:
Q Can you tell the Commissioner how that document fits in the current directions of science at DFO.
DR. MITHANI: Mr. Commissioner, the document on the Framework for the Future is still as relevant now as it was five years ago. It is a framework document for the future that clearly talks about the Science priorities and, you know, the work that really needs to be done as we look at Science in the future. So this, from my perspective, is a document that is still relevant, as is the Research Agenda, and as is the Research Plan. It's looking at how we refine them as we move forward.
Q There's specific reference to the Science Management Board in the Framework for the Future document. Do I take it then that the Science Management Board hasn't been terminated, it's just resting?
DR. MITHANI: Absolutely. It has certainly not been terminated, Mr. Commissioner. We will be going back to the Science Management Board once we have done our background in terms of the refinement that I've talked about.
Q And I gather, then, so substantively again as I understand the documents and Dr. Watson-Wright this morning, the direction of Science advice and research in the Department is to an ecosystem science approach, which is the focus of the framework document, Exhibit 47. Am I -- do I understand you to say that that document is still the guiding document for the approach to Science at DFO?
DR. MITHANI: It will absolutely remain as the guiding document for Science in DFO.
THE COMMISSIONER: I'm sorry, Mr. Wallace. Which document are you now talking about?
MR. WALLACE: The document I just referred to, Mr. Commissioner, is Exhibit 47, "A New Ecosystem Science Framework".
THE COMMISSIONER: Thank you.
MR. WALLACE:
Q As I understand the hierarchy of documents, we started with the document 36, which is "A Framework for the Future", then the Ecosystem Science Framework is an overall, overarching

document, and then we go to a Five-Year Research Agenda and a Five-Year Research Plan. And I wonder, Dr. Mithani, if I could just ask you about those two plans. Can you -- are they still operating documents? I know we're still within the timeframe contemplated by each.

DR. MITHANI: They are, Mr. Commissioner. They are still operating documents. But as you know, that they are -- they have a limited time limit with respect to one -- one is dated, you know, 2007-12, the other one is 2008-13. And science is such that you've got to do some of the work right now in order to be ready to look at how those documents may need to be refined in that period. And as Dr. Wendy Watson-Wright herself pointed out that, you know, it doesn't -- it doesn't take a couple of months to refine these types of documents. There is a lot of work involved in looking at a five-year research agenda and a five-year research plan. So some of the groundwork is being done right now, and when it comes to, you know, 2011 for the agenda, and perhaps the same timeframe for the research plan, we will be working on these particular documents to see how we can refine them further.

Q So that was my next question was to be, what is Science doing now by way of refining those priorities, and what -- do I understand that you expect to have replacements for these three documents a year or so from now?

DR. MITHANI: I would expect that these documents will be refined in -- within the next couple of years. So certainly, yes, and that would be based on the work that is currently underway.

And I'd like to point out that, Mr. Commissioner, about two, three weeks ago we had a brainstorming visioning session with about 15 scientists that for a day and a half where we really looked at the Science priorities, and so we -- we went back to the Five-Year Research Agenda and looked at the ten priorities, did a bit of brainstorming in terms of are these the right Science priorities. And within these priorities, were there some that were more important than others, where things -- had things changed a little bit, did we need some tweaking.

So some of that work was done in those -- in

that day and a half and the scientists are still debating, deliberating, going back and forth in trying to identify exactly what they feel the Science priorities need to be for the next five to ten years.

And I just want to elaborate a little bit on some of the discussions, if I may, that happened at these meetings -- at this meeting. We talked about priorities in -- Science priorities in three buckets. So the first bucket was the science that was currently being done right now, and people would be asking for more science within that science area. And the themes that came out were charting, Arctic baseline, invasive species, aquaculture, is information and science that our clients and our clients happen to be other sectors within the Department of Fisheries and Oceans that are asking for this science right now, that will be asking even in the future.

The second area of science that was really identified as science that's being asked for right now but the questions are going to get more complex. And that area what was identified as one of a few was habitat and some of the habitat issues. So the fact that the scientists recognized that we haven't been able to quantify the habitat issues in terms of the value of productivity and biodiversity would be another area.

And a third area was people not asking for this science right now, but in the next five years it's going to be a real priority for Canadians. It's going to be a policy priority for Canadians, And there were two that really struck me. One was hazard preparedness, so really looking at hypoxia, ocean acidification, biohazards, tsunamis, and how, you know, what would -- what would the risks be. And the analysis of risks around those biohazards was going to be very important in the next five years to come.

And the other one was the whole idea of ecosystem science and the fact that you really needed to look at cumulative effects, and what does Science need to do in order to prepare for factoring in cumulative effects. So, for example, climate change with resource exploitation, the risk analysis that needs to go with it. You know,

some of the work that needs to be done in terms of what would the tradeoffs be. Can human use and biodiversity coexist, and if it does coexist, what kind of risk analysis we need to do for those.

So a lot of discussion happened there. This was very, very preliminary, and there will be more. But what it allowed us -- what it allowed me from a Science perspective is looking at those ten priorities and everything that we discussed was actually within those ten priorities. But it provided us more focus on, you know, when we look at Science, what is it that we need to do in the next five years.

Q Dr. Mithani, DFO provided us with a list, it's number 14, it's just a list of I think 15 names. And my question is are these the people -- it's in the -- document 14 in the original. Number 14 on a list of 13. It's simply a PDF list of names and I could just read them. That's it.

MR. LUNN: I think maybe --

MR. WALLACE: That's it. That's it.

Q Can you see the -- can you highlight that. Thank you. Are these the attendees at your meeting, which I think was a week or two ago?

DR. MITHANI: Yes, that's correct.

Q And these are -- are these all departmental scientists?

DR. MITHANI: Yes, they are.

Q So these are all DFO employees and they all work in the Science Sector in various parts?

DR. MITHANI: Yes, they are.

Q And this was the group that you brought together to discuss the priorities that you've been speaking about?

DR. MITHANI: Yes.

Q This is really an ad hoc group, it's -- does it have any role, any decision-making, what is the -- what are the results of this deliberation?

DR. MITHANI: This was an -- this was an ad hoc group, it was -- it was a group that we had put together. What I had done was I had picked a Regional Director who had just been appointed, who was previously a scientist within the organization and was a Regional Director. So I certainly had the regional perspective. And I had Jake Rice, who is our National Headquarters Research Scientist, who had been extensively involved in the development

of the research agenda, the research plan, the ecosystem document that Dr. Wendy Watson-Wright had talked about. And so we brought together a group of people, and it was really an ad hoc group.

And there was -- there were two purposes for this. One was for me to be able to speak to the scientists, to look at what, you know, how -- how they were feeling about the Science priorities, what was happening. And the second was to have a bit of a brainstorming in terms of let's look at the long term. We have to look at long term. We've got to identify the policy priorities that may not be at the forefront right now, but that will be very important. Because Science foresight is going to be very important in the future.

When we look at policy development, policy development in government takes about three years. But in order for Science to inform policy, Science needs to start much earlier on, because otherwise the science will not be aligned to the policy development. So it was really an opportunity to look at some of these big issues, and the two, as I said, that struck me were the cumulative effects that is absolutely something that we need to do. And the hazard preparedness was another one that I think is important that we need to focus on as we move forward.

However, this is not cast in stone. And as we have talked about and as Dr. Wendy Watson-Wright talked about, there are many opportunities for dialogue for refinement for approval. And this has to come to DMC, the Directorate -- I mean, the Departmental Management Committee in order for these to be approved.

So it's really one of those ad hoc groups, bringing them together, having a bit of brainstorming session, and then really looking at how we can integrate the other scientists so that everybody has a voice in the way we move forward.

MR. WALLACE: Perhaps, Mr. Registrar, you could mark this, the list of scientists who attended the ad hoc...

Q How do we describe this? How would you describe this group?

DR. MITHANI: I would just say a group of scientists who came to the brainstorming session.

Q In October of 2010.
DR. MITHANI: That's right.
MR. WALLACE: Could this be marked as the next exhibit, please.
THE REGISTRAR: Exhibit number 52.

EXHIBIT 52: List of DFO scientists who attended the October 2010 brainstorming session

MR. WALLACE: Thank you.
Q Are there minutes of this meeting, will there be a report, has there been a report?
DR. MITHANI: There has been no report, Mr. Commissioner. There have been no minutes. This is -- this was, as I said, really a brainstorming session. But we will be looking at a slide deck that the scientists are preparing, you know, to come up with these three priorities as I explained, three areas of science. So that's still underway. And as you probably know, scientists, it's very hard for them to deliberate and come to a consensus on how the slides would look. So clearly there is some back and forth right now.
Q Is this intended to replace the Science Management Board?
DR. MITHANI: Absolutely not. I mean, as I have mentioned earlier, that the Science Management Board had a role to play in 2005 till about 2009, and we will reconvene the Science Management Board once some of this background is done for -- for again, advice, recommendations, as any Science Management Board would do.
Q So the result from -- of the ad hoc meeting, then, was identification of three specific priorities, I think you mentioned. Could you repeat them?
DR. MITHANI: Yes. I mean, there were obviously more within those three priorities that I have talked about, and I've talked about three areas of Science and some priorities within those areas of Science that clearly struck me as the newcomer within the Department of Fisheries and Oceans. So the three areas were science that's currently being done that people will ask more from us, and I mentioned a few themes there. The second was the science that we are doing right now that

people want, but the questions are going to get a lot more complicated, and therefore we need to keep our eye on those. And the third was really the Science foresight, where, you know, our clients are not asking for this right now, but it's going to be very important and when they ask, we will have to be ready with at least some information in order to inform those policy priorities at -- at that time.

MR. WALLACE: Thank you, Dr. Mithani.

EXAMINATION IN CHIEF ON QUALIFICATIONS OF LAURA RICHARDS BY MR. WALLACE:

Q I wonder if I might go to you, Dr. Richards. You are the Regional Director of Science for the Pacific Region, correct?
A Yes, that's correct.
Q And you have a Ph.D. in Zoology from UBC, a Master's also from UBC, and a Bachelor of Science from Dalhousie, correct?
A Yes, that's correct.
Q You have been with DFO since 1982, where you started as a postdoctoral fellow at the Pacific Biological Station.
A Yes, that's correct.
Q From 1983 to 1997 I understand you worked as a research scientist at the Pacific Biological Station in ground fish research?
A Yes.
Q And you became Division Head of Stock Assessment for the Science Branch of the Pacific Region in 1997 and held that until 1998?
A Yes, that was a one-year position.
Q In 1998 you became Acting Regional Director of Science for the Pacific Region and became Regional Director in 2002 and you have held that position since?
A Yes, that's correct, Mr. Commissioner.
Q You are also, I understand, an Adjunct Professor at the UBC Fisheries Centre and have been for about 15 years? It says 1995 here.
A Yeah, I think that's correct. I'm just hesitating because that really is more titular. I have not been very active in working at all with University of British Columbia.
Q And you are the head of the Canadian delegation to

the North Pacific Marine Science Organization?
A Yes, that's also known as PICES, and that was, I believe one of the organizations that was working with you on one of your research papers. But I am the head of the Canadian delegation to that organization. In fact, that organization just met last week, Mr. Commissioner, and I was elected Vice-Chair of that organization.
MR. WALLACE: Congratulations. I am going to ask some questions about the science peer review process within DFO and I am going to ask -- introduce Mr. Cass, as well, at this point.

EXAMINATION IN CHIEF ON QUALIFICATIONS OF AL CASS BY MR. WALLACE:

Q Mr. Cass, you have a B.Sc. in Zoology from UBC, and a Master's in Environment and Management from Royal Roads; is that right?
A Yes, that's correct.
Q You are the -- you are a Biologist with the Division Management in the Salmon and Freshwater Ecosystems of DFO Science; is that correct?
A That's not correct.
Q Okay.
A I had in the past worked with that division and have moved on.
Q And you are now...?
A In between working with that division that you mentioned, Mr. Commissioner, I chaired the -- what has been known as PSARC, Pacific Scientific Advice Review Committee, from 2002 till February of this year.
Q Thank you. You became -- in '85 you became head of the Assessment and Forecasting Program, Stock Assessment Division, at the time of the creation of the Pacific Salmon Commission and the Pacific Salmon Treaty?
A That's correct.
Q And you held that position until 2002 when you took on the position of PSARC?
A That's correct.

EXAMINATION IN CHIEF BY MR. WALLACE:

Q I want to now ask some questions of Dr. Richards and Mr. Cass, as you prefer to answer them, about

the Science advisory processes and the peer review. And the first document I would direct you to is the DFO Science Advisory Process Framework, which is number 7 in the list, Mr. Lunn. Thank you.

This is taken from the DFO website, describing the Science Advisory Process Framework. Dr. Richards, is this an accurate reflection of the process?

DR. RICHARDS: Yes. This is a national process and so this document was produced through the National Office. I believe it is accurate, but I'll let Al speak to it -- Mr. Cass speak to this.

MR. CASS: To my knowledge it's accurate, certainly up to February 2010, which I stopped being active in this. But my understanding is it's an accurate reflection of the process.

MR. WALLACE: Thank you. I wonder if I could have this marked, Mr. Registrar, as the next exhibit.

THE REGISTRAR: That will be Exhibit 53.

EXHIBIT 53: DFO Science Advisory Process Framework

MR. WALLACE:

Q This is a very open-ended question, but I wonder if I could ask the two of you just to describe for a room full of lawyers and, more importantly, for the Commissioner the purpose of the process and how it works.

DR. RICHARDS: Yes, certainly, Mr. Commissioner. I think the purpose of this process is really to provide a formal peer review mechanism, and as part of that, following through on the SAGE principles, which were identified, I believe, around 2000. And as part of those principles, which are articulated within this document, it does point to the need for science to be, you know, first of all, an early warning system, to make sure that we have the best science that's available, to make sure that we are transparent in our process, and inclusive of different points of view. As well, you know, that we include precaution as in part of our advice, that we do go through -- that we are transparent and that we do do a review process.

And the intent of this process was try to

formalize some of those principles within the way that we operate. And so it was really intended that we would have for where we needed to provide a formal advice for certain kinds of decisions, and for where we had warning and had arranged opportunities to have feedback from other -- others within the Department, in terms of where advice and where decisions were going to be needed, that we had a formal process where we could convene scientists, we would have them prepare papers, we could convene a peer review group that would include others even outside of DFO to make sure that we included and heard from all points of view on the science.

And then went through a formal review process to validate that this was the best possible science, that we made sure that if there was a disagreement, we had an opportunity to record alternative points of view, so that we could then articulate and formalize and have recorded the advice that was -- the formal advice from this -- from Science on a specific issue that was posed to us.

And perhaps I'll ask if Mr. Cass wants to add anything.

MR. CASS: No, I think that's a good reflection of the -- the overall intent of the process of peer review.

Q Thank you. Can you explain what is meant by the SAGE principles, and I think they're set out in the document. But what is the basis of those, where do they come from and what authority do they carry?

DR. RICHARDS: Yes, Mr. Commissioner. This was a group -- in fact, I'm sorry I can't recall the exact name of the group, but the SAGE stands for Science Advice for Government Effectiveness. This was an external advisory committee that was made into government, not just -- I believe to the Science and Technology Group, not to DFO. But it did provide a bit of a discussion about in fact why do we need science within government, and what is the role of science within government.

MR. WALLACE: So if I may take you to the next document, which is the Operational Guidelines for Science Special Response Processes, that document is number 8 on your list.

Q Can you explain this document, please.
DR. RICHARDS: Yes, Mr. Commissioner. I think it was recognized that there were times that might arise when mainly for reasons of timing we did not have the opportunity to go through the formal process that I just referenced. In particular, we may not have had the opportunity to provide formal working papers, to go through the formal peer review process. It does involve, I should have explained -- if I go back a bit, it does involve writing some documents, which are then tabled at a certain time in advance in order that they can go through a review. And sometimes there may be some urgency around a question and that there isn't the opportunity to prepare a very thorough research document, nor the adequate time to do that review in terms of the timelines which were set forward in terms of our process. So there was a national decision that we would develop another process that could be used where we needed to provide advice more urgently in certain kinds of circumstances.

Now, in fact I can say that my recollection, specifically we've only used this case once, and that was in a case where we were trying to provide advice to another department, and where Fisheries and Oceans Canada was not the -- was not the decision-maker. We were trying to provide advice on some contaminant issues to Environment Canada.

So in fact I think what we have -- although we have this as an opportunity, we prefer to use the formal thorough process whenever we have -- and to try to speed up the work to make that formal process work, rather than going through the special response process.

MR. WALLACE: I wonder if this could be marked as the next exhibit, please, Mr. Registrar.
THE REGISTRAR: Exhibit 54.
MR. WALLACE: The Operational Guidelines for Science Special Response Processes. The -- sorry, the exhibit number?
THE REGISTRAR: 54.
MR. WALLACE: Thank you.

EXHIBIT 54: Operational Guidelines for Science Special Response Processes (SSRP)

MR. WALLACE:
Q These are two different processes, then, am I correct, that the PSARC process includes within it a prioritization of the work to be looked at, and then the process that, as you say, a more rigorous peer review process whereas the SSRP process applies to issues that come up outside of the normal course of those priorities.
DR. RICHARDS: Yes, Mr. Commissioner. The way that we have this operationalized within the Department is that in fact PSARC has undergone a bit of a name change because we were trying to ensure national consistency. So we now have the Centre for Science Advice, which is sort of -- is a new name for what we had called PSARC. And if we have questions under the Special Science Response, it would also be managed through the same sort of Secretariat office, where all the other formal process would also take place.
Q Thank you. The next document I'd refer you to, Dr. Richards, is the Procedure in the Development -- I'm sorry, Procedure for the Development of the Annual CSAS Peer Review Schedule. Can you tell us about that process, please.
DR. RICHARDS: Maybe I will pass this off to Mr. Cass, who was the regional chair for this. This again describes a national process, and this would have been done -- Mr. Cass would have been sitting as a member of the national committee that would have developed the national schedule and the wording initially for some of the messaging that was sort of sent out and the process here.

As well, this would have been discussed through the National Science Directors Committee, so it would have been prepared by this group, and then put through the National Science Directors Committee for overall approval in terms of the process. But I think I'll ask Mr. Cass just to speak to it, because he was the person in the region who sort of operationalized this.
Q Thank you.
MR. CASS: Okay. So this, my involvement of this, Mr. Commissioner, started at the national level in 2008. This document, I believe was finalized and as Dr. Richards said, approved by the -- at the national level. But the intent of this really is to have a formal process by which we prioritize

from a long list of both regional and national requests that come to Science from other sectors, so that we had an open and transparent way of prioritizing and assess what the, if you like, the importance of the issue might be, and there are some defined risk areas by which we've set out to assess what the risk of not doing a particular request for Science advice might be. But also to recognize that there is a capacity issue in our ability within Science, and perhaps resources and collaboration with others outside of DFO in terms of achievability of a particular request that comes to Science.

So it really is a way to set out a consistent national method for prioritizing requests that we receive and to arrive at a schedule that is then approved nationally, and then publicly available on the national CSAS site. And that usually occurs, or at least follows a call from, in the case of the regions, from the Regional Director of Science, to the other Regional Directors, to provide a request through what's called the Request Form, or Request for Advice Form, that lays out the objectives, rationale, timing, urgency, importance of the particular issue.

And then that call-out usually occurs, or now I believe occurs in the fall of this year. So, for example, around now or perhaps as early as September there would be a call to Regional Directors within this Region, for example, to start preparing requests that would be sent to the Centre of Science Advice office sometime in the New Year. And I'm not sure what has happened this year, but sometime at say after Christmas, January-February.

And then there is within Science a review of the list of requests in terms of using this prioritization framework, if you like, based on the five risk areas. There is a review to understand the importance of the issue, and the capacity or achievability of the -- of the request as it comes.

And so -- and then there is a -- within our Region here, we have a Regional Management Executive Committee whose function now is to review the list that has been assessed by Science in terms of its importance as we see it, and as

the capacity within Science to review and approve the list, and that then becomes the -- if you like, the business plan for conducting the assessments within Science over one or possibly two years.

And so that's -- that's the intent of this particular document, and but ultimately to arrive at a schedule of assessment projects and (indiscernible - background noise) based on the priorities set.

MR. WALLACE: Thank you, Mr. Cass. Mr. Registrar, may we mark the Procedure for the Development of the Annual CSAS Peer Review Schedule as the next exhibit, please.

THE REGISTRAR: Number 55.

EXHIBIT 55: Procedure for the Development of the Annual CSAS Peer Review Schedule

MR. WALLACE:

Q Do I understand that the way advice, scientific advice - this will be a gross oversimplification - but the way it's developed is Science puts out -- invites the various consumers of scientific advice within the Department for areas that -- or projects that they wish to have pursued. Is that step one?

DR. RICHARDS: Yes, Mr. Commissioner. As Mr. Cass mentioned, what we would do on an annual basis is that I would send out a call to my colleagues on the Regional Management Committee and ask them where they would need advice and what questions they would need from Science over the next year, or preferably longer. Because some of these things take more time than just one year to develop, and it's very useful if we can have more notice. Because some of them may actually require additional research, rather than just pulling together existing knowledge. So that's -- yes, so that is the -- the basic process that would be followed.

Q Thank you. And then you receive the request and then prioritizing is done by Science?

DR. RICHARDS: Well, yes and no. When we receive the requests, Mr. Commissioner, the first thing that we would normally do would be to try work with the requestor to make sure that the question is --

that we understand the question, that it's articulated and framed in a way which leads itself to -- to an answer. You know, sometimes the questions can be posed in ways that are not very clear and we want to make sure that the intent, that really is clear. So we will do some work with the requestor to make sure that we understand it.

We then need to look at the full array of questions in light of, as Mr. Cass mentioned, we -- or I think he mentioned, that we do have a scheme to prioritize those various requests, that we would look at in concert also with the capacity within Science to deliver. You know, if all the requests were on the same theme, for example, we only have certain individuals who could prepare those requests, and so we need to look at it in the context of the workload of staff that makes sense to be doing that.

Now, I might also say we didn't mention that some of those requests, in addition to others within the Regional Management Committee, or my other colleagues, some of the requests may also come up through Science itself, where we want to make sure, for example, if there's some questions around methodology, that those would be -- Science needs to do that. We need to have that peer reviewed. So Science -- the Science Sector itself could also be one of the requestors of advice.

Furthermore, some of the questions, when we look through these, really are more national in scope than regional in scope. And in those cases we would then have -- you know, Mr. Cass would have discussions with his national counterpart and some of those things may then be put through a national peer review process, instead of a regional peer review process. Because we want to make sure that we have it best situated to get the best advice, and make sure that we have an opportunity for the widest scope of points of view. And recognizing, you know, that decisions need to be nationally consistent to the extent possible.

So we would go through and try to prioritize.

We'd also look at, you know, if something could not be done for workload, or sequencing reasons, or the data weren't available in one

year, it could be put on to the schedule for next year. But we would -- also would try to, you know, to make sure that we do that with a prioritization, that prioritization would then be reviewed through, as Mr. Cass mentioned, a regional committee that would then look and make sure that we've got the appropriate balance correctly, that the advice from one -- from one requestor isn't getting more undue weight relative to another. So that we have those tradeoffs reviewed and we make a decision at that level about how to go forward.

Q Thank you, Dr. Richards. Those are the considerations that we find at Exhibit 53, where from the describing the Science Advisory Process Framework, there are nine considerations listed, starting on page 4. Thank you. So those are the considerations that go into that prioritization.

DR. RICHARDS: I think -- excuse me, Mr. Commissioner. I think that those are not -- those are -- those are certainly the background and those are the context. I think in terms of the prioritization itself it may be more about, you know, the urgency of getting advice on certain issues, the perceived risk that is involved. If something is a low risk, it may have a lower weight than a high risk area. So I think these are sort of general considerations about whether something would make it onto the list. But in terms of then prioritizing the list, we would look at, you know, other factors that would be involved.

Q Thank you. The next document I would ask you to look at, Dr. Richards and Mr. Cass, is the Pacific Science Advice Review Committee Terms of Reference, and perhaps, Mr. Cass, I should put this to you. These ones are -- can you have a look at those. That's at Tab 10, Mr. Lunn. Can you advise us if those are the current Terms of Reference, or at least from your involvement?

MR. CASS: Okay. Now, I think the original Terms of Reference that were developed as far as back as 1999, so there's been amendments to the existing Terms of Reference over time to keep pace with the changes that have occurred over time since 1999. And my sense of this is that it is -- lags a bit behind some of the changes that we've made, the tweaking that -- the tweakings that we've made in,

say, the last five years, and the roles that the Senior Management Committee, the Regional Management Executive Committee plays, and in terms of the roles of participants at meetings. But generally they reflect the -- overall the structure, organizational structure of the --

MR. WALLACE: Perhaps -- I still have a couple of more questions on this, Mr. Cass, but perhaps we can mark this as the next exhibit, the Pacific Science Advisory Review -- sorry, Pacific Scientific Advice Review Committee Terms of Reference.

THE REGISTRAR: Number 56.

EXHIBIT 56: Pacific Scientific Advice Review Committee Terms of Reference

MR. WALLACE:

Q Mr. Cass, perhaps you might just briefly take us through the -- the refinements of that process, how -- how has it evolved and what are the highlights of the process today.

MR. CASS: At the time that I became Chair of PSARC, if you like, in 2002, these were the -- these were the guidelines, if you like, or the terms of reference for the PSARC process.

Now, really I think some of the changes started in 2005, some of the significant changes started in 2005 in terms of the role of the -- Mr. Commissioner, the role of the Regional Management Executive Committee. And the role was reformulated in 2005 and 2006, I believe, a Decision Paper was presented to the Regional Management Committee for adoption. And the role was changed really to emphasize the need to prioritize or have a process to prioritize a growing list, if you like, of requests. And as has been already mentioned in Dr. Wendy Watson-Wright's presentation this morning, the diversity of requests has expanded, starting in the -- around 2000, mid-2000, 2005, if you like, to pick a date.

The role -- or sorry, the diversity of requests expanded beyond the traditional role of providing science advice for Fisheries management to a range of other issues, in particular to the ***Species at Risk Act*** where the focus moved from managing fish stocks to -- to advising in terms of

the legal obligations on the -- on the health of species that were considered by COSEWIC to be endangered, if you like, or threatened. So that's one example of an area where the diversity has expanded. Other areas are in dealings with the ***Oceans Act***, if you like, the ecosystem approach that already has been mentioned.

So there was a range of -- and environmental issues through -- there was a range of expanding requests that resulted in a change in the way, as has been mentioned, the way that we prioritize requests. So that was one issue that was -- that had changed is formalizing these requests.

We had started to do that within the Pacific Region, if you like, ahead of the -- what was arrived at nationally in the previous exhibit, I believe, on -- on the CSAS National Framework for setting the schedule. So the second -- so (1) we reformulated the role of PSARC -- or sorry, of the Regional Management Executive Committee.

We also emphasized full participation of all of people invited to PSARC meetings, so that everybody had equal rights in terms of their emphasis or their -- their role at PSARC meetings.

And but in 2007 we -- Mr. Commissioner, we started to think about how we open up the -- or at least make more transparent the way in which we prioritize PSARC requests within the Pacific Region. So that's been a change, if you like, Mr. Commissioner, from the original Terms of Reference, or at least up to 2005, 2006.

And then of course the prioritization method or scheme, if you like, was taken on nationally to give national consistency across different regions.

So I would say the two areas where these particular Terms of Reference don't reflect the current procedure, if you like, are the role of RMEC, R-M-E-C, and the way in now which we prioritize PSARC requests.

Q RMEC, tell me who is responsible for that and what the acronym means.

MR. CASS: Sorry. Yeah, RMEC is -- the acronym is Regional Management Executive Committee, chaired by the Regional Director General. Its members consist of the other Regional Directors, and so -- and maybe others may want to expand on this, but

its function was to --
Q We did hear about it before, I just wanted to --
MR. CASS: All right.
Q -- put it into this context. But it's a -- it's a committee chaired by the Regional Director General. It's (indiscernible - overlapping speakers).
MR. CASS: That's correct.
Q Now, a couple of the matters you just referred to are referred to in two more documents, which I'll just put to the two of you. And the first is the "Policy Governing Public Participation in the Pacific Scientific Advice Review Committee", that's a document which was amended in 2005 and it seems to have involved both you, Mr. Cass and you, Dr. Richards. Do you agree that you were -- that reflects the public participation that Mr. Cass was just describing?
MR. CASS: That's correct, Mr. Commissioner.
DR. RICHARDS: Yes, that's correct. That was the policy that we had at that time. However, as Mr. Cass just mentioned, there have been some more recent changes to that policy. I believe that document talks about two classes of participants, one with observer status and one with full participatory rights. At this point we have tried to eliminate the observer status and have everyone who is present at the meeting have full participatory rights. So that is one change from the document which is currently here.
MR. CASS: Maybe just to add, Mr. Commissioner, the reason we have an observer status, or one of the reasons is that in large part participants are invited because of their -- their role is to be objective and to bring with them some expertise and knowledge on the particular subject that's being reviewed. But they are invited as individuals. They don't represent a particular agency, like industry for example, but they're invited as individuals. So that's the basis on which they accept the invitation to the meeting.
There may be others that wish to observe the deliberations, the review of the -- of the -- of the PSARC meetings, but who are recognized or within themselves are to be representatives of other groups. So they're not there as individuals perhaps, but they want to observe the -- the

meeting proceedings, but are still there as -- perhaps not as experts on the issue, but as -- as representatives of other groups.

MR. WALLACE: Thank you. Perhaps the Policy then could be marked as the next exhibit, the Policy Governing Public Participation in PSARC from 2005.

THE REGISTRAR: Number 57.

EXHIBIT 57: Policy Governing Public Participation in the Pacific Scientific Advice Review Committee (amended 2005)

MR. WALLACE:

Q And then the next document I would take you to, Dr. Richards, the Regional Management Committee Decision Paper of April 2006, which I think reflects the change that Mr. Cass just mentioned. Is that correct?

DR. RICHARDS: Yes, that's correct, Mr. Commissioner.

MR. WALLACE: And that's -- if that could be marked, then, as the next exhibit.

THE REGISTRAR: Number 58.

EXHIBIT 58: Regional Management Committee Decision Paper of April 2006

DR. RICHARDS: Mr. Commissioner, that document also includes some other comments that we referenced earlier about how we can work within the Region to make sure that we develop the appropriate list for advice, and also how we then can bring it back and have discussion at the Regional Management Committee so that we can make sure that we inform everyone later about what the results of those decisions were. So there are multiple pieces within this particular note.

MR. WALLACE:

Q Thank you. If I may direct you, Dr. Richards, to the Decision Paper entitled -- this is a Regional Management Committee Decision Paper entitled "Prioritizing PSARC Requests" which appears in the information at the bottom of the page to have been dated June 1st, 2007. Can you identify that Decision Paper for us, please?

DR. RICHARDS: Yes, Mr. Commissioner. This particular paper, I think Mr. Cass already -- we've already touched on this. The issue here is that we were,

as in fact mentioned by Dr. Wendy Watson-Wright, having many requests for advice within -- for the Science Sector, and we needed to have a way that we could fairly and clearly prioritize amongst those requests. So within Pacific Region we developed a bit of a framework which is laid out here, which in fact Mr. Cass largely developed, and that was agreed on as a way to move forward. So we'd have some kind of structure around which to identify all the requests and put them in a logical order and sequencing, so that we can make sure that we did address the issues which were of the highest priority, and also had an opportunity to work where we had requests from -- from different of the other Regional Directors. We had a way to partition this in a fair way so that we can make sure that we did address the highest requests across -- across the range of sectors, not all within one sector. So that was really the purpose of this.

And then it was this process which was then taken up nationally and led to a more refined version, which is now used for setting priorities at the national level.

MR. WALLACE: Thank you. May I have the June 1st, 2007 Regional Management Committee Decision Paper entitled "Prioritizing PSARC Requests" marked as the next exhibit, please.

THE REGISTRAR: That will be 59.

MR. LUNN: Mr. Wallace, there are five attachments with that document. Did you want to mark those, as well?

MR. WALLACE: May I get back to you on that. I don't actually -- I don't have them in my book, so...

DR. RICHARDS: Yes. Mr. Commissioner, those attachments are just sort of a work-through example about how the prioritization process would actually work. So it was really intended as more background illustration as an example.

MR. WALLACE: Just then I would include them within the exhibit. Thank you.

EXHIBIT 59: June 1st, 2007 Regional Management Committee Decision Paper entitled "Prioritizing PSARC Requests" with five attachments

MR. WALLACE: Now, Mr. Bevan and Mr. Sprout, you were introduced to the Commissioner earlier in the week, so I won't do that again. I have a couple of specific questions and then a general one for each of you.

THE COMMISSIONER: Mr. Wallace, I wonder if I could -- I apologize for interrupting.

MR. WALLACE: Not at all.

THE COMMISSIONER: Just before you move on to Mr. Bevan and Mr. Sprout, just for clarification on my part, I believe one of the witnesses that you addressed questions to talked about the Centre for Science Advice, and just where does that fit within the documents that that references? It may just be a name change.

The other couple of matters, one witness mentioned "capacity". Where does that fit within the evidence and documents you've introduced through these witnesses?

And thirdly, I'm a little confused. I understood they were talking about requests for projects from within DFO, but perhaps they're also talking about requests for projects from, I think one witness said "other sectors", and it wasn't clear to me what that meant.

MR. WALLACE: Thank you, Mr. Commissioner. Let me just then address those questions to any of the panellists.

Q Dr. Richards, the Centre for Science Advice...

DR. RICHARDS: You know, as Mr. Commissioner indicated, that really is a name change. There was a -- in fact, it was -- the change was earlier at the national level, and so nationally there was a decision to call -- to have a Secretariat that was called the Centre for Science Advice, and within Pacific Region we were a little slow in picking up that terminology, because we liked the name PSARC so much. So we were -- but it was essentially it's the same process and so now we have within the last year really formally adopted the name CSAS in Pacific, so we would be called Centre for Science Advice Pacific. But effectively, that is the same as PSARC, we were just slow in picking up that terminology.

Q So C-S-A-C (sic) is the national --

DR. RICHARDS: Well, the Centre for Science Advice Secretariat, is the --

Q CSAS. Yes.
DR. RICHARDS: Okay.
Q And then CSAP is what PSARC has evolved into, but you can understand why they preferred PSARC.

The next question, Dr. Richards, one of the issues I think you mentioned that you look at in determining what to take on by way of projects is capacity, so perhaps you might comment on that.

DR. RICHARDS: Yes. Well, and I think this might be linked back to the discussion with Dr. Wendy Watson-Wright this morning on the Science HR strategy, Human Resources strategy, where we recognize that, you know, we do have -- it's very skilled but also limited workforce, and we need to be -- you know, if we have questions that are all in the same subject area, our expertise is spread over quite a wide range of subject areas. And in one particular area we may only have one, or maybe none, or maybe a very few people with expertise. And if all the questions are on that one subject, we cannot overload that one individual to do all that work. So there may be a capacity issue around addressing these questions that we would need to reflect in our scheduling and the timing of the issues that would be able to deliver. So we would look at the prioritization piece of these requests. We'd also look at the Science ability to deliver on that.

Now, if we have certainly in the context of where -- if we know these things are coming well in advance, we could possibly hire other people to take on some of that workload. But if it's a very short-term request and it's a very specialized technical area, we may not be able to do that. So that is factored in, but it's all in the context of ensuring that we are trying to deliver on really what are the highest priorities.

Q Thank you. And the Commissioner's final question was as to whether PSARC entertains requests for projects other than from within DFO.
DR. RICHARDS: Mr. Commissioner, the process is really defined to address questions that come for advice from within DFO. So that is really what its intent is.
Q Thank you. Mr. Sprout, I see from the minutes of the Science Management Board that you were involved, I think, in all of those meetings. I

wonder if you had anything to add to what Dr. Wendy Watson-Wright mentioned this morning.

MR. SPROUT: Well, I was involved from 2005 to 2007. It's a two-year rotating Chair for -- there's two RDGs on the -- on the Board, one from the West Coast representing the -- one from the West and from the East. And the individuals are in place for two years and they're replaced by a counterpart. So I was in for a couple of years. Then my counterpart in Central and Arctic sat in for two years, and then I came back in at the end of the -- I think 2009.

In terms of my general comments, I thought it was a -- it was a very good decision by Wendy Watson-Wright and then Deputy Larry Murray to bring together a Science Management Board. I thought that because at a very senior level in the Department we really needed to focus on the strategic direction of Science. And we needed to have time when we weren't being interrupted by BlackBerrys, we weren't dealing with a crisis or an emergency of the day, which typically is how the DMC functions. You're inundated by challenges, and you're distracted. What I found hugely beneficial about the SMB was a day, or a day and a half, or two days of focus on Science. and kind of talking about the long-term and what are the issues that potentially are going to drive decision-making in the Department, and what do we think Science can contribute to and what are the areas we should focus in on. So I was a very enthusiastic supporter of the SMB as initially conceived. Certainly for the two years that I first sat on it.

Q Thank you. Mr. Bevan, you're here because you're a consumer of Science and you've heard a lot about the process of prioritizing and how so from your perspective do you get involved at all in the establishment of priorities that have been discussed this morning?

MR. BEVAN: Only as a member of SMB. I was involved in some of the discussions of the SMB and we were looking at refocusing, as noted by Dr. Wendy Watson-Wright and Dr. Mithani. We have a shift away from single focus and single user to multiple users. So there was a need of the Science Management Board, and I was involved as the ADM of

Fisheries and Aquaculture Management at the time. I recognize that we're not going to be the only users, and recognize as well that our old focus on one species had been a real problem. And the best example of that was when we ignored oceanographic shifts of a huge scale and couldn't factor those into how we managed cod. We ended up continuing fishing patterns that would not -- were not sustainable, because we didn't understand the risks posed by the changing ecosystem and the price has been very large indeed for that.

So we -- I was part of those discussions that talk about broadening out our focus, not being so fixed on one piece of science, but rather having broader.

And we also have a lot of discussions at Headquarters between Resource Managers and the Science people, to talk about what kind of questions can be posed to Science. Because we don't want to ask the old kind, which was: How much fish is there? How much can I put in for a total allowable catch? We wanted to find a different way to pose questions to Science, and we also had to have that kind of dialogue so that we knew that we weren't asking unanswerable questions, and that there was a reasonable question being posed that was useful to management, but also could be efficiently and effectively answered by Science.

So that's the kind of involvement I had. I didn't get into the region-by-region priority setting at all.

Q Thank you, Mr. Bevan. Dr. Richards, there has been mention of the Science -- National Science Directors Committee, can you just advise us, please, about that, what that group does.

DR. RICHARDS: Well, yes, and perhaps Dr. Mithani would like to speak to that, as well. But from my perspective, the National Science Directors, it's a committee which is chaired by the Assistant Deputy Minister of Science, or now Oceans and Science. It includes on it all the Regional Directors of Science, so my counterparts across the country, as well as the key Director Generals from the National Headquarters.

It's an opportunity to discuss items that need to be addressed nationally by the Science

Sector, to talk about the priorities, to discuss new programs, to discuss various issues and particularly around the human resources and the financial aspects that we need to discuss. It's also an opportunity to ensure national consistency, where in a lot of cases we need to ensure that we have national consistency in our approaches.

So it's -- there's -- the agendas tend to be quite long and quite diverse within a number of different items, mainly dealing with just the administration of the Science organization, as well as with key program elements within that. But maybe Dr. Mithani would like to add something.

Q Yes, please.

DR. MITHANI: Thank you very much, Mr. Commissioner. I just want to echo some of the things that Laura Richards has said about -- about the National Science Directors Committee. It meets every two to three months and it's an excellent venue to bring some of the national issues together, while recognizing that there are some unique regional issues that will probably come to the forefront because we start off by looking at -- within each region, what are some of the things that keep the Regional Directors up at night. So people can hear about various regional issues that are -- that are currently things that people are working on.

So it is for national consistency, it is an attempt to try and get some good -- some best practices together. It's looking at a sort of coherent approach to some of the science that we do. It's really getting people together to talk about human resources strategies, to look at areas of expertise. So there is a lot that is covered.

We actually have these committee meetings on a regular basis because it's really important for National Directors to come together with Ottawa to talk about these things because they are important.

Q Just one very general question left for you, Mr. Bevan and you, Mr. Sprout. Throughout these hearings we will, I am sure, be faced with the intersection between Science and management, the advice received. We've heard about how the advice is formulated and priorities developed. Do you

have any general observations about how processes for distilling, receiving and acting on scientific advice, first of all, nationally and secondly in the region, or is it -- is it all going to be ad hoc. Is there a process there that I might learn about.

MR. BEVAN: No, there is a process. For taking decisions, particularly ones that go to the Minister, there's the process of developing a briefing note, a memorandum for the Minister. Affixed to that there will be some documentation that might be looked at by the Minister, or looked at by the Minister's staff. And then attached to that there will be the Integrated Fisheries Management Plan. And in all of that there will be reference to the Stock Status Reports, in the case of some fisheries. But in the case of Science there will be reference in the memo itself to the advice that would be needed to be considered by the Minister in terms of harvest rates on weak stocks, in terms of the drivers of the implementation of the plan in the coming season, and relevant to coho and chinook and weak stocks such as Cultus, et cetera. Those then are discussed with the Minister. A decision is taken, and that then goes back out to the Region.

I should say that all of this material comes from the Region. It's originated in the Region.

There is some dialogue between Region and National Headquarters. We'll have the West Coast Resource Managers will be talking with the people developing the note, as well there will be -- the note will go through an approval process to go to the Minister. It will involve the managers, certainly, but it will also involve signoff by Science, and once everyone is satisfied with the content of the note, it goes to the Minister for consideration.

So it does incorporate Science and I am sure that Paul Sprout will be able to provide you with more of the detail on this process that's undertaken in the region.

Q Thank you. Mr. Sprout?

MR. SPROUT: If I could, I'd like to speak to the first part of your question. I think David has covered off the other aspect, which is the intersection of Science and management. And I'm interpreting your

question quite broadly, management being fisheries management. It could include all sorts of other aspects of management.

Q Indeed (indiscernible - overlapping speakers).

MR. SPROUT: In my view, this morning, what you've heard is the formal processes the Department has put in place to effectively channel and use the resources it has against the Science priorities that it has identified, and there are various national documents that were discussed by Wendy Watson-Wright, and then there are regional documents that have been elaborated on briefly by my two colleagues here in the Region.

But I think to get to your question, you need to also think about other inputs, which I don't think have been discussed so far today. Because in this -- in the Region, we have meetings and processes where we meet with different clients. So we meet with commercial fishermen, recreational fishermen, First Nations. We meet with environmentalists. We have meetings that talk about habitat and so forth. All of those exchanges involve usually discussions around issues, or concerns, and frequently related to Science. And therefore you're exchanging and you're conversing, and as DFO people, both scientists and fishery managers, you're bringing that back into your formal processes, for example, in Science.

So, for example, in this Region, when we -- when I chair the Regional Management Executive Committee, which is the committee that tries to sort of prioritize the -- the limited capacity of Science to do everything into a list that can be done, the Regional Directors that are around that table with me are talking about some of the perspectives that their clients are providing. And they're advocating or encouraging certain work in certain areas.

So in Fisheries Management, for example, Sue Farlinger, when I was the RDG, when she was the Director of Fisheries Management, might make an argument for we need to do a chinook stock assessment work because we have problems with Fraser River chinook, and First Nations are flagging this issue, as are other parties, and so this is an important priority. Then someone else

might say, well, this is a priority, a different client. And what we're trying to do is to come up with a list at the end of the day that allows the capacity of Laura's people to be met, but not exceeded.

And so I think this informal input haven't been reflected today -- and I can go on.

We have not talked about international treaty arrangements. I was the former head of Canada's delegation for the Canada/U.S. Pacific Salmon Treaty. So in that process, which has a very significant Science phase, we're interacting with our American colleagues, with Canadian participants, including recreational fishermen and First Nations and others, and we're talking about Science issues. And again that comes back into the process of the Department.

so I wanted to speak about that intersection because I really believe that the description today was fine, but it does not -- it's not comprehensive. It's not as broad as in fact all the inputs that I perceive and see that influence Science ultimately and the decisions the Department eventually takes on what are the Science priorities of the Department.

Q Thank you. Mr. Bevan?

MR. BEVAN: If I could just add something, and just to point out that when we talk about Science, there's a tendency to focus on the researchers or on the sectors and organization. But there's an awful lot -- it's a science-based Department, so there's an awful lot of people engaged in activities that could be seen as science.

For example, in the Habitat Program there are many Habitat biologists. They're engaged in determining if there's a harmful alteration or destruction of fish habitat. They don't necessarily all go to Science with questions. So it may be simple enough that the biologist there in that program will make that kind of determination and doesn't need to refer questions to Science.

We also have in this Region biologists associated with Resource Management. So again there's people with a science background conducting science-type activities, that are not included in this kind of process because they're

operational and they're operating from within a sector that's not Science.

So I just wanted to point out that there's more to it than just what's in the process we've been discussing this morning.

MR. WALLACE: That's very helpful. Are there any last comments from anyone on the panel?

Mr. Commissioner, those are my questions for this panel, and it's just coming up to half past 12:00.

THE COMMISSIONER: Right. It's been a long morning and I think it's appropriate for a break.

But perhaps after the lunch break, just briefly, Mr. Wallace, and again this is just for my understanding from this group of witnesses, when they talk about -- there's been a lot said in the last couple of days about ecosystem and how that concept works its way through these documents and in the actual day-to-day activities of the DFO. But to the extent that other government departments are considering ecosystem issues, for example in the Natural Resource area, or in the environmental field, Environmental Assessments, and so on, what is the crossover between the work that's being done by employees of DFO with others who may be engaged in similar activities across the government spectrum where there's some interrelationship.

And it would just be helpful for me to know, because I think most of everything they've said so far seems to be in-house. Mr. Sprout described a process in-house of conversations and dialogues, but is there any conversation and dialogue that would overarch all of the activities that government is engaged in when it comes to the ecosystem. So that would be helpful for me just briefly, if they can. If it's not convenient, that's fine. But if they can, that would be helpful.

MR. WALLACE: Thank you.

THE COMMISSIONER: We'll take the break, then. Thank you.

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

(PROCEEDINGS ADJOURNED FOR NOON RECESS)
(PROCEEDINGS RECONVENED)

THE REGISTRAR: The hearing is now resumed.
MR. WALLACE: Good afternoon, Commissioner Cohen.
Brian Wallace, Commission counsel. Just before we get to the question you left with the panel, Mr. Commissioner, I just want to remind participants and counsel that the Commission, by its terms of reference, can only publish things simultaneously in both official -- make public things simultaneously in both official languages -- not doing well in even one of them.

As a result, the transcripts which you get on a daily basis are -- you receive under the undertaking of non-disclosure. That undertaking pertains until we are able to publish them on our website, which we are doing as quickly as we can, but they require translation before we do that, so I would just ask that you treat the transcripts, until they're on our website, the same way as you do the documents which you receive through the discovery process.

That's different from the exhibits. We've come to the conclusion that the exhibits are not things being published by the Commission, so we are not translating exhibits. They are published on the -- posted on the website when they are filed. The policy and practice reports, and in due course the science reports, we are endeavouring to translate before they're presented here as evidence, so they are ready to go on the website when they're produced here.

I just would confirm that tomorrow morning, we do have at least three participants have indicated the likelihood that they will have questions for Dr. Wendy Watson-Wright, so the possibility that you might not be -- it might not be necessary to be here at 8:30 is gone. We will be here at 8:30 tomorrow morning.

Which brings us to your question, Mr. Commissioner, to the panel which I have in a very summary form, and I would just put it to you, which I'm sure you have a better grasp of it than I do.

EXAMINATION IN CHIEF BY MR. WALLACE, continuing:

MR. WALLACE: It's the interrelationship of DFO science and other governmental departments with interests

in the same areas such as the Ministry of the Environment and others. So perhaps we'll start with you, Mr. Bevan.

MR. BEVAN: Thank you. There are indeed some interdepartmental committees, Mr. Commissioner, that do deal with the science question. There's the Science and Technology Committee which is actually led by Deputy Minister Dansereau, and there's also the Climate Change/Environment Committee. Those, however, talk about coordination at a very high level, so the work that would then result, coming out of that, would not necessarily translate into something that would inform management decisions at DFO.

There's also been the International Polar Year, and there's some northern strategy that brings together activities of several departments, but again, those are very high level and are not useful in determining whether or not or what specific impacts there would be on productivity relevant to fisheries.

So if we know, for example, oceans are warming or this acidification, the question is what does that mean in terms of risks, and how do we manage those risks, then, I think that takes more specific attention from inside the Department of Fisheries and Oceans Science.

Q Thank you, Mr. Bevan. Dr. Richards?

DR. RICHARDS: Yes, thank you, Mr. Commissioner. Certainly on our program level, we do have collaborations with other departments because we recognize that we need that other expertise to make a fully rounded program, and that we also, within Fisheries and Oceans, have expertise that can contribute.

For example, we do have agreement with Environment Canada particularly on global climate modelling since we have the expertise on the ocean side. We have two or three oceanographers that are working very closely with scientists at Environment Canada on the global climate modelling. So there are pieces like that where we work with interactions where needed to make sure that we have a fully-rounded picture, can put that fully-rounded picture and share our expertise across departments where required.

Q Thank you. Any other comments in response to the

Commissioner's question?

Thank you, Mr. Commissioner. This would bring us to the Government of Canada.

CROSS-EXAMINATION BY MR. TAYLOR:

Q Continuing for the moment, if I may, with the Commissioner's question, as I heard it, and if I've not got the Commissioner's question quite right, I'll put it as my own question, then.

Underlying the question, I think, was an interest in knowing what processes are there and means are there government-wide to have collaboration and consistency within government on the science side and, at the same time, to avoid duplication; in other words, synergy and leveraging to build off each other and to avoid doing over again what's done before.

Maybe I'll start at the regional level. Is there anything more that you would like to say on that, Dr. Richards?

DR. RICHARDS: Well, yes, Mr. Commissioner. Where appropriate, we can enter into memorandums of understanding with other departments. We would normally do that on a project-specific basis where we want to work on a specific project, to collaborate, to share expertise. But most of this really is done on a project-specific basis except for a few cases, as I mentioned, where we actually have staff that are co-located with Environment Canada, for example.

Q Is there anything, Mr. Cass, that you would add to that in terms of different federal government departments pulling together or sharing either research or information and sharing advice, perhaps, even, science advice?

MR. CASS: Mr. Commissioner, the only thing I can add is we have had occasion where we've invited a representative of science from different departments; in particular, Environment Canada. Other than that, I have no knowledge on other --

Q All right. Mr. -- I'm sorry, Dr. Richards?

DR. RICHARDS: Yes, sorry, I just forgot to mention an extremely important collaboration which is perhaps relevant, which is at the Institute of Ocean Sciences. We actually have the Pacific Geoscience Centre which is in the same facility, so in this

case, we have a very strong connection that's being built between Natural Resources Canada and Fisheries and Oceans Canada, because we have both our oceanography group and their geoscience group which are co-located. Because of that co-location, we do have other synergies that are really relevant to the whole system of, you know, how we work together and share across ecosystems, and they're bringing their mapping, their expertise on the ocean floor into our expertise in the ocean water column.

In addition, at the Institute of Ocean Sciences, we have one scientist from Environment Canada, who is also co-located there, who is working on the birds. So we have something from the atmosphere, the ocean and the ocean floor all co-located, which really does help with those synergies. So, you know, that is a main mechanism that we use for integration.

Q Mr. Sprout, on this same topic, and as the Regional Director General until approximately June of this year, do you have anything to add in this vein? And that is from your perspective as Regional Director General, the working together of federal departments in either preparing science advice, doing science research, sharing information and that sort of thing?

MR. SPROUT: I don't think I have anything substantive to add other than to say that there are numerous collaborative agreements between the department -- other federal departments with provincial government that are typically project-related. They're around an issue.

I have nothing further to add as well to the other point I thought the Commissioner asked which was: Is there something over-arching on ecosystem-based science that cuts across all departments? I'm not aware of that. Others here may wish to speak to that, but I thought that was a point that the Commissioner had raised, so I would add that from my perspective.

Q All right. Maybe on that first -- sorry, Mr. Bevan, it looked like you wanted to add something.

MR. BEVAN: Yes, I would add that we have a joint project with NARCAN on mapping the extent of the continental shelf. That's not directly related to the fish or ecosystem at large, but it does

provide another data source.

I think the one where we do have more collaboration is on the climate change question, but again, that's at a high level. It doesn't really help inform specific management decisions.

Q NARCAN, that would be Natural Resources Canada, would it?

MR. BEVAN: That's correct.

Q And the collaboration on climate change is with what department?

MR. BEVAN: With -- Environment is key, but it's with a variety of departments.

Q Dr. Mithani, do you have anything to add to either -- well, mainly the question as to what collaboration or coordination or other cross-work there is between federal departments?

DR. MITHANI: Sure. Thank you very much. Mr. Commissioner, first of all I want to just confirm what Mr. Sprout has talked about with respect to the fact that there isn't a government of Canada framework for ecosystem science as it exists right now, but there are certainly lots of tables where there is science policy integration.

So where Mr. Bevan has talked about the Deputy Ministers' committees on the climate and science and technology, we do have similar Assistant Deputy Minister committees on science and technology that involves Environment Canada, Natural Resources, Health Canada and other science-based departments. We've also got something called the Northern Committee or the Arctic Committee where there is also the inclusion of INAC, which is Indian and Northern Affairs as well as the Department of National Defence. We meet on a regular basis to talk about some of those science policy linkages and issues that touch all our interests.

Q Dr. Mithani, I'm not sure if this relates to the same committee that Mr. Bevan was speaking of or not, but are you aware of a Deputy Minister committee on science, and is that the same one Mr. Bevan was speaking of?

DR. MITHANI: Yes, it is. It's the Science and Technology Committee that Deputy Minister Dansereau is champion of.

Q Yes. And you anticipated my question which is there's a concept of champions within the federal

civil service, is there?
DR. MITHANI: Yes, there is.
Q And can you just elaborate on what you said about champion and the Deputy's role?
MR. BEVAN: The Deputy is there to lead the discussion of the Deputy Ministers and to chair that process as champion. So it's to bring to the group, or through a particular process, various issues for discussion.
Q Okay. Thank you. Now, for the Commissioner's benefit and perhaps so that it's perhaps all on one page, there's a couple of acronyms used this morning that I just want to see if we can be clear for everyone what they are. There's RMC, and maybe I'm looking to Dr. Richards or Mr. Sprout on this. But you'll be familiar with RMC. Can you just say what that is?
DR. RICHARDS: Yes. Mr. Commissioner, RMC stands for Regional Management Committee, so that is the committee that is chaired by the Regional Director General and includes basically most of the direct report to the Regional Director General and deals with management issues in the region.
Q And you're a member of that, are you, Dr. Richards?
DR. RICHARDS: Yes, I am a member of that committee.
Q Then there's also -- I think I've got the letters right -- RMEC?
DR. RICHARDS: Yes. That stands for the Resource Management Executive Committee and basically that is also chaired by the Regional Director General. I also sit on that committee.

Basically what that committee does is it's the committee which -- there has been some change in function of that committee over time. Previously, that committee used to receive the Science advice, but at this point, we have a much more direct link now to the Science advice being passed and communicated. So, at this point, the function of that committee is really to address the prioritization of annual requests for advice, and to agree on what the priorities are so that we have -- agree amongst the committee so that science has a list of priorities and a list of agreed documents that it will prepare for advice for the coming year.

So that's currently the main function of that

committee.
Q Are you able to approximate the time or year when there was a change from what you were describing as a role it used to have to a slightly different role now?
DR. RICHARDS: I think it was in the mid-2000, so around 2005.
Q All right. There has been reference in the evidence from this panel and from Dr. Watson-Wright to science research and Science advice. The words, of course, are different, one from the other, but I expect that there's probably, within the Science sector, a difference in meaning attached to those. Maybe I'll start with Dr. Richards. You've got your mike on I can see. Can you just speak to that, and then I'll go to Dr. Mithani.
DR. RICHARDS: Yes, certainly. I think the reference is really -- and Dr. Watson-Wright described it this morning. We're putting the overall framework document for how we're going to proceed in Science. We needed to have some way to divide it up into pieces that we could address. So it was really an attempt just to divide it up into pieces that we could address. So it was really an attempt just to divide it up and so that we could more simply and clearly explain the work that science does.

So as was described this morning, there are number of different functions within the Science program. One of them was monitoring, one was data management, one was research, one was advice and the other was development of products and services. Obviously these are all linked. You need to do the monitoring and the data management in conjunction with the research, will then lead to the advice and will lead to the products and services.

So, really, in terms of advice, we're thinking of the formal endpoint, the more formal process of developing -- writing advisory documents, going through the review process. However, in order to have developed those documents, there would have to have been research, and there would have to have been data management and monitoring to get the data on which that advice would have been generated.

Q Okay. Dr. Mithani, did you want to speak to that?
DR. MITHANI: I would just add that clearly the process continues to remain the way it is, Mr. Commissioner. But, in addition to that, we are now looking at how the Science sector can really be proactive in being able to look at the science needs of the future, and some of the work that we will be doing now and beyond is really identifying those areas and being able to work on them right now so that when those big policy questions come into play, Science will be ready with the information to ensure that good policy decisions and good policy development takes place.
Q Now, moving on, part of one of the Commissioner's questions this morning had to do with what's meant by "sector", and it's a term that's been used a fair bit and will continue to be, I expect. Can we just see -- have clarity on the use of the word "sector", Mr. Bevan?
MR. BEVAN: Yes, and I can understand the confusion, because we use it in several different ways. But relevant to our own organization, sector is something like the Ecosystem and Fisheries Management is a sector. It's headed by an ADM, in that case by a senior ADM and an associate ADM. They have certain functions that they oversee in conjunction with the regions.

Another example would be, let's see, like Science and Oceans would be a good example because there, there's a mirror in the regions to some extent. So there's a relationship between the ADMs and the Regional Directors, and that's how we organize ourselves, if you recall back to the organization charts. The Deputy had a number of ADMs reporting to her, and each one of those would head a sector.
Q So the -- am I understanding you to say that sector is used in the sense of unit with both headquarters and unit within the regional office.
MR. BEVAN: That is generally correct. There are some differences. With the reorganization, there is no longer, for example, a direct link in the region that would mirror the Ecosystem and Fisheries management, because it's broader. So there are Regional Directors of FAM, Fisheries and Aquaculture Management, which is a component of the Ecosystem and Fisheries Management sector, and

there's a relationship between them and the ADMs' staff.

So there's a Director General of Resource Management in the Ottawa organization, in the Ecosystem and Fisheries Management sector, and they have a direct relationship with the Directors of Resource Management. There's a Director General of Conservation and Protection, and has a direct relationship with the Regional Directors of C&P, Conservation and Protection in the region.

So there is a relationship that exists between people in the Ottawa organizations and in the regions. But it's not always the case that the regions are organized exactly along the same lines as Ottawa. So, for example, there might be a Regional Director of Science, and another Director of Oceans, that both of those would have a relationship with Ottawa.

Q All right. So, at the regional level, Dr. Richards, would it be correct to refer to your unit as the Science sector in the region? Is that how you call yourselves, a sector?

DR. RICHARDS: Well --

Q Or do you call yourself a section or unit or what? I'm just trying to get at the word "sector".

DR. RICHARDS: Yes, unfortunately I think -- sorry, Mr. Commissioner. I think our language does get a little confusing, and even in the region it's very confusing.

Technically within the region, I would be called a branch. But in terms of the broader context in dealing with the group in Ottawa, we would call it the sector. So it's -- I'm sorry, it is a bit more confusing. But technically, our regional organizational unit would be called a branch.

Q Okay.

MR. BEVAN: Just to make it really confusing, of course, if we're talking about sectors in industry, that's a different nomenclature, so that would be recreational, aboriginal or commercial. We sometimes just say, okay, those are different sectors, et cetera. So we are rather loose with our language.

But internally, it means that there's a sector head, an ADM in Ottawa, responsible for a group of activities that are part of the process

that contributes to the strategic outcomes. They are not always mirrored in the regions, but there are people in the regions that aggregate up to the Ottawa sector. So, for ecosystems and fish management, it includes Fisheries and Aquaculture Management, it includes the issue of salmon enhancement and it includes the habitat and Small Craft Harbours programs. They all report to the sector, one way or the other, up through to the sector head in Ottawa.

Q All right. Thank you. So just summing up, then, when you hear the word "recreational sector", that's a sector with a small "s", I take it.

MR. BEVAN: That's correct. It has nothing to do with the organization inside DFO.

Q All right. And then we've heard from one there's formal sectors within the Department.

Dr. Mithani, can you elaborate - and I don't think there's been too much said already - elaborate on the role of Science at headquarters, the Science sector at headquarters, of which you are the head, with the regional work.

DR. MITHANI: Thank you for the question. Mr. Commissioner, the role of Science in headquarters, first of all, Science is a delivery program, so the role of Science in the Department of Fisheries and Oceans is to provide information and objective advice to the sectors within the Department of Fisheries and Oceans. So here we are talking about objective advice that comes from the research, the information, the monitoring, the data management that is being done within the Science sector. So, from that perspective, we are a service organization that actually delivers a service to the sectors within the Department of Fisheries and Oceans.

Q And then how do you relate and interact with Dr. Richards and other people in the Pacific Region, for example, in concrete terms or day-to-day work if I could put it that way.

DR. MITHANI: We have several mechanisms through which there is a close relationship between the headquarters and various regions. The first mechanism is that of the National Science Directors' Committee. As I said, it meets every two or three months where we do talk about best practices, we do talk about regional issues, we

talk about consistency across the country. We talk about national issues as well. That's the one.

There is also a connection or a partnership, a linkage, between the various directorates within the Science sector, so if it wasn't complicated enough, based on what you heard just previously, within the sector we have directorates, so at this point in time, I have four directorates. One is the oceans directorate, the other is the ecosystem science directorate, the third is the science strategic interaction or integration directorate, and the fourth is the Canadian hydrographic services.

All these directorates are headed by a Director General. There is a relationship between those Director Generals and the various -- their counterparts across the region. So when issues come up, there is an interaction between Director Generals and Regional Directors. There is the National Science Directors' Committee.

Also, what we have now implemented in the last month are bilaterals, bilateral meetings or teleconferences that happen between Regional Directors and myself so that we are all kept in the loop in terms of the unique issues that happen within regions and that headquarters is linked effectively.

Q All right. Dr. Richard, you have a working relationship, I take it, with one or more of the Director Generals that Dr. Mithani just referred to?

DR. RICHARDS: In fact, I hope I have a good working relationship with all of them, and I do talk to all of them quite regularly, depending on the issue that comes up. So the telephone works very well. We're also in very regular email correspondence.

Q The Commissioner has heard something about the matrix management model already, but bringing it home to your work, Dr. Richards, and your branch or sector, as it's sometimes called, can you explain, from an operational sense, how it works? How do you relate and work with and report to and through, on the one hand, Ms. Farlinger now, Mr. Sprout before, and it sounds like multiple Directors General and Dr. Mithani.

DR. RICHARDS: Yes, certainly. I realize it's quite complicated, Mr. Commissioner, and it's sometimes complicated for us as well. But basically, the Regional Director General in the region, Pacific Region, is my direct supervisor, so I am directly accountable to that person. At the start of every year, I develop an accord with that person, and that has certain expectations on deliverables for each year. We go and review those at mid-year and at year-end.

Through the Regional Director General, I also sit on the Regional Management Committee which is an opportunity for me to then talk to all of my colleagues, my counterpart Regional Directors in Pacific Region, and an opportunity to interact with them and to hear their views and to have a joint dialogue on various issues.

Also, the region has other committees besides the Regional Management Committee to focus on more specific issues such as the Strategic Directors Committee, which is a subset of the Regional Management Committee, but that's used to discuss and have a bit more focus and opportunity to discuss certain policy-type related issues.

There's also the Operations Committee which is also a subgroup of the Regional Management Committee, and on that committee, we would focus it more on sort day-to-day operational issues that we need to discuss.

So that's part of it.

Q And just picking up on something that Dr. Richards said, Mr. Sprout, she said that you, up until June, Ms. Farlinger now, is her direct superior. Is that because the Regional Director General, the role that you recently had, is the person accountable for the delivery of federal government services within a given region and, in this case, the Pacific Region and for the Department of Fisheries and Oceans? That is, you were accountable for all of that work within British Columbia and the Yukon?

MR. SPROUT: That's correct. I'm ultimately accountable for the implementation of the policies and programs and activities consistent with the resources we receive.

Q And then at one and the same time, the subject area expertise, science, which is what we're

talking about right now, of course has a real need and desire to be working with and in conjunction with the Ottawa science people.

MR. SPROUT: Yes. Earlier this week, we explained the matrix model of the Department of Fisheries and Oceans, and so you have the ADMs of the sectors in Ottawa who have the functional responsibility, which is the policy direction. The regions have the responsibility to implement that direction within the resources received. The Directors that report to the RDG take the policy direction and, within the resources, implement that direction. They're accountable for their activities within their area of responsibility, as I am more broadly within the entire region.

Q Thank you. Mr. Cass, turning to publication by scientists, you've spoken of the peer review process at some length this morning, and that comes into play in this question, which is: Can you briefly explain the practice and protocols within the Department of Fisheries as it relates to Department of Fisheries scientists publishing?

MR. CASS: I can comment, Mr. Commissioner, on the publications and documents that would emerge from the peer-review process which is distinct from other publications in peer-reviewed journals that aren't part of DFO's peer-review process for advice.

But we have a number of products in the peer-review process that are outcomes of meetings, and one of them is called a research document which is a finalized version of -- Mr. Commissioner, a finalized version of a working paper which is a draft submission to the PSARC, which is now CSEP (phonetic) Committee, and if that's approved and based on revisions following the review, then that becomes a research document which is, in fact -- could be a rather intensive technical document that presents the information as far as the analyses and results and recommendations.

Then there is also -- and that is authored by the key people who actually did the analysis and write the report, the research document.

Q All right.

MR. CASS: Sorry, then there is also -- I'll just finish up. Then there's also what's called the Science Advisory Report, which is a DFO product.

It's not authored by an individual, but that one is now emerged as the key document which summarizes the advice that goes forward from the reviews.

There are proceedings documents which are essentially now minutes of the individual review meetings. But those are documents that come from the peer review process.

Now, Dr. Richards, Mr. Commissioner, might want to comment on other functions that scientists undertake as far as publications go.

Q Yes. Can you take it broader, then, Dr. Richards? I understand Mr. Cass to have spoken to publications that are DFO documents that are authored by scientists. Moving beyond that, are there practices and protocols that apply?

DR. RICHARDS: Yes, Mr. Commissioner. In terms of the way that Science functions, we do have international peer-review journals and scientists are expected to publish regularly in those journals. In fact, those -- that publication practice is sort of factored into their promotion, their career advancement process.

But in terms of that publication, the normal procedure would be that there would be a review mainly for quality and also just to ensure that things are, to some extent, that we've walked a bit of a line between the science and what's done in Science and whether there's some stepping over in a policy. Certainly scientists are free to work on their science, and we would encourage them to publish that work. But there is a -- it does tend to be a minor review of that prior to submission to the journal that would be done by someone in my direct reporting line, not myself.

MR. TAYLOR: All right. I should perhaps mention, Mr. Commissioner, that the panel of witnesses have a total of four binders, two sets of two binders in front of them which are the documents that the Commission has been circulating around which are exhibits that were put in this morning and earlier this afternoon. Some of the witness members of the panel, I understand, find it easier to have paper in front of them, so that's what those binders are.

Now, Mr. Sprout, I want to -- I thought they did. They do now. Thank you, Mr. Mr. Registrar.

Q Mr. Sprout, I'd like to have you, if you would, drawing on your years of experience through the 2000s as the Regional Director General, an associate before that, I recall you came into that role in 2003. Drawing on your years of experience in the region, can you briefly describe for the Commissioner how Science advice has been used by fisheries managers in this region to address and deal with the management of Fraser sockeye? So I'm trying to see if you can bring this home to some of the particular interest and topics that the Commissioner will be wanted to get at.

MR. SPROUT: Well, it would be used in a variety of ways. If I could just pause for a moment and explain how the cycle of fisheries management works, very briefly.

There's a pre-season forecast that typically takes place a year to two years before the fish come back. Then a fishing plan is developed prior to the season beginning. Then the fishery occurs in the season and then the fishery is evaluated at the end of the season and the fisheries populations are assessed at the end of the season as they are assessed during the season. So that's a snapshot of the fishery process. I could elaborate in much detail.

During that process that I've just described, Science is involved in every step. So, for example, Science, at the very initial part of the process where we're doing the forecast, will provide a forecast. So that forecast will go through a peer-review process along the lines that Mr. Cass explained and will eventually be provided to the Department to the various fishery management officials and the various sectors, and I mean outside sectors, now, commercial, recreational and so forth, and will ultimately become the formal basis under which we will forecast the return for sockeye in that particular year.

Now we move to the planning process. So now we're trying to develop what we call the Integrated Fisheries Management Plan. So that's the plan that says, okay, with this forecast, what are the scenarios that we're going to apply to harvest Fraser River sockeye? What are the conservation objectives? What are the restraints

that we need to apply to assure ourselves that we're following our policies, wild salmon policy, precautionary approach, et cetera.

Again, Science would be participating in that process. They may have been asked to provide answers to some of the questions that I've just framed. They would be potentially participating in the integrated process with the other sectors, recreational, commercial and First Nations, but they would be part of that process to develop the IFMP.

Now, I'm going to move into the in-season. So now the fish are coming back from the North Pacific. They're entering into British Columbia waters, top end of Vancouver Island, the bottom end of Vancouver Island. Now we have procedures in place to assess those populations. We have boats that we charter. Those are typically commercial boats. They go out and they catch fish at a certain spot at a certain time, and then that information, then, becomes the basis to calculate how many fish are coming back. So Science would be involved in that working with the Pacific Salmon Commission, which I understand you will be going into a lot of detail in a couple of weeks on the harvesting side, so I will not describe that relationship in detail, other than to say that there's a relationship and our Science people are involved.

Okay. Now the fish are coming back, they're being assessed. Now we're fishing the fish. Openings are being held, fish are being caught, and you're recalculating the run size now, because based on the catch in the commercial fisheries, or the other fisheries, you're re-estimating the run. This is a dynamic system. Every day you're -- and possibly by hour -- you're revising the runs. So Science is involved in that, working with colleagues in the Pacific Salmon Fisheries Commission.

Now, as the season -- the fishing season concludes, the fish now are moving onto the spawning grounds. Here we will move into our stock assessment mode where our scientists and biologists and technicians are enumerating the fish on the spawning grounds. There are significant enumeration techniques that you will

probably be exposed to later which I will not go into detail that Science leads.

Then finally, we will do an evaluation of how well the season went, what happened. We forecast this, what happened at the end of the day in terms of catch, return, exploitation rate and numbers of spawners. Science will be involved in that assessment as well.

Then the cycle that I've just described, which is a one-year cycle is repeated the next year and the next year and the next year, so that is done every year.

On top of that, Science also looks more strategically at longer term. It looks at the Fraser returns over a period of time to take into context trends in returns. So not just annual changes, but changes over time. So Science will do modelling work around that and all of the information that they have along these lines will inform the fishery managers, inform the integrated advisory processes I spoke of, and then potentially becoming incorporated into the IFMP plans for any particular year.

Now, this is a light overview of the role of Science. I can go into much more detail. I can also describe other advisory processes, that I have not gone into detail, that Science participates in, that Laura Richards referred to very briefly. But I'll take a cue if you wish me to do that.

Q Okay. Well, just -- I think I will have a couple of questions on that, but before we go there, may I ask, from your time as Regional Director General, how important was the Science input or involvement, as you put it, in the fisheries management work that you've just described?

MR. SPROUT: It's foundational. We have to figure out how many fish are going to come back. We have to figure how many fish we should catch, how many fish should be allowed to escape, and we have to understand as well as we can how the fish are behaving.

The bulk of what I've just described would be generated by our Science staff.

Q Now, Mr. Bevan, at one or more junctures along this one-year cycle that Mr. Sprout has described, does this science work that's going on in the

region in one form or another, come up to the national level and engage you and others at that level, you being formerly the Assistant Deputy for fisheries management essentially, and now moved to Associate Deputy.

MR. BEVAN: Yes, there's two -- a few points. Generally, there's work done, as Paul Sprout mentioned, on the assessment after the season, so that's something that we're aware of and keep track of, but there's also a forecast for the coming season. We don't like going to the Minister with a great tome. The Integrated Fisheries Management Plans are quite dense documents. We don't like going there with a short time frame for the Minister to consider things, and present the Minister with all sorts of difficult choices on a very short timeline.

So there's a tendency for us to seek input from the region -- or they provide us with the material, and that is founded on science, but it also will say these are the types of choices you, as the Minister, are going to have to make when the time comes for approval of the Integrated Fisheries Management Plan.

It will outline some of the challenges. It could be conservation imperatives for various species, coho, chinook, salmon, Cultus Lake being a good example of sockeye salmon.

So it'll outline the general types of decisions that the Minister will be having to take as well as what's expected in terms of the kinds of challenges and opportunities that the fishing season is likely to represent.

Then closer to the time for the fishery to commence, we go to the Minister with a more detailed decision note, and ask the Minister to approve the Integrated Fish Management Plan, but more importantly, from a science point of view at that particular level, is the need to, say, we must take the following actions to conserve co-migrating weak stocks of coho and chinook on the west coast of Vancouver Island or Cultus Lake sockeye, for example.

There'll be a number of those issues that we need to get the Minister to decide on so that that then, in season, the managers will have direction from the Minister as to what parameters they're to

manage the fishery to.

All of that, again, the forecast note -- or the what's coming in this season as well as the IFMP, those are all founded on Science advice.

Q Thank you. And, Mr. Sprout, were the processes that you described, and then Mr. Bevan expanded on from the Ottawa side, in place for the 2009 season?

MR. SPROUT: Yes, they were.

Q Now, there's been some talk of -- oh, before we go to this, you spoke of some processes that you had in place, Mr. Sprout, to do with Science, vis-à-vis management of Fraser sockeye, I think it what you were getting at. Can you briefly outline what processes you're referring to?

MR. SPROUT: I was speaking of two levels of processes. One is there are really fundamental questions around what are your conservation objectives on the Fraser River, what are the exploitation rates you should apply, and so forth.

So the Department in the region has initiated a process to answer some of those questions and work with various groups. Mr. Cass, or possibly Laura, would be in a better position to address that particular aspect. So that's one set of processes.

The set of processes that I'm most familiar with are the processes like the Regional Management Committee, the Operations Committee, the Regional Management Executive Committee that we've already talked -- Resource Executive Committee we've already talked about, Strategic Directions Committee, these are all committees that Science sits on that are internal to DFO where Science is participating in the decisions of the region, and bring into the regional decision-making process their perspective from Science.

That gets juxtaposed or added from Regional Directors from Habitat and Oceans, from policy, from fisheries management and -- because what I think is really important is that Science needs to be integrated into the process. It's not isolated. It's not of itself. It's part of a bigger framework and it needs to be considered along with other inputs.

So that's what I was referring to in more detail, and Mr. Cass could explain better than I

the conservation-related processes that I referred to.

Q All right. Mr. Cass, Mr. Sprout has deferred to you on the conservation-related processes.

MR. CASS: Mr. Commissioner, one example, I suppose, that I had been involved with, is the -- and Mr. Sprout indicated that the Science and, in this case, fish management is an integrated process. Science has been involved over the course of, I would say, probably seven or eight years now in a -- here's another acronym -- in what's been called the Fraser River Sockeye Spawning Initiative, which is really, as Paul Sprout was alluding to, a way to develop a rules-based system for determining, based on the abundance of, in this case, Fraser sockeye that's returning or estimated in season, a rule that allocates, based on that estimate of abundance, what the harvest rate applied to that would be.

It's not -- Science's involvement has not been in terms of allocation of what would be estimated to be the catch for a given year, but certainly in terms of developing conservation strategies and -- that is compliant with, as has been spoken to already today, the precautionary approach, but also to the principles in the wild salmon policy.

So Science has been involved with the modelling work that Paul Sprout talked about and has been clearly integrated in the development of a policy for harvest strategy for Fraser sockeye. That has been an inclusive process, stakeholder-driven, that, as I said has gone on for some years now, and driven by eliciting objectives from various stakeholders in multiple workshops that have occurred over the past seven or eight years. So that's an example -- a good example, I think, of where Science has integrated with a process for managing Fraser sockeye.

Q Okay. Thank you. We've heard something about Cultus sockeye, and no doubt we'll hear more. You're all familiar with that. I'll put this question to the panel and then see who best amongst you see who you think best to answer it.

But I'd like for someone to describe how the scientific advice has been used by the Department with regard to conserving and rebuilding the

Cultus Lake sockeye. This of course is a sockeye that -- there was, as I understand it, a decision taken not to put it under ***SARA*** but to instead use the ***Fisheries Act*** to address some issues about that particular stock. So who best amongst you to speak to how Science advice was used and, if you like, a real example sort of way, by the Department to -- worked into the conserving and rebuilding of that stock.

DR. RICHARDS: Okay. Mr. Commissioner, I will begin the answer to that question, and I think my colleagues then can elaborate.

Certainly at that time, we realized that we did need to have more information around this particular stock. We did --

Q What is that time, just to interrupt for a moment? Approximately.

DR. RICHARDS: Mid-2000s.

Q Thank you.

DR. RICHARDS: And so, as part of that, we did generate some proposals for some additional work. Those proposals were then put into a national funding strategy for funding that was received under the "Species at Risk", and there were a number of additional projects that were then undertaken, and the results of those projects to then feed into how we could rebuild and opportunities to rebuild for the Cultus Lake stock.

When we started this, there was -- certainly were a lot of information gaps. We were certainly lacking some very specific information, for example, information on some of the competing species for juveniles -- or sockeye within the lake itself, how they interact. Where there ways that we could improve the survival success of the -- you know, the egg to the fry to the smolt stage of the juvenile sockeye.

We also did some improvements on actually counting the returns. We put in a fence at Sweltzer Creek, which is on the -- which is the stream that feeds into Cultus Lake, so that we could measure both the number of adults and get better counts of those going in, and also the smolts getting out.

I think there were a few others. Perhaps Mr. Cass could speak to some additional pieces.

MR. CASS: Well, there's, I guess, two processes if you

want to call them that. There's -- there has been a Cultus -- I might have the word wrong here -- but Cultus Conservation Working Group that has been working over several years now to develop and assess the impact of various projects that are aimed at trying to rebuild the Cultus sockeye. As Laura alluded to, in particular a within-lake fishery, if you like, predator control fishery, for a lack of a better series of words, to assess the effect of removing a particular voracious predator in the lake, pike minnow, and so that's one element.

There is also a number of -- and there's some other programs that are involved with that as well, trials, for example, to remove Eurasian milfoil; hatchery supplementation to kick-start, if you like, the wild population, to raise the number of juveniles leaving the lake, to increase the chance of rebuilding, recovering the stock in a reasonable time frame.

There has been several peer-review processes that have occurred within DFO's PSARC framework. The latest was in May, I believe, this year. So there has been sort of ongoing Science involvement with attempting to assess the recovery potential of Cultus sockeye that obviously has included changes to the fishery regime by reducing the harbour strait (sic) on the component of the fishery that would intercept Cultus sockeye. So that's --

MR. TAYLOR: Thank you. That's helpful. Does any other panel member want to add anything to what's been said to do with Cultus sockeye and Science? No? All right. Thank you.

I have three more questions, Mr. Commissioner, which of course have sub-questions to them. It's three o'clock. Do you want me to push on or take a break?

THE COMMISSIONER: I wonder if I could just ask you to perhaps explore, if you think it convenient, just one query, Mr. Taylor, before we break. It comes out of, I think, essentially what Mr. Cass and Mr. Sprout have been talking about, but it's this: In Mr. Spout's description of the pre-, during and post-fishery -- and he was fair. He said he was giving an overview. He wasn't giving all the detail.

But where in that -- because this came up in the description of what was called an exclusive program regarding stakeholder-driver initiatives. I think you were talking about Cultus at that point.

But where in that pre-, during and post-fishery is there stakeholder involvement in the process of examination, investigation and ultimately decision-making by DFO around the openings and so on? You touched on it. And in fairness to you, you were giving an overview, but you didn't mention anything about exchange or interchange between the stakeholders and DFO.

MR. SPROUT: No. And so I will now cite each aspect of the cycle pre, during and post. There are advisory processes in which Science, fisheries management, other departmental sectors or programs are working directly with other constituents from the recreational, First Nations, environmentalists, commercial, to discuss first of all the forecast. Then to do the fishing planning which produces the fish -- which produces the scenarios around how the fishery might operate based on estimations of what might come back.

Then, in season, there's a fishery advisory process that meets -- on the case of the Fraser River it's called the Fraser Panel -- and that panel meets sometimes every day, certainly every week through the course of the season. The season typically begins sometime toward the middle of June and terminates sometime toward the beginning of September.

Then post-season, the information from the season that's past plus the information from the spawning ground assessments that's underway, then it's provided back to the advisory processes that then determine how the season went relative to what was expected, and that's where the discussions will occur with the various groups that I've just outlined in terms of their views and opinions on how the season went.

Now, Mr. Commissioner, what I've described is just the tip of the consultation, because supporting what I've just described, if I could just go on now to talk about First Nations. I said that there is a process to involve First Nations in the pre-season forecast. They're

involved in the in-season fishery process on the Fraser Panel, and they're involved in post-season.

But additionally, below that level, we have numerous interactions at a bilateral basis with First Nations communities up and down the Fraser River, and outside the Fraser, outside the Fraser River in areas the where First Nations have a strong presence and have typically harvested Fraser sockeye, like, for example, in Johnstone Strait.

So we have bilateral discussions that are going on at the community level with those groups. That information is used to various extents in the advisory processes that are occurring in-season and post-season where the participation by First Nations is more limited.

Further, we have separate discussions in addition to the bilateral consultations I just spoke of with First Nations, with First Nations organizations. At the organizational level, like for example, the Fisheries Council, which is a regional body, someone like myself will meet with them and some of the questions that may come up at that organizational meeting are questions on Fraser River salmon, which may then get referred back to a community, or referred to a workgroup comprised of First Nations and DFO to work on a particular issue that arises.

On the commercial side, we have commercial advisory processes throughout the coast. They are commercial advisory processes that are tied into each gear group and each gear area, so there's seine, gillnet and troll. We also have advisory processes that bring them all together, seine, gillnet and troll, in one process.

We also have recreational processes throughout the coast where we meet geographically with different First -- recreational groups throughout the coast and then bring them all together in one group called the Sport Fishery Advisory Board.

And finally, we have one process where we bring representatives from each of the three main components plus environmentalists together into an integrated process where we go through the pre-season forecast, the in-season plan -- the preparation of the IFMP, and components of those

four groups are involved in the Fraser panel discussions, and finally involved in the post-season evaluation.

The consultation arrangements we have in the Pacific Coast are numerous, they're comprehensive, they're designed to provide as much input as possible into the plans, into the execution of the fishery, into the evaluation, notwithstanding all the controversy around them.

Q I think it's implicit in what you're saying, Mr. Sprout, but in all of what you've been describing, is the science work that's been done, being fed into the advisory and consultative processes that you're speaking of, that is, being shared with the people you're consulting with and the advisors and so forth?

MR. SPROUT: As I remarked on earlier when this question was put to me, the science is fundamental. The science provides the forecast. Science works and provides information which ultimately becomes decisions on exploitation rate, harvest rate, escapement goals.

Q And that science is part of the information being shared in the consultative and advisory processes, is it?

MR. SPROUT: Yes.

MR. TAYLOR: Thank you. Does that answer your question, Mr. Commissioner?

THE COMMISSIONER: Yes, thank you very much, Mr. Taylor. We'll take the break now.

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

(PROCEEDINGS ADJOURNED FOR AFTERNOON RECESS)
(PROCEEDINGS RECONVENED)

THE REGISTRAR: The hearing is now resumed.

THE COMMISSIONER: Mr. Taylor?

MR. TAYLOR: Mitchell Taylor, Commissioner, continuing with questions.

CROSS-EXAMINATION BY MR. TAYLOR, continuing:

Q Panel, and I'll let you decide amongst yourselves who best to answer this, there was mention made this morning, and it was Mr. Bevan, I think, that there are biologists and scientists pocketed

around the Department of Fisheries in the Pacific Region other than those in the Science sector. And he spoke of, in very brief terms, some of what they -- who they are and what they do. Without going into detail, is there one of you, or one or more of you that can give a capsulized statement of what scientists are there other than in the Science sector, and what do they do? I'm talking about the Pacific Region.

MR. SPROUT: Well, my understanding in terms of David's question is are there other biologists in the Pacific Region that are not part of the Science branch or part of the Science sector?

Q Yes.

MR. SPROUT: Is that the question?

Q Yes.

MR. SPROUT: And the answer to that is yes. So there are biologists in habitat, principally. So in our Habitat and Oceans Group, which is a branch which is part of this -- now of the Science sector, which combines science and oceans, in that group, we have a number of people with biological degrees and their job is to, in the case of habitat, to do assessments of habitat in relationship to developmental proposals. A developmental proposal might be the construction of a road near a creek, the construction of a bridge over a river, or major developmental proposals like mining development and other activities of major consequence, run-of-the-river hydro development. In all cases, we have biological staff biologists who are part of the Habitat group who undertake the assessments that are necessary to determine whether, in fact, the developments comport, or not, with our policies or environmental legislation and ultimately to provide advice or decisions. So that's a significant group.

We also have biologists in our Oceans group. These people are principally involved in consultations around the establishment of marine-protected areas and the advancement of the oceans agenda more broadly, which has a number of sub-components besides the one I just noted. And we have some staff in there that have biological degrees or biological accreditation.

We may, as well, but I am not positive, have biologists in our Policy Sector and in some of the

other -- our Policy Branch, which is part of the Policy Sector, or others, but the principal one, I think, is the one I mentioned, and I'll just defer to my colleagues here if they've recalled others. Oh, Fish Management, yeah, right.

Q All right. That's helpful, thank you.

MR. SPROUT: Okay.

Q Dr. Richards, I don't think this has been said yet in evidence so I'll ask the question. In approximate terms, how many employees are there in the Science Sector of the Pacific Region?

DR. RICHARDS: In terms of people equivalents, that is, you know, parts of people adding up to a full year of work within the sector --

Q Sometimes called an FTE, or a full-time equivalent --

DR. RICHARDS: Sometimes --

Q -- in Federal civil service terms?

DR. RICHARDS: -- that -- yes, that's correct, Mr. Commissioner. So in terms of FTE equivalents, we have -- formally, we have 466 as our formal number that we have within the sector. Of that number, about 120 or so of that are staff that would be part of our matrix organization and working in the area offices under area directors. So then in our matrix organization, they would not be reporting up through me, but they would be reporting more to area directors, who would then have a direct line reporting relationship to the Regional Director General.

Q But those are not people that Mr. Sprout was speaking of a moment ago, are they?

DR. RICHARDS: That's correct. They would be formally part of the Science Sector.

Q All right.

DR. RICHARDS: But they're not actually part of Science Branch so it does get, unfortunately, a little bit confusing in terms of our terminology.

Q And in general terms, what are they doing?

DR. RICHARDS: Those are staff who are largely doing the programs on the salmon enumeration so those are the people who are out in the field collecting data on numbers of returning sockeye, for example, and working -- and being part of the consultations that Mr. Sprout described, working within their communities and within their various offices and regions. Also, they're very active in providing

advice through various committee processes such as various of the committees under the Pacific Salmon Treaty.

Q All right. And so there's 120 of your 466, or so, that are in area offices --

DR. RICHARDS: Mm-hmm.

Q -- and then the rest are where?

DR. RICHARDS: The rest are located within the Science Sector, itself, and the -- sorry, within the Science Branch, and those, we have four laboratories. The Institute of Ocean Sciences, the Pacific Biological Station, the West Vancouver Laboratory, and the Cultus Lake Laboratory. And in addition, we have a few staff that I mentioned earlier are located at some other sites, for example, a few staff who are located -- co-located with Environment Canada on campus at the University of Victoria in the Centre for Climate Modelling and Analysis. We also have a group of staff who are on campus at Simon Fraser University, and that is one of the groups that is working on the Fraser -- doing Fraser-related research.

Q Okay. And of the four main locations you spoke of, and I think we all know, and the Commissioner will know, where Cultus Lake is, the West Van. facility is near the Capilano -- it's on the Capilano River, isn't it?

DR. RICHARDS: No, it's not, but it is located on Marine Drive, in West Vancouver, about halfway down to Lighthouse Park.

Q Then the Pacific Biological Station is the one at Nanaimo?

DR. RICHARDS: Yes, that's correct, it's in Nanaimo.

Q And Institute, and I'll get the name slightly wrong, of Ocean Sciences, is in Pat Bay, near Sidney, on Vancouver Island?

DR. RICHARDS: Yes, that's correct, Mr. Commissioner.

Q Of your 466 people, approximately, how many are scientists?

DR. RICHARDS: Okay. Mr. Commissioner, within the organization, we have different classifications of personnel. The scientist classification requires that staff have a PhD, and their position is one which their level is based on -- incumbent based, it's based on their experience and their knowledge, their expertise and past service.

We have, approximately, 55, about 55 within that category. Now, we have other staff in a biologist category who also may or may not have PhDs, but they may have higher degrees.

Q And they'll definitely have a science degree?

DR. RICHARDS: They will definitely have a science degree.

Q And how many of them?

DR. RICHARDS: I'm sorry, I don't have the exact number of that.

Q Well, approximate is fine.

DR. RICHARDS: I'm --

Q Not coming to mind?

DR. RICHARDS: Well, I just haven't seen the numbers. I think, basically, what we have in our -- of that group, we have the main bulk of the individuals, probably 75 percent in the organization will be within three categories. The scientist category I just mentioned. We also have a category that we call technicians that are in a label called EG, and those individuals require some kind of specific technical expertise, but do not require a degree. They do require some other formal training. And then the biologist category. And probably, the bulk of the remainder of the staff are in those three categories.

We do have some staff in other categories that are more involved in, say, the oceanographic program or the Canadian Hydrographic Services.

Q All right. Thank you. I think I'm hearing you saying, if I could sum up, that about 75 percent of your 466 people are either scientists with a PhD, or biologist category, or technician category?

DR. RICHARDS: I think that's approximately correct.

Q That's fine. And this is a question of Dr. Mithani or Mr. Bevan, just in ball park terms, and I think there's been some evidence on this before, but how many employees are in the Department as a whole, and how many employees are in the Science Sector?

MR. BEVAN: There's, approximately, 10,500, or thereabouts because, as you can appreciate, that number is in constant flux.

Q Right.

MR. BEVAN: But it's around that level, 10-and-a-half to 11,000. I'll let you --

DR. MITHANI: And the Science Sector, across the country and headquarters would be about 1,700.

Q All right. And Dr. Mithani, that 1,700, does that include the 466 that Dr. Richards just spoke of?

DR. MITHANI: Yes. Yes, it does.

Q Thank you. Now, I won't ask you to go into detail, Dr. Mithani, but is it the case that there is collaboration between the Department of Fisheries and Oceans and not only other government departments, but also with universities and with other governments outside of the Federal government, and with other countries?

DR. MITHANI: Thank you for your question. Mr. Commissioner, one of the things that Dr. Watson-Wright had talked about, and that same element does continue even right now, is that external partnerships are extremely important for us. So when I talk about -- when I talked earlier about the brainstorming visioning session that we had with the scientists, one of the things that was very clear was that all the science that we needed, that the Department needed, clearly could not be done by DFO and that external partnerships were going to be very important and are very important.

So as we did the exercise in looking at some of the areas that we will need to look at with respect to science needs, we also looked at the important partnerships that either we will have to develop or that have already been developed. So that included institutions within Canada, universities, other government departments, similar -- our counterparts, government counterparts in other countries. So this is something that is very important in terms of the science that is going to be generated in order to meet the science needs of the Department.

Q Okay. Thank you. Dr. Richards, are there scientists within the Pacific Region that are specifically doing research and giving science advice on agriculture?

DR. RICHARDS: Yes, Mr. Commissioner.

Q And are those scientists people other than the individuals who are on this panel that you're with?

DR. RICHARDS: Yes, Mr. Commissioner.

Q And you're not one of the people that --

DR. RICHARDS: No, Mr. Commissioner, at this point in my career, unfortunately, I cannot do science myself so I am a science manager.
Q All right. And you're aware, are you, that those other scientists' names have been given to the Commission and are going to be coming forward later to give evidence about science in the context of aquaculture?
DR. RICHARDS: Yes, Mr. Commissioner, I'm aware that many of those staff, in fact, quite a large number of staff have already been interviewed by Commission counsel and I expect that several of those, at your discretion, will be called as witnesses.
Q All right. Thank you, Panel members, those are my questions. Mr. Commissioner.
THE COMMISSIONER: Thank you, Mr. Taylor.
MR. WALLACE: Thank you, Mr. Commissioner. The next person who I have on my list, working numerically, takes me to the Salmon Farmers Association, Mr. Blair?
MR. BLAIR: Good afternoon, Mr. Commissioner, members of the Panel. Mr. Commissioner, with the Commissioner's permission, I'd like to go later in the batting order. That's related to the issue this morning regarding document production and the objections which may be made if some of the documents which my friends have indicated they wish to tender -- I'd like to be able to follow that, if I may?
THE COMMISSIONER: Very well.
MR. BLAIR: Thank you.
MR. WALLACE: Mr. Commissioner, that takes us to Mr. McDade, for the Aquaculture Coalition.
MR. McDADE: It's Gregory McDade for the Aquaculture Coalition. I'll have a few questions for the Panel in respect of the management of the Science Division and in respect of questions relating to how you deal with risk and prioritizing risk.

CROSS-EXAMINATION BY MR. McDADE:

Q Perhaps we could go first to the five-year research agenda. That might be the most convenient place to start.
MR. BEVAN: Which exhibit number is that, Mr. McDade? I'm sorry.

Q I'm looking for it.
MR. LUNN: I have Exhibit 40.
MR. McDADE:
Q Exhibit 40. That would be the one. Like Mr. Taylor, who wanted to ask his questions in a real-world environment around Cultus Lake, I'd like to ask you -- I'd like to focus a little bit on how these research priorities play out in something like aquaculture or fish disease. I wonder if we could turn to page 8 of that document. There's a heading, "Aquatic Animal Health." Are we on the right page? Sorry?
MR. LUNN: We're on the printed page 8.
MR. McDADE:
Q Let me see where we're at, here. I seem to have a different version. Part 6, it must be a few pages later. There we go. "Aquatic Animal Health," yes. So this is the document you were discussing, or that we've heard both the witness and the Panel discuss. Maybe my questions might best be aimed at Dr. Richards.

Now, this isn't specific to aquaculture, this is generally the question of fish disease.

> Disease outbreaks can have major ecological effects on aquatic resources and severe impacts on sustainability of aquaculture species.

That's the statement made there. I take it you agree with that statement? Yes?
DR. RICHARDS: Yes, Mr. Commissioner, that is the statement that is in the approved document.
Q Well, the question of disease could be -- I'm just -- in terms of the various risks, diseases of major -- can't -- could have major catastrophic impacts upon salmon stocks, could it not?
DR. RICHARDS: Mr. Commissioner, I think we know that diseases are an event that can have a catastrophic effect on any natural population, including trees and humans.
Q And in fact, disease is one of the potential risks that the Department indicated for the 2009 sockeye decline; is it not?
DR. RICHARDS: I think, Mr. Commissioner, the -- we're referring to some work that was done and which we -- in terms of exploring different possibilities

of potential causes of the decline, we did identify that disease was a possible contributor.

Q Well, a major contributor; isn't that right?

DR. RICHARDS: Well, I think at this point, we are not willing to say which -- what actually was the cause of the decline. That's what this Commission is about. So it's -- I'd say it's a potential contributor. We do not know at this point.

Q Yes, and my questions aren't going to trying to answer that question, just to identify that that's a fairly high-level risk; wouldn't you agree?

DR. RICHARDS: Well, it certainly depends on the scope, you know, and whether -- certainly, we can have disease agents present in a population without leading to disease. We can have disease in a population without making things sick or without causing -- leading to mortality. So it really does depend a lot on the context.

Q Well, is this the reason that you were planning, in 2007, to do major work -- well, it was one of your priority areas for research, right?

DR. RICHARDS: Mr. Commissioner, the priority here, in part, relates to the National Aquatic Animal Health Program, which is a program where Fisheries and Oceans is a contributor to that program. The program is actually being run by the Canadian Food Inspection Agency. And so that is one of the major drivers behind this program, and the program is also very much related to diseases that could be related to implications for Canadian trade. The program was not designed so much to deal with natural or local diseases, it was more, really, related to trade issues.

Q Well, would it be related to aquaculture operations?

DR. RICHARDS: It could be related to aquaculture operations or to other operations where we had diseases that were identifiable in the -- by an international organization whose name I can't pronounce and who -- but it was -- really, a lot of the focus around this has been -- well, have been linked to, say, trade issues. And also, I suppose, the other side of this, too, is that we are providing support for work that's done in our hatcheries in terms of our enhancement program. So that is the other piece of it that DFO was interested in.

Q When you say trade issues, trade in what?
DR. RICHARDS: Trade in fish products.
Q Salmon, for one?
DR. RICHARDS: All fish products.
Q Yes, but so maybe I'm asking this in the wrong order. Let me ask you, when it says "Priority areas for research," the first bullet:

> Identifying the causal agents of emerging diseases that may compromise the health of ecologically and commercially significant wild and cultured aquatic organisms.

What research was that supposed to be?
DR. RICHARDS: Well, as I mentioned, most of this research is done under our -- a program for national aquatic animal health. And if we follow through, this is from the research agenda, if we follow into the research plan, you can also see that there has been a centre of expertise that was identified to try to really lead this program nationally and to address this work. And that centre is based out of the -- our lab in Moncton, New Brunswick.
Q Well, can you give me any specific examples of the kind of research that you would have been referring to there?
DR. RICHARDS: This is not -- I'm sorry, Mr. Commissioner, this is not my, really, area of expertise.
Q Oh, I see. Okay.
DR. RICHARDS: I think you will be talking to some scientists later who can give you a very good description of this program. The technical names of these diseases are not my area of expertise, I'm sorry.
Q Let's go to the next bullet, "Assessing the viability and movement of natural pathogens between cultured and wild aquatic animals." Do you know what kind of aquatic animals we are talking about there? Would that be salmon?
DR. RICHARDS: I think, yes, certainly it could be salmon. The salmon is certainly one of the species that we were working on.
Q And why was that a priority area at the time?
DR. RICHARDS: Well, this was put together -- you know, this was put together in about 2005, and at that

time, we certainly were doing work. We certainly were doing work on our pink salmon aquaculture program, which is probably what you're referring to in the Broughton as one issue. I think, certainly, there have been lots of identification, also, of issues that had come up where there could be transfer from wild fish to aquaculture fish and that certainly had been raised, as well, as an issue.

Q If I could go to the next item, then, number 7, "Sustainability of aquaculture," if we could go to the priorities, the first bullet under "Priority Areas of Research," there, is also --

DR. RICHARDS: Mm-hmm.

Q

> Investigating disease transmission bi-directional between wild and cultured stocks and developing aquaculture vaccines.

Can you say why that was a priority area for research?

DR. RICHARDS: Well, as I mentioned, certainly, we have -- we had certainly initiated, at this point, some of the work that was being done on the Broughton and so we were very much aware of that. There was certainly some interest in developing vaccines, but I'm not explicit. I'm sorry, I can't give a definite answer on this because I wasn't necessarily involved in this research area at the time.

Q Does one of the other panellists have an answer for that, why that was a priority area?

DR. RICHARDS: I think this probably could be addressed, as I mentioned earlier, by some of the other scientists who are very engaged in the Aquaculture Program, and I certainly understand that there will be opportunities to call those witnesses later.

Q Yes, well, I'm not so much interested in what the scientists were doing, but we're here, on this Panel, to talk about --

DR. RICHARDS: Mm-hmm.

Q -- risk and management of the science. Why was this identified as a priority area?

DR. RICHARDS: Well, I mean, I think the process that Dr. Wendy Watson-Wright described this morning about how this document came into being is that

the process of this was that it was very much -- pretty much a bottom up -- quite a bit of a bottom-up driven. I think there was -- a lot of ideas were put forward, and these were really put down, I think, as examples, rather than the intent that these would be the actual areas that we'd be focussing on.

The document was developed by consultations with the scientists. There was consultations across the country on scientists -- with the scientists. There -- so certainly, there was lots of opportunity for input and I think what we were really focussing on was the main issues, rather than these very specifics, and I think that these were sort of given as examples, but perhaps not intended to be sort of definitive.

Q These bullet points are simply examples of many other areas of research, is that what you're saying? Am I misunderstanding?

DR. RICHARDS: They are examples of things which could be done within this program which were illustrative of the issues around aquaculture at the time.

Q But it says "Priority Areas for Research." You're saying it's just illustrative?

DR. RICHARDS: Yes.

Q So what I'm ultimately going to drive to and ask a number of times, I think, is what factor does risk play, and the consequences of being wrong, play in choosing which science -- where to put your research priorities?

DR. RICHARDS: Well, I -- perhaps I could go back to the discussion we had earlier this morning, too, when we were talking about the science advice and how we deal with the questions around science advice. And within that framework, we certainly were looking at the risk and the importance of the consequences of decisions in terms of choosing which areas that we would look at. So I think risk is something which is factored into what we would do, and factored into how we would identify priorities.

Q Well, was the Department aware, in 2005, when this was being developed, that a disease in sockeye salmon could have quite catastrophic consequences?

THE COMMISSIONER: Mr. Blair?

MR. BLAIR: Mr. Blair. For the record, Alan Blair for

the B.C. Salmon Farmers. I'm rising to object. I'm objecting on a number of grounds, Mr. Commissioner. We were told that this was an introductory panel into DFO science. We know we have an aquaculture session coming up later. The Panel has indicated in various ways since Mr. McDade started, and each and every one of his questions have been about and against the aquaculture industry that I represent. And the panel members have said that the questions were outside their area of expertise, not really involved in the research area, should be addressed later by other scientists. We're now getting into specifics of the aquaculture industry and specific events, specific conclusions that Mr. McDade is putting to this panel and, in my view, it's outside what this panel should be discussing based on how it was represented by Commission counsel. The purpose of this is an overview, introductory panel so I object to the line of questioning.

MR. McDADE: I think it's a very generic and appropriate question, Mr. Commissioner.

THE COMMISSIONER: Any other counsel wish to make a submission? I'm content that to the extent these witnesses can answer the question within their area of knowledge, they ought to answer the question. To the extent that it involves others within the Department who have, perhaps, either expertise or better knowledge to provide that answer, then they should say so. Carry on, Mr. McDade.

MR. McDADE:

Q So let me go back to that question, then. The -- was the Department aware that a disease in salmon would have -- could have catastrophic effects?

MR. BEVAN: I'll just respond in general. There is an Integrated Risk Management Committee at DFO. That evaluates risks at a high level and looks at what mitigation should take place. Certainly, at that time, there was concern that there was a risk perception, and I would say perception because there were people who were indicating that they felt that there was a very high risk posed by aquaculture, and that helped to then create a situation where we felt that there had to be some attention paid to various accusations that were being put forward. We had to know whether or not

there was any evidence to support the claims that were being put forward and the -- therefore, there were questions posed to various Science people on those issues.

I think what you're suggesting is that there is a catastrophic risk that is evident, and we, in evaluation of whether discussions with Science folks did not identify that, but we did identify the need for continuing research to deal with the perception that exists.

And what we've been challenged with is the need to prove a negative. So we have a claim that something's happening, and when we don't find the evidence that supports it, we still have the need to continue on. It may be that there are issues. This Commission will, no doubt, have something to say on this whole issue, but while I can't speak, and I don't know that the Panel members can speak to specific reaction to that, I can say that we had discussions around the issues that were being raised in the public domain, and that there were questions posed to Science as a result of that. So -- but I don't know the underlying individual research projects that may have arisen from that process.

Q Well, let me see if I understand your answer. Are you saying that the reason, in this document, that it says that you're going to investigate disease transmission between wild and cultured stocks was not about the Department thinking there was a real risk, but it was about solving public perception? Is that what you're saying?

MR. BEVAN: No, I'm saying there is a real risk that was there. We've had real problems with oyster aquaculture and wild stocks. We've had other species that have been implicated in this. So there is a real risk. We investigated on the potential concerns as we have to. We must ensure that the risks that were being claimed were, in fact, there and mitigation had to be taken, or they -- if they -- we couldn't find a clean link, then we had to have the evidence to demonstrate that to the public.

It's a huge debate, Mr. Commissioner, that you'll be dealing with more specifically, and we recognize that debate and have had some -- or have had questions posed to Science in order to satisfy

ourselves that the risk was being managed. And certainly, in some areas, as I said, we have had to restrict movements of various aquaculture products and various other products, not salmon in this case, where there was a danger of taking disease and moving it around. So that's been real, and the salmon side, we've had questions posed relevant to disease and lice that we have to pose to Science in order to satisfy ourselves that we understand the risk. And we have seen there's a raging debate, and that will be more -- considered in more detail later on.

Q Well, now, in your answer, you've introduced the question of public perception and public debate. I don't recall you asking about -- I don't recall asking about that. Did the Department do this science or identify this priority because the outside public identified this as a priority or because this was a real risk and a real danger?

MR. BEVAN: I said there's real risk and real danger, we've experienced it in other species. We have not seen a -- we have seen that there's a potential for impact, obviously, on wild salmon stocks. Whether or not the predicted outcomes that were presented by some in the public domain of huge declines in various other species of salmon, we didn't see that being supported by the evidence we had and the empirical evidence would also appear not to bear that out, but we had to go and do the investigation.

In other words, we didn't share the same perception of risk and the -- that others did. And when we say risk perception, that's a valid part of risk management. It's what we can deal with in terms of probability of something happening and the consequences of something happening and, therefore, you have to take steps in managing the risks. But also, it's not just the probability, it's the perception that the risk is going to happen, as well. That's a second part of it. You just don't do it based on a mathematical formula, you have to deal with the whole thing.

So we didn't have the empirical evidence to indicate that there was a huge problem about to happen, but we did have to respond to the fact that if the other people doing the studies were

right, then we had to satisfy themselves (sic) that that's the case and take the action. And if they weren't right, then I think we had to satisfy ourselves to that effect, as well, because of the potential consequences. And I know that that will be a part of the discussions later on.

MR. McDADE: I see Mr. Wallace is standing.

MR. WALLACE: Thank you. Mr. Commissioner, it's four o'clock. If I may just ask the witnesses to bear in mind that the way that this is being conducted, the Commissioner's asked that when witnesses are being cross-examined, that they do not discuss their evidence with anyone else, and presumably, you'll be relieved of that burden not long into tomorrow. So thank you very much.

THE COMMISSIONER: Yes, do I understand, Mr. Wallace, that we're on at 8:30 tomorrow morning?

MR. WALLACE: Thank you. There appear to be 40 minutes, or half an hour to 40 minutes' worth of questions that people have indicated for Dr. Wendy Watson-Wright at 8:30, and I'd suggest we deal with that and then plan to start the live session at 10 o'clock.

THE COMMISSIONER: We'll start the live session after that session. And Mr. McDade, you'll continue on tomorrow morning, then?

MR. McDADE: Yes.

THE COMMISSIONER: Thank you very much, sir. Thank you.

THE REGISTRAR: The hearing is now adjourned until 8:30 tomorrow morning.

(PROCEEDINGS ADJOURNED TO NOVEMBER 4, 2010, AT 8:30 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.

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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.

Pat Neumann
Registered Court Transcriber

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
Registered Court Transcriber

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.

Irene Lim
Registered Court Transcriber